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Values, Social Imaginaries and the Internet control

By

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Thesis for the degree of PhD in WebScience

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ABSTRACT

This thesis aims to explore the role of values in shaping the evolution and control of the Internet and the Web, regarding social imaginaries. Whilst the question of values in the design, operation and governance of the Internet is well documented from the point of view of the social imaginary behind the screen, relatively little is known about the values that are important to the users of the Web who have been so central in driving forward its growth in the last 25 years. The thesis will: (i) draw on published histories and other secondary sources to trace the role of values in shaping the Internet, and the Web as controlled technical infrastructures; (ii) conduct original empirical research to explore the Web values for those in front of the screen, as well as the possible control exerted by them on the Internet.

It will suggest (i) an alternative history of the Internet, (ii) that there is a disjunction between the values linked to social imaginaries, and (iii) that there are considerable variations between the values of the users, not least in different parts of the world.

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Research Thesis: Declaration of Authorship

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I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

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3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Date: November 25th, 2019

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Chapter 1: Introduction and Outline

Through the literature, it is clear that dominant groups control the Internet, but not clear that the ordinary user, known as the public, can have control too. On the one hand, governments, private companies, media and scholars, mainly from the developed world have been fuelling the idea that the Internet is a communication technology instead of emphasizing that the Internet is effectively a technology for the control of communication as the cybernetics, the science that gave the building blocks for the Internet, stated. The dominant groups discuss and agree on protocols which control the Internet. Sometimes they propose ways to involve the public, or specifically representatives of the civil society in their discussions, but it is likely they decisions leave the public as a controlled subject under the sight of the market, media and government through the Internet.

On the other hand, the second-order cybernetics proposed a double-closure: those observed are also observing their observers. This proposal leads to an approach to the research problem: how to understand the second-order cybernetics proposition regarding the Internet? This problem is important to address because in the literature it is common to find reflections and conclusions about that through the Internet users are controlled and manipulated, leading to a negative attitude to the Internet. However, is it the only one? The cybernetic proposal gives hope; it is positive: the possibility that users also control. But in what way?

It seems the control of the Internet is in the hands of a dominant group of interested parties who decides the implementation of communication control protocols. Even more, they choose what is worth for all, minimising at least two possibilities. First, each person can determine what is important to herself beyond the choices directed by the market or government rules. Second, the research assumes that when the public starts to question the imposed rules, their coordinated action takes control of communication means forcing both the market to innovate and governments to seek new and appropriate ways of communicating with people, as it seems it was the case of the "Web 2.0". The motivation for the present research is to propose an alternative approach centred on who is not usually imagined as a control agent, i.e., the public. The approach challenges the current attitude of the "dominant social imaginary" that analyses whether centralised or multi-stakeholder Internet governance models, rather than accepting a global public shared Internet governance where everyone is observing, that is, the Internet as a communication control technology for everyone.

The problem is how to understand that the public can have control on the Internet. To solve this problem the research relies on four main topics: values, social imaginaries, the "forgotten" second-order cybernetics, and the user's self-controlled action. Upon these topics, the research reviews

the Internet evolution, proposes and utilises a novel methodology to approach to the public, and discusses findings. The outcome of the research can help whether to confirm the Internet as a controlling technology for those behind the screen or is a double-closure technology to observe observation, leading to cogitate about who in control is.

This thesis aims to explore the role of values in shaping the evolution and the control of the Internet and the Web. At the beginning the Internet was born and evolved within structures with defined values; when it became massive, the values confrontation began. In a first stage of the Internet, autonomous networks could communicate and exchange information using the TCP/IP, a communications protocol developed for the US military with the aim of sending secure messages point-to-point through indifferent routes. In a second stage, with the idea of obtaining information, the US government connected academic and scientific networks of allied countries with the same protocol and favoured the creation of academic networks in third world countries. Once a business model was sought to allocate and expand the so-called Internet globally (the interconnection of autonomous networks through TCP/IP), the interaction between the public and private companies has been driving the Internet expansion. Nowadays, mostly, private companies own autonomous networks and provide content and services globally building the socially-disruptive commercial Internet whose effects underpin a techno-economic paradigm reshaping structures, comportments and markets.

The research assumes that on the Internet there are personal, economic, social, moral and cultural values in play on a non-value-neutral technology. Thus, the control of global communication technology is of great interest to the dominant groups of all parts of the world to protect their economic and social interests. However, their controlling dogmatic attitude has consequences not easy to recognise, raising suspicions about their real intentions Internet governance-related. The governance of the Internet is among stakeholders of different parts of the world, without the public from diverse cultures having a voice. It seems the Internet is more than an arena of confronting value systems, by being not value-neutral leading to think to the Internet as a social transformation means.

Upon Castoriadis original idea, the research takes the social imaginaries proposed by Robin Mansell, distinguishing between the Internet observers or the so-called dominant groups and the group that regularly uses the Internet while being observed by the former. The first are those who are literally behind the screen, that is, the multistakeholders with controlling action on the Internet infrastructure, content and services. The second are those who are literally in front of the screen, that is, the end-users who access to content and services on the Internet through the Web mainly. Possibly it is not the confrontation of both social imaginaries that leads to a new system of values

or ethos, but that through the Internet the public questions the imposed values and the dominant groups conveniently adapt to new values.

The second-order cybernetics or the “cybernetics of cybernetics” is an ethical proposition in the sense that everyone (in the case of the present research: both social imaginaries) is observing while accepting the other’s value system relatively since all of us are self-organised individuals. The early cybernetician concept of feedback adjusts to bi-directional feedback pointing to the origin of ethics: when cognition integrates its understanding with others' understanding (Foerster von, 2003). On the Internet, although the public is not aware of all the multistakeholders behind the screen and their intentions and even is not aware of the controlling methods of the technology itself, the public interacts while observing.

The thesis reflects at a time in the evolution of the Internet when the public took control of the Internet through the social Web or Web 2.0, i.e., from static web pages delivering content of observers to dynamic web pages fostering social interaction. Once the Internet became fully commercial, those interested realised their dependence on a public commitment to the Web; Therefore, interested parties must provide new ideas to maintain and improve their Internet audience. Therefore, the thesis assumes that each user has its value system to understand the values proposed by those behind the screen. Although users do not own the infrastructure, they can decide their actions on the Web, as a consequence or not to the value systems proposed by the dominant groups, whether at a global, regional or intra-country level.

Within the contextualization of values, social imaginaries and control, the research focuses on the end-user, either as an individual or as part of a cultural-social imaginary. The investigation considers that the user can act whether unconsciously or by distancing himself from the Internet; i.e., whether accepting the values that the social imaginary behind the screen presents to him, or taking advantage of the values allocated through the Internet to achieve what matters to him. There are two contributions of the thesis. First, the thesis contrasts both the values and the controlling attitude of the stakeholders against the values of the self-controlled user. Second, the research seeks to understand the Internet governance from a broad perspective considering cultural, attitudinal and individual differences, i.e., the public questions the values systems instead of accepting what the dominant social imaginary says is good for everyone. The aim is to understand the Internet as a technology that allows observing observation. The user as an individual can either choose between the values provided by the dominant social imaginary through the Internet or take a controlling attitude to her actions on the Internet to pursue a higher objective. As a collective, the public can rely their activity on the Internet upon cultural values. The research assumes the end-

user, as the social imaginary behind the screen, understands her action on the Internet through the Web not caring about the internetworking infrastructure.

The research has three objectives. First, to propose an alternative history leading to the understanding of the Internet evolution as the outcome of the joint action of both social imaginaries. Second, to understand the relationship between values and control on the Internet and the Web regarding social imaginaries within a second-order cybernetic infrastructure, i.e., those observed observe the observer. Third, to identify the values that the user relates to on the Web. Therefore, the leading questions of the present research are:

RQ.1. How to understand the Internet and the Web regarding the social imaginaries behind and in front of the screen?

RQ.2. How values relate to control on the Internet and the Web?

RQ.3. What are the values that the user relates to the Internet and the Web?

Through the next six chapters, the thesis presents insights and evidence to answer the research questions, leading to achieving the objectives proposed. Chapter two contains the literature review about values, social imaginaries, and control. The first section discusses values from two perspectives: (i) upon the philosophy of technology, contrasting positions that consider whether technology is or not value-neutral; (ii) a discussion about values categorisation. The second section introduces Castoriadis' concept of social imaginaries, taking the proposal of Mansell about two main social imaginaries regarding the Internet: those in front of the screen and those behind. The control section proposes a way to understand the possible control exercised by the user over the Internet from interdisciplinary, combining disciplines such as cybernetics, philosophy, sociology, biology and psychology. The section compares the controlling ideas of the first-order cybernetics and Foerster's second-order cybernetics with ideas of Maturana, Luhmann, Mansell, Marcuse, Deleuze and Han, discussing how both social imaginaries are observing each other. In the end, the chapter analyses Kahneman's thinking model to understand how the human being controls action.

Chapter three aims to address RQ.1., by linking historical facts of the Internet development with values and the controlling attitudes of social imaginaries. The contribution derives mainly by using Bunge's philosophy of technology and Mansell's social imaginaries. This chapter has two main parts. The first part analyses how the first-order cybernetics, designers' decisions, and the military, governmental, academic and private attitudes have shaped the Internet evolution. The second part analyses the point in time since the action of those in front of the screen became valuable on the Internet, exposing the inequality that deepens the Internet concerning economy, trading, democracy, and value paradoxes and highlighting the interdependence of social imaginaries.

Chapter four has two sections about Internet control. The first section discusses Internet governance, since being a communication technology of global reach and penetration with plenty of stakeholders, its control is controversial. Stakeholders are diverse and domineering. With their values in mind, stakeholders need to reach agreements to control the global Internet, ruling out social imaginaries, i.e., favouring some over others. The chapter reviews some ways to reach agreements. The contribution consists of comparing the top-down models of the Internet governance proposed by DeNardis and Cerf, and the bottom-up of the IETF. The second section aims to find answers for RQ.2., from the social imaginary behind the screen by combining ideas exposed in chapter 2 with conclusions of the Internet evolution and governance.

Chapter five aims to design the methodology to get answers for RQ.3., from the social imaginary in front of the screen. Ideas of Cortina, Eisler, Ostrom, Kahneman and Hofstede inspire the methodology construction. The experiment design combines Keeney's Value Focused-thinking method and Hofstede's cross-cultural model, and including ideas by Carson & Groves and Podsakoff. The outcome is a two-section questionnaire to obtain instrumentally-rational and value-rational answers that relate values to Web activity. The second-section design includes the top hundred country websites of the interviewee's origin country, giving the possibility to explore cultural values by adding a sample of countries.

Chapter six presents the qualitative and quantitative results analysis. From the proposed methodology, the qualitative analysis consists in separating the controlling or instrumentally-rational actions from the value-rational or non-reflective actions. The quantitative analysis looks for cultural differences of the collective action of those in front of the screen at the country level.

Chapter seven presents conclusions, discussing research questions upon results detailing contribution, and explaining how the work has impacted on the problem outlined in this chapter. In the end, there are some ideas for future work.

Chapter 2: Literature Review

The present chapter introduces the main underpinning concepts of the thesis: values, social imaginaries and control. The values section has two subsections. The first one exposes a debate on whether the technology is value neutral or not, contrasting ideas of social constructionists against the philosophy of technology. The second values section discusses values categorisation regarding global technology. The social imaginaries section analyses Castoriadis' approach to then focuses on Mansell's proposal of two social imaginaries on the digital age. The control section has two analysis: (i) the communication technology whether as a one direction controlling infrastructure or as a double-closure technology to observing observation; (ii) the human way to control thinking and actions in consequence. These concepts serve both to frame in the next chapter the evolution of the Internet and the after to the research methodology design.

2.1 Is technology value neutral?

This section addresses the debate about whether the technology is value-neutral or not, contrasting ideas of philosophers and social constructionists exposing dogmatism and rationalism in science and technology. In the end, both proposals come together in a moralistic vision of intersubjective realities constructed by different actors, realising that technology is not good or bad, but not value-neutral.

2.1.1 Science, Technology and Dogmatism

Sociologists believe that reality is a social construction. Humans differ from animals because they live in an *intersubjective reality* characterised by abstract concepts such as empires, countries, economy, companies, borders, and the construction of artefacts (Harari, 2016). In their contextual and dynamic interaction, humans give value to ideas and concepts, providing meaning to their action in the understanding of the other's participation, i.e., the reality is a mutual understanding of surroundings that can vary upon human intervention. The intersubjective reality changes in time, place, and remains in memory. For example, Harari condenses the humankind timeline as follows (Ibid):

(i) Homo sapiens invented theistic religions to make sense of the perceived world, e.g. the kings legitimised their position "upon God's will", or Greek fatalism – the man is a puppet of capricious gods -, or "natural religions" like the god of the air, of water, or Gaia.

(ii) Next comes humanism, a new religion. Nietzsche proclaimed "God is dead" because the world is not explained by a divine will, but by human convenience. Upon "Man is the

measure of all things" scientific and technological development surged. Humanism has several branches like liberalism, communism, fascism. They offer to build a paradise on Earth, not in the hereafter.

Throughout history, we can see an evolution of the humanist current, from the individual to the social, to one that includes nature as part of the welfare of whether the individual, society, the planet, or the universe as humanists used to say. For human welfare, science and technology have played a fundamental role, either as a means or as an end depending on who controls them.

There is an eternal dispute about whether science or technology is value-neutral or not. The discussion goes beyond the defence made by scientists and technicians about the objectivity of their work. Scientific laws are verifiable, falsifiable, and claim to be universal. The scientific method involves elitism and dogmatism. The development of technology entails power relations. The outcome of innovation is not only the artefacts but the social change. Progress in science and technology require financing. Funders become interested parties when conveniently choose what to invest. Nevertheless, likely that scientists, technologists, and dominant participants are not willing to recognise consequences of technology deployment unless the underpinned social transformation or Nature's response goes against whether the constituted power or stakeholders' interests.

2.1.2 Rationality and dogma

Science entails values. The understanding of nature encompasses both morality and rationality. Myths and traditions feed theories which can be refutable then a step forward is possible. A radical advance in science occurs through teamwork, changing institutional dogma. Both knowledge development and human freedom occur through an openness attitude by separating institutions from scientific work.

More than a century ago, analysing the dogmatic role of some sciences that investigate the causes of phenomena, Gould (Gould, 1895) recalled the idea that the utmost intellectual virtue is the philosophical doubt. In contrast, the dogma is an unalterable truth. As Scruton (Scruton, 2013) suggested, dogmatism reveals or "imposes with a tongue of fire" the truth without admitting opinion, is the heart of the institutional power as in the case of the church and academy.

The description of a natural phenomenon is a very different thing from the event itself. Platonists and positivists have considered the "scientific" explanation 100% trustworthy, but 100% arbitrary for postmodernists. The Platonists, mostly mathematicians, have said that mathematics is a set of eternal and universal truths, valid everywhere, always and in all possible worlds. The same had

happened with the laws of Newtonian physics that have claimed to be universal, i.e., eternal and immutable laws, pre-existing to the human being who can only discover them. On the other hand, among postmodernists are social constructionists, who see reality as a social construction. Is the study of this phenomenon, which we call whether physics or chemistry, the only way to describe it? Is science discovered or invented? For them, it is likely natural laws of cosmos are an invention of human creativity, and thus have nothing eternal. How do we know that certain statements are true? Is there a kind of divine inspiration, a little bulb that lights up in the head to indicate it? Alternatively, there is a social agreement to accept them as true? This acceptance is an act of faith. The problem with an act of faith is that everyone sees something different, even though they are looking at the same thing, but upon their education, knowledge, prejudices, values, traits, surroundings, i.e., a cognitive bias relied on initial understanding called anchoring nurtured by feedback. Rationalists argued that reason and logic are not acts of faith, nor subjective. For them, reason and logic are morally neutral, and science should be too. In this way, a value-neutral, impartial and objective logos can understand the cosmos as it is.

Kant had a teleological[1] position between nature and humankind (Hanna, 2009). The free man can set his objectives but within what nature enables (Idem). There is a limitedness for a man to study nature upon its expressions - facts and organisms -, without knowing if nature has a purpose or not (Idem). Kant (Kant, 2017) thought that nature has imposed on humanity the objective of counteracting individualism and the way to accomplish is through an accountable universal society. For Kant, selfishness or *free-riders ethos* is an animal propensity, for human nature seeks freedom while repressing others' freedom. He thought that rational and moral autonomy would defeat egoism. Rationalist Europeans need to overcome their idea that they as individuals can propose their aims regardless of nature to reach a self-organised state (Ibid). With their democracy that underpins human autonomy, the social-man is half-way; he needs to develop a moral attitude to realise the human species is embedded in a substantial natural purpose (Ibid). Humankind is both a means for nature and an end for themselves (Kant, 1993).

Nature provides humanity with rationality, free will, and an antagonist attitude for whether to enter or not to a social state (Kant, 2017). In a globalised world and increasingly interconnected by trade, it is easy to realise that all cultures are mutually influenced (Ibid). Illuminated individuals, those who self-organise to know the history of different cultures, must integrate a cosmopolitan Areopagus[2] to shape the principles of a universal state, and compose a Universal Philosophic History showing humans as a purpose of nature, but not as purpose themselves (Ibid). The universal social

[1] Teleology encompasses the idea that whether a God or the man imposes values as ends in others.
[2] It seems Kant referred to Areopagus as the aristocrat judicial body

state is the final purpose of Nature with regards to man (Ibid). The most significant challenges are to make laws that allow the full development of natural human tendencies without granting power to anyone within states, neither among them (Ibid). Nations suffer from the same natural defects as human beings, i.e., states behave and expect from others selfishness attitudes with unexpected moral and power demonstrations such as intervention, threats and confrontation (Ibid).

Kant believed that the Western man, once overcoming his natural egoism through rational and moral development, must direct his efforts to achieve international cooperation for the universalisation of democracy (Kant, 2017). In this way, a universal history will be written beyond private and personal interests that tell different histories. Thus, the goal that nature entrusted to man, a perpetual peace, would be fulfilled (Ibid).

Two of Kant's categorical imperatives are considering. First, "I ought never to act except in such a way that I could also will that my maxim should become a universal law" (Kant, 1993). Secondly, a human being and generally every rational being exists as an end in itself (Ibid). Confronting both imperatives with his "purpose of Nature with regards to man" (Kant, 2017), apparently, Kant suggests that to build a universal structure, the individual must conquer himself defeating his natural selfishness, and self-organise before organising others. As nature limits man's objectives and the state imposes structure and social values, the question is whether self-organisation is a personal discovery, or the state can provide the necessary means to achieve it[3] like access to knowledge and technology?

For many, science is about discovering of what exists, the laws that govern nature, where human objectives do not interfere; while technology refers to rules and artefacts that human beings construct to interfere their surrounding world (Bunge, 2005). There is not a logical relationship between laws and rules, but pragmatic (Ibid). The objectivity needed for scientific work would suggest that science is amoral, value-neutral; whilst human intentions in constructing technology make it moral, not value-neutral. Kuhn deepened the discussion by proposing a moral imperative in the scientific endeavour, and moral relativism to technology. Scientists work under a paradigmatic framework, while technologists take everything they can to achieve their goal and maximise efficiency, pointing to instrumental rationality (Khun, 1970). Perhaps it is for this reason that Kuhn stressed that his proposal is for the natural sciences, not for the social sciences, bringing the debate to the fore whether the social sciences are sciences or are rational instrumentals (Khun, 1970). If the latter is true, then social sciences are not value-neutral (Winner, 2014).

[3] Thinking the other way around: as every human being develops her values, to build the society, it is necessary to the state to impose social values, considering technology as a convenient tool for the imposition process.

The paradigmatic framework entails a set of untouchable dogmas of a generation which when questioned are replaced by the next generation values, and that is how science progresses (Khun, 1970). While Kuhn thought that a generation produces changes, Popper remained in the individual work of the scientist, but he went one step forward of Kant's teleology towards teleonomy[4]. For Popper, science does not begin with observation and experimentation only, but with myths and legends (Popper, 1962). Myths can be accepted as principles for theories; thus, the latter can be falsifiable, refuted, or proven, pointing to the impossibility to know the truth (Idem). Popper differentiated the dogmatic/pseudo-scientific attitude from the critical/scientific attitude (Popper, 1962). According to him, the dogmatic attitude reflects strong belief, tenacity, integrity. It is related to the natural tendency to look for regularities everywhere even if there are not, clinging obstinately to them, verifying them, applying them, neglecting contradictions, and trying to impose them on others and nature (Idem). The critical attitude is the willingness to change, prove, refute, and falsify: laws, tenets, myths, legends and beliefs (Idem). The scientific work needs both. Critique moves to bring ideas. Tenacity allows for fulfilling the objective. Popper proposed that rationality is part of the critique method to eliminate contradictions. Thus, the method can be used not only in science but for metaphysics, moral values and purposeful thinking (Idem). He proposed a demarcation line that separates science from pseudoscience. If a theory is falsifiable, then it is science (Idem).

For Feyerabend, scientific development is elitist. He thought that the scientific method is closed, does not admit pluralism, narrows creativity, pretends to be universal, is exclusive, dogmatic, repressive, not free, regarding power relations (Feyerabend, 2010). Feyerabend wrote "Against the Method", but perhaps he was not against the scientific method itself. Instead, he was against the attitude, the morality of the modern scientists and their subordination to power. For him, there is knowledge also in non-rational and non-falsifiable theories, like astrology, and ancestral and cultural beliefs (Feyerabend, 2010). In the limits of knowledge, things are not clear; there are dogmas, axioms, and speculations (Ibid). He proposed that there should be two separated pillars, the institutional and the scientific (Feyerabend, 1982). In this way, the free citizen accesses to knowledge regardless sources and can decide her education, whether upon science – *the fabric of democracy* -, or upon ideologies and traditions, all in equal conditions (Ibid). Reinterpreting his "anything goes" (Feyerabend, 2010), it is not about denying institutions, nor the power, but approach to them horizontally. It is a categorical imperative, a moral position of openness, "the only dogma that should prevail" (Ibid). Therefore, it seems there should be three pillars:

[4] Teleonomy considers that man, as a biological organism, has an apparent purpose in herself that is improved by the development of thought

institutional, moral and rational, directing to the problem origin: when institutions moralise. Controlling communication technology might affect the institutional success to moralise.

2.1.3 Instrumental rationality and dogma

Technology is about openness. It is built on purpose to fulfil an objective or a need, but used in different ways, either as a means or as an end. Whereas science is under a paradigm, technology is under economic, political, military, and social requirements (Khun, 1970). The formulas derived from scientific theories, the methods of design and construction are neutral, but not the decisions made by designers and builders. The technicians might use a methodology, as Friedman's VSD (Friedman, et al., 2008), to consider the values of whether any or all the interested parties. Technical decisions depend on the objective set by funders, and knowledge. Both can be adjusted at any time even by the same technology. The design and construction processes are constant. Technological governance gives feedback. In this way, technology is morally relative. Following Spinoza's idea, technology is not good or bad, but intentions, to build and use it, are (Steinberg, 2013). On the one hand, technology is produced and allocated to serve the power which is over people's values; the technological rationality hinders other rationalities; technology is the perfect means to subjugate and program the mind of society (Marcuse, 1964). On the other hand, it is adaptable for all types of interests, purposes, and morals; nudging the personal story, the individual understanding of reality (Rorty, 1982).

The hammer does not exist in nature. It does not grow on trees. It is a human invention. Social constructionists doubt that there is the unalterable truth which is unveiled by power. Instead, they propose that social interaction builds the truth, reality as truth. Science, human knowledge, is a description of nature. All description, model, representation is a social construction. Each branch of science, each theory, has become what it is because of consensus. All we can say is due to a mutual construction, an agreement, an interpretation, our version of what we see.

Social constructionism aims to understand how technology internally operate for elucidating the social process that builds knowledge (Winner, 1993). It is a process where each human group has agency upon their understanding and interest of the artefact in a given time (Klein & Kleinman, 2002). Social constructionists want to "open the black box" by analysing the space and the actors of the production process of artefacts, including conflicts and cooperation, and final decisions from powerful actors who negotiate and manipulate (Winner, 1993); i.e., *the endomoral attitude to tell the truth*. That is to say, the technological innovation is not a linear process handled by an inventor, but of several including technicians, funders and politicians who have agency in front of contingencies and decisions. However, social constructionism disregards both users' agency who

have structural influence (Klein & Kleinman, 2002), and the consequences of the elite's choice in the technology development, deepening inequality regarding access and power (Winner, 2014).

On the one hand, social constructionism seems to take a step forward from dogmatism. Social constructionism seems amoral, value-neutral (Klein & Kleinman, 2002). On the other hand, social constructionism does not discuss power and its moral intentions, neither about the consequences of technology usage; this is a moral attitude: supporting the elite that builds artefacts while, at the same time, trying to be neutral about how technology is affecting society (Winner, 1993). Whilst doubt underpins the science development; the dogma nourishes the power which in turn finances the scientific work and technological development, suggesting an intellectual activity subordinated to the institutionalised power, to doubting everything but power. However, those in power have values. As Marcuse says, technology is more than artefacts, they are control and domination means, but they can also be tools for change and social development (Marcuse, 1964).

On the one hand, authors such as Whitehead (Whitehead, 1968), Uexkull (Uexküll, 1925), Boulding (Boulding, 1966), Morin (Morin, 1977), Bateson (Bateson, 2002) Lovelock (Lovelock, 2007), Maturana (Maturana & Varela, 2004), Margulis (Margulis, 1999), Kauffman (Kauffman, 1993) believe that whether institutions or human agency do not overshadow nature, because the latter self-regulates, self-organizes, self-constructs through symbiotic processes. They refer to humankind as another emergent structure of the interobjective symbiotic process, i.e., intersubjectivity for human minds and interobjectivity for nature facts. On the other hand, in the last few years, some social constructionists such as A. Mol, B. Latour, R. Scruton, S. Jasanoff, among others, are realising that nature is not an object but a subject. Fundamentally, the vision of these authors is institutionalist. The human being who in the development of civilisation, through science and technology, has affected nature, can also protect it with appropriate policies implemented through competent and committed organisations.

Protecting nature is a human objective, but Mol is struck by the fact that European countries do not have a common understanding of what nature means (Mol, 2017). Thus, agreements of environmental protection policies are a challenge (Ibid). For her, there are two types of approaches to nature, as a community of people or as processes without borders (Ibid). The last one involves considerations of the production chains impact since the raw material extraction to externalities produced by distribution and consumption; thus, collaboration across nations and cultures is a must (Ibid).

Latour believed that not only politicians but also scientists have separated facts from values, meaning that science has been discovering only one nature, separating cultures, humans and things; and politicians had proposed laws and rules upon scientific discoveries (Latour, 2004). The

latter unveils ignorance and overshadows the fact that humans together with nature build the social systems (Ibid). In 2004, he proposed ideas for a new democratic Constitution[5], which aims not to universalise the man, but to naturalise ourselves (Ibid). Recently and over Darwin's notion that nature gives meaning to humans, Latour thought there are multiple realities built upon the interconnectedness of nature with culture, humans and things (Latour, 2017). Latour referred to these numerous interconnected environments as "Gaia" (Ibid), taking the concept from Lovelock (Lovelock, 2007). Due to the outcomes of reductionism and modernity, Latour suggested to attack nature instead of defending it; then Western society could take responsibility for the impacts caused by their actions and their artefacts against nature (Latour, 2017). Latour ended dreaming of good governance for human beings and things (Idem).

Although economists consider humans as selfish, rational, and looking only their benefit, Scruton reflects about real people seeking to relate to each other and to the nature in which they find purification (Mommaas, et al., 2017). Whilst, centralised institutions and the free market destroy nature; the communities have a sense of belonging to nature, *oikophilia*, that can build up towards the state and expand through international organisations to protect nature (Idem).

Analysing science and democracy, Jasonoff made a distinction between Europe and the US (Jasanoff, 2007). She stated that: (i) science and technology are about politics; (ii) democracy, freedoms, opinion, transparency have different meanings upon these politics; (iii) These concepts are institutionalised; (iv) institutions influence the political culture that in turn affects the democratic process (Ibid). She recommended improving public policy by comparing not only between modern states but also other cultures (Ibid).

2.1.4 The moral intersubjectivity

The literature review shows at least four positions. The first one is in favour of technology, considering it beneficial for man, in the sense that it helps to fulfil objectives. The latter is the vision of those who build technology, who invest in it. Thus, technology is not value-neutral; it is positive. The second is against technology by considering it harmful to society, because it is built and used to control the people, that is, establishing suitable values either to maintain the state's institutions or to promote the free market. Among these authors are Marcuse (Marcuse, 1964) and Heidegger (Gomez, 2010). This position reveals that the technology is not value-neutral; it is negative. The

[5] As a reference, the Ecuadorian Constitution of 2008 recognizes the inalienable rights of women, men and the existing and flourishing ecosystems of the "*Pacha Mama*" ~*Gaia* (Asamblea Nacional, 2008). However, until now the institutions have fallen short regarding the instrumentalization of these rights (SCY, Ecuador, 2018).

third position is of social constructionists; they consider technology is value-neutral and therefore they analyse the intentions of those who build it, concentrating on the decisions of technicians and engineers. However, social constructionists seem not to consider the values and purposes of those who finance the technology construction, but recently they are adopting an ecological position giving value to human beings over technology due to the consequences of its use. Kant's position is that the human being must fulfil the objective imposed by nature: to surpass natural selfishness, and for that, he can use the necessary means. This research rather than tilt the balance towards one or another position underlines the fact that there is a moral relativism about technology, i.e., it depends on who conceives it, who builds it, who analyses it, who uses it and on whom it is used.

Consequently, everyone has a value position and technology is purposeful. On the one hand, for religions like Catholicism, moral relativism is a threat to good society, so it cannot be tolerated (Benedict XVI, 2005). The religious approach is the stricter in moral terms, but it might reflect the modern state and institutional approach to deliver social and economic values with the help of technology. On the other hand, individuals who share a place also share beliefs and values, constructing in their interaction an ethos that characterises them. When the interaction creates the technology and is used within the place, the human group is likely to assimilate better the affectations caused by technology, i.e., a social construction upon technology. However, when the technology is external to society or human group and is used on it, the affectations are not easy to assimilated. In a globalised world, the development and use of technology are controversial, their consequences are not foreseen in the mid and long-term, so those who build technology have a greater responsibility, having to be clear in their purposes and transparent in their values.

The fifth position is of the philosophy of technology which is pragmatic because it gives insights on how to build and use technology for the common good. The research highlights Gomez's definition of technology and considers Bunge's idea of technology moral. Technology is the practice of organising the design, construction, and operation of any artefact which transforms, purposefully, the physical and social (Gomez, 2010). Technology has two morals, one internal and the other external (Bunge, 2012). The former is endomoral, referring to the values that designers, technicians, and engineers consider when designing and building a technology (Ibid). According to Bunge, the endomoral of the technology is like the endomoral of science[6], but engineers can use others' ideas, "steal them" to improve the design for efficiency (Ibid). Technology is also exomoral. Engineers deal

[6] Bunge talks about the morals of science and of the scientist (Bunge, 2012). "Truth is a means and an end to science". "Scientific discoveries have cultural value belonging to humanity". "Scientific discoveries are not goods but cultural public goods". "The scientist has a moral obligation to be honest and transparent with his methods and results, i.e., to tell the truth". "The truth is only a means to the technique". "The results of the technique or the technologies have cultural value and are patentable, thus technology is a commercial good".

with at least three moral codes (Ibid). First, the private moral code relates to maximum benefit and efficiency and the free rider attitude to overcome others. Secondly, the professional moral code is to be more than anybody, a successful professional. Finally, the public interest moral code is about trust and accountability. In other words, while serving the interests of their employers, engineers must consider the consequences of the use of technology, i.e., the social, political, economic and ecological effects (Ibid).

As technology has a more significant impact on human symbiosis, Crocker (Crocker, 2012) believed that nature, humanity, science, productivity, economy, society, and technology itself are mutually dependent with technology (Ibid): (i) "Technology is the reconfiguration of natural materials and processes"; (ii) Humans depend on technology; (iii) technology depends on science, and vice versa; (iv) technologies are not standalone, they are endogenously self-interdependent; (v) Economy, productivity structure, status, attitudes and norms go hand in hand with technology.

Nevertheless, it is likely that employees do not discuss, nor evaluate the intentions of their employers: funders and stakeholders. Scientists and instrumental rationalists tend to assume a dogmatic attitude under whether under a paradigm or to the purposes of their employers, becoming accomplices or co-responsible for the costs and externalities of the deployment of their results and recommendations. As funders, stakeholders, scientists and technicians are building and using technology on purpose, they are constructing an ethos up to the scope of the technological deployment whether locally, regionally or globally.

2.1.5 Technology for the public good

Because of the enormous impact of technology, authors propose ways to control its construction and deployment. From a philosophical approach to technology, Bunge believes that technology is the articulating axis of human activity, and therefore its construction and application should be monitored under moral values. Friedman proposes a model to design technology morally. Even more, the cultural value of technology (Bunge, 2012) suggests a contextual value, i.e., moral relativism.

Bunge proposes that science, technology and philosophy are a system that develops by interests but not by itself (Bunge, 2012). Moreover, technology is not autonomous but part of a complex and dynamic system whose components are coupled together, modifying each other (Bunge, 2012). Bunge identifies seven main components of the complex system (Ibid). First, he starts with philosophy and ideology (Ph & Id) as the former is the core of ideology. Philosophy is the field for theoretical and impractical research, while ideology underpins action (Ibid). Second, he places science (S) that unveils the truth by truthful means (Ibid). Third, he addresses industry and

commerce (In & C). Fourth, the people (P); Bunge proposes a democratic control of technology which means "the citizen participation in the decision process about the type of processes or organisations that technicians should design and control, building a democratic techno-social order, i.e., demo-technic". Fifth, art (A). Sixth, the government (G). Seventh, he places technology (T) at the centre of the other components, giving the idea of a hexagon to whose centre the other components converge. In Appendix A, Figure 1 shows Bunge's hexagon. The hexagon suggests that technology is the mediator component which controls while being controlled.

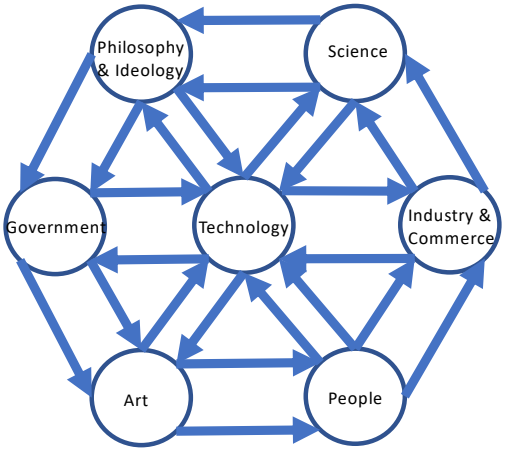

Figure 1. Democratic control of technology (Bunge, 2012)

It is straightforward to think that 'In & C' and 'G' look for productivity and efficiency. Scientific progress depends on productivity too (Crocker, 2012). People as labour are affected by technology (Ibid). About art, traditional techniques are affected by new techniques (Bunge, 2012). All components should evolve with the influence of technology (Ibid), but regarding nature (Crocker, 2012).

Bunge advocates the leading role of engineers in the development of technology, addressing the following key points (Bunge, 2012). First, technology should have moral and social controls to eliminate its evil ends. Second, the engineer is responsible both for its designs, decisions and actions that are rational and deliberate, as well as to his employees, partners and those affected by his work, becoming a public benefactor through the deployment of his technology. Third, experts from different disciplines should collaborate to solve all multilateral and complex problems of technology, and their work should be under public scrutiny. Fourth, the engineer should share power with politicians and managers, especially if their decisions are ad referendum of the public. Fifth, engineers should face their moral problems instead of pretending managers and politicians could endorse that. Sixth, engineers should contribute to modernising ethics towards a techno-

ethics. Seventh, philosophers and social constructionists should examine the moral experience of engineers.

Friedman & Kahn & Borning considered value in a broad sense, "what a person or group of people consider important in life"[7]. They developed the Value Sensitive Design framework, VSD, to design technology, especially ICT – information and communication technology -, upon "human values in a principled and comprehensive manner" (Friedman, et al., 2008). They quoted Frankena who referenced Plato's value-oriented discourse; for the latter value is about "the good, the end, the right, obligation, virtue, moral judgment, aesthetic judgment, the beautiful, truth, and validity" (Idem).

The critical point about technology is control whether during envisioning, development and use. N. Wiener has the idea of "controlling technology ethically for human benefit towards a more just society" (Friedman, et al., 2008). Friedman et al. proposed the technology development upon eight principles (Ibid): (i) influential to engineering; (ii) multi-contextual or multi-domain; (iii) throughout all the research and construction process; (iv) moral; (v) distinction between means - functions, usability - and ends - moral consequences -; (vi) regards to both direct and indirect stakeholders; (vii) social construction; (viii) universal values that vary according to culture. They also make it clear that the concept of value is subjective upon interest and desire and evolves from benefits and damages that allow appreciating what is worthwhile for the individual or culture (Ibid).

It is a challenge to combine the multi-contextual/multi-domain VSD principle with the universal values that vary according to the culture. First, the attitude of universalisation is mainly Western. Second, the objectives, design context, and development of technology may not be the same as its place of deployment and use, suggesting values reinterpretation without considering consequences. Third, in the case of global technology, many realities come in play, pointing to two different directions. The first direction is values globalisation. The second direction refers to many intersubjectivities playing in a common space that is fracturing for the convenience of the different players who can agree on common values.

When analysing capitalism, Srnicek and Williams concluded that technology is not good or bad, neither value-neutral (Srnicek & Williams, 2015). On the one hand, capitalism leads to technology development and distribution (Ibid). Both, the line production and commercialisation of technology relate to capital politics. Capital politics orient to get maximum economic profit through costs externalisation, labour exploitation, raw materials depredation, and rapacious competition within the free market (Eagleton, 2011). On the other hand, it is not possible to know nor quantify a priori

[7] Oxford English Dictionary

the different purposes and costs of technology once deployed in different contexts (Srnicek & Williams, 2015). The political significance of technology goes beyond the context of its original production, becoming flexible, personal, susceptible to re-appropriation and re-use (Ibid). Therefore, technology is value-ambiguous, becoming whether good or bad (Ibid). Thus, Bunge´s proposal of democratic control of technology needs sincerity of each dimension participants.

2.2 Values categorisation

The literature review shows proposals on how to arrange values by class or categories. The research aims to find out the values that participants bear in mind to act on the Internet. Participants are private companies, governments, organisations and groups of people belonging to a local, region or global places, pointing to different value categories. Therefore, the research should consider general classes of values, trying not to exclude any possible benefit that an Internet participant from any corner of the planet may realise. The investigation contemplates six broad categories of values: moral, social, personal, capitalist, cultural and "alternative". The following sections expose the first five categories by contrasting ideas of several authors in the light of relativism and dogmatism. In the end, this section introduces an alternative values approach from archaeology and cultural history. It is not the purpose of this section to conclude which of the proposals of the authors mentioned is the most convincing, but to take them into account to open a range of possible values.

2.2.1 Value and Values

Perhaps relativism begins with the possible difference between value and values. The first is understood as the quality attributable to a subject or object, and the second as principles of action or inaction. In practice, both concepts intertwine because values create value, and value drives values. The possible natural disposition of a person to prefer some things over others changes throughout their existence by moral, social, political, cultural and marketing programming, i.e., mind programming gives value to things. Authors think there are intrinsic and extrinsic values. The former means that something has value in itself, while the extrinsic refers to something that has value for something else; i.e., intrinsic value is value-rational – value as ends - and extrinsic value is a means for something else, it is instrumental (Zimmerman, 2015). Values face three problems. The first is that values can be whether good /bad/neutral. Something can be good for some and at the same time bad for others whether extrinsically or intrinsically, and this condition might switch over time. The second is to accept or understand who determines what is good/bad/neutral if it is not the self-individual who decides, but whether God, the social group, or the market forces. The third relates to whoever decides becomes the observer, the custodian or values controller. The value can

vary according to, at least, the following causes: market forces: supply vs demand, convenience/relevance as a means to achieve something more, and contextual mental programming that leads to giving meaning to something.

Some theorists argue that we born with values that are imposed by God (Jung, 1991), or are consequences of genetic evolution - nativism (Chomsky, 2009). On the contrary, empiricists consider that our mind is a tabula rasa that learns preferences by experience, and value is not provided by nature but human labour (Locke, 2014). It is likely that there is a moral-rational development of values, starting with reward/punishment, then on to those embedded by social conventions, to the relativity of these conventions over particular circumstances (Kohlberg, 1984).

For religion or the structure of the state, moral absolutism is convenient to preserve a hierarchical order through a specific categorisation of (intrinsic) values from God's will to human intentions (Benedict XVI, 2005). Structuralists consider the modern state through its system of laws (formal dispositions built upon normative principles) should deliver values, but the individual herself. In this way, laws distance the subjective notion of good and evil - moral values - from what is considered relevant or convenient - non-moral values - for the permanence of the state (Lévi-Strauss, 1969). Non-moral values underpin estrangement – anomie -, a loss of individual and cultural identity for the benefit of the State (Durkheim, 1982). The transfer of values takes place within the structure through socialisation and control (Parsons, 1991). However, the control society imposes cultural values with the help of new information and communication technologies, so the individual is programmed in competition, production and consumption, which are the fundamental values of the Western society (Deleuze, 1992).

Low and middle classes are easy prey of advertising because the proletariat has the habit of mimicking the tastes of the ruling class, appreciating them as intrinsically values, falling into 'conspicuous consumption' (Veblen, 1899). In other words, the individual consumes for social distinction; his agency supports the social hierarchy, rather than denying it (Trigg, 2001). Veblen (Arnesen, 2006) also thought about a dichotomy between ceremonial and instrumental. The former relates to cultural values preserved by institutions (Ibid). Instrumental refers to technology, value rational, a means (Ibid). The individual might use technology rationally, but institutions – companies, governments – might use technology for consumption programming, giving the idea of that consumerism is institutionalised through technology (Ibid).

Although the free market economy is reinforced structurally, not all consumers are from modern states. Modern states present more stable institutions - structures - which prioritise the values of competence over those of welfare (Cerny, 1990). In contrast, Third World countries have weak institutions, that prioritise welfare values over those of competence (Ibid). Are consumers of

developed countries more rational than those from developing countries? Is the concept of distinction more related to western societies as recognition of collectivistic cultures?

The market imposes value and values locally and globally. On the one hand, Economics value a good upon the general behaviour of a large number of individuals, rather than on the changing behaviour of an individual (Sobel, et al., 2013). Thus, the economy plays a regularising role of value, and in this lies its success, but the advertising induces the consumer to buy a good or an idea, pointing to mind programming (Packard, 2007). The advertisement is a cultural intermediary that changes social and cultural values (Bourdieu, 2010). The market's mind programming is thriving, especially in hierarchical societies where marketing induces to associate tastes with the social hierarchy; thus, the consumer buys a product – value as a means - for social distinction (Ibid), glimpsing individualistic and competitive values.

The advertising used by global monopolies extends the scope of cultural intermediation and distinction because the field is translocated and market values overlap the local cultural ones. Consumers from different cultures desire distinction upon values of a single estrange structure whose intermediaries monetise everything; in their eagerness to achieve maximum profit, capitalists do not recognise values beyond value (Skeggs, 2014). Moreover, capitalists transgress values by value. Transgression of values may be a consequence of an advertisement, but convenient to keep a single organisation of ruling countries (Wallerstein, 2004), to control the global society (Chomsky, 2005).

Nevertheless, it is likely that the structure denies the values it preaches, such as trust in a government that imposes inequality to maintain hierarchy and privacy with higher levels of vigilance, or transparency of a totalitarian system (Han, 2015). This denial generates resistance of chosen individuals from different places and cultures – disjunctive values - (Appadurai, 2006), within a space of flows, building a new identity from resistance – new values (Castells, 2009), by the hand of innovative monopolists (Schumpeter, 2003), or a self-resistance of the active participant that might find recognition of his/her own values (Fukuyama, 1992) possibly through technology.

Possibly the valuation of good and evil is an initial mind programming acquired by dependence on a close set of individuals. Proximity plays a transcendental role to establish the primary value system of an individual. Existentialists think this fundamental value system alienates the being – an estrangement from the self, a loss of identity -, who accepts the values imposed by others in their first years of life (Kierkegaard, 1976). This idea of Kierkegaard can be understood if the preferences imposed by God (or those in our genetics for nativists) are not the same as those imposed by the

environment in which the individual develops at an early age. However, if the mind is a tabula rasa, there is no estrangement of the self.

It is likely that there is a moral-rational development of values, starting with reward/punishment, then on to those embedded by social conventions, to the relativity of these conventions over particular circumstances (Kohlberg, 1984). The acceptance of other's values can be a rational response to a reward/punishment stimuli, which, when repeated, reinforces our mental programming (Graham, 2017). The fundamental value system may be unconsciously acquired and guide our first actions, which when repeated within a human group located in a field become a habit, a system of transferable dispositions maintained throughout the time (Bourdieu, 1990), cultural programming of the mind.

Authors consider values relativism as nothing can be an end in itself because it will always mean to something else. Every person can create values in continuously and endlessly - sublimation in Lacan (Johnston, 2016). Nietzsche held that this ability begins when the individual denies – nihilism – the 'intrinsic' value imposed by others (Cortina, 1991). Historically, Western society came from the denial of the religious society, because of both the innovation and the development of secular values (Zupancic, 2012). Others do not see a values denial, but the awakening of new values that seem better than the older ones (Khun, 1970), according to a majority of people within a place (Castoriadis, 1997).

By denying the values imposed by others, the individual whether can prioritise the values of the self, or generates a vacuum, or has the opportunity to innovate. Kierkegaard proposed that the values of the self are subjective, bringing us closer to God (Kierkegaard, 1976). For Lacan, the feeling of emptiness is permanent; things only fill us momentarily, then the individual needs to move to a new end continuously (Johnston, 2016). Functionalists argued that the vacuum is filled by the values and functions delivered by the state (Parsons, 1991) and the market (Veblen, 1899). Humanists believe that recognition transforms emptiness to dignity and spiritual superiority (Fukuyama, 1992). In order to innovate, nihilists may deny Western society, urging action upon anti-values, a post-modern approach (Lawlor, 2016). Fabricating consumers avoids innovation against modern society and preserves capitalism (Chomsky, 2005).

2.2.2 Moral and social values

This section discusses four points of view about moral and social values. Scheler and Maslow think that since there are no intrinsic moral values, an elite must propose them for the good of society. Cortina believes there are intrinsic moral values indeed and proposes to build social values upon morals. Lévi-Strauss and Bourdieu think agency builds and rebuilds the structure, emerging new

moral and social values within the structuration process, but some values might prevail as universals. Sanchez-Vasquez considers an action/reflection process that improves both moral and social values.

Scheler (Frings, 1997) believed values precede perception, are independent of the object, could be felt, and after experiencing them, mind organises them in a personal hierarchy, always within a dualism of whether good or bad. Scheler did not consider moral values, but the moral obligation to realise values in a good way which is an elite's privilege as only a few people can feel and participate (Ibid). Scheler proposed a values category of five levels (Ibid): sensible feeling (pleasure/displeasure), vital feeling (noble/vulgar), spiritual or of mind (truth/lie, beauty/ugliness, just/unjust), religious (holy/unholy), utility (valuable/useless).

Scheler's elitist vision opens a debate, especially when values are contrasted with needs, to the point that they are usually confused. Maslow organizes needs in a "hierarchy of relative prepotency" or precedence, from basic or survival to transcendental: physiological (air, water, food, blanket, clothing, sleep, sex), safety (personnel, employment, resources, health, property), love and belonging (friendship, intimacy, family, sense of connection), esteem (respect, self-esteem, recognition, strength, freedom), self-actualization (transcend, desire to be better) (Maslow, 1943). For Maslow, values motivate a person to transcend beyond the self like mystical and aesthetic experiences, altruism, search for the truth (Maslow, 1970). Also, he recommends teaching a person that is valuable to develop their self-esteem (Ibid). Thus, it is likely Maslow coincides with Scheler by relating values with higher levels of needs, leaving lower levels for needed people (ibid); in other words, for him, values are objective, a priori, beyond the self and immutable, while needs are contextual and vary with time.

God determines intrinsic values while society regards extrinsic values which are relative (Benedict XVI, 2005). On the one hand, virtue is the practice of intrinsic moral values (Ibid). On the other hand, values relate to material, something worth to possess (Ibid). Nietzsche questioned the (intrinsic) values that religion promotes whether they are divine or the convenient interpretation of an elite, coming to propose that with knowledge, the free man can go beyond the good and bad that religion defines (Cortina, 1991). In the same way, Nietzsche questioned the social values that the modern state promotes (Ibid). Possibly Nietzsche's phrase "God has died" is metaphorical, he intended to critique the absolute values promoted by an elite whether religious or secular, i.e., all social, moral and religious values are relative to the free man (freedom as the supreme value in his thought) (Ibid).

For Cortina, moral values exist and are the principles to consider within an open dialogue to set social values (Cortina, 2001). Having in mind the values´ dichotomous nature (good and bad),

Cortina widens Scheler's values types: sensitive (pleasure/pain, joy/pain), useful (capacity/incapability, efficacy/inefficiency), vital (health/illness, strength/weakness), aesthetic (beautiful/ugly, elegant/inelegant, harmonious/chaotic), intellectuals (truth/falsehood, knowledge/error), morals (justice/injustice, freedom/slavery, equality/inequality, honesty/dishonesty, solidarity/non-solidarity, tolerance/intolerance, openness or not to dialogue, respect to the other and to oneself/disrespect), religious (sacred/profane).

Cortina (Cortina, 2001) makes some considerations to propose social values upon moral values. Cortina refers Kant: there are two kinds of beings, the ones that have value in themselves and those who value for something else not for themselves. Many authors coincide with Kant. Mises considered that humans are valuable when acting rationally to overcome an unhappy situation. When acting rationally, the human being must recognise others as peers in the exchange of goods and services, producing a bond of union. Otherwise, the action is selfish by using others as a means (Mises Von, 1986). Max Weber distinguished between instrumentally-rational action that seeks efficient means to satisfy individual purposes, and the value-rational action for altruistic purposes, keeping ethical, aesthetic, cultural and religious values (Weiss, 1985).

Cortina thinks things have relative value; humans do not, i.e., things have a price, are instruments for something else (Cortina, 2001). She relates moral values with humanising: empowering people who are valuable in themselves; and the anti-value: considering humans as instruments, assigning them a relative value (Ibid). Paraphrasing Habermas, Cortina believes societies learn technic and moral; thus, the state must underpin social values as non-relative, i.e., as inalienable rights (Ibid). She proposes the following social values: freedom (as public participation, as independence - enjoyment of private life -, as autonomy), equality (to consider others, before the law, of opportunities, social benefits), respect, solidarity, dialogue and dignity (Ibid).

Lévi-Strauss analysed the elementary structures of kinship to understand how society organises. According to Lévi-Strauss (Lévi-Strauss, 1969), there is a generalised idea of the state as a patriarchal structure, where individuals are organised by values inherited from a common ancestor (the state). The problem with this idea is that the members of the group accept the possible relatives but not the forbidden ones (Ibid). For Lévi-Strauss, social development takes place through a process of structure structuring. The structure comes from social practice, its rules, language, symbology, privileges and prohibitions; all of them are fundamentally rational although the ignorance does not let to appreciate it in this way. Lévi-Strauss exemplifies with the woman that a clan gives away to another human group in an alliance to maintain the peace to acquire benefits or simple convenience. This alliance provokes a dynamic that transforms the structure (Ibid). People organise upon relationships rather than contents; thus, social values emerge through relationship

instead of individuals (Ibid). Lévi-Strauss confirmed the latter by demonstrating that cultures that took place in different parts of the planet share myths, values, behaviours and linguistic schemes; although he leaves open the possibility that these myths are interpretations of universal laws that we must obey (Ibid).

Inspired by the ideas of Lévi-Strauss, Bourdieu considers that the subject is in reality in complicity with other agents who can be in different fields such as religious, political, economic, cultural, academic (Bourdieu, 2010). Each field has its own rules and values with which the individual interacts, developing a predisposition to social action depending on the position that the subject has in each field (Ibid). Bourdieu conceives a co-construction by indicating that the field is, in turn, the result of the social interaction of agents, their habit and capital (Ibid). Capital relates to social, cultural and economic values (Ibid). Bourdieu explains habit with the following ideas (Bourdieu, 1990): habitus is the system of structuring, structured dispositions and it is constituted in practice. Habitus is the link between class and practice (Ibid). Habitus is the mechanism (operational closure) through which members of a class shape their practices (Ibid). Social class shapes habitus and vice versa; thus, habitus is not determined by structure (Ibid).

Moreover, at the same time, the elite determines legitimate values for lower classes; the elite is creating new values, distinguishing habit of low and upper social levels (Bourdieu, 1990). Habit might change when people aware of others' habit, pointing to trends, fashion, adaptation or development (Ibid). For Žižek the externalisation of the habit is to expose values, to confront them (Žižek, 2009).

For Sánchez-Vázquez, the human being acts morally (facing problems in mutual relations, making decisions, carrying out actions and valuing them as good or bad) and reflects on his action and results (Sánchez-Vázquez, 1984); thus, if there is a coherence between action (moral practice) and the reflective process, the individual is ethically moral. Norms and values are regulated in relationships of a socio-historical nature, in such a way that they are freely and consciously obeyed by personal conviction and not in a mechanical, external or impersonal way (Ibid). It seems, Sánchez-Vázquez conceives a construction upon a feedback loop that changes "intrinsic values" for social development.

The ideas of these authors allow us to conclude that moral and social values are contextual, although there may be specific common values. The research takes an openness approach, in the sense of not giving a particular categorisation of values, but reaffirms in having a broad classification of values.

2.2.3 The pragmatic individual

Cortina (Cortina, 1991) confronts Nietzsche's analysis with the ethics of today's human being. Nietzsche had announced in his time the death of God and with him the end of the moral of duty and submission, which he represented with a camel shape (Ibid). To the camel's moral follows the moral of man: “I want”; the one who affirms himself (Ibid). Then it comes the child's moral: “I am”; the innocent morality of the game without responsibility and fault (Ibid). For Cortina (Ibid), Nietzsche was optimistic, because the moral of chameleon is at present: "I adapt", suggesting that the person understands their environment and values their existence. It is a pragmatism, an adaptation to the situation to get what best suits, defrauding secular ideals like that of a society of autonomous and just individuals.

If God is dead, there can be whether moral polytheism or moral pluralism (Cortina, 1991). Moral polytheism means that each opts for a hierarchy of values and it is not possible to agree with each other because these hierarchies are incommensurable (Ibid). Moral pluralism believes that basic (minimum) agreements can be reached on which differences are built that are respected by the agreements, leading to tolerate divergences (Ibid). For Cortina (Cortina, 1991), if the case of pure polytheism, there would be no need to teach or take care of values, since everyone aware differences, which is in itself an agreement. Also, the public would have no value as there is not a common good.

According to Cortina, regardless of whether God is dead or not, the moral of the chameleon is a product of the distrust of the individual in the social system, pointing directly to Democracy where a majority with few or no benefits decides. When the individual perceives a contradiction between what happens and what should happen in a modern society regarding stability, legitimacy, dignity, fairness and justice, he combines what happens with the concepts and values that are used to legitimise what happens (Cortina, 1991). On this analysis, Cortina rethinks the values of democracy on an ethic of dialogue. For her, the fundamental values of democracy should be three: self-esteem / hetero-esteem, autonomy and solidarity. Self-esteem develops when an individual perceives the esteem that others have of oneself; humans recognise each other reciprocally in the dialogue. Autonomous individuals can give their laws and do not have to submit to other people's rules. Ideally, within a democracy, people do not submit, indoctrinate or inculcate. A democratic state must help the person to self-legislate, developing as a whole person. Autonomy cannot be established without solidarity networks, because not all of us are in the same conditions. Moreover, the media does not argue, negotiate, propagandise (Ibid). The moral of the dialogue is a moral of attitudes, of individuals who participate because they are worried about their future (Ibid).

2.2.4 Capitalist values

Marx spoke of the capitalism that existed in his time, an elementary capital where there was no street lighting, production systems began to appear, and old slavery practices inspired workers exploitation (Eagleton, 2011). For Marx, capitalism is a necessary condition (not enough) to make way for socialism (Ibid). Marx radicalised his thought first with the revolution of Ireland and then with the invasion of England to India (Ibid). Marx compared UK's rule in Indian with 'Heptarchy' (an old UK government of seven unstable kingdoms) that restricts freedom, imposing on a foreign culture the obligation to produce, work and trade only with the UK (Marx, 1853).

For Marx, society is built upon the type of animal that the human being is; it is not possible to dissolve the tension between nature and humanity (Eagleton, 2011). Capitalism has as a value the flexibilization, or taking the idea of Cortina: capitalism is chameleonic. Capitalism lies, twists, changes, adapts (Ibid). The anti-value of capitalism is the tendency to outsource all costs to accumulate more capital (Ibid). Capitalism externalises everything it cannot manage, which does not suit it, which represents additional costs (Ibid). In a world based on both human and natural relations (Boulding, 1985), capitalism pushes others to assume costs (Eagleton, 2011). It is in this anti-value that capitalism has its greatest weakness because it is not possible for all human beings to be capitalist since there will be no one to pass the costs to, there would be no capital accumulation (Ibid). Friedman forecasted the reduction of working time, but capitalism has failed it (Ibid).

However, capitalism succeeds in creating global consumers with technology, the complicity of the country's ruling class and marketing strategies (Chomsky, 2005). Today there are mainly two kinds of democracy, direct and liberal (Ibid). Direct democracy is the government of the majority, while in a liberal democracy the ruling class governs; i.e., the difference resides in the relationship between the operational power of the state and its impact on the people (Ibid). Chomsky appoints Rousseau, Marx and Lenin as the representative thinkers of direct democracy, and Tocqueville and Lippman of the liberal (Chomsky & Dieterich, 1999). The problem of liberal democracy in the third world countries is that either the ruling oligarchy or the dictators are appeasements, supporting the tearing capitalism: concentration of economic power in a few, markets trans-nationalisation and "swallow-capitals" - for high-benefit in the short-term without production investment (Ibid). Therefore, the market economy is of a few who have the property (Ibid). For Chomsky, the solution is a good education for all, the socialisation of the media, and popular control of the actions of the oligarchy, with the help of technology; otherwise, the human being will turn into an "economic monad with email" (Ibid).

Moreover, marketing strategy aims to create value on people´s mind, focussing on understanding and changing the habit of people regardless of their culture and personal values. Marketing strategy focuses on understanding how "culture and personal values influence consumer's behaviour" (Mooij de, 2014). In global markets, "Similar cultures can be clustered upon product-relevant values, needs, motives, and communication styles", meaning cultural segmentation rather than global standards. An effective marketing strategy incorporates local values, rather than the values of its owners and global managers (Ibid). The success of marketing to transform people from any culture to consumers suggests that: marketing strategies change the habit, the values of people, perhaps towards standardisation of values, especially in the exchange medium, i.e., the economic value.

Skeggs considered values beyond (economic) value (Skeggs, 2014). On the one hand, capital (~economic value) relates to social but through the state, underpinning the deterministic idea of structure and agency (Ibid). On the other hand, when people freely interact to build a community that is a field that challenges structure, they create a new habitus where there is joy, wonder and love (Ibid). Free interaction is about meaningful moments of connection, of enchantment, which is worth more than any economic value (Ibid).

At first, Srnicek and Williams (Williams & Srnicek, 2013) proposed accelerating capitalism through technology to fall by its contradiction (externalisation of costs). They think platforms are the new enterprises dealing with the original raw material (Ibid): data. Platforms are acceleration means which have three values (Srnicek, 2017). First, platforms are digital intermediation infrastructures which provide space for participants to interact (Ibid). Participants are clients, providers, and physical objects (Ibid). Second, platforms depend on network effects: the more people communicate the more value the platform has (Ibid). Third, cross-subsidisation: a third party pays for content and services (two-face market on Tirole´s approach).

In a second attempt, they propose to reclaim modernity, build a hegemonic and populist force, and mobilise towards a post-work future (Srnicek & Williams, 2015). According to them, the universal values of modernity are freedom, democracy, secularism, privacy (Ibid). For them, democracy should not be a process whose direction is decided by a majority, but upon reflective individuals (Ibid). In their thought, the hegemonic and populist force implies a break with Eurocentric paradigms through disruptive open political processes (Ibid). This force must be of such magnitude that it can face the globalised aggressive capitalism (Ibid). However, Srnicek and Williams are not clear on how to achieve this disruption of capitalism towards post-capitalist modernity. Possibly the value of modernity is planning (Buckley, 1967), which capitalism embraces in a closed manner, that is, setting goals, using any means to achieve them efficiently, always externalising costs and

unknowing spillovers. Open planning means to integrate those not recognised issues by capitalism, implying dynamic correctness of those by feedback loops, underpinning a more comprehensive understanding of the others and surroundings (Ibid). Perhaps, the social imaginaries give an idea of what the hegemonic and populist force means. Moreover, upon the consequences of technology deployment, Bunge thinks the means matter as much as ends (Bunge, 2012).

2.2.5 Depicting values relativism between cultures

M. Friedman was wrong with China (Gewirtz, 2017). By finding a state of China's society with a weak structure unable to incorporate and efficiently assign functions and goods, communist ideology, repression, many needs, and lack of education, Friedman failed to imagine either a capitalist or a democratic future for China (Ibid). He analysed China in functionalistic western terms, i.e., China can improve only through democratic institutions. Warfield was not wrong with China (Warfield, 2006). His vision was systemic. He saw society as an open system, a system of states, where a system A can go from state A to state B through self-organisation (Warfield, 1976). The key is to create an organisational pattern (laws and a regulating body) that allocates resources and immediately incorporates them into society, creating a distributed production system (Ibid). It is not possible to enrich and educate the Chinese population overnight (Warfield, 2006), but with long-term planning where ideology is just another attribute of the organisation that creates emerging structures which feedback both the society and the organisational pattern (Warfield, 1976).

Nowadays, China is making better at capitalism (Mishra, 2018); it is one of the most influential world's top economy (Goldman Sachs, 2018), suggesting that ideology is not directly linked with economics (Srinivasan, 2017). Several economic theories consider that human being is a rational actor whose choices are based on stable and autonomous preferences (Mises Von, 1986). Others think that decisions to buy are more unconscious than rational (Kahneman, 2011). Considering the cultural and political differences between China and the West, von Mises was right; the human being is a rational actor. However, it seems that marketing strategies might be underestimated.

The free market bases its success on marketing strategies inducing consumption (Packard, 2007). Chinese culture is not alien to consumption; on the contrary, Chinese people are consumers but upon their cultural values. Wang (Wang, 2008) differentiates Western marketing practice around desire – lifestyle aspirations -and market homogeneity from Chinese safety of appeal and heterogeneous markets. Wang considers that Western marketing and consumerism are upon Freud's idea about libido, referencing Baudrillard who described the act of consumption as "a moment of a reassuring regression into objects that are present in the consumer's value system"

(Ibid). Buddhism and Hinduism still underpin Eastern communication, whereas Aristotle's rhetoric in the Western (Mooij de, 2014). Wang describes the Chinese market as a "heterogeneous mix of up of 170 smaller markets that have their dialect, history, and sense of self" (Wang, 2008).

2.2.6 Cross-cultural values

Despite values relativism, is it possible to speak of common values of a group of people with the same habit? A previous section exposes the problem to understand the values of a foreign culture upon local values. Cortina's proposal of social values might be correct within modern states, but what happens with other cultures whose people interact on the Internet? How to avoid the mentioned M. Friedman's erroneous judgement to China? Establishing cultural differences can be endless. For this thesis, it is desirable to have a model to cultural values comparison at the country level.

Cultural values can be standards/agreements/traditions on a range between what is good/bad, acceptable/unacceptable, important/unimportant, and so on (see Cortina in the last section), for a community or society. Here moral relativism takes on a new dimension; it is no longer just the perception that each has of the values system of the other who is close and sharing space, but also the understanding of those who are in different places and latitudes. From the recognition of others who are close to recognising other distant cultures and "invisible" groups (non-contacted people), the process becomes more complicated. The individual wants recognition from the local group where she belongs while acquiring its fundamental value system. The value system guides her first actions which when repeated within the group become a habit, a system of transferable dispositions maintained throughout the time (Bourdieu, 1990), a cultural mind programming (Hofstede, et al., 2010), a values anchoring (Kahneman, 2011). In the way to recognise others, Lacan (Zupancic, 2012) distinguishes the other from the Other. The former is a projection of the self (Ibid). Both constitute the subject; their interaction space coincides in a place, a sort of interdependency; the Other is radical alterity, an imaginary that cannot be identified or located (Ibid). Through communication, the self and the other are coupled, developing the language that allows them to change their ideas, values, their notion of the world, is a structural coupling (Maturana & Varela, 2004), which develops and identifies the social system as a subject (Luhmann, 1992). According to Lacan, speech and language originate in the Other (great other), are beyond the control of the subject (Zupancic, 2012).

There are some cultural value models in the literature review. Magnusson et al. compared five different cultural frameworks; each one had its dimensions and was applied in some countries with various target groups. 1) Hofstede, during 1967-1973 in 40 countries, interviewing IBM workers in

82 countries[8]; 2) Schwartz (1988-1992) interviewing students and teachers of 31 countries; 3) Trompenaars, 1980s-1900s interviewing managers of 54 countries. 4) GLOBE (the 1990s) interviewing managers of 58 countries; 5) ID which has two sources: Xu et al., 2004, 45 countries, and Gaur et al., 2006, 53 countries. Magnusson concludes that Hofstede's model is more widely used in studies related to marketing, without underestimating its use in other disciplines such as social sciences, psychology, education, computer science, economics, communication, and ethics (Magnusson, et al., 2008). Soares et al. examined and validated Hofstede and Schwartz models to conceptualise culture in marketing studies. They also refer to some literature that supports conceptualisation and operationalisation of culture through a cultural model of values (Soares, et al., 2007).

Hofstede believed that to reveal differences across cultures, it is necessary to compare common characteristics, that for him are within six cultural dimensions (Hofstede, 2001). Hofstede ranks countries using a scale up to 100 points for each of the following dimensions.

1. Power Distance (PDI) measures the degree of social *inequality* between two individuals of the same social system. A high PDI score reflects a high level of respect for authority, an acceptance of the social class, a kind of submission to power. Cultures that value *equality*, *freedom* and *ask for reasons* for inequalities present low PDI scores.

2. Uncertainty Avoidance (UAI) measures the degree of disagreement about uncertainty and ambiguity. A high UAI score shows a culture that feels powerless against external forces, with low levels of *trust*, more likely to make decisions based on feelings. Low UAI scores are present in cultures that value *opinion*, have high levels of *trust*, seek *rational decisions*, and tend to *control aggression* when being within an ambiguous (uncontrolled) situation.

3. Individualism (IDV) measures how the individual relates to a group. People from cultures with a high degree of IDV take care of themselves and their very close relatives, appreciating the 'I' over the 'We'; the opposite occurs in cultures with low levels of IDV; they are collectivist, giving more value to share instead of obtaining.

4. Masculinity (MAS) deals with differences across gender. The top of the scale represents a competitive society which prefers assertiveness and success. On the lower side of the scale, a feminine society is likely to be collaborative, modest and tender.

[8] Although Hofstede's book shows 76 (Hofstede, et al., 2010), and his website presents 103 on April/2018 https://www.hofstede-insights.com/product/compare-countries/

5. Long-term orientation (LTO) deals with persistence and determination. A high score shows a pragmatic culture that underpins long-term objectives, while a short-term culture does not like social changes preferring immediate reward and recognition.

6. Indulgence (IVR) is the opposite of restraint. On top of the scale, some cultures look for free gratification and joy of life. Lower scores stand for cultures with strict social norms with a sense of punishment (Hofstede, et al., 2010).

There has been some criticism of Hofstede because his interviewees were IBM workers. However, Hofstede in his book *Culture's Consequences* (Chapter 2 '*Data Collection, Treatment, and Validation*'), supported his findings with 200 references to external studies (Goodrich & Mooij de, 2014). Hofstede describes six key points to understand his cross-cultural model of values. First, social science constructs are dependent on human ideas. Secondly, build dimensions need to be coherent. Thirdly, every dimension relates to variables. Fourthly, statistical data at the country level validate the construct, reducing the significance of exceptions. Fifthly, when a model successfully predicts phenomena, the theory should underpin the model, if necessary developing a new approach. Finally, quantitative methods fit best when studying societies, because simple qualitative ones are prone to falsification and need more in-depth validation (Minkov & Hofstede, 2011).

Hofstede's six-dimensional cultural model seems to be the strongest among those that within literature. Thus, the research will use the Hofstede model to find and compare cultural values within the use of the Internet and the Web. Currently, the model ranks 103 countries to which it assigns a quantitative value between 1 and 100 in each of the dimensions, pointing out that its usefulness depends on looking for correlations with statistical information of countries, the challenge is to build data.

2.2.7 Alternative values

The ideas presented in sections 2.2.1, 2.2.2 and 2.2.3 summarise the thinking of some modern authors. Without going into details about whether or not capitalism is part of modernity or vice versa, section 2.2.4 exposes capitalist values and their questioning by left-wing authors. Section 2.2.5 gives an example of a culture that, without being modern or democratic, shows signs of managing capitalism as well or better than modern ones, confirming the moral relativism. In section 2.2.6 the Hofstede model can raise certain suspicions if analysed within a country where several cultures converge (for example, some more machismo than others) and not as a model for comparing cultures on a national level. This section present "alternative" values, i.e., those that viewed from modernity might lose their original meaning.

On the one hand, there are the renowned modern authors in favour of liberal democracy such as Fukuyama and Huntington, who are criticised by modern authors such as Derrida, Scruton, Sen and Soros. On the other hand, there are authors with alternative ideas like Eisler that allow to understand as moderate the views of Bookchin, Toulmin, Castells, and vindicate non-modern authors such as Garcia-Canclini and Echeverria. The latter is the debate between understanding collective action within a structure or as an emergent phenomenon organised through relationships. The objective of this section is not to debate about modernity, but to expose the problem to justify a broader understanding of values to the point of incorporating collectivist values within the general category of values.

The fall of the Berlin Wall meant for Fukuyama the end of history, the end of the ideological battle between the triumphant Western liberal democracy and the USSR's "communism" (Fukuyama, 1992). For Fukuyama, the motors of human social interaction - rational desire and the struggle for recognition – are correctly handled by democratic values such as freedom of justice, freedom of markets, the rule of law, and human rights (Ibid). As Fukuyama classified present governments into liberal democratic, theocratic and dictatorial, he considered that the universal democratisation of society depends on technology which bestows limitless wealth, society's homogenisation, and military power (Ibid).

In Derrida's eyes, Fukuyama is an evangelist who preaches the universalisation of the free market and liberal democracy (Derrida, 1994). Derrida believed real democracy faces many problems and generates inequality, so it is very far from Fukuyama's ideal democracy. Derrida asked if the post-historical man is less messianic and less universal? If human nature is trans-historical? If the physical-technical-military characteristic is contrary to the ideal democracy? If there are different types of democracy based on cultural values? If the Scandinavian-style social democracy opposites of an unrestrained free market?

Scruton (Scruton, 2006) also critiqued Fukuyama. For Scruton, Fukuyama's vision of democracy lacks an ingredient that characterises human beings, what Nietzsche called resentment. Fukuyama presented a Hegelian view of humanity as driven by the need for recognition and social acceptance rather than by the rational choice on which the free market economy is based (Fukuyama, 1992). However, this Fukuyama's positive view does not consider that historical processes are not only upon culture and knowledge but biology and habit (Scruton, 2006). Humans fail to recognise others (Ibid). Dynasties, social class, aggression, racism, conquest, religious and mystic beliefs are manifestations of human biology, and these differences are deep-rooted within each culture (Ibid).

Fukuyama seems to reply to these critiques in his two later books (Fukuyama, 2012) and (Fukuyama, 2015). Fukuyama suggested a causality between the different historical processes and the present

political outcomes. In addition to exposing the cultural and social differences of some developing and developed countries, Fukuyama also referred to the behaviour of human beings and private companies. For him, corruption and lobbying weaken the modern state by influencing the rule of law and accountability. Furthermore, the global power given by technology to a few media companies undermines democracy because different points of view cannot be contrasted (Fukuyama, 2017).

On his part, Huntington changed his idea about democracy throughout his works. During the Cold War, he considered that democracy needs governability to establish a political order towards a single centre (Crozier, et al., 1975). Huntington believed that democracy is protected if participation occurs under strong institutions (Ibid). He recommended supporting dictatorships in countries where opinion leads to a political plurality led by caudillos[9] (Ibid). The centralisation of authority before enabling participation to guarantee a democratic political order he said (Ibid). Huntington believed that the features of democracy bring dangers of ungovernability. Individualism leads to the de-legitimisation of authority; the tendency towards equality leads to distrust in leadership, and the political competition produces fragmentation of political parties (Ibid).

In the 1990s, Huntington conceived the political order in democracy as necessary for modernity (Huntington, 1994). He called countries of the third wave to those who return to democracy after the dictatorship, and who are on the road to modernity (Ibid). He differenced between the social and political modernity (Ibid). The former includes urbanisation, literacy, industrialisation, media and communication means. Political modernity refers to the centralisation of authority in single central power, decentralisation of functions, institutionalism and capacity for execution (Ibid). Based on these two types of modernity, he makes a profile of third-wave countries but incurring ambiguities (Ibid), as the Latino American intervened nations remain less structured, making them easy to entering or leaving modernity (Garcia Canclini, 2005).

In “The Clash of Civilizations”, Huntington responded to Fukuyama’s “End of History”. For Huntington democracy has enemies that come from cultural and religious differences, which have always existed, but were overshadowed during the Cold War (Huntington, 1993). According to him, conflicts between civilisations will continue due to teleological ideas such as seeking the conversion of others, pretensions of universalisation, the control of both global trading and world economy (Ibid).

[9] Caudillos are the charismatic leaders that emanate from the popular fractions dissatisfied with the utopian idea of the aristocracy to benefit all (Cotes, 2009).

Huntington argues that cultural identity is the most precious value, is never lost. Therefore, facing the supremacy of Western civilisation, other cultures can whether isolate, or they can level themselves – bandwagon effect -, or they can make modernise upon their values (Huntington, 1993). Nevertheless, the West faces some threats in its territory (Ibid). He opposes cultural plurality in the US and questions migration (Ibid). He rules out a favourable future for free trade and globalisation because of western's enemies such as Islam and China, and swinging cultures such as Russia, Japan and India (Ibid).

For Sen, Huntington's cultural analysis suffers from an *inadequate recognition*, because "*sense of individualism and tradition of rights and liberties*" are neither exclusive nor better handled by Western civilisation (Sen, 1999). Other cultures have exhibited clear examples of prolonged development and attachment to these values (Ibid). Sen also warned the intention of Western academics to dismiss these values in other cultures (Ibid). Sen concluded that democracy is a shared value then is a universal value (Ibid).

Sen thought on teleonomy. For him, there is an interdependent process between the free agency of the individual and her environment - structure. The latter needs to provide adequate freedoms for their mutual development (Sen, 2001). Political freedom, access to economic resources, social opportunities, transparency and protective security, are the five freedoms that allow the development of the individual capabilities for the benefit of society (Ibid). These thoughts motivated the Warsaw declaration, signed by 106 countries in the year 2000, which aimed to universalise democracy upon security, development and civil society enablement to a community of democracies (Community of Democracies, 2018).

Some countries need external help because of their weak democratic capabilities, Soros believed (Soros, 2006). He cogitated about two kinds of interventions, constructive and punitive. Constructive occurs when the regime accepts. Punitive is when the government does not agree and does not have control over the intervention which is justified by the "responsibility to protect" (Ibid). As it is impossible to know the truth according to Popper's fallibility, individuals have a distorted idea of reality, leading to wrong actions that can be improved, this is reflexivity (Soros, 2009). For Soros, the brain's cognitive function uses the method, the semiotic, the decision making and the moral values, but all of them support the distortion (Ibid). On the knowledge that is constructed individually, the manipulative function affects the environment (Ibid). The knowledge of (some) consequences of this intervention feedback, in a distorted way, the knowledge of the individual, reinforcing or adapting it (Ibid). For Soros, intervention nudges whether traditional organic societies or dogmatic closed societies, to an open critical and democratic society (Ibid).

When Fukuyama wrote his book "The End of History" he was a member of RAND, a corporation related to the technologies building for the early Internet. Today, Fukuyama believes hierarchies are pre-democratic, while liberal democracy should be egalitarian, but fails, so tribalism or what he calls identity politics (folk politics for Srnicek) that in resentment take the baton, fragmenting society into multicultural groups with their values (Fukuyama, 2918). Looking to the future, Fukuyama cites authors who forecasted whether the hyper-centralisation as Orwell or "the endless social fragmentation facilitated by the Internet" such as Gibson and Stephenson (Ibid). Fukuyama believes that the current world is going in both directions, but as identity is programmed in people's minds whether to unite or isolate, the power is in the hands of populist politics (Ibid).

Beyond the issues of the current democracy, some alternative proposals might point to the root of the problem. Eisler (Eisler, 2003) has an interesting proposal, for her, the patriarchal ethos characterises modernity and more generally any civilisation; i.e., the androcracy is the domination hierarchy that underpins all social structure. Upon archaeologists' findings[10], Eisler describes the early self-organised Indo-European matriarchal cultures focused on life-giving, nurture, sharing, collaboration, and a sense of belonging to nature. Due to climate change, hostile incursions with metal weapons of nomadic tribes and community enlargement within the same place, the matriarchal ethos changed to patriarchal which is hierarchical, competitive, selfish, based on domination/subordination: the law of the strongest, leading to use nature as means and heaven as ends (Ibid). Eisler points to historical records, as is the case of the Bible that highlight the development of civilisation through a hierarchical and macho structure, omitting the matriarchal ethos as a social organisation model (Ibid).

Eisler cites Wiener's work "The human use of human beings" in which he concluded that structurally and mentally human beings are not predisposed to the hierarchical organisations that characterise animals such as ants, as humans are flexible, versatile and mentally capable of change behaviour by observing actions, i.e., feedback (Eisler, 2003). To do so, Eisler continues with Wiener; human beings need to perceive the feedback, interpret it correctly and change it. Eisler considers communication technologies appropriate for feedback towards a partnership model for society. Eisler's partnership model, named "*gylany*", relies on egalitarian family (male and female at the same level) and social action network based on belonging instead of hierarchy, diversity, flexibility in decision making, action and rotating roles (male, female). It is necessary to change the teaching of both epic and violent male heroes, and fairy tales where women are witches, to humans as peacemakers, creatives and flexibles (Ibid).

[10] Eisler references Marija Gimbutas, James Mellaart and Nicolas Platon among others (Eisler, 2003)

Bijker made a distinction between societies and cultures regarding technology (Bijker, et al., 2014). His distinction might help to understand the differences between a modern society – agency and structure - and a culture – organic and emergent. He argued that the dependence of technology becomes a risk to societies and vulnerability to cultures, concerning natural phenomena. The former is about the *institution, security, control, stability, closure, legality, probability, uncertainty, indeterminacy, regulatory, prevention, procedure, and sophistication*. Vulnerability to cultures entails *community, solidarity, opening up, non-alignment, dissent, justice, ethics, unpredictability, surprise, consequential, precaution, prudence, humility*[11]. Risk and vulnerability are opportunities for scientific and technological development, as well as for new forms of governance, both by the realities of different societies and cultures (Ibid).

Bookchin believes that highlighting the socialism of primitive human groups and non-modern communities and their shared ownership is setting aside their cultural stagnation and the fact that they were easy prey to other violent groups that subjected them (Bookchin, 2015); that is, Bookchin seems to consider violence as a human condition and not as an emergent phenomenon. Bookchin says the matriarchal spirit is the precursor of civilisations which have a hierarchical structure of domination, and among them modern society, therefore, instead of retreating, decentralisation is the way to the future (Ibid). Decentralisation underpins the creation of less hierarchical communities, which can become self-sufficient with the help of technology and the care of their environment (Ibid). These communities need to communicate with each other, to be interdependently democratic and communal, leading to direct democracy as a libertarian form of confederalism based on popular assemblies (Ibid).

On rationality, Toulmin analyses the historical evolution of modernity, especially in Europe, pointing to a pluralism: there is no modernity, but modernities (Toulmin, 1992). The common denominator of all modernities is the recognition of limits as the output of a rational analysis of "for what?" (Ibid). When thinking about the future of modernity, Toulmin believes that it must be humanised, be pragmatic, contextual, move from rationality to reasonableness, not start from scratch, that is, instead of reorganising institutions within a hierarchy to think about the ecology of institutions (Ibid).

Paradoxically, the selfish and competitive capitalism seems to have no limits; it is flexible, it adapts but avoiding to recognise the externalities or the consequences of their actions on themselves and third parties. So, the question is: Can the modern world recognise its limits of universalisation, as is

[11] These *different vocabularies associated with risk and vulnerability* (Bijker, et al., 2014) are almost the same that Bertalanffy (Bertalanffy, 1968) used to describe the differences between closed systems – societies in Bijker language – from open systems – communities.

the case to democratise everywhere, without specifying what kind of democracy? In other words, can the modern world appreciate the collaboration, the exchange of those flexible individuals who find value in action and not in the efficient objectives' achievement? Moreover, emergent and spontaneous phenomena are difficult to appreciate for the modern structured hierarchical thinking. For example, for the modern world, sharing implies goals, not spontaneity. Solidarity, altruism, charity and volunteerism carry a hierarchy: someone who has more aims to give to those who have less, and possibly other purposes beyond, such as tax reduction, pretending to others or gaining knowledge. Can modernity abstract from its limits and recognise the other, the one "pre-modern" or "hybrid" (the one that uses the artefacts of modernity but does not produce them)? From its limits, modernity observes others, but, apparently, capitalism has no limits; it is the freedom that conquers everything.

On the one hand, it seems that capitalism goes beyond modernity. On the other hand, it seems that both are only for an elite regardless of place (EU or US) but to the macho ethics: elite gives values to the majority. That majority is not only outside the modern world but also inside - for example, the relativism of privacy as a modern value. The Instructions for American Servicemen in Britain (Bodleian Lib, 2004) urged American soldiers to restrain their freedom so as not to disturb the privacy of their British counterparts. Without going into detail, privacy has several understandings such as the freedom of the individual to enjoy their private or autonomous life, or as the personal space within the structure, or as the intangible (and little understandable) a king gave to his people in exchange of property. Premodern cultures have no privacy, and on the Internet, people shift from privacy to control, as Zuckerberg suggested (Salinas & Balakrishnan, 2018). Moreover, a confirmation that modernity is for an elite regardless place is populism. In a democracy, populism is present both in developing countries and in developed countries, as indicated by the examples of Brexit and the election of Trump, in which communication technology has played a crucial role.

Castells believes that society organises within the space of flows (Castells, 1997). Through technological networks people communicate, self-organise, creating new spaces of flows that challenge location, time and structure (Ibid). New identities emerge - identity as an organisational pattern, carrying new values (Ibid). The ideas of democracy and liberties had had the power to create the identity of the Western civilisation (Castells, 2009). However, the space created by communication technologies through interaction regardless of places challenges identity (Ibid). Castells developed the idea of a networked society, a *space of flows* where a new identity develops throughout local and global participation within online communities, named *networks of social change,* that generate resistance, transforming the global structure (Ibid). It is a crisis of identity that upsets core values, affecting nation-states, shifting the idea about democracy and capitalism as the panacea for human development (Ibid). More people have a voice. Deliberation mediated

by technology gives power to people that organised within networks instead of nation-states (Ibid). Free trade is agreed within networks of people rather than protected by the state (Ibid). However, most of the participants are not active, likely to be passive, because some individuals make better than others upon their values, education, infrastructure, and institutions (Castells, 2009).

Latino American nations are not doing enough; they remain less structured; their weak structures have not allowed developing modernity (Garcia Canclini, 2005). Garcia-Canclini calls them hybrid societies which are not isolated from modern societies but imitate modernity as in the use of artefacts (Ibid). However, hybrid societies can easily exit or enter modernity (Ibid). These societies are inclusive (Ibid). Considering as not invasive, they accept the foreign culture, but without commitment (Ibid). They are weak cultures for industry development and large-scale production systems, but easy prey for consumption (Ibid). They are not rational agents; they acquire artefacts as decoration and find different ways to use them apart from their original purpose (Echeverria, 2005). They are cultures that tend to the collective instead of the individual (Ibid). They do not establish limits between imagination and reality (Ibid). Within these cultures there are still communities that consider artefacts as common goods; there is no property; nature is the place and resource provider.

In summary, there are many approaches to values that this research is not going to prove or support, but exposing them to somehow justify the broad categorisation of values: moral, social, personal, cultural, economic and collectivistic.

2.3 Social imaginaries

Castoriadis created a theory about what holds a society together and the reason why there is an alteration of temporality (Castoriadis, 1997). Castoriadis thought that social values are an illusion, are not universal, nor evident; a social group accept them without question because of the institutionalisation of tradition and imposition. Every society creates its institutions such as language, tool, religion, values, regulations, hierarchies, authority (Ibid). The cores of these institutions are *imaginary significations* that set values, surroundings understanding and lead people's activity (Ibid). Significations are like axioms, unquestionable, thought worthy, worth pursuing, but not to be refuted rationally (Ibid).

For Castoriadis, an alteration of temporality or social change is a radical discontinuity which is unpredicted, not determined by institutions. Change emerges through the social imaginary as an expression of its autonomy to abolish power monopolisation from the hands that negate self-realisation, but to be socially recognised, change must be instituted as a revolution (Castoriadis, 1997). Autonomous individuals of society think freely, doubt about the dogmatic truth and do not

restrain to realise a desire like to break social heteronomy (Ibid). For Castoriadis, the social-historical has two dimensions the inherited logic (group identity) and the social imaginary. The first has been hegemonised over time, conceiving and positing being as a determinate being, existence as deterministic and values as determined values, creating coherence between what is saying about social (*legein*) and the social activity (*teukhein*) (Ibid). The main contribution to the social-historical of the inherited logic is negative as a result of the limitations of its way of thinking, i.e., trying to understand reality using any deterministic method that tries to separate it, fix it or dissect it in definitive and absolute terms (Ibid).

The second is framed in the indeterminate and unconscious; i.e., in the imagination; and under this dimension is built and instituted a way of thinking about society its productions and the meanings (Castoriadis, 1997). For Castoriadis, the social-historical can be conceived "like a magma, a magma of magmas, the organisation of a diversity that cannot be gathered together, exemplified by the social, the imaginary and the unconscious". *The magma of magmas* does not mean disorder, but society is instituted of magma of meanings that make sense in group identity, because the *legein* and the *teukhein*, while organising society, provide the means to break it (Ibid). With these ideas, Castoriadis explained how democracy arose in ancient Greek society and the Western world after the Roman/Catholic empire.

Taylor used Castoriadis' social imaginaries to understand the transition of the Western social structure from pre-modern to modern, upon power relationships which organise and evolve through values, rules, norms, and institutions (Taylor, 2004). Instead of approaching social imaginaries as a magma of magmas, Taylor establishes two social imaginaries and contrasts them. The pre-modern imaginary was egalitarian, horizontal, whilst modern is highly hierarchical, pushes for participation, social contract, political and market economy (Ibid). The dominant social imaginary or the modern society relies on market forces, the public sphere and self-governance (Ibid). For Taylor, "Social imaginary is an ethos[12] that enables people to make sense of developments in society" (Mansell, 2012).

Mansell criticises Castoriadis, referring to some authors like Thomson, Gaonkar and Flichy who question Castoriadis in three things (Mansell, 2012). First, for them, Castoriadis leaves aside the rationalist vision of the social-historical, thus eliminating the possibility of analysing the alternatives that come into competition. Second, Castoriadis does not make clear how the change emerges locally. Finally, there is a long debate about the relationship between autonomy and heteronomy. Mansell thinks that with Castoriadis' social imaginaries it is not possible to understand the

[12] Ethos relates to values, habit and structure – institutions, law, symbols -

information society as a complex system emerging whether from some values or power relations within a system dominated by the free market.

For this reason, Mansell takes Taylor's social imaginaries to understand the *competing visions* and how they impact on stakeholders. On the one hand, it seems Mansell and other authors understand social change not as a revolution from group identity but as an ethos competition where the powerful one prevails; in other words, they do not understand social change as an agreement of common values of a critical mass of people but as a conquer. On the other hand, perhaps Mansell and others understand concepts such as emergency and autonomy in a very different way than Castoriadis does.

Following Taylor, Mansell uses social imaginaries to contrast different ethos of the information society, addressing their paradoxes. "The social imaginary influences the way digital technologies are used and the way they permeate and mediate people's lives" (Mansell, 2012). Mansell proposes two social imaginaries of the information society (Ibid). The first social imaginary points to those behind the screen, i.e., stakeholders who provide content and services through the Internet. The second social imaginary points to those in front of the screen – i.e., the end-users, the global public who use the Internet. The social imaginaries of the information society face two paradoxes (Ibid). First, the paradox of information scarcity: digital information is expensive to produce but almost free to reproduce, i.e., the structure supported by the government and private enterprise hugely invests in the creation of information; thus, it is necessary to both protect the data as private property and giving meaning to human agency (Ibid). Mansell cogitates, on the one hand, people's free interaction on the Web might disregard ownership; on the other hand, private and government practices might undervalue community commons (Ibid). According to experts, this paradox is the most prominent Internet flaw (Kulwin, 2018). The Internet business model underpins the idea of free information. The user believes the Internet provides information free of charge, but she does not know the cost of its production, nor the value of the information produced by her activity on the Web.

The second is the paradox of complexity or the trust in engineers who build technology for a good society (Mansell, 2012). There is a widespread tendency to simplify things, and the success of the Internet seems to reaffirm this trend. The government might control society easily with algorithms implemented on the Internet by engineers. The distributed and decentralised communication technology - the Internet - enables either the loss of human control from structure or control enhancement through standards and protocols (Ibid). However, from the user activity on the Web, contradictions emerge towards the constituted order, which in response seeks to increase regulations on the Internet (Ibid). For Mansell, an open dialogue among governments, companies,

civil society, and ordinary users would reveal that there is a false opposition between privileging either information commons, free interaction, non-market relations, and self-government, or economic growth, free market, and private ownership of information (Ibid).

For this research, Mansell's social imaginaries are understood as follows: there are two main social imaginaries, the first one is in front of the screen and the second one behind the screen. The users are in front of the screen. This imaginary is made up of groups of people from different cultures who might imagine the Internet and the Web in their way. The action on the Internet of those in front of the screen could be related to control, having the intentions to regulate the Internet, although Mansell did not address this possibility.

Two kinds of the second social imaginary are literally behind the screen: the weak and the dominant social imaginary. The weak social imaginary are academics and others who study the Internet, whose intention is not to control, although their research outcome could lead to it. The dominant social imaginary are private companies, governments and organisations that compete for control over the Internet. Engineers and technical experts are also behind the screen, their action control directly the Internet, but they deal with the endomoral and exomoral, i.e., they must abide by what the dominant social imaginary (the employer) commands them to, by the available resources and the common good for all social imaginaries. All social imaginaries have their values that either motivate to act or to refrain from acting on the Web.

2.4 The Control

The section analyses the control of society through communication technology and the self-control of the individual. First, the problem of the control of society with technology is introduced from the philosophy of technology. The second section contrasts the ideas that lead Mansell to propose social imaginaries for the information society with the second-order cybernetics. On the one hand, Mansell confronts the ideas of Luhmann against those of the cyberneticians, more precisely against the first-order cybernetics. Luhmann was mainly inspired by the functionalism of Parsons (who was also inspired by the first-order cybernetics) and ideas of Maturana & Varela to propose his theory about social system communication. On the other hand, Heinz von Foerster introduced second-order cybernetics, understanding otherwise the same ideas of Matura & Varela. The present investigation considers key the distinction between inter-objectivity and inter-subjectivity to understand the divergence between von Foerster and Luhmann.

The following section presents ideas of Kahneman & Tversky about the human being thinking. The last section establishes the social imaginaries for this research. The present thesis assumes that humans are both inter-objective and inter-subjective, in such a way that both the inherited logic

and the social imaginary are in the human mind. In this way, the current investigation utilises social imaginaries to clarify the intentions of the information society actors who should stipulate their purposes, but not to suggest there are two confronting social imaginaries.

2.4.1 The controlling technology

Heidegger and Marcuse conceived massive technologies as nefarious, precisely because of the control they entail. According to them, the ideal solution is to become independent of technology, but control makes it impossible. Deleuze seems to have an optimistic approach to technology, but doubtful for society.

Bunge refers to Heidegger as an enemy of technology (Bunge, 2012). Heidegger's ontology of technology is an anti-technical manifesto to "annihilate technicians and scientists" (Ibid). Heidegger believes that technology is not value-neutral and serves the interests of an elite who treat humans and nature as resources (Gomez, 2010). Although the alternative, according to Heidegger, is a change in people's attitude, technology empowers the dominant social imaginary to the point that "only God can save" (Ibid).

Technological rationality is political and might serve to the dominant social imaginary only. Technological rationality is increasingly mechanising and dominating the individual and society without terror (Marcuse, 1964). The technology allows to improve and personalise the forms of control – mass media - whose objective is to unify the thinking and behaviour of individuals (Ibid). The mass media dogmatizes, hinders self-organisation and autonomy of thought, of criticism, feeds emotions, benefits institutions, creates and unifies false needs that the market satisfies, curtails the multidimensionality where reflection or reasoning would be possible, creating the one-dimensional the man who consumes facts and others' lives in the form of news (Ibid). Traditional structures control economic, political and intellectual freedoms (Ibid).

On the other hand, technology underpins new social capacities (Ibid). In the alternative of denying the dominant modes of control, new forms of freedom will appear (Ibid). Thus, economic freedom will relate to a society free of both the market and economic forces; political freedom will mean the independence of the individual concerning politics; intellectual freedom will mean that mass communication and indoctrination must not absorb individual thought (Ibid).

However, Heidegger (Gomez, 2010) and Marcuse (Marcuse, 1964) considered their alternatives as idealistic and unrealizable; their forecast is Orwellian. Both cogitated that the collusive pact between governments, the media and the free market will continue to be the dominant model, to the point of completely controlling the minds of all individuals within society through technology,

building a single socially accepted truth. In this flattening and standardisation of ideas and opinions, the network effects, the great divide, and the reinforcement of the elite, there is no place for new values.

Thinking on technology, Deleuze takes Foucault's disciplinary society to the next step: the control. The prison provided the model to institutions such as the family, schools, hospitals, factories, army and others that are closed spaces to reinforce hierarchy by eliminating the unnecessary, making schedules, limiting time and space to discipline society (Deleuze, 1992). The new technologies are going to overlap discipline spaces, disorganising them because people will not have to lock themselves into whether learning, meeting, working places, nor follow a schedule (Ibid). Thus, space and place will not be for discipline anymore, but through the same technologies, everything will be under control (Ibid). In a controlling society, the individual will become a "dividual" facing the screen with corporations behind making profit of every dividual's activity, confining him to a computer classification instead of a disciplinary place (Ibid). Technologies will subtly allow control: modulating and contrasting. Shackles and limited spaces will not be necessary, but codes will contain the information to give the access and resources to the dividuals according to their reality since the data and the spaces will be infinite (Ibid). The dividuals will have to learn, buy and borrow permanently, that is, under control (Ibid). The Deleuze's dividual concept suggests a duality, an alienation of the individual, the control will not be in herself but behind the screen, in the hands of the corporations. Deleuze does not mention the media, perhaps because it is evident that they are corporations. Deleuze also mentions another type of more complex control, since the corporations control the raw material, the manufacture and the production that is moving to the third world, leaving only the specialized services and the stock market in the first world (Ibid); i.e., a new organization that puts institutions in crisis, giving value to technology. Deleuze does not perceive what is the set of forces of post-disciplinary society, because he conceives that control is short term, subject to sudden changes; the dividual is not confined but indebted (Ibid). It can be added that those who control the technology indebt the dividual, confining her digitally.

2.4.2 Cybernetics

At the end of the 1940s, N. Wiener took the concept Cybernetics from the Greek, *κυβερνητική* ~ *governance*, to define the study of "Circular-Causal and Feedback Mechanisms in Biological and Social Systems"*;* later he summarised cybernetics as the "science of regulation" (Foerster von, 2003). The basic idea of cybernetics is the feedback of information, or 'recursive communication', through a loop or 'a closure' of the communication system. The feedback improves the functionality of a closed system, looking for its stability and efficiency (Ibid). The loop closes the system by channelling communication of specific system elements. Initially, cyberneticians conceived closed

systems by separating the environment from the system for understanding and building purposes, i.e., to observe the system within limits and through specific parameters and variables (Foerster von, 2003). For them, a closed system does not affect either the environment or the observer, and the limits given by the designer help to control its functionality (Ibid). For Bateson, cybernetics is the branch of mathematics for problems of control, "recursiveness" and information (Foerster von, 2003).

Mansell narrates the significant influence of the first order cybernetics in the development of communication and information technologies. Currently, in the digital age, the dominant social imaginary observes the weak social imaginary with the most successful theory of cybernetics or Shannon's mathematical theory of communications (Mansell, 2012). Shannon's sender-receiver model closes the communication system by disregarding the meaning of information, and the social constructionism (Ibid). Mansell refers to Maturana, Parsons, Luhmann and others (Ibid). Their basic idea is that language does not appear by itself; it is intersubjective, observers are simultaneously observed. To communicate, both (observers and observed) develop (a common) language through structural coupling agreements, that is, affecting each other (Ibid). In this way, Mansell insinuates that Shannon's model, although it enables communication, subordinates it to whoever is observing, i.e., controlling.

Mansell highlights Luhmann's idea that "only communication communicates". For Luhmann (Mansell, 2012), communications are how the social system self-reproduces: "communications conclude preceding communications and enable connecting new ones; i.e., the social system is recursively produced and reproduced within a network of communications, it cannot exist outside of the network". For Luhmann, society emerges from a closed (autopoietic ~self-constructed) network of communication (Luhmann, 1992). It is necessary to refer to Parsons and Maturana & Varela to understand Luhmann's ideas. For Parsons, social development depends on the control of communication by institutions that regard values. Maturana explains the evolution regarding the interobjective communication of cells and micro-organisms. For Luhmann, the social system develops within networks of intersubjective communication that create, conserve and transform values.

Parsons made an analogy of social systems and biological organisms. At first, Parsons made a distinction between the organism as a biological system and the personality as an element – "lout a unit point of reference" – which relations with other elements and the environment develop a '*system of action'* that shapes the social structure (Parsons, 2005). For him, instead of the chemical-biological and behavioural processes that make up the organism, the rational action of the elements of the social system organises a structure in values maintained through institutions enabling

functions (Ibid). The rational action has three levels of the organisation, Parsons proposed (Ibid). The first level is technology, that is, defining a purpose, aligning actions and allocating resources. Cost and efficiency limit technology. The second level of organisation is economic, or the allocation of resources for different objectives. The third level is the maximisation of power.

Later Parsons became interested in cybernetics. He thought that the storage and transmission of information control the social systems. He proposed a hierarchy from conditions of high energy with no control to high information controls with no energy (Treviño, 2001). The conditioning factors (bottom-up) and the controlling factors (top-down) underpin the structure from high energy to behavioural organism to personality system to social system to cultural system to high information (Ibid). That is to say, for Parsons, the control is born with the relations of the elements of the social system, with their behaviour, but there is no control in the organic systems alone.

Maturana considers communication as inter-objective (not inter-subjective), in the sense that it entails a process of adaptation/transformation of those who are communicating (Maturana & Verden-Zöller, 2008); i.e., for Maturana, communication is fundamental for evolution. Maturana and Varela understand self-organisation from the self-construction of the individual as a living organism; they call this as an autopoietic process (Maturana & Varela, 2004). The organism is an open system that takes from the environment the necessary and convenient elements for its development in an exchange of matter and energy that affects both the individual and its environment (Ibid). For Maturana and Varela, this construction process is inter-objective because living organisms organised themselves through their coordination. For Maturana & Varela, language is an inter-objectivity mechanism of the process. Language emerges and interdependently affects the individual, their peers and surrounding in such a way that the autopoietic process is a structural coupling between communicating beings (Ibid). Inter-objective communication does not need control (Maturana & Verden-Zöller, 2008).

Luhmann brought Maturana & Varela's idea of autopoiesis to the social realm upon Parson’s functionalism. For Luhmann, the social system is closed through the communicative interaction of a large social group, characterising the structure which imposes values on individuals and small groups (Luhmann, 1995). Luhmann made a distinction between the observer and the observed ones. The first one collects and analyses the information or orders it to be done; the second produces it. Thinking about the observation reasons, Luhmann suggested that the purpose of the observer's action is to intervene in the system, to control it (Ibid).

The following sentences resume Luhmann’s ideas (Luhmann, 1995). Humans are components of the autopoietic network (social system) that develops structures avoiding disintegration. The social transcends the organic; it is a new organisation. Communication is an operation that emerges with

the social, is transient, and creates connections that allow the continuity of the system. Society is autonomous in its structure and operates for its control. Here Luhmann insinuates a distinction between communication in organisms which is inter-objective and communication in networks of people that underpins society as inter-subjective which is functional.

Additionally, Luhmann incorporates control within intersubjective communication as an emerging social phenomenon (Luhmann, 1992). Communication is not an action, nor a communicative action, it is a selection of information, expression and understanding (Luhmann, 1995). Communication is not the transmission of information from a sender to the receiver, but the intersubjective creation of meaning. An external phenomenon is not a communication topic unless it triggers a knowledge mechanism with information and values previously acquired by the closed network. Structural coupling is the permanent adaptation between systems which keep their identity.

In summary, according to Maturana, inter-objective communication is collaborative, not controlled. Here two values are highlighted, the communication itself and the new identities - organic structures - that emerge while communication occurs. In Parsons, the value of controlling communication is for the efficiency of managing the social system through institutions with values. In Luhmann, the value of intersubjective communication is in improving the organisation of the social system. For Luhmann (Luhmann, 1995), the observer references herself (self-reference), forming an idea of the observed ones (hetero-reference). Possibly, if the communication is encapsulated in bits and controlled by technology, it is not intersubjective nor inter-objective. Then, it can be inferred that the control of communication through technology has value for institutions and companies to control society or social imaginaries.

2.4.3 Second-order cybernetics

By the end of the 1960s, cyberneticians proposed the second-order cybernetics whose fundamental idea is to understand feedback recursively, incorporating the observers, so they are also being observed; i.e., to recursively ask the purpose of purpose through a double closure: “communication is the Eigen behaviour of a recursively operating system that is doubly closed onto itself” (Foerster von, 2003). Luhmann asked (again) to second order cyberneticians: who is the observer? Pointing to the risk of repeatedly intervening in the system as the former observer cannot wholly withdraw from himself, i.e., witnessing his distinction schemes (Mansell, 2012).

The following paragraphs expand Luhmann's ideas about second-order cybernetics (Luhmann, 1992). By observing the observer, the distinction scheme used by the observer can be observed, but the second-order observer cannot see his distinction scheme. Social systems are also self-observing systems. Self-observation is an operation of the autopoietic system because its self-

construction is a distinction of the system from the environment: what belongs and what does not belong. In the observation operation, there is a difference between self-reference and hetero-reference, i.e., between what the observer distinguishes in himself (self-reference) and what he distinguishes from the observed system (hetero-reference). Thus, it seems the communication for second-order observers is not intersubjective but inter-objective.

In brief, Foerster replied to Luhmann upon ethics (Foerster von, 2003): (i) renouncing to the hierarchy in an established system is to avoid own judgment; (ii) the double closure is an opportunity to correct the value system of both the observers and the observed ones. On ideas from Maturana and Varela (Maturana & Varela, 2004), Foerster (Foerster von, 2003) considered that self-organised and self-referenced individuals through recursive communication could change values. Although, both Luhmann and Foerster support their ideas on Maturana & Varela's autopoiesis, it is not the intention of this research to discuss whether the idea of autopoiesis is for organic systems only or extends to social systems. Nevertheless, it seems the control closes the social system distinguishing observer from observers, and might go further by observing the observers.

Foerster considered subjects as self-organised systems on their own values systems which can dynamically vary (Foerster von, 2003). For him, observations are not absolute but relative to the observer's perception while affecting the observed to obliterate understanding itself. A momentary equilibrium comes when the eigen-behaviour of one observer operates recursively those of another, pointing to ethics origin: "when cognition computes its cognitions through those of the other" (Ibid). Foerster quoted E. Morin "the observer includes himself in the observation" to confront the Western tradition that the properties of the observer must not interfere with the description of his observations (Ibid). Foerster considered observed systems for first-order cybernetics and observing systems for second-order cybernetics (Ibid). The former computes infinite recursions, while the second-order cybernetics is a calculus of self-reference. Foerster distinguished two stipulation orders. In the first the observer enters the system stipulating the purpose of the system; in the second the observer comes to the system specifying his purpose (Ibid). In this way, the Foerster proposal is ethical of social responsibility.

Second-order cybernetics is one of the pillars of this thesis. The investigation considers that both those in front of the screen and those behind it have control. Another purpose of the methodology is to design a way to prove that end users also have control over the Internet. The self-controlled individual section gives insights to develop the methodology.

2.4.4 An argument against the double-closure

Upon Foerster's ethical proposal, it seems with a double-closure technology, the actions of the observer and the observed become transparent. However, for Han (Han, 2013), transparency is an exhibition that destroys intimacy. Han believes in the world of masks, one whose suggestive, rhetorical and seductive practices give life to the social. Han goes on to say that "only the dead are transparent" (Ibid). According to Han, the digital chain (the double-closure technology) is a non-perspective panopticon, that is to say, people and stakeholders watch each other regardless place and time, believing that they are free to do so. The society of transparency is the product of hyper-communication and mistrust (Ibid). All social imaginaries collaborate to transparency by wanting the other to be naked while getting naked themselves (Ibid). It is a pornographic society, of massive public scrutiny that devalues power relations. (Ibid). The lack of confidence leads to asking for control, forming a control society to which its actors voluntarily intertwine, because knowing that they are observed they also want to observe (Ibid).

The control society that envisages Han, in which all become observers, does not coincide with the second-order cybernetics for the lack of purpose. Observers have a purpose, stipulations. They do not observe to observe. A transparent society would imply an evolution of the human being, since all her actions would be instrumentally rational, would stop being oriented to the immediate value. On the Ethics of Aristotle: the human would stop being incontinent; all their actions would be mechanical, there would be no consumption.

2.4.5 The self-controlled individual

Kahneman and Tversky thought about control[13]. For them, the individual can self-controlled or release control for comfort and habit. For Kahneman (Kahneman, 2011), the brain has two thinking systems that for the reasons of this investigation are labelled System 1 and System 2, whose main characteristics are as follows. "System 1, the experiencing-self, lives and knows in the present, is the fast and automatic thinking related to survival, has biases, makes not optimal decisions, is intuitive, underpins value-rational actions, cannot be trained… System 1 involves an essential, effortless, and passive experience... System 1 deals with the associative memory[14]".

[13] Tversky & Kahneman were working for the U.S. Commerce Department under ARPA when they developed these ideas.

[14] *Associative memory is a storage made by neural networks whose nodes and links represent ideas, things which are organised within categories, causes, examples, instances of. Neural networks organise by a learning and remembering process* (Kahneman, 2011)*. When a stimulus occurs, a section of the associative memory is activated, looking back for causes, linking them with the perceived current situation (Ibid).*

“System 2, the remembering-self, is the storyteller, slow, logical, underpins instrumentally-rational actions, is effortful, controls attention, needs to bring many sections from memory, can be trained, takes control over System 1 to avoid mistak*es*… System 2 is an egoist, occurs within the introspected individual rather than in the collective action. System 2 is fallible, has cognitive traps, illusions” (Kahneman, 2011). By evaluating a stimulus, System 1 develops confidence if a present situation is coherent with its story. “System 2 is lazy, gives control to System 1 for most of the situations”. According to Kahneman (Kahneman, 2011), recognition is a two-phase process. Firstly, System 1 brings an idea from associative memory due to an external stimulus. Secondly, System 2 checks deliberately. If the result is the expected one, there is a reinforcement, an anchoring that affects the following decisions.

Under the light of second-order cybernetics and Kahneman's thought systems, the relationship between values and control can be addressed. In planning, in a choice situation, or to estimate a value, there is a need for a “footing to stand on” (Tversky & Kahneman, 1973). Decision and judgment are biased toward the initial values, i.e., mental anchors (Ibid). By knowing the values of an individual, it is possible to predict her decisions (Ibid). The values are both in the base and the objective, given the idea of a closed circuit, a mind programming in which the observer observes values and values observe the observer. Values limit predict and control.

Kahneman said that his Systems 1 and 2 are mere labels, and do not reflect anything more specific than the reference to two ways of how the brain operates (Kahneman, 2011). System 1 is fast, active, emotional, and spontaneous but anchored (Ibid). System 2 is logical, reflective, self-organised, slow, and so lazy as to let System 1 to have the control most of the time, but with the potential to overcome anchors (Ibid). System 1 does not need many mental resources to act, but System 2 does, to the point that System 2 consumes so much that it can exhaust resources, an “ego depletion” (Ibid). The expertise needs System 2 to control feedback; otherwise, either positive or negative feedback lead to mediocrity – a regression to the mean (Ibid).

Over the ideas of Kahneman and Tversky, the methodology chapter designs an instrument trying to prove if the end-user who is behind the screen uses whether her System 1 or System 2 or both, when thinking about values Internet related. This instrument is qualitative because it is necessary to approach the end user personally.

The research assumes an optimist vision for the human being, considering that with current technology we are living in a controlling society, perhaps because of triumphant selfish capitalism, but the "for what" is not clear. The research assumes that it will not be for the mastery of a few over the global majority or for the transition to transhumanism, but self-control. From their comfortable and convenient digital confinement created by algorithms agreed upon by a minority, each human

being, noticing their limits, can or will be forced to use their slow thinking, building their personal value system, not towards a new identity, but as many identities as humans are living in the planet. It is not an anarchist vision, but the idea of a post-value society, since in the end values are controls. From the individual value system, each human being can contact the other and the Other emerging a magma of values and actions that would find harmony beyond functionalism and rationalism and laying down personal interest. The research aims to find evidence that the social imaginary in front of the screen uses their System 2 when acting on the Internet to confirm optimism, i.e., humans do not let themselves be carried away by the value imposed by others, but they build their own beyond a chameleon attitude. As a preamble, the historical evolution of the Internet is analysed in the light of values both modern and collectivist, and control within Internet domains, for these reasons it is said to be an alternative story.

Chapter 3: The Internet evolution: An Alternative History

This chapter narrates the evolution of the Internet emphasising values, social imaginaries and cybernetics. Currently, the Internet is seen as a set of private networks – autonomous systems – providing content and services to users while observing their interaction, not as a magma of social imaginaries sharing values while giving meaning to their action. The chapter aims to understand the Internet as a controlling technology whose participants might stipulate their values.

In the beginning, the Arpanet was the outcome of vision, military requirements, efficient administration, and engineering. The TCP/IP was the principal value of the Arpanet. The TCP/IP is a set of protocols that today controls the Internet core operations. The Internet infrastructure has spread due to geopolitical strategy, academic practices, idealism, and market ambitions. On the one hand, analysts consider network effects the cause of the enormous global penetration of the Internet; this globalisation is the key of a techno-economic paradigm that reshapes structures, behaviours, and businesses (Perez, 2009). On the other hand, the cause might be because people, the social imaginary in front of the screen shares values while being on the Internet.

The narrative scrutinises references to reveal the control of Internet technology throughout the different domains in which it has developed, especially the commercial one regarding social imaginaries. The research assumes the vital contribution of the Web to the Internet commercial development, above all because it has facilitated the interaction of the social imaginary that is in front of the screen. Therefore, the chapter gives insights to answer research questions number one and two but from the social imaginary behind the screen: RQ.1. How to understand the Internet and the Internet and the Web regarding social imaginaries? RQ.2. How values relate to control on the Internet and the Web? Afterwards, the research methodology and its application will come up with evidence from the other side of the screen. It is emphasised that this chapter narrates an alternative history of the Internet because it is the interpretation of historical sources in the light of values, social imaginaries and control.

3.1 Early days

This section describes the reasons why the US government entrusted the construction of a way to communicate through networks and the ideas that floated around at that time that served to achieve the objective. Bonvillian (Bonvillian, 2006) described how an agency created to innovate for geopolitical reasons (ARPA, Advanced Research Projects Agency), with an efficient institutional-

private organisational model, and conceived by a visionary (J.C.R. Licklider), built the technologies (the Arpanet and personal computers) that have transformed social, economic, military and political life on a global scale.

In 1957, during the Cold War, it was considered that the USSR would not have won the space race if the US military had participated in the Aerospatiale projects. For this reason, Eisenhower created ARPA, the US military agency for R&D, to develop and tackle innovation to increase the nation's military and economic power (Bonvillian, 2006). Some years after, DARPA (ARPA renamed) was assigned to solve the problem identified during the Cuban Missile Crisis: the "lack of both real-time data analysis and communications with on-the-scene commanders" (Ibid).

ARPA's organisational model was a hybrid between the successful personal model of the millionaire Albert Loomis with the military institutional model to give autonomy and freedom from bureaucratic obstacles (Bonvillian, 2006). Moreover, DARPA's hybrid model allowed the mindshare and collaborative effort of the universities and the private sector to give birth to the personal computer and the Arpanet (Sherry & Brown, 2004).

The Loomis model history dates to the late 1930s. V. Bush invited Loomis to become a member of Roosevelt's National Defence Council (Ibid). Loomis, with his money, created Rad Lab to carry out the research and development of a microwave radar that the US military refused to do at Winston Churchill's request (Ibid). Once the British gave him their knowledge about the microwave radar, Loomis created a multidisciplinary, non-hierarchical, minimal, and collaborative environment between high profile scientists and technicians, far from the military regime (Ibid).

In 1962, DARPA designated J.C.R. Licklider as its project manager. He took the opportunity to carry out his ideas, *the man-computer symbiosis* (Licklider, 1960), and the *Intergalactic Computer Network* (Bonvillian, 2006). Ashby's principles of self-organisation in cybernetics that try to reproduce organic processes in mechanisms motivated Licklider's early paper *Man-computer Symbiosis* (Licklider, 1960). Licklider described the idea of intelligence amplification: the human being as a living organism (System 1[15]) formulates questions, and the computer as an intelligent mechanism (System 2) finds the ways to calculate and give answers, then together they make decisions to control situations. This symbiosis of two different kinds of systems will be possible through an interactive computer, an interface between System 1 and System 2 (Ibid).

Licklider's requirements for the Man-computer symbiosis were as follows (Licklider, 1960):

[15] In his papers, Licklider labelled both systems as System 1 and System 2. It is a coincidence with Kahneman's labelling

1. A *thinking centre* is a system of linked computers through a wide-band communication network, with enhanced capabilities of information store and retrieval, and knowledge processing.
2. Three kinds of *memory* are needed. The first is volatile to store the information from a book. The interface computer should find, deliver, use, and return the book from the thinking centre. The second is an indelible memory, write once, read many times, but can be overwritten. The third is read-only, a published memory to preserve rights.
3. *Organisation memory* is the way information is ordered to facilitate its use.
4. *Computer Language* should be very close to human language.
5. *Input and Output devices are* (i) A desk-surface display capable of reading both hand-writing and hand-drawing, and then to display content in a meaningful way; (ii) a wall display for cooperative environments; and, (iii) automatic speech production and recognition.

Once in DARPA, Licklider met Robert Taylor who worked for NASA (Sherry & Brown, 2004). Collaboratively, they developed the idea to interconnect personal computers to a distributed thinking centre through a single network (Licklider & Taylor, 1968). They thought that "Communication would be more effective through a machine than face to face*"* because the *personal computer* connected to a single global network facilitates communication and mediates knowledge, distributes and personalises language and information, eliminating perception errors and engaging communities in collaborative tasks (Ibid). Licklider and Taylor considered that the first communities would be *socio-technical* pioneers because only computer engineers and creative people would be linked (Ibid). Then, they continued, as more people engaged, and technology developed, access to computers, time-sharing, interaction and multi-access would become affordable; thus, online interactive communities would form based upon interest, not location (Ibid).

In 1962, D.C. Engelbart proposed the creation of a personal computer to augment human intellect, the NLS project, influenced mainly by W.R. Ashby's cybernetic design idea for a brain; V. Bush's approaches to gather, organise, and channel knowledge; and Licklider's ideas (Engelbart, 1962). Engelbart thought that although culture provides the essential capabilities to comprehend situations and to solve problems, four types of *augmentation means* to extend human capabilities, namely: language, artefacts, methodology, and training, which together form the H-LAM/T system (Idem). As humans and artefacts are the physical components, an exchange of energy occurs between them through an interface, a symbiotic interaction (Idem). A man-computer interdependent communication might permit the manipulation of symbols, concepts and other artefacts to solve problems to make the world a better place (Ibid).

While working in DARPA, Licklider funded Douglas Engelbart's On-Line System (NLS) project, but he moved to another institution before the development of the ARPANET began (Sherry & Brown, 2004). While Taylor worked for NASA, he arranged the funding for the NLS. Then, Taylor moved to ARPA and came up with the idea of connecting the ARPA's computer research projects through a single network, thus providing the foundation for ARPANET in 1966 (Markoff, 2017).

Nevertheless, engineers needed to overcome several technical challenges for the Arpanet's further development. Among the best technical solutions were the ones from Baran, Davies and Pouzin. In 1964, Paul Baran while working for RAND, a research corporation for the US military, proposed a Distributed Network to overcome the risks of node and link destruction. His 'survival model' is based on self-governed switches that store and learn how to forward messages within a changing environment (Baran, 1964). In 1966, in the UK, D.W. Davies proposed the creation of a *Digital Communication Network* (Davies, 1966). His key ideas were: (i) to divide a message into small packets; (ii) to store and forward the packets; (iii) to perform and control the packet-switching through an interface. Pouzin implemented the end-to-end principle which establishes that the reliability of communication resides in mechanisms within the final hosts, but not the intermediaries because of independent elements within a network, and the autonomy of each network (Cerf & Kahn, 1975). In short, the US government military requirement found in the cybernetics the way to control the communication between different networks.

3.2 Arpanet

The US military built its network infrastructure upon the protocol created with the help of academia. Arpanet was the US military communication network. Arpanet's reason for being was internetworking, i.e., to share[16] computer resources across different packet-switching networks – the latter as a sine qua non for reliability. Internetworking needed a communication protocol under three fundamental principles (ISOC, 2017). First, networks are autonomous and to connect to the Internet they do not require internal changes but the use of gateways and routers which pass the information without retaining it. Secondly, the reliability of the sending-receiving depends on the coordination between the source and the final recipients. Thirdly, there would be no global control at the operations level, but at the host-to-host flows.

From the engineering point of view, there was an evolution in the development of the protocol from a transport protocol, NCP, to the Internet DoD "Department of Defence" protocol (Cerf & Cain,

[16] ISOC uses the word "share", however it is likely the correct should be "use"… under certain conditions ("principles" in ISOC's words)

1983). V. Cerf and R. Kahn oversaw developing the protocol later to be known as Internet Protocol, DoD or TCP/IP. The TCP/IP functionality comprised host addressing, data fragmentation into packets and their reassembly, and routing packets across networks (Cerf & Kahn, 1975). Their solution has four layers. The link layer contains protocols which enable communication among devices within a network. The internet layer has standards, like IPv4 and IPv6, to route data packets through addressed networks. The transport layer has protocols to ensure information exchange between nodes. The application layer has protocols to interact with applications.

Among the essential technical requirements to TCP/IP operation were a host-to-host pipelining and flow-control, techniques to ensure reliability, efficiency and performance, an open interface to various operating systems, and especially the need for global addressing (ISOC, 2017).

Some key dates in the development of the Arpanet are worth noting:

- In 1972, a successful demonstration of the Arpanet and the sending of the email took place (ISOC, 2017).
- In the same year, ARPA contacted NORSAR, the Norwegian research foundation, to connect to Arpanet, becoming the first non-US ARPA's node (NORSAR, 2016).
- Since the late 1970s, the ARPANET joined together military and academic networks. Researchers used the ARPANET to send emails with diverse content (Stacy, 1982). Any uses other than governmental were illegal. For Stacy, researchers emailing was a demonstration of freedom that allowed both the technical and social evolution of the network (Ibid). Stacy also considered that using Arpanet for commercial activities and politics was antisocial and illegal (Ibid).
- At the beginning of the 1980s, DoD's designers asked NATO allies for help to standardise the Internet Protocol (Cerf & Cain, 1983), as only the allies under CoCom restrictions accessed to technology (Kim, 2005). Restrictions were about arms embargo on member countries (mostly allies) by Coordinating Committee for Multilateral Exports, CoCom (Idem).
- In 1983, ARPANET split into two backbones; one for the military 'MILNET' and the other for the academic-research community 'ARPANET', but both interconnected by controlled-bridges (NIC, 1983).
- Since 1985 the US National Science Foundation NSF funded the "NSFNET" project to support the data networking and communication needs of researchers and academics in the US, making the use of TCP/IP mandatory within the program (ISOC, 2017).

- Due to its growth within academia, the ARPANET was decommissioned from the military in 1990, giving way to the Internet for research and education but not for commercial purposes, although its providers could be private (US Congress, 1992).

Arpanet was the US military network infrastructure whose communication protocol was TCP/IP. Strategically, the US government made the allied countries networks to utilise the TCP/IP; in this way, the Arpanet expanded. On their side, the US universities adopted the TCP/IP to communicate along their networks.

3.3 The fundamental values of the TCP/IP

The TCP/IP was the heart of the Arpanet and then to the future Internet. The TCP/IP is a set of protocols that control the central operations of communication between networks. Other networks incorporated the TCP/IP gradually, to the point that TCP/IP became the standard. TCP/IP is a technology that has value beyond commercial.

Upon Friedman's ideas (Friedman, et al., 2008), the design principles of the Arpanet/Internet and the technical decisions can be considered its fundamental values. Technically, the Internet is a communication network of interoperable networks governed by the TCP/IP - the Transmission Control Protocol and the Internet Protocol. The TCP/IP relies on the design principles of affordability, reliability, and robustness. Affordability means openness, minimalism and neutrality. Any device can openly join the Internet without any sophisticated technology, minimising barriers, while data flows are both efficiently managed by the end nodes and treated equally without discrimination through the networks (Goldsmith & Wu, 2006).

As far as reliability is concerned, the TCP/IP's packet-switching approach minimises latency and ensures data reach their destination without errors (RFC 791, 1981). J. Postel understood the requirement of a fault-tolerance-design, the robustness principle, as: "be conservative in the sending behaviour and liberal in the receiving behaviour" (RFC 760, 1980). The robustness principle of Postel is in hundreds of Request for Comments (RFC) which corresponds to the Internet Engineering Task Force (IETF) technical documentation (RFC 4677, 2006). This principle seems restrictive (unveiling control): no matter what the user does, the network acts according to what engineers have programmed. For Scheler, the TCP/IP values would be utility, while for Cortina useful-values. Thus, it seems the Internet is a magma of autonomous networks that can communicate thanks to TCP/IP.

3.4 First years of the Internet

The US military took his way and the academy his own, but, of the hand of the US government that at the same time promoted the construction of academic networks in the third world to connect with its ones using the TCP/IP as standard.

Since both the source and the final recipient are hosts, the third fundamental principle underpinning the Arpanet, 'not global control but between hosts', was not wholly fulfilled. The initial requirement asked to connect two autonomous networks: UCLA and SRI (Crocker & RFC 1, 1969). When the number of hosts grew, it was necessary to update the list of addresses every time a new host was connected. Due to many versions of the list that potentially could be unmanageable, and the need to deliver the addresses quickly, the solution was to assign addresses and network names/numbers, in a centralised way. Until today, the Internet layer of TCP / IP relies on the centralised control of the IP addressing and numbering which identifies each Internet participant uniquely. In this sense, the Internet is not self-organised (Steinmetz & Wehrle, 2005) but organised through a central authority. It seems engineers decided for efficiency and control, rather than independence and coordination between end-points – host-to-host.

The TCP / IP fundamental design principles have been preserved to which others have been added throughout the expansion of the Internet into different domains: military, academia, and business. Most of the creators and first users of the Internet disliked its expansion, wanting to preserve the original values and purposes. Cerf mentioned that in 1988, while he was envisioning the Internet as an *economic engine*, his colleagues reproached his pretensions "to give the Internet to the riffraff" (ICANN, 2017). The 'Gore Bill' may explain the reasons for Internet decommissioning from the military and its allocation to the private sector. The 'US NREN High-Performance Computing Act of 1991' ~ "Gore Bill' (at present Public law 102-94) promoted the creation of both the "information superhighway" – the National Information Infrastructure - and the NREN – National Research and Education Network. To justify the passing of this bill into law, the president George HW Bush predicted scientific development, expansion of free trade including foreign markets, and cooperation between government, academia and industry (Bush, 1991).

Some authors consider that the global Internet expansion took place due to US economic and political interests, mainly to get and centralise the knowledge from foreign research centres and for geopolitical reasons (Kim, 2005). One case study was the International Connections Management project, ICP, that joined NASA with French's SIMBAD to help 25 countries to connect to NSFNET by discretely subsidising their connection costs depending on US interest (Kim, 2005). Another example was the direct connection between the US and the UK for security reasons during the Cold War (Kim, 2005).

Asian and Latin American countries also connected to the Internet. Lower prices and cultural differences inside nations – language barriers, and local trading and academic agreements – motivated nations to connect directly to NSFNET instead of to networks in other countries; thus, placing the US as the Internet topological centre (Kim, 2005). Around 1990, under CoCom restrictions, some eastern European nations began to connect with western European networks which were already connected to the Internet such as CERN, BITNET, DANTE (Ibid), strengthening the 'Appian Way' as Bonvillian suggests (Bonvillian, 2006).

In the US, by the mid-1990s, through the NSFNET funding program, the US universities contributed about 97% of the total costs of the US Internet backbone development (Hallgren & McAdams, 1998). The operational costs of the early Internet were within the research projects' budget. Universities began to offer free access to the public. Thus, the development of the Internet was not market priced by the private sector, nor fully subsidised by the government, and continued connecting all kind of sectors such as public, private, and academia (Ibid).

In 1993, considering the rapid increase of Network Access Points (NAPs), the incorporation of regional NRENs, and the need for a high-speed backbone, the NSFNET requested the change of the financing and administration model of the Internet backbone and its NAPs. NSFNET suggested that government institutions, universities, NGOs – Non-Governmental Organisations, consortia and commercial companies should submit proposals (NSF, 1993).

Around 1995 the transition to a new architecture based on a high-speed backbone, and its allocation to the private sector was completed (Gale, et al., 2007). Since then, the backbone and access to the Internet are in private hands, like Internet Service Providers (ISPs), Internet Exchange Points (IXPs) and Content Delivery Networks (CDNs), who according to sector and services have shaped the commercial/public Internet (Ibid).

3.4.1 The US government nudged the academic and then the commercial Internet

Throughout the literature, many researchers refer to the Internet expansion as a network effect, analysing it ex-post, i.e., interpreting the effects mathematically and technically from data collected. However, these interpretations leave aside or underestimate the causes that reside both in the government interest and in the decisions of those who design the technology.

On the one hand, four laws are referred to explain the network effects. First, Metcalfe's Law: the value of a network is proportional to the square number of its users. Second, Moore's Law: the technology that supports the network infrastructure is getting cheaper over time. Third, Coase's Law: transaction costs on the Internet are less expensive than offline. Fourth, data network effects

(Turck, 2016): data produced by both providers and end-users engage more users who generate more data, which help to improve services, compelling more users.

On the other hand, state intervention has been decisive. As we have seen, the development of the Internet, its associated technologies, their initial allocation and maintenance, as well as the development of the personal computer were financed by the US government through public funds. Moreover, US agencies funded many of the technologies associated with the Internet. SBIC, SBIR and STTR are US government programs for "technological innovation, foster[ing] technology transfers through cooperative R&D between private and research institutions and increase private commercialisation of innovations derived" (SBA U.S. Small Business Administration, 2014).

The success of these technologies is due to proactive government action, Mazzucato suggested (Mazzucato, 2014). The entrepreneurial approach of the State finances research, opens and creates markets, and passes the allocation of goods to the private sector (Ibid). Possibly, the *portfolio approach of the US government* was due to strategies during the Cold War era. However, more recent examples that Mazzucato analysed like Google, Facebook, Microsoft and Apple suggest that the portfolio approach is on wheels.

The government should "take the risk to pursue innovation for inclusive and sustainable growth, rather than be an intrusive manager of commons or market failures fixer", i.e., the government acts as a visible hand for innovation and original markets creation upon new technology, as it has been happening in the US, and more recently in China (Mazzucato, 2014). Mazzucato contrasted this US approach with EU countries that support the free market but in a cautious way, because of their traditional structure (Mazzucato, 2014). EU countries allow the private sector to create and manage the market, but under specific rules and taxes, regarding that economic actors recognise government's contribution to the production process through taxes (Jacobs & Mazzucato, 2016). Mazzucato gave the idea of ecosystems made of symbiotic private-public relationships instead of parasitic, within physical-biological environments, where the public and the private sector coproduces and allocates value (Ibid); but, she does not make clear the intervention of the US government to the globalised market.

In the case of the Internet and personal computers, two laws show the US government's 'nudge': the 'Gore Bill', and the Telecommunication Act. The Telecommunication Act of 1996 (Public Law 104-104) was intended to underpin market competition by deregulating entry barriers to telecommunication and information services (US Congress, 1996). Through this law, the backbone of the Internet was released to the market. As the information services are broad, they refer to the "capability to generate, acquire, store, transform, process, recover, use or publish" the information through telecommunications (Ibid). Clinton promoted the law stating that each classroom and

library of the US should have a computer and be connected to the Internet, for this the law provided discounts of 20 to 90% of interconnection costs (Doggett, 2000). This idea generated resistance, especially threats to face-to-face participation and lack of digital literacy. Critics recommended plans for the adoption of technology; otherwise, participation would be restricted (Ibid). However, the main critique is that the law underpins monopolies creation by deregulating markets, as it is currently happening in the US where six media companies consolidate opinion (Corcoran, 2016). McChesney (McChesney, 2008) suggested that monopolies creation not be due to network effects, but of a governmental policy backed by corporate lobbyists.

The ideas of Mazzucato, the 'Gore Bill', and the Telecommunication Act point to a "Hamiltonian ingredient" (interventionism), different from Milton Friedman's free-market idea (Mishra, 2018). That is to say: the state is protectionist rather than entrepreneurial; markets do not open and regularise by themselves (Ibid). Besides, politicians give preference to the expansion of large capitals, as Corcoran and McChesney hint.

Whether the technology is or not value-neutral, it embodies values, namely those that engineers incorporate into the design and implementation of the technology, i.e., algorithms in the case of the Internet. Along with the penetration of the Internet, the stakeholders increase, such as the content and service providers who also introduce their algorithms to the network. Algorithms become the moral authority, affecting stakeholders and the end-user.

3.4.2 The commercial Internet backbone

On the one hand, as research networks around the world connect to the Internet, they become 'walled gardens' that collaborate for education and research purposes, such as the US Internet2 since 1996 (Internet2, 2017), the EU Géant since 1997 (Géant, 2017), and the British network JANET since 1984 (Jisc, 2017). On the other hand, since the Internet was released from the NSF, traffic providers own the backbone of the Internet, known as the public Internet or more precisely the commercial Internet, known as the public Internet.

From the source to the destination, the Internet data flow in packages across different traffic providers. Norton (Norton, 2014) explained how Internet traffic providers organised. In the beginning, Internet Service Providers (ISPs) exchanged internet traffic for free between them (Ibid). With the growth of the Internet, ISPs became specialised and regionalised, and developed new business models for data transit that shaped the early private Internet backbone (Ibid). When there is reciprocity among ISPs, they exchange data flows and access to peers' customer-routes (not to peers' transit services). The latter is known as Internet peering (Ibid). Peering is settlement-free because the value derived from reciprocal relationships is difficult to calculate (Ibid). In short, the

exchange of information occurs between suppliers of the same calibre, who rely on the current and future value of the exchange (Ibid). Peering needs a protocol, which is the Border Gateway Protocol (BGP), an "inter-Autonomous System routing protocol" (RFC 4271, 2006), to exchange routing and reachability information between (exterior BGP) and within (internal BGP) peers.

The architecture of the Internet infrastructure of the 1990s described by Norton below remains in general terms to present. Tier 1 is an ISP that controls a region, who only peers with ISPs from other areas, integrating the "The Tier 1 Club" which does not pay for transit but charges minor carriers such as Tier 2 and Content Providers (Norton, 2014). Tier 1 club's peering seems *laissez-faire* because it occurs without government interference. Trying to reduce transit cost - value for peering -, a Tier 2 ISP looks to peer with another Tier 2 in a convenient place for them, called an IXP - Internet Exchange Point (Ibid). Peering within an IXP can be public or private: private refers to a dedicated layer two circuits between two parties, while public peering occurs across a device shared among ISPs such as an Ethernet switch (Ibid). Tier 2 peering can also be laissez-faire. Access networks (sometimes called Tier 3) are the end-user ISPs who pay transit to Tier 2 or Tier 1. Content providers do not peer Internet traffic; they pay for it to Tier 2, Tier 1, or Content Delivery Networks[17](CDN) (Norton, 2014). Figure 2 shows the Internet backbone; '$' indicates who receives the economic value, 'T' who receives the transit services, and a single line indicates peering or settlement-free.

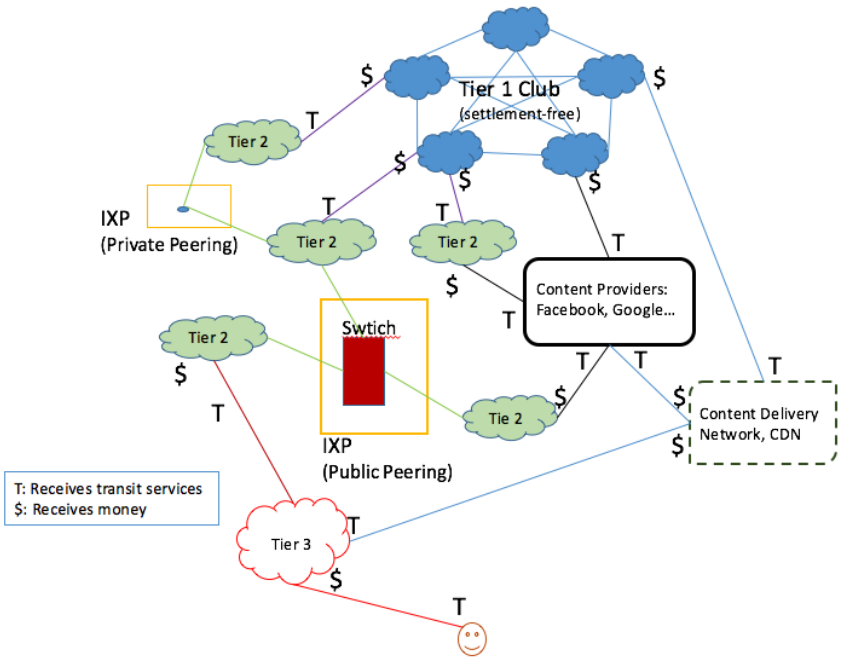

Figure 2. Value exchange on the Global Internet, based on (Norton, 2014)

[17] CNDs, such as Akamai and Amazon, are distributed networks whose data centres store copies of content to mediate user' request. CDNs distribute data asymmetrically to enhance user's experience like watching a HD movie, instead of waiting for an email.

The evolution of peering practices (Nipper, 2018) with secret agreements, the growth of CDNs and Content and Services Providers – CSPs - like Google, Amazon, Facebook, Yahoo, and their interdependency with old pure traffic providers (CAIDA, 2018), make it challenging to classify Internet providers as Tier 1 or 2. For CAIDA, both are independent networks or Autonomous Systems (ASs). CAIDA ranks ASs based on their influence in the global routing system. By April 2018, from 62163 ASs, there were eleven ASs providing transit services to more than the 10% of all ASs each one (CAIDA, 2018): Level 3 Communications, Inc., US, 52.8%; Telia Company AB, Sweden, 44.78%; Cogent Communications, US, 41.07%; NTT America, Inc., UK-US, 38.43%; GTT Communications Inc., US, 36.7%; TELECOM ITALIA SPARKLE S.p.A, Italy, 25.16%; Hurricane Electric, Inc., US, 24.27%; TATA COMMUNICATIONS (AMERICA) INC, US-India, 23.91%; PCCW Global, Inc., Hong Kong, 11.7%; Vodafone Group PLC, UK, 11.01%.

Therefore, since the NSF released the Internet, the global Internet backbone that frames data transit from different networks across the world is business oriented and handled by the private sector which trade data transit under their agreements. The Internet network platform is distributed and decentralised across autonomous systems around the world, shaping a mosaic instead of a hierarchical infrastructure (World Bank Group, 2016). The private management of the Internet backbone contradicts one of the Internet's principles because the free market controls the Internet operation. Furthermore, private ISPs and CDNs control the following Internet functions: host-to-host pipelining and flow, the techniques to ensure reliability, efficiency and performance, and operating systems handling (Goldsmith & Wu, 2006). Nevertheless, the global Internet addressing was controlled from 1977 until 1998 by one person, J. Postel, who administered the Internet naming and numbering authority, known as IANA – Internet Assigned Number Authority (Ibid).

There have been divided criteria regarding the control exercised by ISPs on the Internet. On the one hand, considering that autonomous networks are those that connect to the Internet backbone, some authors proposed that there are non-technical criteria to analyse the government and the control of the global Internet (Taubman, 2009). Likewise, the pragmatic libertarians advocated for an ungoverned, non-commercial, and free Internet for all (Barlow, 1996). On the other hand, there has been an exciting interplay between governments and private ISPs. Governments have regulated and depended on mediators. Governments, whether through internal regulations, international treaties or commercial agreements, have established the rules for ISP operation within a country, or region, trying to fine-tune their regulations on the social, political and economic effects of Internet usage. However, ISPs have become intermediaries and decision-makers beyond national borders to apply regulations (DeNardis, 2014). Therefore, in practical terms, ISPs shared control of the Internet with J. Postel until 1998.

After the cold war, the budget for the interconnection of local and regional academic networks dwindled, forcing to give up control of the interconnection and the assignment of these networks to the free market who found the business model to take economic advantage of the infrastructure of networks and therefore expand it. However, one of the TCP/IP's functions needs central control which was in the hand of one man.

3.5 Web 1.0

With the TCP/IP as standard, multiple ideas came up, prevailing the easiest and functional ones who gave value to the internetworking of autonomous-networks beyond network effects. In 1963, Ted Nelson devised a non-linear form of reading using links that point to text sections from other section, with the possibility of returning to the original, that is, bidirectional; this idea is then called hypertext (Nelson, 1994). In 1989, at CERN, Tim Berners-Lee (TBL) invented the Web for automatic information-sharing amongst scientists and academics, considering them as creators, editors and contributors of knowledge and information (Berners-Lee, 1989). TBL's vision was to connect their content through an interlinked web of links over a client/server architecture (Ibid).

The Web runs in the application layer of the TCP/IP. W3C defines the Web as an information space where Uniform Resource Identifiers (URI) point to data as resources. The Web architecture has three main elements: URIs, Interaction (web agents, such as browsers, use HTTP protocol to identify and retrieve a resource), and Format (the representation transferred is in XHTML format). A resource is a digital item of interest whose copy is delivered to the user through the Web over the Internet (W3C Technical Architecture Group, 2004).

In 1993, CERN released the Web into the public domain through an open licence to promote its dissemination (CERN, 2017). Thus, on the Internet, the Web became the World Wide Web, an information system distributed globally, that follows technical standards, specifications and protocols supported by W3C (W3C Technical Architecture Group, 2004).

The Web greatly facilitated resource sharing. It was convenient for users and CSPs. Due to its architecture, users become clients and suppliers become servers (Berners-Lee, 1996), allowing both the broadcasting and centralised management of resources at the TCP/IP's application layer.

The massive usage of the Web also brought concerns to its creator. TBL cogitated about privacy and copyright issues, government interference breaking the end-to-end principle, threats to

democracy, globalisation of American culture, and that emotion might lead rather than the truth[18] (Berners-Lee, 1996). TBL hinted that through the Web the TCP/IP end-to-end principle might break (Ibid). Therefore, TBL believed that engineers along with governments should design more reliable protocols to guarantee ownership and payment and overcome local restrictions (Ibid).

Nevertheless, for Nelson, the Web's links do not represent his original ideas of hyperlinks and transclusion, because the links of the Web are unidirectional (Nelson, 1994). Nelson's transclusion is the idea of inclusion to acknowledge references (Ibid). Putting together Nelson's transclusion and hypertext give the idea of a dynamic assembly of text and documents from different sources which are acknowledged into one single document that is put in place. Thus, it is possible referring back to sources. Nelson's ideas seem to agree with von Foerster's double-closure.

3.6 Idealism and Pragmatism

The interconnection of autonomous networks through the standardisation of the TCP/IP expands massively, giving the idea either of a mass communication means or of magma of networks that communicate.

The fundamental values of the Internet, those of the TCP/IP from military requirements, had been interpreted from different approaches due to the Internet migration to the academy and then to the private sector, both mediated by the government. Personal computers, the Internet, and lately the Web were a political, social and commercial opportunity. Through literature review, authors, organisations, governments and companies have considered these technologies as value assigners, means to achieve values, promoters of values, and values in themselves. In 1968, in San Francisco, "The mother of all demos" showed Engelbart's NLS as a complete hardware and software solution (DARPA, 2015). The demo inspired both entrepreneurs to build PCs, and idealists of counterculture movements to dream of personal environments for self-education and freedom of expression (Markoff, 2006). In 1972, the first public demonstration of the Internet and email increased expectations of extensive area networks for person-to-person communication (Leiner, et al., 2015). Counter-culture movements thought communication through the Internet allows personal dialogue within communities in such a way that the participants could develop an ecological and social consciousness towards a better world (Brand, 2018).

[18] In the 1960s, McLuhan (McLuhan, 2002) thought that media content delivery through decentralised networks retribalizes society, joining individualist alienated western literates with free emotional collectivists, turning the planet into a global village, provoking a traumatic process, which is shaped by a crisis of identity, an identity quest, private or corporate, social or commercial.

In 1980, the UNESCO report '*Many Voices One World*' predicted a new world communication order through a "web of communication networks, integrating autonomous or semi-autonomous, decentralised units" that would increase communication between people, giving them voice, their right to freedom of expression (MacBride, et al., 1980). "The web needs structural changes at political and governmental levels to secure a flow of messages and news… the flow is not vertical, one way, and produced by a few for the public at large, but horizontal to reduce information asymmetries, which requires the involvement of individuals and communities, within an interdependent process towards free exchange, equality and the balance beneficial for all" (Ibid).

On the one hand, the report seems visionary and idealistic about the future Web of the people. On the other hand, it was the proposal of the Not-Aligned Movement, NAM, because of the lack of reciprocity of the western countries in the commerce of services and of its approach of one-way press freedom, i.e., the information that flows from the developed to the developing countries, suppressing alternative visions and different local approaches (Mansell, 2012). The US and UK responses were immediate; they withdrew from UNESCO (Ibid).

However, the seeds had been planted. Following the MacBride report, journalists from various parts of the world, primarily independent, saw on the Internet the opportunity to publish and to promote freedom of expression. Association for Progressive Communications, APC, is one example. APC used the Internet "as a public and open platform for global communications" (Noronha & Higgs, 2010). After the fall of the Berlin Wall, APC used the Internet to communicate with western NGOs, with Eastern European and then with Latin-American countries, looking for transparency of both global politics and international trading practices (Idem). In 1995, the UN promoted the access and use of the Internet and its applications such as the Web, Email, and File Transfer Protocols to make information affordable to development, focusing on Africa, Asia and Latin America (Benzine & Gerland, 1995). This promotion reinforced the initiatives of non-private media (Global Media Policy Working Group, 2010).

For some idealists, the Web underpins the creation and allocation of public goods such as the contribution of digital communities and the information released by companies and governments (Barlow, 1994). Barlow cogitated on an economy of ideas fed by information (Idem). He juxtaposed cybernetics with libertarian ideas. For him, information is three things: an activity, a life form, and a relationship (Ibid). Firstly, it emerges from experience, becomes entropic if hoarded by the structure. As a life form, information propagates, self-replicates, changes rather than keeping static as in copyrights and perishes. Finally, its real value comes from meaningful cooperation and sharing; but, once hoarded its value turns rivalrous due to exclusivity, scarcity, authority, and reward.

Public goods are non-rivalrous and non-excludable commons for the public benefit, demanding both responsibility and means for allocation, provision, and control; otherwise, they became either impure public goods, private or club goods, or bad goods (Kaul, et al., 1999), i.e., *capitalism's means*. In 1999, the UN promoted that knowledge ~information and the Internet as a transmission means, can be considered as global public goods (Stiglitz, et al., 1999). Therefore, they would underpin global justice over the recognition of national particularisms (Sen, 1999); i.e., externalities recognition at national level. However, at that time, they were impure global public goods (Stiglitz, et al., 1999). According to the report (Kaul, et al., 1999), knowledge, information and the Internet are: (i) human-made global commons; (ii) subject to non-rival consumption - additional individuals benefit at zero marginal cost; (iii) only partly non-excludable, because transmission costs may exclude needy individuals from access, or regulations may put entry barriers; and, (iv) their allocation provokes externalities - non-sought costs and benefits over third parties.

Global governance should overcome the impurity of global public goods, entailing cooperative and voluntary actions of a high-level group (Kaul, et al., 1999). The group should be composed of representatives of G-16 instead of G-8[19] countries, civil society and private companies (Idem). A UN custodian body will control the group's actions, giving voice to interested and affected parties, addressing issues in an interdisciplinary way to provide sustainable solutions (Idem). A next deployment of governance to the domestic level would take place, supported by technicians, accountable bureaucracy, development assistance, and responsible private sector (Idem).

TBL also thought about public goods. Once on the Internet, everyone accesses the Web, and it is not subject to be diminished, then the Web is a public resource that in the future would help social constraint by balancing market and social forces (Berners-Lee, 1999). On the 25th anniversary of the Web, its creator tuned up his argument by saying the Web "is a public resource, on which people, private and governments depend, the Web is vital to democracy because it enables free expression more than any other medium" (Berners-Lee, 2014).

In the late 1990s, the private sector viewed the Internet and the Web as an opportunity to enlarge businesses online. The information services deregulation (Public Law 104-104), the way countries were accessing the Internet whether through geopolitical decisions (Kim, 2005) or trading treaties (Taubman, 2009) shaped the 'perfect' environment for commercial intentions. Investors saw the opportunity and began to fund emergent companies linked to the Internet, named '.com' to the point that the stock market index of the common stocks of information technology companies in

[19] From 1997 to 2014, the G-8 was an inter-governmental political forum that advocates for democracy around the world. G-8 had strong criticism, their summits needed high security, China and India were not in, and Latin American governments complained about the G-8 ignorance of real issues (BBC, 2013).

the US, 'Nasdaq', achieved an unprecedented peak by 2000 (Rushe, 2015). However, the private investment is seen as the value speculation of the digital market, an underestimation of economic and social factors that are necessary to adequately respond to the financial bet (Krugman, 2013). Most of the funded start-ups crashed generating losses to investors, to the point that six months after reaching its highest point, the stock market index fell by 30% and one year later by 78%, a phenomenon known as the 'bursting of the dot-com bubble' (Anderson, et al., 2010).

The dot-com bubble can be explained by what Skeggs called the logic of capitalism "reduce all values to (economic) value" (Skeggs, 2014). Funders wanted to obtain economic value regardless of the values involved. On the one hand, most of the values still did not exist in the digital world. On the other hand, people were not prepared to consume through the Web; they preferred to shop personally or talk to someone on the phone. However, the conditions for the digital values production, i.e., the Internet, the Web and the growing participation of people were given. Thus, the engineers triumphed, and from their success, the private sector takes advantage to reach the consumer while idealists see the social value.

3.7 The main source of value

After the dot-com bubble, and with technology in hand, the people led the evolution of the Internet and the Web, regardless of political attitudes and private sector concerns. The end user interacts through the Web, in front of the screen seeing web pages, not the Internet infrastructure. The social imaginary in front of the screen is indifferent to the network technology, is merely interested in obtaining information, interacting and sharing. The social imaginary in front of the screen attachment to the Web underpinned the vertiginous growth of Internet users from every corner of the planet, whose activity is exploited by private companies, observed by governments and analysed by technicians, academics and ideologists. All players involved are shaping societies in terms of culture. The Internet and the related technologies are the axes of communication and information exchange of current societies. These Internet roles have positive and negative consequences according to scholars.

3.7.1 The Internet and the Web values for scholars and engineers

Since the late 1990s and early 2000s, people have increased their interaction on the Web. This interaction has become so massive that it has fundamentally changed the notion of the Web, to the point of considering it a new one, namely, Web 2.0. On the one hand, engineers have a deterministic approach to technology, i.e., engineers exhibit a value-neutral attitude by understanding the Internet and the Web as technological infrastructure. On the other hand, some

academics consider human participation on the 'Web 2.0' as the main source of value, challenging the economic interest.

People interact on the Web creating space where they bring and share their values. The new space gives an opportunity for the free market to transform values into economic value while challenging vertical communication. People participate in Online Social Networks (OSN) which are provided mainly by private companies through the "Web 2.0". For Shirky, the Internet underpins the value of the human activity, as "everybody" comes on the Web to share, express an opinion, collaborate, coordinate collective action, and create knowledge while challenging governments and institutions (Shirky, 2009). Thus, on the Web, ordinary people have transformed themselves into actors, publishers, editors and producers, challenging the media and market industry (Idem). Social networking on the Web seems a social experiment that builds space upon "non-political understanding from person to person" (Grossman, 2006).

For engineers the technology fuels network effects. Technical analysis shows that the OSN infrastructure "has a considerably higher fraction of symmetric links and greater levels of local clustering", enhancing participation and attracting more users (Mislove, et al., 2007). Technically, the OSN infrastructure is an additional layer of the TCP / IP, named Content and Transaction Layer, which is mostly mediated by the Web (Drake, et al., 2016). Engineers conceive human participation on the Web as another layer of the multi-layered Internet, referring in fact to the TCP/IP.

Within every layer of the TCP/IP, there are protocols, implemented digitally through algorithms that control technical operations. Most of the protocols of the first four layers are in every corner of the globe. The protocols of the Content and Transaction layer can be either globally implemented as the Web, or for specific content and services. Table 1 shows the different TCP / IP layers and their main protocol.

Table 1. Internet Layers, Components and Players, adapted from (Drake, et al., 2016)

LAYERS	NO.	MAIN COMPONENTS
Content and Transaction (social)	5	Information exchanged, and the interactions and behaviours involved. "The Web 2.0"
Application (engineering)	4	Utility protocols: FTP (File Transfer Protocol), HTTP (Hyper Text Transfer Protocol), DNS (Domain Name System), DHCP (Dynamic Host Configuration Protocol), SMTP (Simple Mail Transfer Protocol), BGP (Border Gateway Protocol). It provides process-to-process data exchange for applications.
Transport (engineering)	3	Protocols for data transport like TCP (Transmission Control Protocol), UDP (User Datagram Protocol, to send messages known as datagrams, handling host-to-host communication)
Network / Internet (engineering)	2	IP (Internet Protocol) versions IPv4 and IPv6, IPSec (IP Security authenticates and encrypts). "IP carries packets from a source to destination, using the routing protocols to determine the paths taken by the packets, connecting autonomous systems, thus establishing internetworking" (Carr & Melgarejo, 2018)
Physical / hardware link (engineering)	1	Over which packets are carried: ARP (Address Resolution Protocol), NDP (Neighbour Discovery Protocol ~auto-configuration of nodes: olds and news), MAC (Medium Access Control ~Ethernet, DSL, FDDI), Wi-Fi, satellite links…Containing communication methods for data that remains within a single network segment (link). ~Protocols defining the interface between a computer device and a transmission medium like a LAN (Local Area Network)

By analysing human participation on the Web, some scholars concluded that people value altruism, agency, self-realisation, and action within communities that have an objective (Chung, et al., 2016). However, these values reveal cultural programming that gives importance to giving, activity within the structure, and the desire for recognition. In other words, values such as sharing, reciprocity, spontaneity, and emergence of the community are disregarded (Ibid). Just like the previous one, there are other examples. One of the most relevant is about private, public and community goods related to the Internet and specifically with the participation of the end user.

On the one hand, the licence protects data as a private good. The user needs to pay or follow the terms of use of the owner to use the private data. On the other hand, if data is available on the Web under an open licence, anyone can download data that are public resources for the benefit of anyone. Here the question is, who is the main beneficiary? Companies say that data as a public resource help their customers to reduce information asymmetries while socialising, comparing products, finding out facts, and lessen the power of the seller, making better decisions (Levitt &

Dubner, 2009). Governments say that open data[20] allows entrepreneurs and communities to develop resources to make improvements for the public benefit. The Open Data Institute (ODI) considers Open Data as non-excludable and non-rivalrous, suggesting data released by the government as public goods, yet it is allocated to the private sector, regarding efficiency and opportunity, but without considering externalities (Tennison, 2015).

However, it is worth making clear that one is the history of commons from the structure and other from communities (Hess & Ostrom, 2007). Considering the tragedy of the commons, the government and the laws protect the holder of the intellectual property of a good. The management of externalities needs funding, pointing to taxation policies. Open access demands protection for those who supply and maintain public goods. Both public and private goods are within the structure; thus, government and private highlights positive externalities (network effects) to increase confidence in the government and to strengthen the market. Negative externalities are difficult to determine and even worse to assume (as they end up being neglected by the capitalist world in order to diminish costs and maximising profit). Ostrom showed that through collective action, the communities that use and produce a good could protect it and take better advantage of it within their environment, even adapting to negative impacts (Poteete, et al., 2010) like spill-overs and spill-ins.

“Commons is a shared resource by a group of people” (Hess & Ostrom, 2007). The Internet underpins the organisation, production, and distribution of knowledge, i.e., information commons (Ibid). The information costly to produce is copied, imitated and exchanged, almost for free, through the Internet. Communities use this information to create more knowledge known as “community commons” (Ibid). Other participants may use this information to obtain profit or to harm others, creating a paradox as Mansell pointed out (Mansell, 2012).

Community commons means managed commons instead of open access, open communication instead of controlled, joint benefits instead of self-interest, self-governance instead of privatisation or government intervention, and sustainability upon collective action instead of external funding (Hess & Ostrom, 2007). Private, public and community commons coexist and can be fuelled by mediating bottom-up local governance with top-down state governance (Ibid).

Nevertheless, on the Web, private companies handle public, private and community goods, whose management is complex, implying economic resources, knowledge, rules and efficiency (Levine, 2007). As the Internet backbone, its infrastructure, and its provision are in private hands; they are

[20] Non-personal data released by governments or companies that anyone can access, use or share (Tennison, 2015).

private goods. The TCP/IP and the Web architecture are in the public domain. The community commons have beneficiaries, but also generate inequality. Moreover, the private provision of content and services on the Web 2.0 provokes a kind of symbiotic interaction between companies and users, challenging the boundaries between providers and consumers, named *prosumers*.

3.7.2 The Internet values for the dominant social imaginary

Human interaction on the Web on a massive scale attracted private companies to take advantage of the Web for marketing, customer engagement, product positioning, pricing, distribution, and branding (Mohammed, et al., 2004). In the early 2000s, private companies saw a market opportunity to provide social networking space which is also a threat. Private OSNs make the social easy and convenient for the end user. However, at the same time, commercial OSNs narrow space. On the one hand, Web 2.0 entailed many opportunities, such as (Battelle & O'Reilly, 2004): (i) *A Platform*, a development environment with commodity/free/cheap components, and data lock-in instead of hardware lock; (ii) *an Architecture of Participation,* business leveraged by user-generated content, the force of many; (iii) *data is the Intel Inside,* its control is an advantage); (iv) *Innovation in Assembly,* value in aggregating data; (v) *new lightweight business models:* Google/Blogs vs Newspapers, Netflix vs Cable, Amazon vs Walmart; (vi) *Integration*, software above the level of a single device: songs/videos/data; (vii) *the power of the tail*, high level of competence, adaptability and opportunity). On the other hand, the private provision of content and services needs to design and control the market space created by the Web, enhancing inequality and creating other positive and negative externalities (Mohammed, et al., 2004).

The creation of value through the Internet and the Web has changed the world economy. As mentioned by C. Perez (Perez, 2009), it is a technological revolution driven by government, society and business that, through interdependent networks that massively connect the human population, is transforming the world economy. It is a techno-economic paradigm shift that has two periods: installation and deployment (Perez, 2016). The former implies irruption and competition driven by financial and commercial investment to locate markets with the permissiveness of the government (Ibid). New technologies transform products into services, changing consumption patterns and collective engagement.

The second period or the contextual deployment of technology needs direction; otherwise, it stagnates (Perez, 2016). New technology needs to be backwards compatible with the current technology. Policymakers should be aware of the production of new kinds of goods and their potential within the historical context, a transition period (Ibid). However, although technological

omnipresence and its ability to contribute to power reduce costs and increase capital, it also creates externalities, deepening differences (Ibid).

Nowadays, for Perez (Perez, 2016), the technological revolution is half-way, and as it enables ease communication and coordination, developing countries and networks of people within digital communities are also participants, not only consumers. Bureaucratic command-and-control and centralised business management can shift to flexible, autonomous and ubiquitous networks with value-chains (Ibid). The social imaginary behind the screen conceives the Internet impact on the economy and the society both positively and negatively. Below are the criteria of some authors and the media about the digital economy as a positive impact of the Internet, and the digital divide as negative.

3.7.2.1 The digital economy

Tapscott analysed the convergence between communication and computing technologies with content creation. He thought that this convergence changes the way we communicate, participate, learn, play and do business. He highlighted the characteristics that add value and cost to the digital economy (Tapscott, 1997): (i) human capital, knowledge; (ii) digitisation, of practically everything: (iii) fluid and flexible work structures; (iv) transaction cost reduction; (v) integration of all players in the value chain; (vi) apparent disintermediation; (vii) innovation; (viii) "prosumption": consumers also produce; (ix) immediacy, short time between ordering, creation and delivery; (x) globalisation, one world economy; (xi) inequality of digital literacy, access, privacy, security and differences in cultural-linguistic-values.

Indeed, the Internet and the Web have primarily increased their value while more people engage. In 1990, less than 0.05% of the human population was on the Internet (InternetLiveStats.com, 2017). Today more than 3.5 billion users interact with more than 1.1 billion websites, performing over 3.5 billion Google searches per day, watching almost 4 billion videos on YouTube, and using a broad range of web services like Facebook that has 1.8 billion users (Ibid). This interaction creates data flows larger than a zettabyte per year (10^{21} bytes) which might reach 2.3 ZB by 2020 (CISCO, 2016). According to reports, the use of the Internet is the basis of economic transformation. In 2014, the data-flows accounted for a GDP increase of US$ 2.8T, representing more economic value than traditional flows of traded goods (Manyika, et al., 2016). These data flows highly correlate with Internet data traffic (Ibid).

The purchase and sale of content and services delivered through the Internet and the Web underpin the digital economy. However, the market becomes complex. Some authors refer to it as a two-sided market, i.e., content and services are paid by a third party that seeks benefit from the first,

the user (Waters, 2007). Although Raynor (Raynor & Cotteleer, 2015) considered that value creation comes from a loop of five stages, upon Waters' ideas a new stage can be added. In the first stage, clients using services and participants interacting create data on the Web, i.e., data as feedstocks. Second, data transit generates economic value for ISPs. Third, data brokers gather data as feedstocks too. Fourth, private companies and governments aggregate data in silos from different sources, i.e., data as the endowment. Fifth, data are analysed to discover patterns and relationships to predict, prescribe and exploit, i.e., data as a commodity. Sixth, data create value for consumers such as reliable and personalised services, maintenance, standardisation, innovation, and transparency of business practices.

Big Data are methods and technologies that allow the extraction of vast amounts of data (e.g. from the Web), which are then stored and analysed, within walled gardens, to obtain knowledge and value which can underpin new business models (Wirtz, et al., 2010). Big data obtained from multiple sources may be for the public good: well-informed citizens, better services, and information asymmetry reduction (Howard, 2011). Big Data is an opportunity for innovation, competition and productivity because it has an enormous potential economic value (Manyika, et al., 2011). Predictions show that Big Data technology and services will grow 23.1 times through 2019 representing $ 48.6 billion in total (Olavsrud, 2015).

Following capitalist logic (Skeggs, 2014), on the Web, data as feedstocks, which are produced by anyone and come from anywhere, at any time, can be monetised. However, calculating the economic value of data is not straightforward. Pricing complications come from reproducibility, attitudes, ownership and costs associated with the value-creation loop (The Economist, 2017). Data can be copied easily and practically at no charge (Ibid). When reproduced, data can be used for different purposes at any time by many stakeholders including companies and governments - data as a non-perishable endowment, bringing concerns about the property, privacy and security (Ibid).

Private practices seek efficiency such as reducing costs of feedstocks - data. Providers demand their 'clients' to cede ownership of their data produced when using digital services or accessing content. Prosumers – information producers and consumers - barter their data for access, leading to security and privacy threats (Schwartz, 2004). Nevertheless, there are companies named as 'data brokers' that collect public and personal information from the Web to build users' profiles upon personal data and behaviour, selling them to third parties for different purposes (United States Senate, 2013). Their practices bring concerns about ownership, privacy, transparency, trust and control (Ibid). The Economist suggests that to increase trust in businesses practices, the value of data as a commodity should account for a company's market capital (The Economist, 2017). However, the price value of data is affected by context and their time of origin, meaning that the producer has

no pricing control over data, data analysis methods and tools have no standards yet, and the externalities include personal consequences; thus, it is simplistic to conceive data as a commodity (Olhede & Rodrigues, 2017).

The convenience of the use cost, easiness, government policies and support, social networks, diversity and quantity of content and services, as well as network effects have allowed few companies to concentrate the economic value produced through the Internet and the Web. The few top companies are a benchmark of the digital economy. Additionally, there are a vast number of small companies - a long tail - that share space in the digital market. Therefore, this is an example of Vilfredo Pareto's distribution (Brynjolfsson, et al., 2011). Table 2 illustrates the economic value, in 2016, of the top ten companies in the world regarding their market value and their data flows. Market Capital information comes from Nasdaq (NASDAQ, 2017). Revenue data comes from Fortune (Fortune, 2017), Nasdaq (NASDAQ, 2017) and MIT Review (MIT Technology Review, 2017).

Table 2. Economic Value of Top Companies in 2016

Company	Kind of site	Market Capital US$B	Country	Revenue US$B
Alphabet	Searching	674	US	75
Amazon	E-commerce	479	US	107
Facebook	OSN	448	US	28
Alibaba	E-commerce	364	China	23
Tencent	OSN	350	China	10
Priceline	E-commerce	83	US	11
Salesforce	E-commerce	64	US	8
Netflix	Video	62	US	9
Baidu	Searching	61	China	1.5
eBay	E-commerce	37	US	9

The control of information flows allows companies to capture value from competitors and other sources, and the differentiation in the way of controlling information gives competitive power (Raynor & Cotteleer, 2015). Top companies keep going up while controlling space and having the means to continuously capture and aggregate data of different magnitude - scale, scope, frequency - and reducing risks – security, reliability, accuracy – (Ibid). Even more, top companies quickly locate, and possibly absorb competitors and start-ups, becoming even more significant and powerful (Antonelli & Patrucco, 2016). As the gospel states, "To them that hath shall be given" Mark 4:25.

The fact that Google (Alphabet) – and others - had received funding from the US state (Mazzucato, 2014) suggests the success of government protectionism of capitalism. The presence of three Chinese companies also shows that it does not matter if protectionism comes from a democratic or a communist country while demonstrating that both cultures underpin the free market. It is fair to say that the private initiative to convert the services and content provided on the Web to economic

benefit should not be underestimated. Nevertheless, the leadership of these companies also suggests their moral authority in the network. Algorithms such as Google Page-rank, or Facebook News Feed cause lack of visibility, asymmetry and information bias, underpinning network effects and possible harms (Tufekci, 2015).

For neo-Marxists, top companies are capitalism accelerating platforms (Williams & Srnicek, 2013). For Srnicek (Srnicek, 2017), capitalism turned to data to revitalise itself from the prolonged overcapacity crises of the modern economic and social systems in industrialised, standardised mass production and mass consumption. Upon the accumulation model embodied by Google, Facebook, Amazon, GE, Siemens, Spotify, Uber and Airbnb, Srnicek[21] demonstrated that data and platforms perform a series of crucial capitalist functions such as the ability to promote the relocation and the precariousness of the workforce. The effects of top-companies spill over the offline world on which these business models project their ethos: governments and cities must be smart, companies disruptive, and workers flexible (Ibid).

The use of the Internet at a global level carries out other aspects beyond the economic benefits. The Internet usage expands the information base, reduces transaction costs, and creates information goods (World Bank Group, 2016). In consequence, the World Bank (henceforth 'WB') (Ibid) proposed that these technologies make development inclusive (search and information), efficient (automation and coordination), and innovative (social economies and platforms). Moreover, the WB considered that global communication networks produce digital dividends which are growth, jobs, and services.

3.7.2.2 The Digital Divide

As the previous section discusses, the dominant social imaginary highlights the positive aspects of the globalisation of the Internet. On the other hand, the negative aspects involve costs, and the same social imaginary establishes their limits. In an interdependent world, the differences regarding the region, culture, economy are particularised. Moreover, when economies and political orientations are similar, differences are considered paradoxes, such as privacy, free market and others. The Internet has not created the divide, but possibly is helping to deepen it.

[21] Srnicek talks about five types of platforms with examples (Srnicek, 2017). Google and Facebook are advertising platforms because in exchange for personal data they sell ads space. Amazon, in addition to buying and selling products, rents hardware and software, it is a cloud platform. GE and Siemens are industrial platforms producing hardware and software that transform the traditional production line into Internet-connected processes. Spotify is a product platform using other platforms to turn goods into services and charge for their rent. Uber and Airbnb are austere platforms because they minimise their assets to increase profits.

3.7.2.2.1 Inequality

Only a few reap the digital dividends while the consequent externalities are still in debate. First, commercial interest prevails. Shaping a long tail, most companies whether depending on top companies or struggle to create market space. Secondly, the moral authority of top companies allows them to control the market and exhibit behaviours that create biases and paradoxes.

The digital economy creates externalities. For Tapscott, the costs of the digital economy are inequality and globalisation risks (Tapscott, 1997). Inequality in the digital world involves differences in aspects such as literacy, access, privacy, security, and cultural-linguistic-values dissimilarities. However, differences might reflect old trade and social practices. The Internet and the Web might be a new means to boost inequality, and negative practices in globalisation. Business practices, influential voices and regulations for the Internet and the Web may become paradoxical, deepening the digital divide. According to the WB (World Bank Group, 2016), digital dividends created by the digital economy, do not spread to all because of concentration, inequality, and control. To expand digital dividends, the WB proposes to regulate firms, improve digital skills and increase trust in institutions which has been eroded by both governmental surveillance and private practices (Ibid). However, regulations and trading practices create paradoxes feeding the digital divide.

3.7.2.2.2 Interdependency

The world is a total system (Boulding, 1985) where natural resources sustain human development as a biological, social and economic total entity; however, throughout the world, geopolitical divisions have created local institutions, as closed systems to handle issues locally. The Internet highlights, at the global level, the interdependence of human socio-economic systems with institutional and corporate practices. It seems the digital divide is just an expression of the old Appian Way (Bonvillian, 2006), meaning the world is organised around the trading routes, i.e., a merely economic attitude. By analysing global business practices and their social implications, Wallerstein (Wallerstein, 2004) thought of an interdependent global structure built over trading routes that converge from ‘periphery’ and ‘semi-periphery’ countries, which are labour and raw material providers, to a few ‘core’ industrialised countries. ‘The Others’ are not part of the western capitalist trade route (Ibid). This global structure maintains a stratification of countries for trading convenience. Guillen (Guillen & Suarez, 2005) found that Wallerstein’s distinction of countries correlates with Internet growth and penetration because “regulations, politics and sociology exert pressure on technological and economic factors”. Wallerstein’s model and Guillen’s findings confirm Kim’s ideas about the geopolitical reasons for Internet penetration are mostly economic and underpinned by ‘core’ governments (Kim, 2005).

On the one hand, governments underpin the free market favouring private companies and capital, i.e., the economic value (Skeggs, 2014). On the other hand, governments advocate socio-political values such as democracy and freedoms. Democracy (*dēmokratía* ~ "*rule of the people*") seems to be a series of practices and principles that, once institutionalised, protect freedom (Kekic, 2007). The Internet goes beyond freedom and democracy. Statistics show that the Internet is used in 246 countries, covering 51.7% of the human population (Miniwatts Marketing Group, 2017). Two-thirds of internet users are from developing countries (ITU, 2015). Meanwhile, Western statistics show that of 195 nations, 45% are free (Abramowitz, 2018), while democracy, measured in 167 countries, is both full and flawed in 76 (Intelligence Unit, 2017).

Table 3 contrasts democracy index (Intelligence Unit, 2017), freedom (Abramowitz, 2018), and Internet penetration (World Bank Group, 2016) with the kinds of global trading participants (Wallerstein, 2004) & (Babones, 2005). A sample of 103 countries was taken, due to available data from all sources. How each source classifies the data is explained briefly. The percentages of the first three columns are distributed throughout each column regarding type, except for the last column that corresponds to the average percentage of Internet users within the countries grouped by the three previous columns.

The Economist's Democracy index scores the country's state of democracy. This index considers four types of regimes: full democratic, flawed democratic, hybrid, and authoritarian (Intelligence Unit, 2017). For the 2016 Democratic index, most of the full democratic states are the European monarchies, and as a counterpart, the US falls as flawed democratic (Ibid). The Intelligence Unit prioritised functioning, regardless of differences across rights by virtue, family inheritance or wealth (Ibid). The functioning is about efficiency, the justice system, diverse and independent media, participation and political culture, and governance (Ibid).

Freedom House measures freedom closely to democracy (Abramowitz, 2018). For them, the wealthiest people live in democratic countries; democracy is open to innovation and opportunities, is the least corrupt government style, and protects individual freedoms adequately (Ibid). Freedom House highlights honest elections, free speech, accountable government, and practical legal constraints on institutions with authority, as fundamental democratic values (Ibid). Freedom House classifies countries as free, partially-free and not-free (Ibid).

Table 3. Global trading, democracy, freedom and the Internet (various sources)

Wallerstein	Democracy	Freedom	Avg % Pop Internet
Core 27%	Full Democratic 94%	Free 31%	89%
	Flawed Democracy 23%	Free 15%	77%
		Partly Free 6%	84%
Peripheric 20%	Flawed Democracy 13%	Free 5%	24%
		Partly Free 10%	31%
	Hybrid 52%	Partly Free 35%	19%
	Authoritarian 20%	Partly Free 3%	47%
		Not free 13%	40%
Semi peripheric 18%	Full Democratic 6%	Free 2%	65%
	Flawed Democracy 25%	Free 18%	57%
		Partly Free 6%	64%
	Hybrid 10%	Not free 13%	47%
	Authoritarian 20%	Not free 20%	59%
Other 35%	Flawed Democracy 40%	Free 29%	64%
		Partly Free 10%	53%
	Hybrid 38%	Partly Free 23%	42%
		Not free 7%	17%
	Authoritarian 60%	Partly Free 6%	68%
		Not free 47%	42%

Five additional observations[22] enhance the data in Table 3. First, most of the democratic countries are world trading centres which are free and have the highest percentage of Internet penetration. Secondly, Uruguay is the only democratic and non-core country, but semi peripheric. Thirdly, peripheric authoritarian countries such as China, Nigeria and Syria have better Internet penetration than the peripheral ones with democratic tendencies. Fourthly, Internet penetration in both semi peripheric and other countries is higher than in peripheric ones, except for Iraq (other, hybrid, not-free). Fifthly, democracy has gone hand in hand with global trade routes, representing around 27% of the countries in the sample; (vi) the Internet is more "universal" than democracy, liberties, and world trade.

As the Internet is commercial, the results in Table 3 suggest the market rationale is separated from the rationale of democracy[23], indicating free-market globalisation rather than democracy and freedoms. Geopolitical intentions that remember the Appian Way may have motivated the early Internet deployment (Bonvillian, 2006), but once privatised, it is evident that the Internet flowed through markets beyond democratic institutions. Also, the new China leadership in the global free

[22] Data is shown in Appendix B, Table 16

[23] From history: AT&T communication lines were operational during the Cuban missile crisis (ICANN, 2017).

market confirms the idea of different logics (He & World Economic Forum, 2018). It seems the openness of the global Internet fuels the free market more than democracy.

The previous observations are complemented by and confirmed with the data of the World Bank by classifying regions regarding income. Those who do not have access to the Internet or have a low-quality digital service are second-class citizens (World Bank Group, 2016). To illustrate this consideration Figure 3 shows the percentage of internet users by country regarding high income, and Figure 4 shows the number of Secure Servers per million habitants by regions regarding high income. Figure 3 shows the inevitable tendency to homogenise Internet access between rich and poor, but the quality and safety of Internet services show a significant gap between them (Fig 4). The location of secure servers suggests where the walled gardens might be. The World Bank groups regions as Figures 3 and 4 presents.

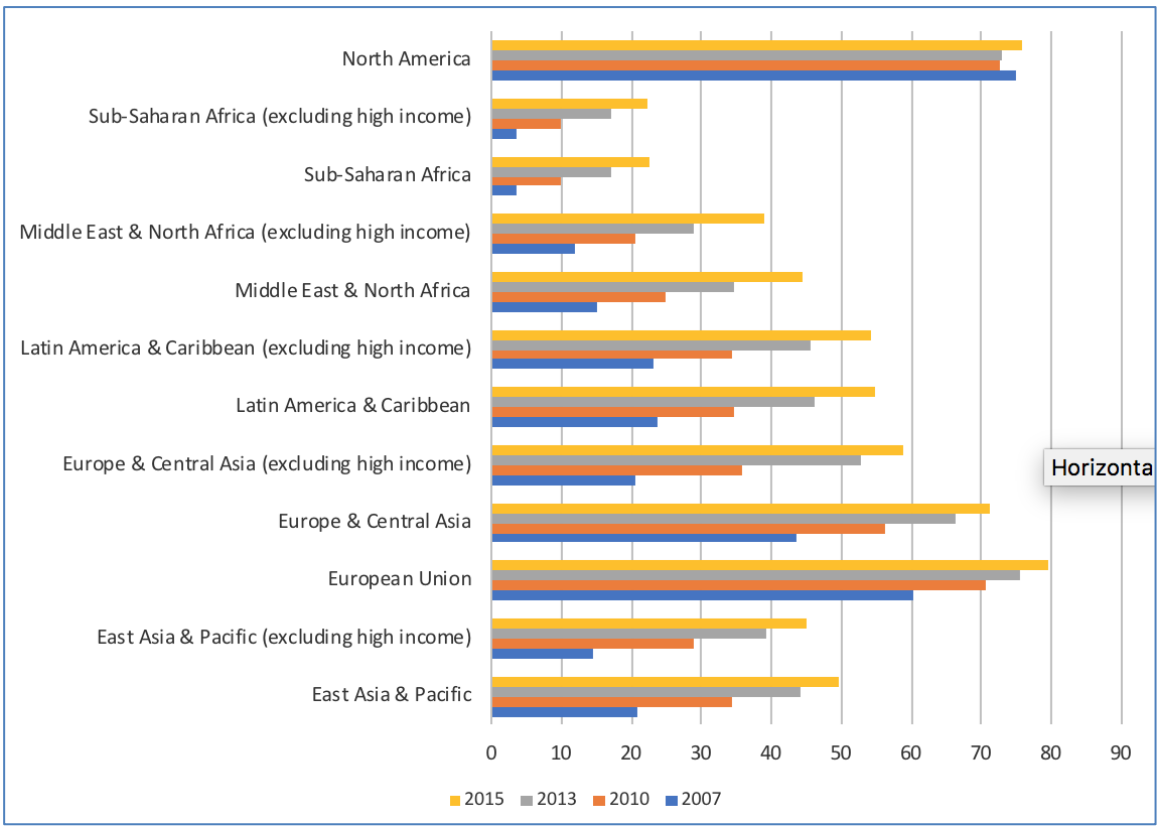

Figure 3. Percentage of Internet users by region. Data from (The World Bank Group, 2016)

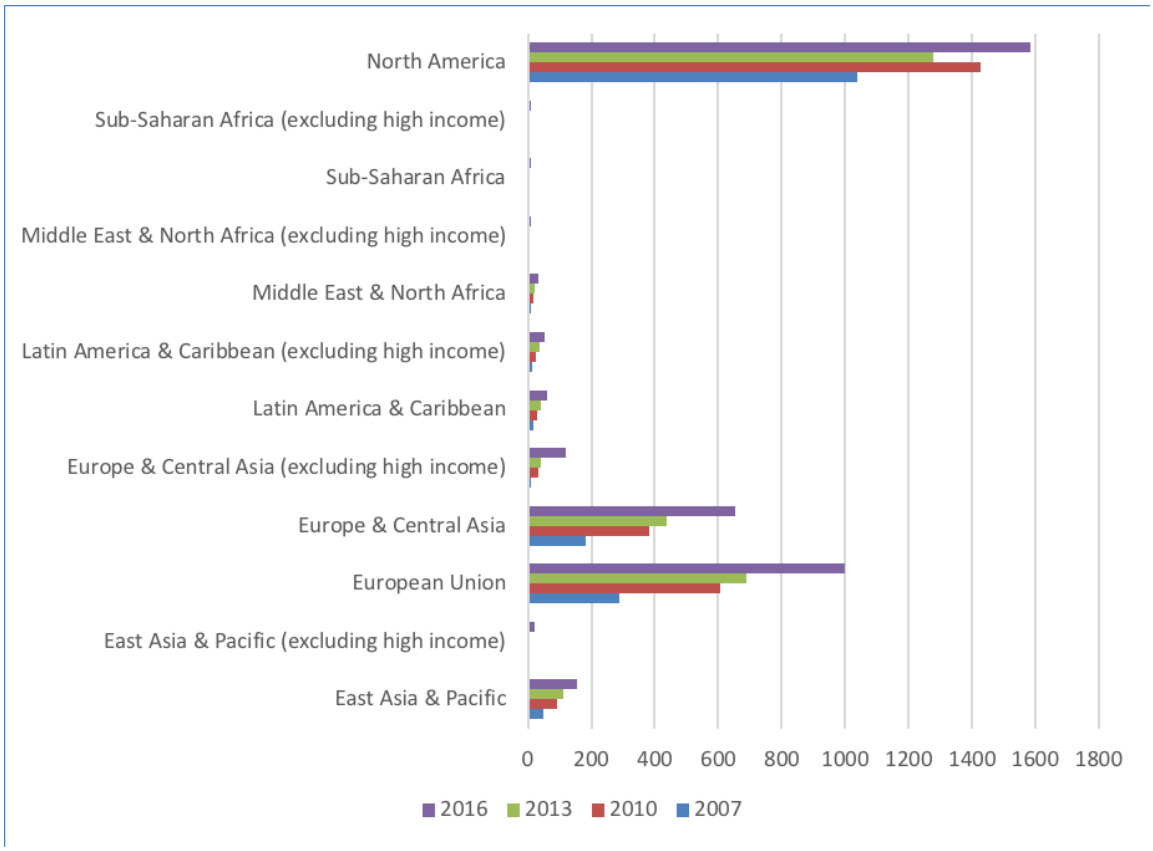

Figure 4. Secure Servers per 1M people by region Data from (The World Bank Group, 2016)

Facebook considers that inequality in access to the Internet is due to availability, affordability, relevance and readiness (Facebook, 2016). The company commissioned The Economist Intelligence Unit (EIU) – through internet.org – to analyse Internet inclusion across 75 countries which represent 90% of both population and GDP (EIU, 2017). EIU concludes that most internet users have a poor-quality connection, most of the connected countries lack relevant information in their local language, and women are less connected especially in developing countries (Pepper & Jackman, 2017).

China's growing commercial success offers the opportunity to reflect on the preconceived idea that democracy supports the free market in a better way. It also shows that there is no single rationality or a single value system. Thus, the pretention to universalise is challenged. However, it confirms the universality of the free market whose commercial strategies consider both cultural differences and individual expectations.

The Economist Intelligent Unit considers China as an authoritarian regime because has not political pluralism, has censorship from the government who also leads the media, and has cases of civil liberties abuse (Intelligence Unit, 2017). Goldsmith (Goldsmith & Wu, 2006) illustrated many of China's censorship practices mediated by US companies such as Yahoo and Microsoft. China's Golden Shield - tool for the propaganda system - and the Great Firewall – a tool for the public

security system - are becoming stronger and effective for censorship purposes: i) In 2013, China Internet police had two million people monitoring microblogs (BBC, 2013); ii) Since 2009, China is becoming more useful for blocking WhatsApp and Instagram (Bradsher, 2017); iii) since 2018 the Chinese government will block all VPNs (Haas, 2017). Physically, the Chinese Internet is more like a centralised network. Nowadays, CN2, a government-owned company, controls 70% of Chinese Internet content and has over 200M Internet users (China Telecom Global Limited, 2015).

Examples demonstrate in some way that China is far from being democratic. The intervention of the Chinese government through the Great Firewall can be effective against the threats of the Western culture, as well as common threats such as hate speech, credit card theft, invasions of privacy, sexual predators, spam (Goldsmith & Wu, 2006). Also, the Chinese firewall benefits local business at the point to succeed globally like the case of Alibaba (Gracie, 2014).

Zizek (Žižek, 2015) contextually understand the authoritarianism of the Chinese government, which according to him has three purposes: to guarantee the success of capitalism, guarantee the freedom of religion, avoid that individualistic hedonism corrodes social harmony. The first two have to do with internal conflicts that must be controlled efficiently (Ibid). The latter refers to the threat of the values of the Western world underpinned by democracy and freedoms (Ibid0. The Chinese government wants a self-legitimisation, *capitalism without a class struggle* (Ibid).

3.7.2.2.3 The freedom/privacy paradox on the Internet

Norris (Norris, 2001) analysed the US and EU cyberculture about the possibility that the Internet and the Web are affecting society. A survey asked Internet users about their degree of agreement/disagreement with *value statements*. Statements were within two scales of moral and economic values. The results showed that Americans tend towards freedom, value secularity, believe more in the free market than in the intervention of the state, and observe a slight Republican tendency. In the case of Europeans, they demonstrate a post-materialist trend, that is, towards secularity, individualism, equality, protection of the environment, privacy and respect for democracy. Norris concludes (Norris, 2001) that these results do not indicate that the Internet and the Web are changing social and cultural values since they are rooted in our childhood, and we use the Web by choice. However, she continues, with the penetration and rapid adoption of the Internet and the Web since childhood, the traditional values of each culture can, in the long term, be changed towards cyberculture of global homogeneous values. Norris considers that cyberculture relies on individualistic values, which are sympathetic toward “global homogeneous values”: freedom of expression, equality, secularism, globalisation, self-expression, and participatory democracy (Ibid).

The European Commission's Directorate-General for Communications Networks' Content and Technology department, DG Connect, proposed that the Internet of the Future should enhance services, intelligence, involvement and participation, reflecting freedom, openness and interoperability, which are the European social and ethical values (European Commission, 2017). DG Connect considered that European Internet users constitute the world's single largest online market and that Europe leads social innovation and public-sector digitalisation. In 2016, DG Connect carried out a consultation. The results show that privacy is by far the biggest concern ahead of freedom, inclusion, transparency, and sustainability (Overton, 2017).

In brief, even democratic values such as privacy and freedom might become competing. The way people deal with online privacy depends on individual choice and cultural values; the decision is heterogeneous and circumstantial, not homogeneous and universal (Cho, et al., 2009). Paraphrasing Kagan (Kagan, 2003), while both Americans and Europeans believe in democracy, they do not have the same view of the world because the former have power

The privacy paradox is illustrated by Barnes (Barnes, 2006) through the youngsters' attitude to value their privacy while they are interacting on social networks. Barnes asks questions that reveal different interpretations of what privacy means, ignorance about the use of personal data, the orientation of laws to preserve the rights of providers who have not had the knowledge and consent of the majority, and about the spaces of interaction and privacy that the culture offers and favours.

In the Western world, examples of freedom of expression relate mainly to private business practices. However, these practices can lead to privacy problems, as some examples demonstrate: (i) there is much controversy about the ways Facebook handles and sells the information upon the analysis of the activity "of each of its 2.2 Billion users" (statista, 2018). The information allows Facebook to personalise a message, showing to each user what she wants to see, telling what she wants to hear, manipulating her political opinion (The Guardian, 2018). (ii) Based on the Safe Harbour section of the US Digital Millennium Copyright Act, DMCA, which protects users' privacy from non-transparent freedom of trade practices of providers, Schrems filed a complaint against Facebook for sending his private information from servers in EU to the US (EPIC, 2015). (iii) Under the DMCA umbrella, the Church of Scientology asked Google to take down sites that host church documents expressing antagonist ideas (Goldsmith & Wu, 2006). (iv) Google.fr in France, google.de in Germany, and others block content available on google.com that is considered illegal or sensitive in those countries (Ibid). The latter can be a reaction to the possible American cultural invasion through the Web, as some authors have suggested (O'Hara & Stevens, 2006), (Marcuse, 1964).

3.7.2.2.4 More paradoxes feed the digital divide

Upon their comprehension of the fundamental Internet values, some collectives have raised their voices in support of regulating the Internet. Their perception and consequent actions might reinforce the digital divide, as the following examples show:

- The Net Neutrality principle 'NN' claims to treat equally, without discrimination, both all users and the flows of data on the Web. It seems the Net Neutrality principle is an approach to the end-to-end engineering principle. However, the significant number of regulation proposals from public activism leads the Electronic Frontier Foundation, EFF, to plead for Net Neutrality as a non-regulated principle (Electronic Frontier Foundation, 2017).

- The American Conservative Union promotes NN under free-market rules (ACU, 2014), creating a paradox because business steps up through satisfied clients that value their online experience like watching HD videos that need bandwidth.

- Concerned about censorship, surveillance and power concentration, the Web We Want coalition defends the "Web as a public good a basic right, and as a catalyst for social justice and human rights" (The Web We Want, 2017). They believe in "freedom of expression, equality in affordability, privacy and NN" (Ibid). They think the Web should "remain diverse, decentralised and open", supporting projects around the world (Ibid). However, every project proposal was likely to have an individualistic approach to who is 'we', and possibly only influential voices are heard (OffGuardian, 2016).

Governmental regulations for public benefit might expand digital dividends (World Bank Group, 2016). Public policy can be orientated to enhance public services, to open government data and allocate them as public goods – non-rivalrous commons -, and to encourage digital literacy for citizens (The Economist, 2017). Moreover, government policy can force content and service providers to socialise their data (Ibid). With *data glasnost*, companies will report the information they hold about their users and the amount of money it represents, without neglecting the privacy and security of users' data (Ibid). Thus, trust in the government will increase (Ibid).

The WB and The Economist propose to improve institutions, and Facebook's intention is corporate support. It is likely that the Internet is not going to solve issues between governments and institutions, but control and regulations can deepen the digital divide and erode trust in the Internet:

- Exposing Big Data opportunities, a White House report posed hard questions about privacy protection, security and discrimination to Big Data. Data analytics may overshadow "civil

rights protections in how personal information is used in housing, credit, employment, health, education, and the marketplace" (Podesta, et al., 2014). The report considers data on the Web gathered by the government as a public resource, that through Big Data will help to increase transparency, to detect and stop waste and fraud in public funds, and to improve trust in the government (Ibid). It seems once knowledge is obtained from data on the Web through Big data techniques, it can be released as public goods over the Web, with adequate regulation and allocative efficiency, to avoid negative externalities such as discrimination and the digital divide.

- The government's inefficiency in the provision of public goods makes them excludable goods. Usually, the government passes the allocation of public goods to the private sector, transforming them into private goods - excludable and rivalrous - (Holcombe, 1997). Recall that NSFNET passed the Internet administration to private hands looking for an efficient way to provide access and expand the backbone. However, now, as the Internet is commercial, it is a set of club goods – excludable but not rivalrous - (World Bank Group, 2016). The largest is the club of connected users - around half of the human population -, from which one third are in developed countries (ITU, 2015). Some clubs have access to better quality goods and services – broadband, secure servers -, even within the same nation or place, pointing to exclusive *nested clubs* (Raymond & Smith, 2016), behind walled gardens.

- ISPs and CDNs have the power to discriminate data flows. In their pursuit of commercial gain, their practices might be against NN principles (DeNardis, 2012). Top companies are not affected by these practices, but small businesses and start-ups remain vulnerable (Netflix, 2017), suggesting their services either overcome regulations or have the ad-hoc infrastructure. Netflix makes it clear that if ISPs do not pay for the content, content providers should not pay for the use of the network (Ibid). Pragmatism gains idealism on the NN issue because a slow Netflix would lose the interest of users, and the platforms could enter a market without incentives.

- Nowadays, there is a war about NN in the US while EU countries are taking a more protective approach. In June 2018, FCC repealed NN, which since then legalises the old ISP throttling practices and gives way to new pricing models that will affect the user experience. However, in September 2018, California approved regulations to protect NN, challenging ISP practices, but Trump's administration sued California (Lam, 2018). NN in the US is still struggling, while the EU makes public consultations; some countries have protections since 2012 and others are even discussing (BEREC, 2018).

- The massive presence and possible intrusion of advertising on the Web annoys the user, who in response uses ad blockers to protect their privacy and to improve the experience. However, ad blocking undermines business practices of small merchants and advertisers (Cramer, 2016). On the other hand, it is an opportunity for big advertisers who personalise ads, categorising potential customers according to their tendencies and tastes (Keane, 2017).

- On the one hand, the Safe Harbour section of the US DMCA Law protects service providers from improper takedowns of allegedly infringing activities of both third parties and users. On the other hand, within the EU and the US, the Safe Harbour Principle protects users' privacy from non-transparent practices of providers (EPIC, 2015), undermining the free flow of data.

- The protectionism of the state can be extended to multilateral agreements to improve trade relations. The Obama administration pushed for the Trans-Pacific Partnership, TPP, in twelve countries, without China. For the EFF, the TPP is a threat to freedom of expression on the Internet because it gives power to ISPs to take down Internet content and cut user access to user-generated content (common goods), and the process lacks transparency (EFF, 2017).

- Both western governments of cultures that prioritise privacy over freedom and developing countries with authoritarian governments impose regulations such as the right to be forgotten, consent to transfer data to third parties and to limit the flow of cross-border data (World Bank Group, 2016). The latter is *data nationalism*, which is detrimental to international trade, and which reduces gross domestic product GDP, investments, and exports (Ibid).

- The US government and others have justified actions on the Internet and the Web for public benefit, efficiency, and security. Nevertheless, WikiLeaks disclosures show governments' lack of transparency, because underneath, they are "snooping", surveilling and controlling for unclear reasons (Roberts, 2012).

- Government surveillance on the Internet violates the end-to-end principle, letting glimpse that privacy, security and civil liberties are utopic (MacAskill & Dance, 2013). Snowden's revelations reveal the attitudes of governments and corporations, giving the opportunity to analyse from another angle the intentions of freedom advocates and regulators (Ibid).

3.7.2.2.5 The Great Divide

On an entrepreneurial attitude, the US government extended its Internet to the world to harvest value: information. For efficiency, the Internet passed to the private sector, which monetises the information. With the support of the state, data market capital concentrates in a few companies, while a lot of them bid to stay in a queue. This economic phenomenon and political attitude are not new.

In his book "The Great Divide", Stiglitz demonstrates how markets alone are neither efficient nor stable and tend to accumulate wealth in the hands of a few more than to promote competition while transferring costs to consumers and poor sectors, whether local, regional or global (Stiglitz, 2015). The policies of governments and institutions promote this trend, influencing markets in ways that give an advantage to the richest compared to the rest (Ibid). Stiglitz believes that democracy and the rule of law are weakened in turn by the increasing concentration of power in the hands of the most privileged (Ibid).

Stiglitz goes further by concluding that both equality and meritocracy are a myth because the poor will remain poor even if they try hard and the rich will be more prosperous without great merits (Ibid). Stiglitz's analysis supports the idea that the Internet is merely a means of the market and governments to continue with their old attitudes.

Srnicek and Williams seem to understand the cited cases of paradoxes between freedom and privacy, as well as local protests as an expression of modernity; they call it folk politics (Srnicek & Williams, 2015). The folk politics is to deal with the local, the specific, the contextual, the practical, daily, personal experience. The value of the Greek world and the Renaissance is that the starting point is not from universality, but from capturing the moment, leading to one of the primary values of modernity: pluralism; as “absolutism lacks practical value” (Toulmin, 1992). That is, these protests are not of global impact, but through the Internet, the protest attitudes universalised (Srnicek & Williams, 2015). However, it is also universalising the control that governments exercise over their citizens, as well as neoliberalism (Ibid).

3.7.3 Beyond the digital divide

It seems both government policies and trading practices that are protectionist and restrictive create the digital divide. Also, as the engineers of the Internet confirm, the technology can be used to prevent interoperability and data flows (Drake, et al., 2016). These three are potential risks that can transform the Internet into *weakly coupled islands of connectivity*, an Internet fracturing (Ibid).

Nevertheless, as C. Perez considers (Perez, 2016), the deployment of the technology is half-way; it is up to policymakers to find the right direction. An opportunity for the proactive government (Jacobs & Mazzucato, 2016); or the chance to shift to flexible, autonomous and ubiquitous networks with value-chains (Perez, 2016). In the case of the global Internet, it is necessary to place on the same discussion table representatives of democratic and non-democratic countries along with the private and civil sector (DeNardis, 2014), to avoid Internet fracturing (Drake, et al., 2016). DeNardis, Mazzucato, Drake and Cerf coincided in their institutional vision. They had not given importance to the individual capabilities, neither to organisations that emerge from flexible autonomous self-organised networks.

The World Bank proposed collaboration at the top level and cooperation from the rich to the poor. On the one hand, (developed) countries should collaborate for both standard settings for data exchange and intellectual property rights, regarding the free market and trading (World Bank Group, 2016). On the other hand, development assistance projects can improve their cooperation in development by "wired feedback, scaling information, and mustering global information for global goods" (Ibid). The Internet allows in situ feedback, fostering efficient implementation – avoiding organisational inertia, and disaster risk management - and learning - how-to videos for agriculture and health (Ibid). Developed countries can afford information production by data harvesting and their analysis to foster development (Ibid). Through a universal and affordable Internet, global goods would be allocated to achieve Sustainable Development Goals (SDG) such as universal health coverage, women's empowerment, and transmission costs of migrant remittances reduction (Ibid).

Sen's Capability Approach gives importance to the individual more than institutions (Sen, 2010). For Sen, life occurs due to interrelated functions of beings and facts and freedom is the capability to achieve valuable functions (Ibid). While the functioning of society can support or hinder the development of the capabilities of the individual, the agency of the latter allows her to achieve the things that she values beyond doing what the structure or others want from her (Sen, 2010). Democracies "adequately promote the capacities of the individual by guaranteeing her freedoms: political opinion, economic facilities, social opportunities, transparency guarantees, and protective security (Ibid). For Sen, democracy should underpin individual agency towards the capability development to apply moral restrictions to oneself rather than providing means to underpin freedom as functional rationality of choice (Sen, 2010).

Nussbaum adds that in a democracy the individual can develop an opinion and learn to question authority rightly (Nussbaum, 2010). For this, democratic states must focus on the individual as a person who participates in society, rather than an individual who, because of his or her capabilities,

can stand out from the rest or be a useful piece for the functioning of society (Ibid). She extends Sen's control over the self to the political and material environment, pointing to the value of democracy: questioning democracy within a democracy. Thus, democracy is a construction to improve society. Srnicek and Williams speak of freedom constructed from the institutions that provide the necessary means to build knowledge and welfare (Srnicek & Williams, 2015). They talk about synthetic freedom that fosters social cooperation to create platforms for action (Ibid). Ideas of Sen, Nussbaum, Srnicek and Williams confront Castoriadis' social imaginaries because the latter is about groups over structure rather than individuals within.

In Stiglitz's eyes, the WB's attitude is protectionist towards the interests of the richest, and Sen's proposal becomes illusory (Stiglitz, 2015). Moreover, it is worth asking how likely both governments and companies are to cooperate sustainably and assume externalities reasonably, in a fair way. Usually, answers are contextualised, delimited by a set of rules, functions and scope, i.e., thinking on closed systems, leading to conveniently reduce externalities, costs and responsibilities based on taxation policy whose remedial action is bordered (Baumol, 1972). On the one hand, as King illustrates (King, 2016), the cooperation between governments is like the prisoner's dilemma, because no one wants to sacrifice itself, or turns the other cheek, even worse when it comes to finances. On the other hand, companies tend to seek short-term benefit regardless of externalities, as it happened with the yuppies who as CEOs moved the industry where labour was cheap (Graham, 2016). The latter led to the fact that after the fall of the Berlin Wall, the Western countries increased consumption, while the Asians increased their production (King, 2016). Although the "Gore Bill" and the "Telecommunications Act 1996" showed that the leading promoter of both the domestic economy and the internal and external market is the government, for King (Ibid), Western governments are one step behind commercial practices, i.e., private companies operate without control and limits.

Kaul, Perez, Ostrom and Mansell recommended that governments and companies need to think hard together, making sustainable agreements because they are handling community commons. The question is how these commons goods are preserved and allocated? Kaul suggested a two layers Internet governance, one global cooperative of G-16 with a custodian UN body, and a domestic multistakeholder (Kaul, et al., 1999), underlying the idea of distributing power and increasing its accountability. Hess and Ostrom suggested communities' self-governance without the mediation of governments or companies because both transform community commons whether into public or private goods, needing to control them (Hess & Ostrom, 2007).

Paradoxes suggest a false opposition between privileging either freedom of information and participation or economic growth and the free market (Mansell, 2012). The interaction of social

imaginaries underpins the emergence of a new social imaginary, who has four objectives (Ibid). First, instead of promoting innovation for economic growth and democracy, the new social imaginary should make clear the differences between tool, information and knowledge - means and ends. Second, the new social imaginary needs adaptive action to produce and share information. Third, they should open discussions about the boundaries of market/political interests to justify surveillance and security without infringing on human rights. Fourth, they should observe the stakeholders' accountability. The question is whether Mansell refers to a global social imaginary, or to local social imaginaries that question the local? It seems Mansell refers to a social imaginary of the information society in general, that is, conceives social change at the level of global structure, and not as a magma of social imaginaries that self-organise in different places.

In their post-capitalist proposal, Srnicek and Williams (Srnicek & Williams, 2015) seem to rescue the social imaginary of Castoriadis, but without ceasing to be dogmatic; they propose post-capitalist modernity. They agree with Mazzucato that technological progress, including the Internet and platforms such as Google, Facebook, is driven by governments more than by private companies, pointing to restriction and control policies (Ibid). They propose to free capitalism from this restriction towards "synthetic freedom", a post-capitalist economy (Ibid). Synthetic freedom is to recognise rights and physical capabilities, e.g., the freedom to do politics with campaign funding, the freedom not to accept a job, the freedom to undertake a project with the necessary resources (Ibid). According to them, this was the vision of Marx, to whom they quote: "the development of human powers is an end in themselves" (Ibid). Toulmin (Toulmin, 1992) understands Marx's notion of modernity as the awareness that in order to achieve an objective, the individual must know the limits of her action. The limit is the question: for what? The reason is both theoretical (good or bad) or what is known as value-rational, and practical (convenient or inconvenient), i.e., instrumentally-rational (Ibid).

Srnicek and Williams propose the opposite of folk politics (Srnicek & Williams, 2015). Srnicek and Williams propose a policy of scale and expansion supported by technology towards universal emancipation rather than folk politics (Ibid). They propose to organise a populist left through broad-spectrum organisations on several fronts, building a post-capitalist platform that destabilises inequality, divide; although, it will be necessary to look for substitutes for markets and create an ethos for the new political institutions (Ibid). They believe that post-capitalist platforms, freed from government restrictions, will allow whether broad political participation or individuals withdraw to see customised media shows (Ibid). Their ideas of universal emancipation through broad-spectrum participation sharing new values reminds Castoriadis' magma of magmas, instead of Taylor's or Mansell's competing social imaginaries.

3.7.4 P2P

There is a social imaginary around the Internet that fulfil, by their own, the third fundamental principle - no global control but host-to-host without relying on private apps. If there is no IANA, network nodes need a distributed body of trustees to communication to work. Each node knows where are its neighbours, aka., peers. Peer-to-peer networks are autonomous entities that self-organise, sharing resources whether locally or globally without central coordination of servers (Steinmetz & Wehrle, 2005). By acting each peer as a client or as a server at the same time, P2P networks reduce the costs incurred by traditional Internet platforms regarding scalability, security and quality of service (Ibid). Communication success resides on peers' trust.

Around 2005, more than half of the Internet traffic transited through P2P networks (Steinmetz & Wehrle, 2005). P2P networks are used to coordinate action, avoiding surveillance or market targeting (Devine & Egger Sider, 2004). Due to the autonomy and freedom of each node, these networks reflect *a paradigm shift, from coordination to cooperation, centralisation to self-governance, control to incentives* (Ibid). This paradigm shift is a reminder of the settlement-free Tier 1 ISP. Furthermore, trust in peers generates economic value out of the banking system, as shown by the blockchain of public distributed ledgers that give value to network currencies like the bitcoin which does not need whether private or central banks. Without IANA, people wanting to increase their capital need to mine bitcoins through large chains of ledgers who register a specific amount of coins daily and globally. The control resides in the bitcoin algorithm itself which is open-source since 2008 (Bitcoin Project, 2018). Bitcoin is a community effort as value relies on “shared public ledger” and a “distributed consensus system” (Ibid). There are Bitcoin wallets to transfer value to economic (Ibid). Bitcoin wallets keep a private key to transactions acknowledgement by broadcasting it through the network; thus, public ledgers need to approve the transaction, i.e., mining (Ibid). The community effort has increased the bitcoin economic value from bits to national currencies such as the dollar, euro, yen. Nowadays, the bitcoin fluctuates between US$ 3000 to US$4000 (ccn, 2019).

However, the activity of P2P networks is suspicious to governments. The decentralised assignment of IPs anonymises the nodes, making them uncontrollable for either IANA, ccTLD[24], or gTLD[25], to the point of calling these networks the Dark Web. Dark Web members value their anonymity; hence they use specific navigating tools and networks like TOR (The Onion Router). On December 24th,

[24] country code Top-Level Domains
[25] generic Top-Level Domains

2015, there were around 4 million customers who passed their data through the Tor network bridges, according to data calculated from Tor Metrics (The Tor Project Inc, 2015).

On the one hand, P2P anonymous actions are valued like when exposing useful information about illegal, unethical or harmful actions of governments and companies; or by helping parents to generate a favourable navigation environment for their children (Chertoff & Simon, 2015). On the other hand, the Dark Web is seen as a space for criminal activity, the primary reason to justify government surveillance and alternative means of control (Ibid). Bitcoin is a direct threat to the banking system. The social imaginary behind the screen makes efforts to demotivate and demoralise people to use bitcoins by telling examples such as the case of *SilkRoad marketplace*, and people with powerful voices arguing technically of the instability of bitcoin's value (Wolff-Mann, 2018). P2P networks deserve a separate chapter and specific studies, but as it is written, P2P networks are not the Internet, because they are off the centralised control of IANA. Denoting P2P networks as dark suggests a moralising media campaign that considers everything that is not institutionalised as bad, i.e., global internetworking under observation against community-working coordination at large scale.

In summary, TCP/IP originated in the need to control the sending/receiving of messages through different networks which gradually considered it convenient to adopt the protocol as a standard. Autonomous networks that used TCP/IP belonged to determined controlled environments until both the TCP/IP and government network infrastructure were released to the free market. Currently, the Internet is a network of private networks communicating through TCP/IP and depending on the hierarchical assignment of names and domains to provide content and services. Both the social imaginary behind the screen and the social imaginary in front of the screen find value on the Internet, although there are others who find value being out of the hierarchy. The digital revolution has already taken place, the magma of digital magmas (autonomous individuals interacting on autonomous networks) has a global dimension, that has transformed social, market, politics, media, education, economy. The latter happened due to the massive emergent use of the Internet, primarily through Web 2.0, but distorted by private companies in the sense that technology is an underlying structure with another logic than the hierarchy within states and their institutions, which also react by setting limits to private enterprise. For Perez, the digital revolution is halfway as the other half of humanity is missing. However, can the digital revolution continue but aiming to internalise externalities? Is it convenient to subvert private control over both the community and public commons? Is there another agreed logic to handle human communication globally? Is it possible for the social imaginary in front of the screen to take the baton? It seems the digital revolution refers to an organising process of the spontaneous action of those in front of the screen.

Chapter 4: Internet Control

The previous chapter focuses the Internet control concerning architecture (TCP/IP) and national and private companies' practices. Because the subject of control in this thesis is central, this chapter analyses both the control proposals of part of the social imaginary behind the screen in terms of governance and the control in a second-order cybernetic technology. The first section exposes how the multiple stakeholders behind the screen realise that they have shared control of the Internet and for this reason, they need to sit down and dialogue to reach agreements for their good, and according to them, for the good of the public. The idea of governance is in line with Wiener's first conception of cybernetics. The second section considers that social imaginaries will take advantage of technology as long as it does not affect their interests. This attitude demonstrates a level of control, which can increase if other values are at stake.

4.1 The Global Internet Governance

'*The Internet unites people; its governance divides nations'* (World Bank Group, 2016)

In the middle of a technical revolution (Perez, 2016), the regulations for the Internet's control are still ongoing, involving legal, social, economic, and technological aspects whether contextual, local, regional, or global. The control of the Internet is fundamental to both the government and the private sector to protect their interests, as they have shaped the Internet. However, since the distributed and decentralised Internet has crossed borders, and many influential participants either own autonomous networks or private services, whose interests depend on the people's engagement to the Web, the Internet control is controversial. From every connected corner of the world, governments, the private sector, and other institutions have moral, political, economic and social interests on the Internet; in short, a mosaic of actors with their values wanting to control their turf of the Internet. From the centralised Internet control, this section analyses the issues and models for Internet governance proposed and exerted of those behind the screen, and a bottom-up model which seems an attempt to mediate the decision process with those in front of the screen. In this way, this chapter analyses the values highlighted by the social imaginary behind the screen for controlling the Internet.

4.1.1 The centralised control of the Internet

Technically, Autonomous Systems, ASs, control their firewalls, gateways, routers and other switching and security equipment. To connect to the Internet, ASs should operate under the TCP/IP

protocol. Each AS must have an IP address assigned by IANA 'Internet Assigned Numbers Authority', the root authority that allows the flow of data from one point to another. The root authority is the ultimate intermediary on which everyone connected to the Internet depends on (Goldsmith & Wu, 2006). As the Arpanet's third principle was not fulfilled for technical reasons, IANA, in a centralised way, coordinates globally three primary functions: root zone management of the DNS - Domain Name System -, internet number resources, and protocol assignments (ICANN, 2015).

Since 1977, Jon Postel, the "hippie-patriarch at UCLA" (Cerf, 1998) was IANA. His philosophy and work mystique went hand in hand with the global expansion of the Internet until 1998 (Ibid). Postel's work was whether low profile or underestimate for many years, until January 1998 when he pulled in eight of the twelve root servers of the global Internet (Goldsmith & Wu, 2006). It seems Postel reacted to Networks Solutions company pretentions of controlling the 'root authority' (Ibid). Cerf believed that Postel either wanted to test resilience or opposed that the functions of the IAHC, the organisation that managed international TLDs[26], would move to Switzerland (ICANN, 2017). Postel believed that IANA could not be under a private monopoly (Ibid). Perhaps, Postel tried to underpin openness and freedom as the fundamental values of the Internet (Goldsmith & Wu, 2006). The Clinton administration reacted immediately, appointing Ira Magaziner "to solve the problem" (Ibid). Magaziner thought of the Internet as a "commerce engine". He also worried about European tax intentions and opposed to FCC[27] regulating the Internet (Ibid). Magaziner and a University of Southern California officer threatened Postel who said that he was "conducting a test" (Ibid). Magaziner proposed to transfer IANA functions to the private sector (ICANN, 2017). On September 1998, in order to absorb IANA functions, the US government created the Internet Corporation for Assigned Names and Numbers ICANN, as a secondary institution of the US Department of Commerce, requiring multistakeholder governance without offering details on how to implement it, nor any guidance on its funding model (Ibid). Postel died in October 1998 (Cerf, 1998).

"The root zone is the top of the DNS hierarchy", containing information about two top-level domains (ICANN, 2015): (i) gTLDs are for general purpose like ".com", ".org", and some top-level registered by institutions or brands, and others with non-Latin characters; (ii) ccTLDs represent a country or territory following the ISO 3166-1 standard, like ".uk", ".fr". Currently, the operation of the DNS relies on "root name servers" located around the world and operated by 12 organisations which coordinate with ICANN (Ibid). The organisations are VeriSign Inc. (manages two root servers), University of Southern California, Cogent Communications, University of Maryland, NASA, Internet

[26] Top-Level Domain
[27] US Federal Communications Commission

Systems Consortium Inc., US Department of Defence, US Army, Netnod, RIPE NCC, ICANN, and Wide project (IANA, 2017). The first nine are in the US, Netnod in Sweden, RIPE NCC in the Netherlands, and Wide project in Japan[28].

The management of the Internet number resources includes two core functions: the global IP – unique identifiers - addressing coordination (IPv4 and IPv6), and the allocation of blocks of ASs numbers to RIRs - Regional Internet Registries (ICANN, 2015). The five RIRs that manage IP address space numbers within their regions are: AFRINIC for Africa; ARIN for US, Canada, Antarctica, and some Caribbean islands; APNIC for Asia, Australia, New Zealand and others; LACNIC for Latin American countries and some Caribbean; and RIPE NCC for Europe, Russia, Middle East, Central Asia, and Greenland (Ibid). RIRs develop global policies via consensus and then submit them to ICANN for implementation (Ibid).

IANA is the "central repository for protocol name and number registries", involving the codes and numbers used in Internet protocols (ICANN, 2015). The IETF – The Internet Engineering Task Force - develops these protocols and their policy (Ibid). ICANN creates and maintains the tables with the protocol parameters and handles assignation requests of parameters (Ibid). The IAB - Internet Architecture Board – reviews ICANN's performance in the parameter function (Ibid).

In summary, IANA makes possible the internetworking between autonomous systems, i.e., the fundamental Internet operation. Understanding the importance of the ICANN, governments mostly began to push for transparency and to propose a new way of managing the root authority. Some consider this is a battle between governments, a clash of interests and ideologies to dominate a global resource as the case of trading routes, space or water (Goldsmith & Wu, 2006).

Since 2009 until January 2017, L. Strickling was the contact point between ICANN and the US government, while working for the National Telecommunications and Information Administration, NTIA (ICANN, 2017). In August 2016, outsourcing IANA functions, ICANN contracted PTI - Public Technical Identifiers -, a non-profit company based in the US (PTI, 2018). On January 6, 2017, Strickling signed the termination of the "Affirmation of Commitments" between ICANN and the Department of Commerce (Strickling, 2017). He highlighted that the regular bottom-up multistakeholder community reviews of ICANN's work were moving to a new multistakeholder model. The new model is in the hands of the private sector, which should keep review teams, transparency, bottom-up, and open participation to companies, civil society, the technical community, academia, and end-users (Ibid). The latter is part of the mission and commitments stated in the 'ICANN Bylaws', to which the California non-profit public-benefit corporation is

[28] Googled data

committed (ICANN, 2016). The outcome of a two years effort of the multistakeholder community was a transition proposal that brought critics alerting control would be going to Russia and China or was in the hands of "transnational popular sovereignty" (Georgia Tech, 2016). Nowadays, ICANN is a private institution "accountable to a global multistakeholder community" (Ibid). Some stakeholders may not like the resolutions taken from the application of the model, but Strickling believed that the worst-case scenario was changing the bottom-up model without improving it (ICANN, 2016).

While IANA allows internetworking at the top-level domains, at other domain levels the DNS management is up to autonomous systems like ISPs, countries, companies, institutions, and organisations, which use different protocols and techniques. At the TCP/IP's application layer, through the DHCP – Dynamic Host Configuration Protocol – network operators using gateways or routers dynamically assign an IP address under a client-server model for efficiency reasons (RFC 2132, 1997). NAT – Network Address Translation – remaps an IP into another within a network, thus one 'public IP' (e.g. assigned by an ISP) can direct to the Internet the traffic from many devices that are identified within a network by 'private IPs' (RFC 2663, 1999). Networks operators are responsible for the accountability of DHCP and NAT. Both can break the end-to-end principle. To control how a public IP (IPv4 and IPv6) is translated and forwarded by a NAT or a firewall, the PCP – Port Control Protocol – allows host-to-host communication across devices within different networks (RFC 6887, 2013).

4.1.2 A formal Internet Governance

In 2003 the UN Secretary-General set up the Working Group on Internet Governance, WGIG, to "develop a working definition of Internet governance IG… to identify the relevant public policy issues to IG… and to develop a common understanding of the respective roles and responsibilities of stakeholders: governments, international organizations, private sector, and civil society in both developing and developed countries" (WGIG, 2005). The WGIG (Ibid) proposed:

1. "Internet governance is the development and application by Governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet…".
2. "The IG issues with the highest priority are: administration of the root zone files and system; interconnection costs; Internet stability, security and cybercrime; spam; meaningful participation in global policy development; capacity-building; allocation of domain names; IP addressing; intellectual property rights IPR; freedom of expression; data protection and privacy rights; consumer rights; and, multilingualism…".

3. The IG stakeholders are governments, the private sector, and civil society. All of them have an IG specific role. The WGIG recommended the creation of a global multistakeholder forum to address IG issues.

The WGIG's proposal had the following consequences. First, in 2005, the EU proposed at the UN World Summit to shift domain name governance from ICANN to an UN-affiliated intergovernmental group (IGF, 2017). The US agreed to the creation of an Internet Governance Forum, IGF, where governments could debate, but the US would not relinquish its control of ICANN (Ibid). In 2006, the UN established the IGF as a forum for multi-stakeholder dialogue on public policy issues around IG, but without decision power, pointing to the IGF as a not-IG body (DeNardis, 2014). Second, IGF's discussion topics are sensitive but, some authors argued that most of the topics come out of the scope of the IG such as internet usage, the information-communication technology design and policy, access to knowledge, blocking techniques, digital divide, digital education, and so on (DeNardis, 2014). Third, the recognition of who the stakeholders are changes continuously. Fourth, there are different multistakeholder models for IG. Fifth, in 2011, the G-8 addressed openness, transparency and freedom as the essential values of the Internet and stated the fundamental values for three kinds of participants (G8, 2011). "For citizens, the Internet is a unique information and education resource, promoting freedom, democracy and human rights… For business, the Internet fosters commerce, drives innovation, improves efficiency, contributing to growth and employment... For governments, the Internet improves efficiency, communication with citizens and promote human rights" (Ibid). Sixth, the multistakeholder IG model might foster democracy by empowering citizens around the world, leading to a new political paradigm (Chapelle de La, 2008). Moreover, seventh, as a consequence, the IG definition is still a work in progress. G8 spoke for all.

4.1.2.1 IG scope

Local, regional and international levels of participatory governance might resolve issues in the limits of global public goods - Internet, information and Knowledge (Kaul, et al., 1999). Problems arise because there is an interdependence in the creation, consumption, and effects of global public goods (Ibid). Participatory governance should support the internalisation of externalities, broaden national approaches to international problems, coordinate local, regional and global policy agendas, strengthen cooperation, and return cooperation achievements to the national level (Ibid). For Kaul, a closed group does not assume interdependence with others; thus, she proposed expanding the global governance group of the G-8 to G-16 - sixteen countries instead of eight (Ibid).

"Governance has to do with humans trying to find ways of making decisions that reduce the level of unwanted outcomes and increase the level of desirable outcomes" (Hess & Ostrom, 2007).

Ostrom thought that governance is a complex system with different levels, that needs collaboration between levels to protect information commons that are produced, copied, exchanged and distributed through the Internet (Ibid).

Mansell thought about Governance "as the institutions and practices that guide the development of technology and human relationships involved in the innovation process including the interests of the state, private sector and civil society" (Mansell, 2012). However, when it comes to the Internet, it is challenging to establish the object of Internet governance, since some propose that it is the infrastructure built on TCP / IP, while others consider it to be the services provided through this infrastructure (Ibid). Another problem is the tendency to apply the same regulations of traditional telecommunications and broadcasting services to the Internet (Ibid).

When Internet governance actors face the paradoxes of information scarcity and complexity, concerns can be clarified (Mansell, 2012). First, increasing friction between those who understand the complexity of the system and advocate its self-governance because interventions are risky, and those (multistakeholders) who intervene in the name of public interest (Ibid). Second, a more complex technology that maximises economic profit (Ibid). Third, a more complex technology for government surveillance (Ibid). Fourth, a more complex technology for decentralised communities with different values, producing and sharing information commons (Ibid). These four possibilities could be combined, but there is a risk of no return if one is enhanced at the expense of others.

According to the WB, the most problematic thing is to keep the Internet open and safe, since content filtering, censorship, privacy concerns, and cybercrime reduce its social benefit (World Bank Group, 2016). Users exchange their privacy for access, the reasons for content restrictions and the limits of freedom of expression are not clear (Ibid). It is difficult to keep personal information private when mobilising and adding data (Ibid). The challenge is to find a governance model for the global Internet to guarantee its openness and safe access for all (Ibid). This challenge invites a heated debate worldwide (Ibid).

The WB proposes an Internet governance framework, which is "a complex, multifarious, and loose amalgam of policies, laws, and actors" (World Bank Group, 2016) with their values and interests. The WB identifies seven actors (Ibid): states, private companies, civil society (*at the community level*), intergovernmental organisations (Internet-related policy mediators), international organisations (IETF, W3C), technical communities (members of standard-setting bodies), and academia. The WB places users at the last degree of IG involvement, and with the least impact (World Bank Group, 2016). IG debates involve: "power struggle between traditional actors such as governments of developed countries and major companies against new actors of developing countries, digital divide, violation of privacy and government surveillance, social networks and

unhindered access that clash with local cultures and social practices, and global policies unalignment with national policies and regulations" (The World Bank Group, 2016).

The IG deals with arrangements of power is the development and application of agreed protocols between stakeholders - governments, private companies, and specific groups - to control the use of the Internet, regarding individual civil liberties to libertarian and democratic values encouragement (DeNardis, 2014). Technically, following a protocol, algorithms control the Internet. Protocols govern the Internet as they are implemented in points along the infrastructure, whether centralised, distributed or at end-points, which enable or disable the data flows (DeNardis, 2009). DeNardis (DeNardis, 2014) limits the IG to four key points. First, IG addresses issues of the "Internet-unique technical architecture", especially Critical Internet Resources CIR. Second, IG excludes content-related topics and usage as they fall into different kinds of control related to governmental policies within territories and private practices. Third, IG extends its practice including ICANN, standards-setting organisations, both private industry and national policies, international treaties, and engineers in charge of the global Internet architecture. Fourth, IG controls technically, whether to promote interoperability and access to knowledge or to restrict freedom.

The Internet Governance Project IGP states a broader definition for IG: "…the rules, policies, standards and practices that coordinate and shape global cyberspace… It is governance instead of government because governments should not handle issues beyond their borders… thus a polycentric and non-hierarchical approach is needed amongst standards developers, network operators, online service providers, users, governments and international organisations" (IGP, 2017). Highlighting TCP, UDP, DNS and BGP as the main protocols that make devices, data, apps, and services compatible and interoperable (see Table. 1), the IGP considers the IG as a process "whereby Internet participants resolve conflicts" (Ibid). Conflicts go hand in hand with the positive and negative aspects generated by the use of the Internet (Ibid). On the one hand, there are innovation, capabilities, sharing, cooperation; and on the other hand, new forms of crime, abuse, surveillance and social struggle (Ibid).

4.1.2.2 IG Models

Regarding their processes and actors, the WB identifies two general IG models, the multistakeholder MSM, and the multilateral/intergovernmental MLM (World Bank Group, 2016). The MSM's process is bottom-up participatory, open and transparent, with horizontal communication between stakeholders, being governments key stakeholders (Ibid). The WB considers MSM's examples of those of ICANN, Internet Society – ISOC -, and IGF. The MLM's process is top-down consultative, hierarchical with states, intergovernmental negotiations leading to

treaties and agreements; as those of International Telecommunication Union ITU[29], UN, World Intellectual Property WIPO, and World Trade Organisation WTO (Ibid).

There are discrepancies between the promoters of the MSM and those of the MSL, especially around the US control over IANA and the presence of authoritarian governments in the ITU. The WB narrates how an ITU's proposal, to regulate privacy and free speech, split 89 supporter countries from both authoritarian and weak democracies against 80 democratic countries (World Bank Group, 2016).

Cerf advocates the MSM arguing that "the Internet is a universal space that should remain open, free and borderless", that traditionally has been governed in a shared, collaborative, non-subordinated and unsystematic way only by technical and market experts within organisations (Cerf, et al., 2014). He concerned that IG institutions that have flourished since Internet privatisation are not from academia or engineering origin (Ibid). Upon Kleinwätcher, Cerf proposed three levels to enhance IG cooperation (Ibid): (i) communication, giving voice, and ears to all stakeholders; (ii) coordination to jointly come up with ideas and delegate solutions; (iii) collaboration when working together. Cerf never mentioned end-users as part of the IG.

Cerf did not agree with ITU's MLM because of both its monolithic-top-down model and the rhetoric of authoritarian governments about security that leads to Internet fracturing to the detriment of its openness and freedom (Cerf, 2016)& (Jackson, 2012). Cerf (Cerf, et al., 2014) made six recommendations. First, ICANN should keep its roles. Second, IETF is more efficient than ITU in developing open standards for Internet interconnectivity and interoperability. Third, IGF as non-decisional might underpin discussions about freedom and security in the content and social layers of the Internet. Fourth, the IGF needs to evolve. Fifth, Internet governance actors are funded, and there are differences between IGF and ITU funders. Sixth, participants must be located within the Internet ecosystem. Thus, Cerf's list of stakeholders does not include end users, but institutions and engineers (Cerf & Google, 2012) and (Cerf, et al., 2014).

[29] From (ITU, 2018): "ITU is the United Nations specialized agency for information and communication technologies, ICT. ITU organises in three sectors: radiocommunications ITU-R, standardization ITU-T, and development ITU-D. ITU-R ensures the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using satellite orbits, and to carry out studies and approve Recommendations on radiocommunication matters. ITU-T develops international standards "ITU-T Recommendations" which act as defining elements in the global infrastructure of ICTs. Standards are critical to the interoperability of ICTs and whether we exchange voice, video or data messages, standards enable global communications by ensuring that countries' ICT networks and devices are speaking the same language. ITU-D fosters international cooperation and solidarity in the delivery of technical assistance and in the creation, development and improvement of telecommunication and ICT equipment and networks in developing countries".

IGP (IGP, 2017) considers a mixture of fourth kinds of governance: (i) the free market; (ii) hierarchies under the authority of whether the law, nation, treaty, or a firm; (iii) networks with no authority, voluntary, whether collaborative or unique action; (iv) self-governance by market actors.

4.1.2.2.1 The Organic Internet Governance

Making an analogy with the symbiotic interdependent cooperation of biological organisms[30], V. Cerf proposed the idea of the organic Internet governance, i.e., organisations, institutions, systems, and the Internet cooperating and evolving together (Cerf & Google, 2012). Cerf compared both the protocols and functions contained in the four layers of TCP/IP with the cell and DNA functioning (Cerf & Google, 2012). He also clarified that the Web, being in the outermost layer (see Table 1), manifests other emergent properties that entail the interest and participation of new institutions, organisms and systems (Ibid). Moreover, Cerf recognised that both money as a human incentive and financial institutions are also main players on the Internet (Cerf & Google, 2012).

In Cerf's analogy of an organic Internet, there remains the question of how precisely Cerf conceives control in biological organisms and moreover how to endorse the Internet's control? On the one hand, for evolutionary biology, organisms are not institutions with abstract written rules for functioning but are self-controlled systems of autonomous systems, shaping various levels of complexity (Maturana & Varela, 2004). Organisms are not free; they are mutually and reciprocally interdependent, developing highly coordinated processes that keep them alive (Ibid). Organisms are systems whose evolution and diversity are given by self-referenced adaptation (autopoiesis) to irruptions rather than by a linear development of agreements between observers to set rules to create and keep the institutions functioning (Ibid). On the other hand, it seems Cerf thinks on hierarchical structures coming to agree together for a global benefit, i.e., a hierarchical global Internet.

Nevertheless, the concepts of collaboration and cooperation need a closer analysis in Cerf's language. Some authors refer to collaboration as a coordinated and synchronised activity, and cooperation as a division of labour with designated responsibility (Roschelle & Teasley, 1995). In summary, it seems Cerf's idea of the Organic Internet is more likely to be the Institutional Internet, i.e., Internet governance is in the realm of the dominant social imaginary.

[30] *Living organisms and their environment trigger mutual structural changes under which they remain reciprocally congruent, so that each one slides in the encounter with the other, preserving organization and adaptation*

4.1.2.2.2 Multistakeholderism

Raymond and DeNardis considered the MSM over procedural rules as a value in itself; because it allows to understand the role of private actors and complex authority in international relationships, and to addressing effective institutions for specific issues (Raymond & DeNardis, 2016). They put on the table several situations, for example, in some cases whether the private sector, governments or international treaties should formulate policies; in other cases, it is preferable to apply a multistakeholder governance model contextually and by the appropriate actors (Ibid). However, there are threats such as when delegation could prevent interested parties from intervening, the multistakeholder model can be used to impose on others, and some tools are not yet available (Ibid).

The analysis of Raymond and DeNardis suggests that both the IG and the MSM still work in progress. Upon Dahl's International Relations theory, IR, they proposed a multistakeholder governance institutional model based on the combination of two to four types of stakeholders and the nature of their authority relationships (Raymond & DeNardis, 2016). For them, stakeholder classes are states as agents of their citizens, *especially democracies*; IGOs – Inter-governmental Organisations - and NGOs, both as agents of their members; and firms as agents of their owners and shareholders. Nevertheless, they highlighted that these actors could be disaggregated. The Nature of Authority Relations, they continued, can be hierarchical – superordinate that commands and subordinate that should obey -, heterogeneous polyarchical – procedural rules distributing authority among distinct actors, and assigning different powers -, homogeneous polyarchical - …similar formal powers -, and anarchical – no authority relationships.

Raymond and DeNardis (Raymond & DeNardis, 2016) considered the IG as an ecosystem of institutional participants within six functional areas that for reasons of the present analysis these areas are identified by an acronym: RDN.1 Control of Critical Internet Resources CIR, RDN.2 standards-setting, RDN.3 access and interconnection coordination, RDN.4 cybersecurity governance, RDN.5 the policy role of information intermediaries, and RDN.6 architecture-based intellectual property rights (IPR).

The following are the most important conclusions reached by Raymond and DeNardis in their analysis of multistakeholderism cases for Internet governance (Raymond & DeNardis, 2016). First, ITU "is not a case of multistakeholderism… because although ITU incorporates some heterogeneous polyarchy practices, ITU is hierarchical, and its sector membership is not open to individuals" (Ibid). Second, some authoritarian countries utilise ITU to gain power over areas they have not had jurisdiction such as IANA. Third, ICANN's administration of Internet names and numbers is heterogeneous, distributes authority among actors according to their functions, but lacks civil

society participation and is US dependent. Fourth, IETF' standard setting is homogeneous polyarchy because no-membership requirement, participants may be individuals on their own or representing organisations, but they need specific knowledge, communication skills using the English language, and enough funds to participate in forums. Fifth, W3C is also homogeneous, but participants are more likely to be institutions and organisations.

Considering the four types of Nature of Authority Relations (Raymond & DeNardis, 2016), why they analyse multistakeholderism within one institution, whether the ITU, the IETF, or the W3C? Would it be more pertinent to apply the model in spaces where there is no one sponsoring institution, but where several stakeholders freely attend to solve (at least) one specific objective, setting minimal rules ad hoc? Perhaps, Tier 1 peering is a better example of Internet governance, but it seems it occurs among firms only.

Neither is it clear in the Raymond and DeNardis model how to understand the participation of the people. On the one hand, they do not consider the public as a type of stakeholder. Perhaps, they value affiliation. On the other hand, they objected to ITU's multistakeholderism because it does not include the people. However, ITU carries out public consultations (ITU, 2018) which are restricted to multistakeholder communities and members affiliated. However, it is not the same thing that happens in a democracy where some are qualified to vote and less to give an opinion?

Neither Cerf nor ITU took into consideration P2P networks for IG. Perhaps Raymond and DeNardis tangentially tended to omit them by excluding what the IR theory calls anarchy. Maybe, they only accept a pre-established set of rules rather than the emergence of new ones when self-organised and self-dependent entities come to collaborate. Possibly, the concept of anarchy is a threat to institutions, but what about the flexible autonomous self-organised network?

4.1.2.2.3 The Internet Ecosystem versus the Internet Governance Ecosystem

The analysis of Internet governance models, especially those of multistakeholders, suggests that the main problem is the recognition of who the stakeholders are. The consideration of the Raymond and DeNardis Ecosystem seems to leave out actors from the Internet ecosystem. The ISOC's scope of the Internet ecosystem is compared against that of Raymond and DeNardis to test the assumption.

The 'Internet Society' or ISOC states that the Internet Ecosystem "relies on processes and products that are local, bottom-up and globally accessible…, underpinning a model of shared global ownership, open standards development, and freely available processes for technology and policy development" (ISOC, 2018). ISOC believes that the IG should be upon an inclusive and consensus-driven process, rather than top-down (Ibid). ISOC Internet Ecosystem model places participants

within six areas that here are identified as follows: ISOC.1 Naming and addressing; ISOC.2 Local, National, Regional, and Global Policy Development; ISOC.3 Education and capacity building; ISOC.4 Usage; ISCO.5 Shared global services and operations; ISOC.6 Open standards and development. In Appendix B, Table 17 shows an attempt to establish a correspondence between the ISOC's and Raymond & DeNardis' functional areas.

From the comparison, we can conclude that universities, academic institutions, machines and devices and individuals are not direct participants of IG in the proposal of Raymond and DeNardis. For Cerf, machines/devices and individuals are not direct participants in the evolution of the Internet ecosystem. Both the proposal of Cerf and that of Raymond and DeNardis are institutional with a certain level of exclusion. The issue of the hierarchy is not clear, but it seems both Cerf and DeNardis talk about liberal democracy, then the public is not as important as decision takers. Nevertheless, both perspectives point towards a long list of Internet governance actors that varies according to both the topics to be discussed and the debate space.

4.1.2.2.4 The IETF case

Although, Raymond and DeNardis considered the multistakeholder governance of the IETF inadequate for international relations due to standards interpretation and the lack of a clear agenda (Raymond & DeNardis, 2016), IETF' governance model reflects broader values of openness, participation and freedom of speech, than any other institutional model.

"The IETF is a loosely self-organised group of people who contribute to the engineering and evolution of Internet technologies" (IETF, 2012). IETF's principles are openness – anyone participates -, technical competence, volunteering, rough consensus, running code and protocol ownership (RFC 3935, 2004). IETF sets standards and protocols after a process that begins with broad participation and ends with the consensus. This process has a philosophy and a methodology that is known as *The Tao of the IETF* (RFC 6722, 2012). IETF's philosophy has two principles, that of Clark and that of Postel. Clark's principle: *"*We reject kings, presidents and voting. We believe in rough consensus and running code"; Postel's principle: "Be conservative in sending and liberal in accepting" (IETF, 2012). Clark's principle reminds the anarchism *raison d'être*: *do not evangelise either be evangelised* (Villanueva, et al., 1992).

The 'methodology' described in The Tao of the IETF (IETF, 2012) is very similar to how the Native American indigenous assemblies are carried out[31] (See (Gallardo, 2012)). The whole community

[31] These assemblies are one step forward of Dahl's polyarchy, because Dahl believed in agenda controlling (Dahl, 1972; referenced in (Raymond & DeNardis, 2016).

gathers in a large place; they all speak at the same time about different topics. The assembly lasts several days. Those who persevere keep up to the end. A consensus is eventually reached perhaps due to perseverance, some giving up, or even by an eloquent speech. In the case of indigenous assemblies in Ecuador, when consensus stems from several communities and involves structural changes, the constituent assembly carries out reforms to the constitution and, if applicable, establishes collective rights (Asamblea Nacional, 2008).

In summary, the Internet Governance models proposed and exerted by those behind the screen are top-down regardless if they come from ITU or multistakeholderism. The Internet governance models proposed by DeNardis, Raymond, Cerf are elitists because only accredited institutions and companies should agree on the controlling Internet protocols. The IETF has a bottom-up Internet governance model that tries to include all social imaginaries, a kind of confederalism of communities. However, in the discussion forums, the representation of those who are in front of the screen is little concerning governments, companies and engineers.

4.2 The control on the Internet and the Web

As discussed in the previous section, one of the Internet governance issues is to what extent the social imaginary in front of the screen should participate in decision-making for Internet control. The IETF's governance model seems the most open to participation, and its principles can be rewritten in a way that frames the discussion: *the value in both observing others and being observed is to know how to control one's actions*.

This section analyses the ideas of the social imaginary behind the screen. Among the concepts of this imaginary, those of Kahneman frame a way of understanding the possible control of the social imaginary in front of the screen. Cybernetics, the science of communications and control, spawned the Internet, which has become the main means of observation. Stakeholders or the dominant social imaginary observe from behind the screen, willing to control the Internet to obtain, create and keep values. However, as they are in a shared power position, stakeholders need to reach agreements between them. The users are the social imaginary in front of the screen, whether acting upon the values offered by stakeholders or using them to create value.

Given the possibility that the observer becomes the absolute controller to the detriment of the system, the cyberneticians proposed second-order cybernetics that relies on the observation of the observer through a double closure; this is controlling the control. A double closure might be a solution, but also brings concerns.

4.2.1 Cybernetics and Internet control

Facing the ideas of Maturana (Maturana & Verden-Zöller, 2008), Parsons (Treviño, 2001), Mansell (Mansell, 2012) and Luhmann (Luhmann, 1992) with the ideas of Licklider (Licklider & Taylor, 1968) and Engelbart (Engelbart, 1962), it is the technology that selects the information, expression and understanding; the meaning goes from being created inter-objectively to being channelled and transmitted; and the values can be programmed by the network or closed system created by the technology.

Internet control can be on data traffic and content. Chapter 3 describes how ISPs are organised. An ISP controls the flow of data within its network and needs to know the address and network names of the recipient to pass the flow to another ISP. The addresses and names are assigned by a hierarchy of institutions that go from global to local. If addresses do not change, the ISPs directly handle the data traffic. IP addresses vary for several reasons, such as when changing the name of the Web page, the location of the servers, the Internet provider. Generally, the decomposition of a message into several data packets is not performed by the user sending the information, nor does the receiving user perform the aggregation of the packages to compose the message. The ISP does the packet-switching.

In the case of content, it is possible to rely on the end-to-end principle to explain the control. Generally, who controls the packet switching - ISP, CDN, IXP - can control the content. If the content is encrypted, the application that encrypts and decrypts the content is in control. The application owner requires the user to give up his rights, i.e., of the content that the user produces to the App provider. Furthermore, the control upon content is even more complicated; e.g., social media creates a “self-perpetuating loop” which programs the reader’s mind, orienting and polarising opinion, (Kulwin, 2018); and, through branding techniques. The legal protection of the content, as well as the contracts of services and Internet applications, need institutions and technology, as Figure 4 from the previous chapter shows, suggesting governments and companies need secure servers.

In this way, the control of the Internet is necessary both to control the social organisation and to protect market practices, even more, if all human actions can be digitised and transmitted through the Internet. However, due to the end-to-end principle and the diversity of Internet service and content providers, there are many controllers with whom institutions in different countries need to negotiate and agree on protocols to control the Internet.

4.2.2 The double closure and the Internet

By controlling the Internet, stakeholders observe the users, but the actions of both stakeholders and users are exposed. By observing those in front of the screen, governments can provide security, and companies customise the message and space of their customers, regardless of borders. However, as there is no global control of the internet, the governance practices uncover the values and intentions of the dominant social imaginary; thus, those in front of the screen can observe their observers.

The Economist analyses how while the authoritarian Chinese government uses technology to build a totalitarian police state, whilst Western democracies use the same technology to solve crimes and prevent terrorism (The Economist, 2018). The difference between freedom and oppression, according to the Economist, is in the consent of the citizens, the accountability of the government and the rules of how to collect, process and use the information (Ibid). However, to solve crimes and prevent terrorism, the technology and the methods are the same, i.e., both China and Western democracies have their people under surveillance; the tipping point is at the moment when the western citizen becomes a person of interest to his government. The Economist recommends walled gardens *where law-abiding people enjoy privacy* upon personal data encryption, open scrutiny of algorithms, and citizen's surveillance to police (The Economist, 2018). However, the Economist does not make clear to what extent the (western) government should transparent its plans and actions.

The internet allows close observation of customers' behaviour, leading to personalisation of the message in such a sophisticated way that it can transform people from any corner of the planet into consumers, disregarding the "cultural influence to consumer behaviour" (Mooij de, 2014). As consumer behaviour is heterogeneous, the market strategy is focused upon understanding how consumers within a culture buy and communicate (Ibid). "Similar cultures can be clustered upon product-relevant values, needs, motives, and communication styles", meaning cultural segmentation rather than global standards. An effective marketing strategy incorporates the values of all social imaginaries of the culture where the company operates, rather than the values of its owners and global managers (Ibid). Given this market capacity and its network effects, by using the Internet, the dominant social imaginary can monitor and expose the dangers and consequences of branding and other commercial practices.

Walled gardens can be delimited both within borders and in ubiquitous spaces created by digital networks. The private provision of content and services allows personalisation of personal space. Using commercial OSNs (~Facebook), people do not unite or broaden their horizons, but lock in *comfort zones*, where they avoid controversy by sharing with peers that have the same values, and

consequently may lose their social skills (Bauman & Bordoni, 2014). Individuals are comfortable in their personalised digital cubicles owned by corporations from where they ask for freedom and security (Day, et al., 2015). Through the Internet, users can obtain information from different sources and origins, allowing comparisons to be made. From the analysis, the individual might choose what he considers most convenient. The spaces created first by the mediation of the digital services of private companies, and then by choice of the users give the idea of a double closure; as long as the commercial practices are transparent.

The case of Star Wars Battlefront II[32] loot-box monetisation scheme shows that when consumers react, they control the market underpinning regulation regarding culture, leading to the idea of double-closures within nations. On November 12, 2017, a user post on Reddit's Battlefront II community: "*Seriously? I paid 80 $ to have Vader locked?*" (MBMMaverick, 2017). EA's response outraged the players who sent an avalanche of downvotes[33], forcing EA to size down the price of "Vader" to $ 20 immediately (Kim, 2017). After the controversy, the governments of Belgium, Holland, Hawaii, Singapore and Australia reacted. The government of Belgium announced that if the loot boxes were games of chance without a license, they would prohibit their sale in the EU (Chalk, 2017). The Dutch government urged parents to monitor if their children are betting on online games (Kassa, 2017). The government of Hawaii worried about the addiction – habit - of children to the game (Lee, 2018). The government of Singapore is studying ways to regulate games with loot boxes (Hio, 2017), ditto the Australian government (The Economist, 2017).

DeNardis argues that protocols control the Internet, and its governance confronts democratic, authoritarian and private forms of control, as well as contested democratic values (DeNardis, 2014). Behind this argument there is an analysis revealing the different value systems looking for controlling the Internet: democratic governments prioritising either freedom or privacy, authoritarian governments, and the private sector. The governance of the Internet entails the transparency of stakeholders' values and interests, but at their peer-level. Both DeNardis (DeNardis, 2014) and Cerf (Cerf, 2016) advocate for democratic Internet governance in favour of freedom and openness, for which it is necessary to agree on protocols that control the Internet, but the call is to make public the stakeholders' intentions. Moreover, the challenge is to incorporate into the Internet governance processes to those in front of the screen, not only the dominant social imaginary which dilutes upon different cultures. The IETF's Tao allows broad user participation in Internet Governance, and its RFCs are a transparent record of its actions. In this way, the stakeholders know that they are observed. The multistakeholders – institutions, corporations,

[32] Star Wars Battlefront II is a favourite online game owned by Electronic Arts, EA (EA, 2017).
[33] 795K at March 26th 2018 https://www.reddit.com/user/MBMMaverick

multilateral and multinational organisms – model is top-down, while the IETF model is bottom-up, giving the idea of a double closure.

Joining together Kant's idea that the goal imposed by nature to modern man is to overcome egoism with Srnicek accelerationism, it is possible to say the internalisation of spill-overs and spill-ins is a necessary condition for post-capitalism. The Internet as a second-order cybernetic infrastructure might underpin this condition. Would the double-closure be part of the what Perez calls the second-half deployment of the Internet?

4.2.3 The negative consequences of Internet control

The actions of those in front of the screen are transparent to that behind. The user actions on the Internet generate data whose analysis allows knowing her behaviour, tendencies, ideology, tastes, besides monitoring her activity. The user is naked in front of the screen. However, stakeholders justify their practices and Internet governance attitude for the public good, arguing about freedom, (liberal) democracy, privacy, security, transparency and trust. The purpose of this thesis is to know first-hand what the user values on the Internet; their answers can confront what those behind the screen say. If the values preached by stakeholders coincide with the values expressed by the users, there would be some possibilities, such as (i) stakeholders are reliable spokespersons for those in front of the screen; (ii) those values are anchored in the user mind; (iii) those are universal values. For the case that the individual answers do not coincide, there would be other possibilities. First, those values are not worthwhile for the individuals, are not anchored in their minds. Second, users perceive that there is a gap between the attitudes of the stakeholders and their discourse, but they do not restrain from using the Internet. Finally, the individual does not seek the common good, is selfish. Perhaps, there are other responses on the collective action which generates community commons that oblige stakeholders to rethink their commercial and control practices, as it happened with Web 2.0.

4.2.4 Revisiting the man-computer symbiosis

Despite the stakeholders' attitude to control the Internet, the main idea of the present research is that the individual can control her actions on the Internet leading to change and value creation. As Hegel suggested: the (autopoietic) individual self-organises depending on the limitations of the environment (Žižek, 2009). Despite external control, when the *habit* is externalised, the individual liberates as an autopoietic unit; his mind opens for new things, going *from being-determined-by-others to being self-determined* (Ibid). Alternatively, as Bateson explains: the human being learns

and can unlearn values, but whilst learning occurs naturally or by acceptance, unlearning needs self-determination (Bateson, 2002).

Having analysed the development of the Internet, second-order cybernetics, and self-determination, the basic ideas of the proposals to facilitate knowledge and increase human intellect are reviewed. Both Licklider's "man-computer symbiosis" and Engelbart's "augmenting human intellect" were written before the second order cybernetics. Realising that "men can programme themselves contingently and computers are single-mindedly constrained by a pre-programming", Licklider thought that the symbiotic relationship between men and computers would facilitate getting answers in real time, as well as ask precise questions (Licklider, 1960). Human intellect augments by language artefacts (symbols and concepts) and methodology that are dynamically interdependent within an operating system whose hierarchical processes relate human capabilities to artefact functions (Engelbart, 1962). The evolution of human intellect comes from automating the manipulation of symbols and concepts (Ibid). In this way, specialists and researchers can solve real-world problems by supporting development, and workers will be more efficient (Ibid). For Licklider and Engelbart, computers and communication-information are means for the observers. Subsequently, Licklider and Taylor envisioned the use of information and communication technologies by communities for specific purposes (Licklider & Taylor, 1968). Moreover, the public demonstration of Engelbart's NLS captured the attention of the market and idealists.

Naming Licklider's System 1 as 'L1' and System 2 as 'L2' (Licklider & Taylor, 1968), L1 is the human being, an organism, who asks questions, and L2 is a computer (the intelligent mechanism that gives answers); both together make decisions to control situations (Licklider, 1960). For many, L2 is the cloud, a set of ubiquitous servers accessible through the Internet (Newman, 2014). For Engelbart L1 and the interface become one, an organic-mechanic unit, named H-LAM/T, a symbiotic structure that exchanges energy (Engelbart, 1962).

In the light of Parsons's cybernetic model (Treviño, 2001), H-LAM/T becomes the first conditioning factor that exerts direct control over the individual (L1). The second conditioning factor that has more control and less energy is L2. On the other hand, upon Hegel's self-determination, system L1 might externalise its acquired habit; the self-referenced L1 can unleash an operation of self-distinction by setting limits to its controlled communication, leaving technology as an element of the environment. From Bourdieu's structuralist constructivism, power arises from the social interaction space (Bourdieu, 1989). The group or individual that creates an interaction space controls their actions, generating a class distinction: those who own space from those who act in it (Ibid). The latter is a construction process technology-mediated. Over Licklider and Engelbart ideas, L1 uses L2 as the interaction space. The question is whether L1 is the one controlling L2?

4.2.5 Systems 1 and 2 versus Internet control

Marketing, media, branding, behaviourism, and dogmatism target System 1; the *recursiveness* of the message anchors in memory without System 2 intervention (Kahneman, 2011). The Internet, and L1-interface - PCs, laptops, tablets, mobiles - are means of delivering messages from L2 that hold System 1's attention. The system L2 and H-LAM/T control System 1. Private companies, governments, institutions and purposeful communities (the dominant social imaginary) control L2, and private companies build the H-LAM/T. This scenario suggests that if the individual does not take control of himself, he is a natural prey to the market and the values imposed by institutions. The market and institutions, whether democratic or authoritarian, are interested in the 'rational actor' who chooses the "best values" (Packard, 2007). Years later, Kahneman demonstrated that consumption actions are not instrumentally-rational but value-rational, i.e., the rational action for Economics comes from System 1 but not System 2 (Kahneman, 2011). The more System 1 is kept busy, filled with values, System 2 will remain comfortable and does not need to take control. If System 2 atrophies, the social class distinction will transform into a biological structural distinction (in evolutionary terms, what is not used is lost).

On the other hand, System 2 can take control (self-control) and set limits to System 1 concerning L2 and H-LAM/T, a self-distinction caused by the self-referenced system whose elements are Systems 1 and 2 on her biological structure. It is worth wondering if those in front of the screen are self-controlled when acting on the Web, i.e., *System 2 creates space between L1 and L2*. Otherwise, there is a danger of relapsing into a world where non-instinctive reflection (System 2) is being replaced by information online, so that the individual ability to reflect on our surroundings and make authentic choices within those surroundings and even to remake those surroundings, may degrade.

In summary, the chapter exposes the dogmatic attitude and the controlling ideas of the social imaginary behind the screen against the will of those in front. The social imaginary in front of the screen might take either an unconscious approach to the double-closure technology by accepting the values allocated by those behind for convenience or an instrumentally-rational approach to get the value as means. Both options are of interest to the research.

Chapter 5: Methodology and Experiment Design

The previous two chapters discussed the values of the social imaginaries behind the screen that motivate their attitude to control the Internet. Stakeholders speak for the end-user. One of the main objectives of this research is to know the values that users relate to the Internet. This knowledge will allow contrasting what those behind of the screen say about those in front of the screen. The methodology aims to know the values that the social imaginary in front of the screen relates to the Internet which might lead to understanding the Internet whether as a one direction controlling infrastructure or as a double-closure technology to observing observation. The application of the methodology should give information to answer research question number three: What are the values that the user relates to the Internet and the Web? The present methodology has two main sections: conceptualisation and design.

5.1 Conceptualisation

Mainly, ideas from Mansell, Cortina, Eisler, Ostrom, Kahneman and Hofstede underpin the conceptualisation and then the design of the methodology. Mansell's ideas help to locate the investigation subject: the social imaginary in front of the screen. The values categorisation comes from Cortina´s proposal including the collectivistic approach of Eisler and Ostrom. Kahneman's Systems 1 and 2 help to find out if the activity of social imaginary in front of the screen relates whether to value-rational or instrumentally-rational values. The Hofstede model might validate the data analysis at a quantitative level.

5.1.1 Social imaginaries

Mansell argues that new social imaginary considers free information, sharing, and no-control as the primary values related to the Internet. The results obtained by applying the methodology in the present investigation can corroborate whether if the current social imaginary in front of the screen refers to those values to the Internet. Nevertheless, for Mansell, the instrumental-research disregards behind-the-screen influences on people's choices and values (Mansell, 2012). The latter defies the methodology, pointing not to ask direct questions of a specific values categorisation. By asking the user to select what is worth for her on the Internet from a list of values, their answers may be alienated, that is, reflecting market and media values already programmed into their mind. Thus, only value-rational responses should be expected. In this case, as Marcuse and Deleuze pointed it out, it would not be necessary to ask the users about values on the Internet; it would be enough to ask the top companies, i.e., confirming what the social imaginary behind of the screen

says are the values for those in front. However, the methodology assumes instrumentally-rational actions from users of the Web/Internet, which might not meet with what others say necessarily.

Thus, the methodology considers two ways of approaching the social imaginary that is in front of the screen. The first is individual, asking the user about what are the values that motivate him to use the Internet or what values he finds on the Internet, without framing the question within a specific values categorisation. The second is collective; for this, it is necessary to rely on Hofstede's cross-cultural model that allows to compare and find evidence that collective action is related to culture.

5.1.2 Outline and Research Question

The research seeks to know the values that motivate people to use the Internet, if possible beyond the functional digital features that are currently part of daily life. As chapter 3 reflects, the social imaginary in front of the screen led the Internet evolution by using the Web, named Web 2.0 at that time. It is possible to consider end-users primarily interact on the Internet through the Web and might use indistinctly the concepts Web and Internet. Nevertheless, nowadays, more and more people spend most of their Internet time using apps and streaming services, playing video games and doing other things that do not need Web architecture, leading to conclude that they do not use the Internet through the Web. However, the question is if they aware whether they are o they are not using the Web? On the one hand, the social imaginary in front of the screen can use a web browser on her computer to enter www.whatsapp.com to download and use the app, www.netflix.com to watch streaming videos, or www.origin.com to download Star Wars-Battlefront for Windows platform. If this is the case, they might think they are using the Web.

On the other hand, they can access to WhatsApp through their smartphones, watch Netflix on a Smart TV, or play a video game through a console. If this is the case, they might think they are not using the Web. However, in both cases, it is likely the end-user knows she needs an Internet connection. Another question is if the meaning of the concepts Internet, Web and TCP/IP is familiar to the social imaginary in front of the screen? Upon chapter 3, it is possible to say that the Internet is a magma of autonomous networks communicating through TCP/IP; the TCP/IP is a set of the communication controlling protocols; and, the Web is an information systems architecture. The latter definitions are debatable, and it is likely that most of the users are not familiar with them. It is likely, people imagine the Internet as a digital black box, just like most drivers imagine the motor engine. The idea is not to debate with the interviewer about their understanding of the concepts Internet and the Web but to understand why these technologies worth for them in a broad sense.

As the investigation aims to know the values that the user relates to the Internet, the research question that frames the methodology is:

RQ.3. What are the values that the user relates to the Internet and the Web?

While the previous chapters analysed how the stakeholders that control the Internet realise value, the methodology aims to find out how those in front of the screen who whether control or not their actions on the Web realise value. By applying the methodology, it is expected from users to reveal both their anchored values that motivate value-rational actions and values as means instrumentally-rational values will be revealed, regarding Internet usage. To avoid bias, questions to users are open, not value statements reflecting institutional or corporation desires such as democracy, human rights, economic profit, loss aversion[34], privacy, freedom of expression of market and media, security, copyrights. Nor is it considered prudent to ask questions concerning culture, social condition or gender of the interviewees. By asking openly about values, a variety of responses are expected. Therefore, it would be possible to find out if there is a disjunction between the values of those behind the screen from those in front. Possibly, there will be variations in values, especially, when applying the methodology to users of different nationalities. Disjunctions and variations might help to rethink Internet Governance.

5.1.3 Human fast and slow thinking

As discussed in chapter 2, the propaganda and market strategies target System 1, the fast one, the value-rational; whilst System 2 makes the rational choice, the conscious election[35] (Kahneman, 2011). The latter challenges the methodology, whether to ask System 1 or System 2 and the ways to ask. According to Kahneman's ideas, System 2 must be "forced" to function, expecting instrumentally-rational responses from it, i.e., through the Web, the user performs practical actions to achieve a higher objective or value, suggesting the Web and Internet as means. From System 1 value-rational answers might be expected, i.e., to act on the Web/Internet as a value in itself. For the research, responses from both systems are of interest. Therefore, upon Kahneman and Bourdieu's ideas, the methodology has two sections. The first section should give space to the

[34] *People's tendency to prefer avoiding monetary losses rather than achieving equivalent monetary gains* (Kahneman, 2011).

[35] Usually, rational choice in economics is based on the coincidence of experience values and decision values, the "rational consumer". Kahneman distinguished 'experience value' – "*the degree of pleasure/satisfaction or pain/anguish in the actual experience of an outcome"* - from 'decision value' – "*the contribution of an anticipated result to the general attractiveness/aversiveness of an option in an election"* -, because *he demonstrated that non-anticipated factors affect experience, and, there are factors affecting decisions that do not affect experience* (Kahneman, 2011).

participant to develop her ideas. The second section should narrow space to get non-reflexive answers.

Therefore, the methodology incorporates three strategies. The first is to foster reflectiveness, seeking for System 2 to take control and give answers. The second strategy is to ask System 1 to confirm. System 2 goes first because it is the laziest, the one that gets tired. The third strategy is to interview ordinary users from different cultures that may foster comparison regarding cultural values. The research focuses neither on workers as would be the case of Amazon's Turks[36], nor officials/technicians who use the Internet mainly for work-related purposes; it focuses on the ordinary user instead. In front of the screen, the ordinary user imagines both the value she receives from the Internet and the value she gives to it. The research aims to know these values. Furthermore, the comparison between answers from System 1 versus System 2 might give an idea who is in control, whether those behind of the screen that targets System 1, or the social imaginary in front of the screen that uses the Web/Internet with their System 2.

5.1.3.1 Instrumentally-rational answers

The investigation assumes that users can control their actions on the Web/Internet. The methodology focuses on finding the values that users have in mind when performing this type of action. Perhaps the easiest way to promote hard thinking is to ask 'why', and to any answer asking 'why' again. When faced with a negative response, ask 'why not'. There are several examples of strategic planning on how to induce effortful thinking. One of them is goal-setting, which is a recurrent process. It begins by asking what the objective is; when an answer comes up, replying "why?" If there is another answer, the latter becomes the objective and the former may remain as a means. The cross-questioning objective is to focus the participant on what matters to him, on what he considers valuable. These methodologies are criticised for being rationalistic because they centre to the purposeful action, which is the aim of these questions. An immediate response would reflect selfishness/kindness, and when initiating a reflective process, the following response could vary, when bearing in mind actions the consequences of particular actions. The design of the questions would pick up all the answers.

[36] Amazon Mechanical Turk allows workers, 'turks', to earn money and requesters to get results. Amazon has its own policy to choose their digital labour and requesters. According with some authors, turks are happy with their contribution and recognition (Buhrmester, et al., 2011). Likewise, psychologists have found the opportunity to increase research using turks (Bohannon, 2016). Although, turks may be exploited - like any other user - they are recognised as computer-mediated workers (Ekbia & Nardi, 2017). Turks are not of direct interest for this investigation, neither as workers nor as interviewees.

Among the methodologies reviewed, Keeney's Value-focused thinking (VFT) method attracts attention (Keeney, 1992). The type of questions with which the method begins guides the person through an evaluative process, hard thinking to clarify what she wants or values. Keeney considered that people tend to respond by thinking over the good and the bad, i.e., reflecting a moral attitude (Ibid). For him, values are evaluation principles that help people decide whether to act or not, considering traits, benefits, rules, priorities, attitude toward risk, consequences, and alternatives (Ibid). The latter suggests starting by asking about what actions are carried out on the Web, following by why are they being done and what would cause them to stop. If System 2 awakes, it will answer instrumentally-rational.

5.1.3.2 Value-rational answers

While rational answers take time, quick responses are instinctive and emotional, reflecting anchored values; both might vary depending on mood and circumstances (Tversky & Kahneman, 1985). Following the logic of the narrative, once the brain is tired, System 1 will take control giving quick responses. Then punctual and guided questions are needed. It is assumed that by presenting to interviewees a list of the most popular websites, they will immediately recognise some and can quickly respond about the value they receive and give to the website. The answers can be verified by asking the questions backwards, i.e., if they realise the website cares about their actions and whether they are aware of the consequences. By stating their willingness to pay for the use of the website, they will confirm previous answers. Cross-examination might prevent lies. Ideas from Carson & Groves, FAO, and Podsakoff confirm the kind of questions proposed for System 1.

Contingent Valuation (CV) is a method for estimating the value that a person places on a non-market good by asking people directly about their willingness to pay (WTP), or their willingness to accept to give up a good (WTA). This method is the opposite of inferring the value upon market behaviour and has received criticism because of the possible bias and absence of preferences leading to the impossibility to give a proper economic value to a good (Diamond & Hausman, 1994). Despite the criticisms, UN, WB, USAID and donor agencies use CV with success, especially for policy making for the building and provision of goods and services. Applying the method to people from developing countries has been a challenge because of low levels of trust in the government, or the maximum they want to pay for a good. However, the answers make it possible to evaluate the provision and its benefits (FAO, 2017).

Carson & Groves (Carson & Groves, 2011) provide insights to design proper questions. First, questions can be consequential or inconsequential. The former considers the respondent cares about the topic and thinks her answer is relevant. Secondly, there is bias in questions and

responses, i.e., to assume that nobody wants to pay for a good. The strategy is to start by asking questions that reflect the benefit of the good. Thirdly, the 'cheap talk' language in surveys tells respondents that other respondents lie when answering, highlighting the idea that providing and receiving information is free. Fourthly, respondents act rationalistically, looking for their benefit, then they tend to give preference information. Fifthly, the binary answer format (yes/no) is used when the researcher is sure that the respondent is evident on the topic. Sixthly, to a direct question many respondents might be lost how to answer. Seventhly, when possible, give alternatives.

FAO (FAO, 2017) provides some strategies for CV. The goal of CV is *to measure the compensating or equivalent variation* when people need to pay for a good or to face the possibility of losing the good. Personal interviews produce the highest quality of data, but they are expensive. Initial warm-up questions make respondents comfortable. Questions that confirm the benefit of the good are essential before asking directly whether the user is willing to pay for them or not. Elicitation techniques are needed to verify that respondents are giving adequate information. When cleaning data, a validation analysis to find if respondents gave a 'protest zero' answer is recommended. When possible, the statistical analysis might confirm the tendencies of responses. When necessary, give choices. FAO recommends changing the elicitation format when applying CV on third world countries because people tend to copy what others are answering, do not want to pay because they do not trust their government, and have less money. Then questions regarding barter and highlighting the importance of the good are important.

Podsakoff (Podsakoff, et al., 2003) analysed the potential sources that influence the responses in an interview, such as the way the question is formulated, and the interviewee's behaviour who may tend towards the positive or negative, lie, exaggerate, hide answers, (mis)understand questions, show himself in a good light, forget details, and so on. Therefore, he proposed some bias-controlling techniques based on combining procedural and *statistical remedies*. Procedural remedies include a) obtaining data from different sources; b) methodological separation of measurement, like both an explanatory variable, and the use of various response formats, media and locations; c) counterbalancing question order; d) improving scale items including the use of clear and straightforward concepts and questions. *Statistical remedies* point to finding correlations over data from different sources.

5.1.4 Cultural comparison

The comparison of responses from people from various cultures will allow us to know if the Internet's values are the same as those perceived by people from different countries or if there are variations or interpretations of these values that depend on the cultural context. Three strategies

are considered to know if there are cultural differences in how users realise values on the Web. The first is to interview people of different nationalities asking the same questions. The variations in responses could be due to several factors such as cultural differences – values anchoring -, the habit to use the K2 system, individual faculties, humour, level of knowledge, circumstances, and the method used whether personal interview, focus group or workshop. For research, the first possibility is of interest. It is likely that interviewees with higher education have already utilised System 2 within interviews, focus groups or workshops, and have the skills to answer questions. Secondly, interviewees should recognise popular websites in their country of origin. Thirdly, faced with the impossibility of interviewing a representative sample of people from various cultures, a *statistical remedy* is needed. The statistical analysis demands data and a cultural model to correlate.

Thanks to the Web, it is possible to obtain statistics about the most used websites of almost every country on the planet. There are several sources like Amazon's Alexa (Alexa, 2016) and SimilarWeb (SimilarWeb, 2016). These websites provide statistics and metrics for benchmarking (Alexa, 2016), for business purposes. Their websites present the concept behind data gathering, but not methods or algorithms[37]. For research, it is sufficient to take samples from one source and comparing to the other, instead of evaluating their methods and logic.

For research, the use of the Hofstede model is complementary and could help to highlight possible cultural differences in the use of the Web. The experiment design involves finding a way to compare the top websites of countries with Hofstede's cultural dimensions.

5.2 Design

Taking ideas from Kahneman, Keeney, Carson & Groves, Podsakoff and FAO, a two-section questionnaire is proposed. The first section encourages instrumentally-rational answers, and the second is both a confirming mechanism and a way to get value-rational answers. The first section has 'semi-open-ended' questions which aim is to have specific answers but not as narrow as a yes or no. This section begins by asking what action the user does on the Web, introducing an elicitation

[37] "*Alexa's traffic estimates are based on data from our global traffic panel, which is a sample of millions of Internet users using one of many different browser extensions… Our global traffic rank is a measure of how a website is doing relative to all other sites on the web over the past 3 months. The rank is calculated using a proprietary methodology that combines a site's estimated average of daily unique visitors and its estimated number of pageviews over the past 3 months. We provide a similar country-specific ranking, which is a measurement of how a website ranks in a particular country relative to other sites over the past month"* (Alexa, 2016). *"We leverage hundreds of sources which we categorize into 4 distinct groups: 1. Global Panel Data from hundreds of millions of desktop/mobile devices 2. Global ISP Data from partners with millions of subscribers 3. Public Data Sources from over a billion sites and app pages every month 4. Direct Measurement Data from hundreds of thousands of sites and apps"* (SimilarWeb LTD, 2016).

technique to find value as means and as ends. Counterbalancing, the interviewee cheap-talks about the negative values and bad consequences of his/her actions on the Web. The warm-up question is also a link to the second section, as a pivot.

The second section has matrix-questions where respondents relate their actions to the top websites in their country of origin, specifying the value they think they are receiving from each site that they utilise. Likewise, they are asked about the value they give to each website. As a counterbalancing technique, interviewees are asked about what they dislike from each site. This second phase increases questionnaire reliability. Two additional questions in the second section are introduced. First, the question 'Does your participation matter to the site' is to know the user's perception about the importance of his action, or whether she considers that her action either has value or is recognised on the Web. Secondly, a positive answer to the question "Would you pay for it?" confirms if the value offered by the Web is worth it. A comparison of answers between the first and the second section can reveal biases, increasing the reliability and validating the answers.

Data from the top websites per country allows the researcher to make two types of hypothesis. The first suggests whether there is representativeness in the sample. The second indicates whether there are cultural differences in the use of the Web at the country level. The verification of the hypothesis is performed statistically by correlating profiles of the user and the country. Profiles reflect the proportion of types of websites that are used nationally or by the respondent. The type of website indicates its main objective.

5.2.1 Questionnaire

The questionnaire has two sections: open-ended questions and matrix questions. Open-ended questions aim to guide the interviewee through a reflective process – instrumentally-rational -, leading to think about values. The second section aims to get value-rational answers by presenting known websites to the user. Answers to section two might confirm the answers to the first section.

5.2.1.1 Questions to get instrumentally-rational answers

The first section of the questionnaire has open-ended questions to lead the participant through a reflective process. The first question is what actions the participant performs on the Web. The second set of questions asks the participant to explain why he/she is doing these actions, why they are essential for him/her. In this set, three questions are almost the same with the objective to get a precise answer at the third time. Upon Keeney's VFT, answers to the first question unveil means, responses to the second question reveals principles and ends, and answers to the third question should confirm responses to the second question. The third group of questions aims to reflect on

the possible negative value of the Web, to contrast with the previous answers. This group consists of four questions starting with the possibility of not finding what is sought, following with the consequences of the actions both on oneself and on others. The last question allows confirming the second set. In this way, a table is gradually filled, whose number of rows depends on the number of activities mentioned. There are five categories of questions: action, values as means, values as ends, negative value received, and the negative value given, as Table 4 shows.

Table 4. Semi-open-ended questions by Category

Q#	Questions	Category
1	What are you doing on the Web? (warm-up and pivot)	Action
2	Why do it on the Web particularly?	Value as a means
3	Why is this important for you? Why does is make your life better?	Value as ends/principles
4	What is the main value? What is it worth for you?	Value as ends/principles revisits Q3
5	Give an example of when doing it on the Web does not give the value you expect	Negative Value
6	What alternative to doing it on the Web?	External Value
7	What are the bad consequences for others of you doing it on the Web instead of using the alternative?	Bad Value-given upon Q6
8	What constraints/blocks/impediments limit you from realising more of the main value in #4?	Bad value received, to confirm Q3, Q4
9	How could your life be better if these constraints were removed?	Values (to confirm Q3, Q4)

5.2.1.2 Matrix questions

The second section aims to get value-rational answers by mixing ideas from Carson & Groves, FAO, and Podsakoff. The matrix section presents to the interviewee a list of the 100 top websites of her country of origin – data: (Alexa, 2016). Respondents might freely add other sites. In the next columns, interviewees relate their actions (from Q1 of semi-open-ended questions) with websites. Then, respondents specify whether they feel recognised or not by the website, the value received from the site, the value given to the site, the negative value received, and whether it is or would be worth paying for the site (Table 5).

Table 5. Matrix Questions by Category

Q#	Questions	Category
CTWS	Country Top Websites	Country Top Sites
10..19	User's actions on the Web (= Open ended Q1, pivot)	Action
20	Does your participation matter to the site?	Value
21	What value do you receive from the site?	Value-received
22	What is your valuable contribution to the site?	Value-given
23	What don't you like about this site?	Negative Value received
24	Would you pay for it?	Payment (value)

5.2.2 Qualitative analysis

The qualitative analysis aims to find the values that worth the instrumentally-rational actions of those in front of the screen. For this purpose, the research follows the ethical guidelines of the University of Southampton, uses three different kinds of spaces to obtain answers from people, considers a general categorisation of values and seeks for coherence in the responses between both sections of the questionnaire.

5.2.2.1 Ethical guidelines

The ethical standards of the University of Southampton established for research were followed, i.e., ERGO (University of Southampton, Ethics and Research Governance, Ethics ID: 23318, see Appendix A, Figure 14). Subsequently, the questionnaire was applied to people from different countries. Personal details like name, surname, DOB, address, telephone or any contact information were anonymised during the interviews and were not recorded digitally. The data of interviewee's origin country and meeting place were registered along with the answers, forming part of this investigation.

5.2.2.2 Approaching methods

It is presumed that the questionnaire can be applied through different methods such as face-to-face interviews, focus groups, and workshops. Also, the use of Skype meetings is considered. There are not reasons to discard or specifically support any of these techniques; on the contrary, it is important to take advantage of different communication spaces to get a significant contribution. The results analysis would give insights to compare techniques. In the case of personal interviews and workshops, participant's answers will be analysed individually. In the case of focus groups, the analysis will consider group answers.

5.2.2.3 Values regarding the instrumentally-rational action

Chapter 2 analyses value and values. Section 2.1 confronts positions whether technology is value-neutral or not. Possibly, end users' value-rational answers would reveal that they regard the Web/Internet as a value in itself, for them, it is worth to use/act on it, suggesting the use of technology as ends, i.e., technology is not value-neutral, for users the technology has an intrinsic value. Another possibility is that participants' instrumentally-rational answers might reveal the use of technology as a means to get value (ends) based on principles (values).

Section 2.2 exposes some theories about values categories such as moral, social, personal, modern, capitalist, cultural and collective. Section 2.2 exposes the problematic around the values, from appreciating them in a simple way regarding what really matters to an individual to complicating it in such a way because of multiples interpretations about consequences and what matters to others. The problematic motivates to use a bottom-up approach to the methodology. The values categories reviewed in literature give an idea of what could participants might say and how to organise their answers into the general categories mentioned. The possibility of a deductive analysis can lead to errors, misunderstandings and criticisms. If from the reviewed theories a specific categorisation is proposed containing concepts with codes within, it would be necessary to develop a theoretical framework justifying this organisation. For example, in the analysis of section 2, some authors consider democracy as a modern value containing the free market, others separate the free market from democracy and place it within the capitalist values, who in turn could be or not within modern ones.

Another example is the collectivistic values as that some scholars consider the sharing as an activity. Moreover, the interviewee might have in mind values not even mentioned by those behind the screen. For this reason, table 4 shows a more general categorisation: action, value as means, value as ends, values, negative value, external value, the bad value-given, the bad value-received, value-received, and value given. Within each of these categories and using inductive coding, interviewees' answers might fit with those mentioned in section 2.2.

Therefore, the idea is to let the social imaginary in front of the screen to express what is worth for them. The strategy is in the questionnaire design to push the interviewee to talk about their values through open-ended questions and matrix questions. The strategy should simplify the answers coding process. It is an inductive coding process that explores the values within responses. The analysis includes: (i) answers' reading at least twice to become familiar; (ii) codes generation; (iii) grouping codes into possible sub-categories; (iv) fitting sub-categories with categories that might validate theories or make a meaningful contribution to answer the research questions. These analysis steps are an adaptation of Braun's thematic analysis (Braun & Clarke, 2006).

5.2.2.4 Coherence: the use of System 2

The inductive coding of answers looks for the values that the interviewee has in mind to organise them into categories, including whether they are values as means or as ends. The first section of the questionnaire should reveal values as means for instrumentally-rational actions. However, the latter does not guarantee the participant is using her System 2. The use of System 2 when in front of the screen is of interest for the investigation, then confirmation is necessary. For this purpose,

the analysis looks for coherence or linearity between the answers to both the semi-open-ended questions and the matrix questions[38]. The coherence might confirm the actions of the person in front of the screen are instrumentally-rational, and the participant is using her System 2 when answering questions.

Therefore, for this research, an instrumentally-rational action has the main value worthily for the user, matters to others, has purpose(s), alternative(s), and its consequence(s) and limit(s) are aligned along with the values stated in the corresponding websites for which the user would pay to use; i.e., the analysis looks for linearity through answers of both sections of the questionnaire (see Tables 4 and 5).

5.2.3 Quantitative analysis

Facing the possibility that value-rational actions might be more significant in number than the instrumentally-rational ones, a quantitative analysis is envisaged. The quantitative analysis has two main objectives: (i) to know the most frequent values that users bear in mind when they do not have control over their actions on the Web, i.e., value-rational actions; (ii) compare the Web activity of various cultures. For the first objective, the analysis is on the data obtained with the application of the questionnaire, i.e., a non-representative sample that might provide evidence about the Web values for end users. For the second objective, an experiment based on data from other sources is designed to find evidence of variations between users' values regarding their culture.

5.2.3.1 Value-rational actions from the questionnaire

To the first objective, descriptive statistical analysis is proposed, showing the most frequent activities and values indicated by the interviewees. The frequency analysis is a word-count of the answers regardless of linearity. The words to consider should be concepts related to the subject of the question, that is, that have meaning.

Regarding questions categories (see tables 4 and 5), answers are grouped within ten categories. Q2, Q7, Q20, Q21, Q22, Q23, and Q24 correspond to one category each. There are five considerations. First, Q1 is equivalent to questions Q10 to Q19 ($Q1 \equiv \{Q10, Q11, \dots, Q19\}$). Thus, Q10 to Q19 are not reflected. Secondly, Q5 and Q8 correspond to the category ‘bad value’, whose concepts come from answers to either Q5 or Q8. Thirdly, the category ‘values’ come from a

[38] Castoriadis and Kahneman talked about coherence (see chapter 2). The former relates coherence between what is saying and the activity (Castoriadis, 1997). Kahneman relates to reinforcement, anchoring if there is coherence between what System 1 expresses and System 2 confirms (Kahneman, 2011).

combination of Q3, Q4 and Q9, i.e.: $Values \equiv Q3\ or\ Q4\ or\ Q9$. Fourthly, the category 'country top websites' or CTWS is not considered for this analysis. Fifthly, in the case of Q20 and Q24, the affirmative responses are contemplated as a percentage of total responses.

Because the interviews sample is small, it is not possible to calculate statistical significance. Therefore, a scale from zero to three is proposed to show how frequently a concept was mentioned within categories: one for less frequent, two for frequent, three for more frequent. Concepts scarcely mentioned might not be considered for the analysis which corresponds to 'zero'. This scale is not general, but relative to results within categories. A possible way to calculate the frequency is with the average and the standard deviation used in statistics. Table 6 shows the formula for each label.

Table 6. Frequency Labels Definitions

Formula	Label
All occurrences above AVERAGE+STANDARD DEVIATION	3: More Frequent
All occurrences between AVERAGE+STDEV and AVERAGE	2: Frequent
All occurrences between AVERAGE and AVERAGE-STDEV	1: Less Frequent
All occurrences below |AVERAGE-STDEV|	0: Not Frequent

5.2.3.2 Experiment design

The experiment design purpose is to find evidence to answer research question number 3 regarding culture: RQ.3. What are the values that the user relates to the Internet and the Web? The qualitative data are not sufficient to determine if there are cultural values related to the activity of Internet users or not. The objective is to design a way to find evidence at the country level. For this purpose, it is necessary to use statistical data. A statistical comparison between Alexa's data and Hofstede's model regarding countries could show signs of cultural differences. Alexa presents a statistic of the 500 most popular websites by country. Hofstede ranks countries within a scale of 1 to 100, for each of his six cultural dimensions. The comparison pattern is the number of websites classified by type. The latter entails determining a form of classification, building comparison patterns, proposing hypotheses, the correlation algorithm, establishing the size of the sample and the scenarios, and stating the limitations and assumptions.

5.2.3.2.1 Website classification

The purpose of classifying the most viewed websites is to create a profile that reveals the main activities on the Web. There are no standards to classify websites. SimilarWeb categorises websites on two levels; the first level has 25 categories, and the second 221 subcategories (SimilarWeb, 2016). Alexa ranks sites up to 10 levels: the first level has 17 categories, and a website can be

classified into various levels and categories (Alexa, 2016). UKWA categorises websites in two levels; only the first level has 24 categories (UKWA Open Data, 2016). Wikipedia shows 48 types of websites (Wikipedia, 2017).

Therefore, classification can be complex. Two general criteria of classification are proposed: country of origin and main purpose. For this research, origin country has two criteria. The first generalises whether the website is local, foreign, or tailored (e.g. google.fr). The second is the website's origin country. Websites can have several purposes, but classification is upon the main one (e.g., YouTube is media because it is a means of publishing videos, more than an OSN or a merchandising site). Table 7 displays the website classification criteria.

Table 7. Type of Websites

TW#	Type	Criteria
1	LFT	Local, Foreign, Tailored
2	Origin country	UK, US…
3	Searching	gives links according to search criteria
4	Merchandising	a site to buy and sell things and services
5	Government	an official site for governmental services
6	Finance	for banking and money transactions
7	Community	a collaborative non-profit
8	Technology	software, apps and technical services
9	Gaming	online games
10	Social Networks	for social interaction
11	Academy	universities, online courses
12	Pornography	adult entertainment
13	Referencing	non-profit knowledge repositories and dictionaries
14	Video	streaming movies, anime, TV series,
15	Media	News, information broadcast
16	Portal	different kind of web-services (not the main objective identified)
17	Ad Server	For advertising

The objective of the classification of the websites is to create profiles that are maintained for a reasonable period; i.e., they do not change from one day to the next. In this way, they are appropriate for hypothesis testing. Thus, for the analysis, it does not matter if a website W1 of type TW3 and origin O1 (like the UK) is first in Alexa's list today and after a week is in the tenth place. It only matters if W1 is within the list of the top websites. Nor does it matter if W1 is replaced by W2 as long as TW3 and O1 are kept.

5.2.3.2.2 Profiles

For this research, the comparison pattern is a profile. Two types of profiles are proposed: user-web-profile and country-web-profile. The user's web profile is the amount, by type, of websites used by

the participant. The country-web-profile is the quantity, by type, of the most popular websites in a country, including the percentage of Internet users and secure servers.

For the country-web-profile, the hundred most popular websites are taken. The latter is because the matrix questions section of the questionnaire contains the hundred most popular sites per country. It should also be considered that the classification of the sites is a manual job and that Alexa data can vary continuously.

5.2.3.2.3 Hypotheses

The general alternative hypothesis 'H_g' assumes that there is a relationship or dependence between two variables. The statistical correlation suggests whether dependence, association or linear relationship between two variables. The linear relationship might show causality or not. The correspondent null hypothesis H_0 stands for no correlation between variables. The three general alternative hypotheses are:

1. The first general hypothesis H_{g1} assumes that the country-web-profile correlates with another country-web-profile, suggesting the relationship between countries and within their regions, regarding the type of website.

2. The second general hypothesis H_{g2} assumes that the country-web-profile correlates with the Hofstede's cross-cultural dimensions of the country, suggesting the relationship between cultural values at the country level, regarding the country's type of top websites.

3. The third general hypothesis H_{g3} assumes that the user-web-profile correlates with the country-web-profile, suggesting the sample is representative.

5.2.3.2.4 Correlation algorithm

The idea of country-web-profiles is to collect evidence to reject the null hypothesis; thus, there can be some support to the alternative hypothesis. The first assumption is that the null hypothesis is true; thus, the alternative hypothesis is competing. The research takes the Null Hypothesis Significance Testing Framework NHST by Neyman and Pearson (Field, 2013).

They proposed a method to calculate the probability of having H_0 with confidence. THE NHST rejects H_0 if its probability – named p-value - is less than 0.05, then the alternative hypothesis is more likely to happen (Ibid). Neyman and Pearson proposed the divide between correct and incorrect observation zones to avoid "false positive finding", i.e., the rejection of a true H_0 which is known as type I error in statistics. The probability of a true H_0 is called statistical significance or α. As long as the value of α is less than p-value, the correlation is more significant. The conventional correlation

levels are at 0.01 (1% of the probability of H_0 to occur, or to fall observation within a zone where H_0 is true, the latter can be whether positive or negative) and 0.05 (5% of the probability of H_0 to happen). Whether a positive or negative zone is known as the tail, considering both: 2-tails. Type II error is the opposite, i.e. when failing to reject H_0 (false negative which probability is β to occur which is related to the *power* of a test: 1-β).

The bivariate Pearson Correlation shows (Field, 2013): (i) if there is a significant linear relationship between two variables; (ii) how close is the relationship between two variables to a straight line; (iii) if the linear relationship increases or decreases. Only continuous variables – interval or ratio level but not categorical - can correlate. Both variables should be independent and normally distributed. The sample correlation coefficient is named ρ (or pi-val). Pi-val can be computed among two variables – *x* and *y* - with the formula based on covariance – *cov* - between variables, and variance – var - of a variable (Kent State University, 2019):

$$\rho_{xy} = \frac{cov(x,y)}{\sqrt{var(x)} * \sqrt{var(y)}}$$

The range of ρ is [-1,1]. The sign indicates if the relationship is negative or positive. If $|\rho|$ is above 0.5, there is a strong correlation, moderate between 0.3 and 0.5, and weak if $|\rho|$ is less than 0.3.

5.2.3.2.5 Sample size and scenarios

It is hard to say if the sample size is significant or not. In the case of hypothesis 1 and 2, there are three considerations. First, Hofstede evaluates 103 countries whose scores have not varied since the 1970s. Second, Alexa usually displays data from around 187 countries (registered by this research from July/2016 to April/2018) which have variations. Third, the World Bank shows statistics of around 246 countries about country Internet users (per 100 people) up to 2015 and secure servers up to 2016. Therefore, it is considered that the largest possible scenario is determined by the number of countries evaluated by Hofstede, regardless of the number of respondents and their origin countries. Thus, the goal is to classify the type of top websites of 103 countries.

In the case of hypothesis 3, the definite answer would be negative because a few citizens of a country of millions of inhabitants are interviewed. However, instead of comparing population, it is proposed to compare web-profiles to shed some light on the user's preferences relating to her country's preferences; thus, there is a comparison of two independent continuous variables.

It is possible to group countries by region if the alternative H_{g2} is true. Section 3.7.2.2.2 presents regions according to the World Bank (The World Bank Group, 2016), see figures 3 and 4. The World

Bank groups countries in seven regions: East Asia and Pacific, EAP; Europe and Central Asia, EUCA; Latin America & the Caribbean, LAC; the Middle East & North Africa, MENA; North America, NA; South Asia, SA; and, Sub-Saharan Africa, SSAf (Ibid). The complete list of countries by region is the World Bank Data website (The World Bank, 2017).

5.2.4 Limitations and assumptions

- The semi-open-ended questions induce an analytical process, waking up System 2.
- Using the questionnaire indistinctly, whether, on an interview, workshop or focus group might hinder analysis. On the other hand, the questionnaire might prove its effectiveness allowing to collect data from different sources in different ways.
- Cultural values comparison is at country level on Hofstede's cultural value model.
- Gender, income level and cultural differences within countries are not part of this research.
- The questionnaire does not start with negative questions. Nor does it start by asking those actions that refrain the use of the Web, mainly because of time and costs in applying the method to participants.
- Regarding equal conditions, interviewees should have completed the college at least.
- Data about the hundred top websites of countries come from Amazon's Alexa website. The validity of the Alexa data is not questioned; instead, it is taken as it is.

5.2.5 Chart of the methodology

Table 8 summarises the methodology proposed.

Table 8. Methodology Chart

Instrument	Structure		Methods and strategies			Result	Analysis
Questionnaire	Semi-open-ended questions to System 2	Q1 - Action	warm-up and pivot question		Personal interview, Focus group, Workshop	Individual values as means and as ends	Qualitative: Inductive coding
		Q2 – Value as means	VFT (elicitation technique)	Direct and clear question			
		Q3 – Value as ends					
		Q4 – confirms Q3		Direct and clear question			
		Q5 - Negative Value		equivalent variation			
		Q6 - Value		Validation			
		Q7 - Negative value -->		cheap-talk			
		Q8 - Negative value <--		cheap-talk			
		Q9 - Values		Validation			
	Matrix questions to System 1	CTWS - country's 100 top websites	Validation, Reliability	link to a quantitative analysis		Value per-used website	Quantitative: Word count
		Q10-Q19 = Q1 - action per website		confirmation link			
		Q20 - values		recognition			
		Q21 - Positive value <--		counterbalance of Q8			
		Q22 - Positive value -->		counterbalance of Q7			
		Q23 - Negative value <--		confirmation of Q8, the counterbalance of Q22			
		Q24 - Economic value	Validation	CV			
Kind of Sites	CTWS		classification and grouping	manually and individually		country-web-profile	Manual classification
				confirmation by native speakers			
	internet users + secure servers per country		Data from the World Bank		⇢		
	Q10-Q19 = Q1 - user action per website		grouping		individually	user-web-profile	
STATISTICS (Validation)	country-web-profile		Correlates? with	country-web-profile	Hg1 testing	cultural values on the Web activity at region/country level	Quantitative: Pearson Correlation
	country-web-profile			Hofstede's model	Hg2 testing	cultural values on the Web activity at country level	
	user-web-profile			country-web-profile	Hg3 testing	sample representativeness	

Chapter 6: Results Analysis

From September 12, 2016, to December 22, 2017, four workshops, five focus groups and eleven personal interviews were held. A total of seventy-six people from eighteen countries voluntarily participated. From September 12, 2016, to April 27, 2018, thirty-eight data collections were made on Amazon's Alexa website about country top websites. The top hundred websites of one hundred and four countries were classified.

On these data, the qualitative and quantitative analysis was carried out following the methodology proposed in the previous chapter. The first part of this chapter presents the result of the qualitative analysis: (i) the values related to instrumentally-rational actions on the Web/Internet; and, (ii) the evidence of the use of System 2 by participants. The second part presents the result of the quantitative analysis, which has three sections. The first section presents the frequency with which concepts associated with value are mentioned regarding value-rational actions. The second section narrates the process and the results of the websites classification. The last section shows the hypothesis testing results.

6.1 Qualitative

The qualitative analysis aims to have first-hand evidence to answer RQ3: What are the values that the user relates to the Internet and the Web? The questionnaire described in the previous chapter was applied to seventy-six volunteers who participated whether in workshops, focus groups or personal interviews. This section describes the scenarios in which the volunteers participated, the analysis process to determine the values of the instrumentally-rational actions, and the way to confirm that participants used their System 2.

6.1.1 Scenarios and participants

The seventy-six participants are classified into twenty groups, numbered in chronological order from the first interview held on September 12, 2016, until the last on December 22, 2017. The ethics rules were read to them, and personal information such as names, surnames, address, telephone, or any contact information was not recorded. In appendix B, four tables show the full outcome of these events. Table 18 shows the list of all participants: the participant number (P#), her origin country, gender (female or male), age, academic level (college finished ‘c’, with a university degree ‘u’), group number, city where the participant was located, and the method (personal interview i, workshop w, focus group FG). The interviews and workshops record individual responses, while the focus groups present a group response. Table 19 shows the answers to semi-open-ended questions.

Table 20 shows part 1 of the answers to matrix questions. Table 21 displays part 2 of the answers to the first section of the questionnaire. Table 20 and Table 21 do not illustrate detailed answers by the website but a summary. The following describes the workshops, focus groups and personal interviews that took place.

6.1.1.1 Workshops

From the total, forty-three people contributed to four workshops. In general, the steps followed for the workshops were: First, each workshop began with a succinct explanation of the Internet and the Web. Secondly, the moderator/researcher gave each participant an A3 print out of the first section of the questionnaire (semi-open-ended questions), guiding participants to fill the first column, with one activity per row, then to fill the remaining columns accordingly. The work was individual and silent. Thirdly, the moderator gave a break of 30 minutes. Fourthly, during the break, the moderator wrote down the activities indicated by each participant as column names on the A3 print out of the second part of the questionnaire. Fifthly, upon return, the moderator presented a brief explanation about "values". Sixthly, the moderator gave the A3 print out of the second part of the questionnaire suitable to each participant (with the column of the names and the top websites regarding participant's origin country), indicating that among the websites presented, they may select the ones they use and fill the corresponding columns. Seventhly, the moderator also indicated that they could write down other non-listed websites.

6.1.1.1.1 Workshop in CLEI 2016

The XLII IEEE Latin American conference of Informatics, CLEI 2016 (Centro Latinoamericano de Estudios en Informatica, 2016), took place in Valparaiso - Chile, from October 10th to 14th. The workshop was held on October 10th, 2016 (see the letter in Appendix A, Figure 15). Eleven people participated: P2-5, P12-18. Six of them with a professional degree in some branch of computer science, and the others still studying their undergraduate in related areas. For this research, this group of people is named G2. The workshop and responses were in Spanish. The workshop lasted three and a half hours.

6.1.1.1.2 Workshop in EVI 34

The EVI 34, CoNCISa 2016 Conference took place in Caracas – Venezuela, on October 26th, 2016 (Escuela Venezolana de Computacion, 2016); the invitation letter is in Appendix A, Figure 16. The workshop was held on October 12th via Skype with the help of PhD Yudith Cardinale and Eng. Francisco Montilla. Seven people participated, including four computer science students and three teachers, all from Venezuela. For this research, this group of people is named G11: P40-46. The

workshop and responses were in Spanish. The workshop lasted for four hours. The researcher conducted the workshop via Skype, and following the steps, everything went according to plan. All the participants completed the two parts of the questionnaire by computer. The workshop was helpful to get individual answers.

6.1.1.1.3 Workshop with WebScience master students

A group of eight WebScience master students at the University of Southampton – UK, during a lecture of WEB6201 Foundations of Web Science module led by Professor Leslie Carr, participated in the workshop on October 4th, 2016. Four are from the UK, one from South Africa, one from Cyprus, one from Russia, and one from Poland. For this research, this group of people is named G5: P8-9, P19-23, P54. The workshop and responses were in English. The face-to-face part of the workshop lasted 45 m. Due to lack of time, the researcher explained the questionnaire. The group-work began with a general contribution of the activities carried out on the Web and students were asked to complete the questionnaire on their own and send it back by email.

6.1.1.1.4 Workshop with computer science students PUCE

A group of sixteen undergraduate students of informatics at the Faculty of Engineering, Pontifical Catholic University, PUCE, Quito – Ecuador, participated in the workshop during a lecture of T1 - Dissertation Guidelines module. All of them are from Ecuador. For this research, this group of people is named G19: P60-75. The workshop was held on November 14th, 2016 via Skype with the help of MSc Alfredo Calderon-Serrano. The workshop was in a computer lab and lasted four hours. The workshop and responses were in Spanish.

6.1.1.2 Focus Groups

The focus groups followed the same procedure as the workshops, but the moderator used a single form to record the responses of the whole group. As a confirmation measure, from time to time the moderator read the annotations for the group's consideration.

6.1.1.2.1 Yasuní

Two members of the indigenous Waorani community in Yasuni - Ecuador who have finished college participated in the focus group. This community is semi-contacted (Armijos, 2013). Juan Carlos Armijos met with participants and helped to conduct the focus group, labelled G6, via Skype in Spanish. G6 members are P10 and P11, who participated for one hour and a half.

6.1.1.2.2 Students in Toulouse

Five master's students living in Toulouse attended a focus group organised with the help of Saí Bravo. Participants of G8 are P25 to P29. Three of them are French, one Colombian and one Ecuadorian. None of the activities mentioned by the group meets the requirements established in this research to be instrumentally-rational. The language of the Focus group was French and Spanish.

6.1.1.2.3 Barcelona focus group

Nine mature people living in Barcelona attended a focus group organised with the help of Veronica Brown. The focus group, labelled G10, was in Spanish. Participants of G10 are P31 to P39, six from Spain, one from Peru and two from Ecuador. The meeting lasted four hours.

6.1.1.2.4 US Focus group

Two Americans resident in Boston attended a focus group conducted by Skype in English, lasting three hours. P50 and P51 participated in the focus group labelled G15.

6.1.1.2.5 Quito Focus group

Five mature Ecuadorians attended a focus group, labelled G18, conducted by Skype organised by Pablo Ayala. The focus groups lasted three and a half hours and were in Spanish. Participants of the G18 focus group were P55 to P59. No instrumentally-rational actions were found.

6.1.1.3 Personal Interviews

Eleven people participated in personal interviews 'P.I.' whether face-to-face or by Skype. Below is a general description of each participant and the interview:

- P1, is an Engineer, living in Buenos Aires - Argentina. The interview, labelled G1, was in Spanish, conducted by Skype and lasted two and a half hours.
- P6 is a retired lawyer living in Bilbao – Spain. P6 participated in a Skype interview, labelled G3, conducted in Spanish, and lasted one and a half hours.
- P7 is an engineer from Thailand. P7 participated in a Skype interview, conducted in English, labelled G4, and lasted one and a half hours.
- P24, a French researcher living in Toulouse. P24 participated in a face-to-face interview, labelled G7, conducted in French, and lasted one hour.
- P30 is a mature artist from Madrid, living in Barcelona. P30 participated in a face-to-face interview labelled G9 that lasted two hours.

- P47 is a British living in Southampton who participated in a face-to-face interview conducted in English, labelled G12, and lasted two hours.
- P48 is from Germany, living in Munich. P48 participated in a Skype interview, labelled G13, conducted in English that lasted two hours.
- P49 is British, living in London, who participated in a face-to-face interview conducted in English, labelled G14 that lasted two hours.
- P52 is from Quito and lives in Quito. P52 participated in a Skype interview, labelled G16, conducted in Spanish that lasted two hours and a half.
- P53 is from Nigeria, living for one year in the UK. P53 participated in a face-to-face interview, labelled G17, which lasted two hours.
- P76 is from Lebanon, living in the UK for two years. P76 participated in a face-to-face interview, labelled G20, which lasted two hours.

6.1.2 Values related to actions on the Web

Following the elicitation technique based on Keeney's VFT, the first section of the questionnaire is filled first from top to bottom and then from left to right, that is: the participant writes first all the actions he performs on the web (Q1), and then for each of these answers continue with the next column Q2, and so on. This method forces the participant to rethink their answers. It is a process that induces the participant to refine their answers to draw the value of their action.

The method foresees that when going through the questions Q1, Q2 and Q3, the participant comes up with a clear answer to the question Q4, that is, saying what really matters to him of his Web activity, revealing the object of the investigation: the values that the social imaginary in front of the screen relates to the Internet and the Web. Over both Keeney's method and Carson & Groves and Podsakoff (see 5.1.3.2) questions Q5, Q6, Q7, and Q8 are designed for the participant to confirm her answers to Q4 from a negative approach. However, in practice, few participants maintained the coherence of their responses throughout the entire section of semi-open questions. The latter seems to confirm the theory about how system 2 works because most of the participants became tired due to the lengthy process that demands to answer this section of the form. Therefore, the value coding focuses on Q4 answers.

The analysis of the values in the answers has two stages, the first is an inductive coding of answers to Q4, and the second is a classification of the codes within the general values category (see 2.2). Following the steps proposed in section 5.2.2.3 and using NVivo v12 software, the outcome of the inductive coding is one hundred and twenty-eight codes from which eighteen corresponds to an ex-ante categorisation. The codes are in one thousand seven hundred eleven nodes. The number

of nodes is the times that the participants mention a value or values within their answers. Figure 5 shows a snapshot of the inductive coding process.

One of the reasons for using Keeney's VFT was to try to avoid the interpretation of the answers when coding, however it was necessary to contextualize them, i.e., considering the place of origin of the person, the language and level of education, although the latter was standardised by choosing people who at least have finished college. However, the inductive coding was a tedious process because of the relative understanding of the words meaning and personal attitudes like the next four examples show. First, the most common issues are whether the difference or equivalence between information and knowledge. Second, expressions like: "the enjoyment of feeling safe behind the screen to observe others" have many values involved; and possibly the main one reveals the same controlling attitude of stakeholders behind the screen, i.e., it is about control more than entertainment, joy and security. The latter suggests that the controlling attitude is *universal*, although it is not the most directly mentioned by participants. Third, expressions like "spread the word of God" and "writing to preserve culture" may suggest communication, goals-setting, content production and even a controlling attitude. Fourth, it is confusing when participants give value to social networking as they may want either to participate or to broadcast their voice.

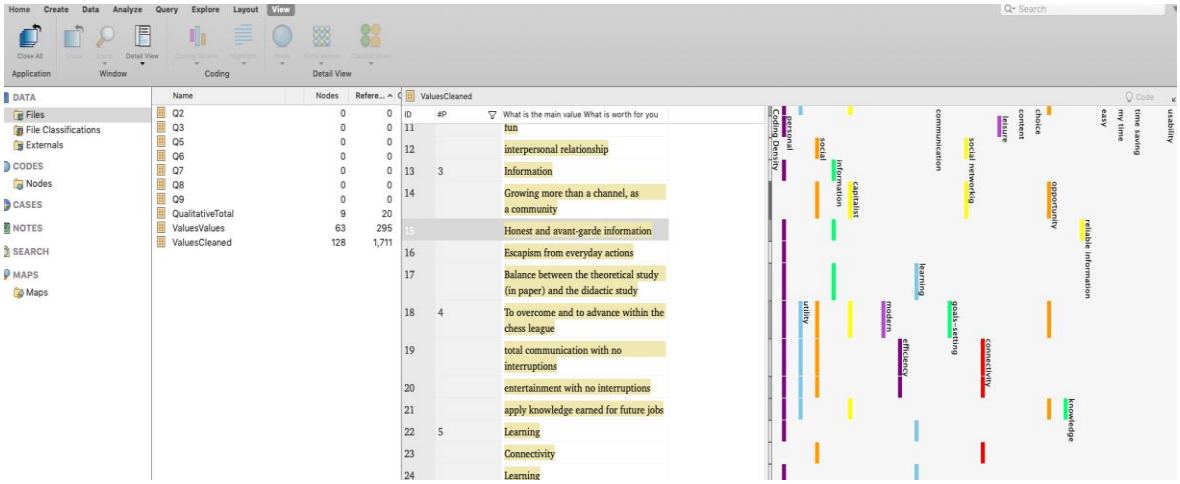

Figure 5. Inductive coding process with NVivo

The analysis fitted codes into five values categories: personal, social, economic, moral and collectivist (see section 2.2). As Table 9 shows, when fitting codes into categories some decisions needed to make regarding answers context. First, the basis for nodes classification is the one proposed by Cortina. Second, the present investigation considers codes such as freedom of expression, goals-setting, privacy and transparency as a subcategory of social values, named *modernity values*. Second, codes such as equality, freedom, justice, legal are also modern but are more likely to be moral as Cortina, Scheler and others considered. Third, the free market is a modern value too but closely related to economic or capitalist values. Fourth, some codes seem to

qualify something that the participant value. For a better understanding, those codes are under the subcategory "characteristic" within personal values. Fifth, the participants frequently repeat the information as a value, more than anything else, for that reason, a subcategory called information groups its describing nodes within personal values. Sixth, the categorisation process included nodes debugging, leading to an outcome of one hundred one codes from eight hundred nine nodes fitted into five categories and three subcategories.

Results presented in figure 6 and table 9 show that, mainly, instrumentally-rational actions are oriented to the individual value, not to the collective. The outcome is coherent with the Keeney's methodology, i.e., oriented to the individual action. Every participant uses the Internet for their things mainly. For the social imaginary in front of the screen, the Internet is an efficient means to obtain personal values as ends. By feeling safe "behind the screen", they go social. Some of them trade on the Internet, and reliable information is worthwhile for almost all.

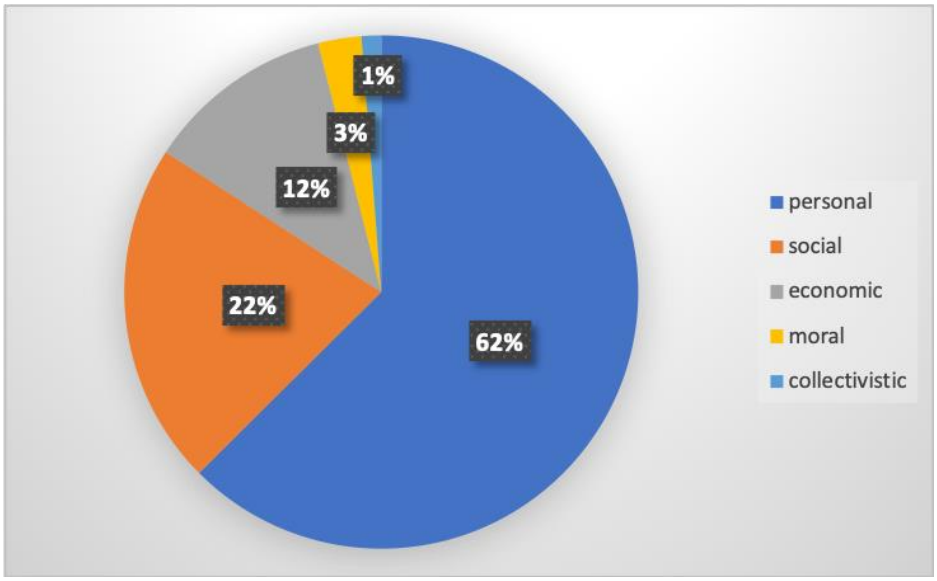

Figure 6. Distribution of codes occurrences regarding values categories

Table 9. Codes grouped by Values Categories

Category	Subcategory	Code Name	Nodes	Category	Subcategory	Code Name	Nodes
PERSONAL		aesthetic	2	SOCIAL		access	13
		alienation	2			adaptability	1
		behaviour	1			ask for help	3
		better experience	10			bragging	3
		challenge	2			communication	26
		control	11			connectivity	25
		curiosity	3			dialogue	2
		escapism	4			engagement	16
		experience	6			obligation	1
		exploring	3			participation	5
		feedback	3			respect the other	2
		followers	2			security	5
		free content	6			shallowness	1
		friendship	2			social networking	29
		gaming	5		Modernity	freedom of expression	5
		health	4			goals-setting	31
		hobby	1			privacy	3
		content	24			transparency	1
		joy	15			trust	3
		know the other	10	ECONOMIC		banking	3
		knowledge	27			benefit	14
		learning	39			business	7
		leisure	24			choice	26
		morbid	3			competition	3
		my time	20			consumerism	4
		obligation	1			free market	4
		observation	4			individualism	1
		pass voice	3			invaluable	1
		personal development	9			opportunity	22
		procrastination	2			private goods	1
		publish	2			property	1
		recognition	13			money	9
		relaxation	2	MORAL		equality	3
		religious	1			esteem	1
		satisfaction	9			faith	1
		skills development	7			freedom	7
		spiritual	2			honesty	4
		understanding	5			justice	1
	Information related	delivering	3			legal	3
		disclosure	2			solidarity	1
		evidence	2			truth	1
		news	8	COLLECTIVIST		collaboration	4
		reliable	23			community	2
		up-to-date	3			sharing	4
	Related to means	availability	9				
		convenience	56				
		easy	25				
		efficiency	38				
		best solution	5				
		problem solving	4				
		quality	4				
		time saving	17				
		usability	12				
		value for money	6				

6.1.3 Participants using their System 2

As indicated in the methodology chapter, the questionnaire has two parts. The objective of the first part is to identify the values that the participant relates to, based on his or her web activity, as discussed in section 6.1.2. The second part aims to explore whether the participant uses his or her slow thinking, named: System 2. Considering Kahneman´s contribution, the use of System 2 requires concentration and coherence from the participant, in this case, throughout the entire questionnaire. In the first section, the interviewee can come up with any value. The second section presents a list of the 100 top websites of the interviewee's country and questions that can confirm if the participant is consistent with the answers provided on the first section.

The coherence analysis is grounded on four assumptions. First, the web activity of the participant has a purpose. Second, the participant uses the Internet to obtain value. Third, the participant is aware of the consequences of using the Internet and possible alternatives. Fourth, the participant knows the websites to get the value needed for which she is willing to pay. Therefore, the coherence analysis considers that each Q1 must have (please refer to Table 4 and Table 5):

1. Equal or similar responses in Q4, Q9 and Q21.
2. The approximation in negative terms to Q4 in Q5.
3. At least one alternative response in Q6.
4. At least one negative consequence to the action in Q7.
5. Identified at least one impediment in Q8.
6. The same action indicated between Q10 and Q19 (corresponding to the transposition of each of the maximum ten responses given in Q1).
7. An affirmative answer in Q20 and Q24.
8. At least one response in Q22.
9. A similar answer to Q5 in Q23.

Out of a total of one hundred and eighty-one actions that were recorded in section 1 of the questionnaire, thirty-one meet the requirements to be considered as actions based on slow thinking, which comes out to 17%. Of the seventy-six participants, twenty demonstrated they use their System 2 to act on the Internet or the Web by the parameters established in this investigation. The outcome leads to many interpretations.

On the one hand, 17% represents a small margin. Although the questionnaire uses a technique to obtain responses from System 2, it seems that the participants got tired, or their activity on the Web was mainly value-rational. On the other hand, people may use their System 2 on the Internet regardless of their place of origin. In fact, the use of slow thinking while on the Internet by the

Waorani people might suggest that goal-setting is not a modern value nor the outcome of the capability's development underpinned by structure, but rather a natural human function. Outliers confirm this idea by observing that modern man, living under a democratic structure, is conditioned to act according to the synthetic freedom created by the platforms to which he or she becomes addicted participating without finding value. For example, P52 thinks his participation on the Internet is not essential, despite his 2M subscribers on his YouTube channel. Another example is P30, her action to promote her work does not fit all the requirements imposed on this research to be considered as evidence of her slow thinking because she herself doubts the source of her work contracts (Internet vs word of mouth).

Something that seems to be clear is that the use of System 2 mostly relates to selfish actions since only one response (within the 17%) includes collectivist values. A typical answer as exclusionary factor is that the participants are not willing to pay for Web services, although they do not care about the business model of the providers that get money from their data and online behaviour. All actions find value in setting goals using the Web or the Internet as a means. It is emphasised that users are not interested in specifying whether their activity is on the Internet or the Web. They use technology mainly to seek recognition, economic value or to save time.

Table 10 summarises the participant´s instrumentally-rational actions that comply with the established methodology (see also 5.2.2.4), i.e., the linearity along with participant's responses to each of their actions along the two sections of the questionnaire. Table 10 also displays the main corresponding values from Q4 values coding. The correspondence between the instrumentally-rational action (when assuming the use of System 2) and its values is direct due to the coding of the values of Q4 that was also made horizontally, that is, by analysing each of the responses.

Table 10. Actions upon slow thinking of participants

P#	Purposeful action	Main Values
P1	interacts on the Web *to manipulate others, to enjoy, to satisfy ego, to liberate*	Personal, control
P3	uploads and shares videos *to grow a community*	Collectivist
P4	learns chess to overcome and *to advance in the chess league*	Personal, modern
P6	communicates on the Web to disclosure, *to provoke dialogue*	Social, communication
	makes memes critiquing politicians *to give an honest and objective opinion*	Social, modern (freedom), moral
P8	shares her photography and artwork *to be part of something and to have feedback*	Social
P10 & P11	make consults through the Web *to understand the meaning and to socialise it within the community*	Personal, social, learning
	communicate using the Web *to contact relatives, to ask for help, and to pass voice*, as Waoranies communities are dispersed along large territory	Social
	are writing their history using the Web *to preserve culture*.	Collectivist
	purchase on the Web *to have time for better things*	Personal, efficiency, economic
	socialise *for bragging*	Social
P40	researches to learn distinct topics to help her *to scale in future work for a company that gives her benefits and economic stability*	Economic
P42	searches for information about C++ to feel the satisfaction *to know as much as his brothers who have a degree in Computer science*	Personal
P44	socialises *to spread the word of God*	Personal, control
	downloads programs for work *to keep his clients satisfied*	Economic
P47	does shopping on the Web *to be happy* because of convenience, speed, efficiency, choice, information to make proper decisions	Personal
	watches online movies and series *to be happy* while controlling choice, quality, access to original content, instead of being tied to TV programs	Personal
P48	seeks information on the Internet *to make better decisions for her life*	Personal
	learns on the Web *to make better decisions* in term of his personal life, then doing things will be easier, a kind of sensitivity of his personal values is diminished	Personal, easy, efficiency
P50 & P51	google everything *to conveniently perform daily tasks* such as cooking (recipes), buying (tickets, services), price comparison, reading suggestions to improve searches, shopping, and learning (tutorials, online classes, eBooks)	Personal, efficiency, economic
	play games *to get unpredictable results, surprises, to socialise*	Personal, social, modern
	investigate online *to obtain more knowledge faster, conveniently and engaging with different sources*	Personal, convenience, efficiency, learning
P52	searches on the Web *to have more cost-effective results on hand which otherwise would not be possible to get*	Personal, efficiency, economic
P53	does chats on the Web to have effective communication which is cheaper, easy to use, *to be connected and close to beloved ones*	Social, efficiency, communication, convenience
	surfs on the Web *to get information*	Personal
	works on the Web *to make a living*	Personal
	does daily things on the Web *to save time and money*	Economic, personal, convenience, efficiency
P61	plays online games *to have friends*	Social
P62	self-learns using an online tutorial *to be a better professional, to scale in work*	Personal, modern
P64	runs an online business *to have massive sales*	Economic, modern
P76	searches on the Web *to learn*	Personal, learning

6.2 Quantitative

This section presents the result analysis of the value-rational action from participant's answers, the classification of the hundred top websites of one hundred and four countries (data from Alexa), and the hypothesis testing.

6.2.1 Values related to value-rational actions

Tables 11, 12, 13 and 14 summarise the answers to the second section of the questionnaire (matrix questions). The tabulation uses the label definitions shown in Table 6 (Chapter 5: Methodology). The number of occurrences corresponds to the total number of times the participants related the action to a website. Most of the activities are carried out in top websites, called capitalist platforms by Srnicek and Williams. The latter suggests that participants confirmed their preference for top websites.

Table 11 shows the most frequent actions on websites. For the most part, the search is on Google, communication on Facebook, entertainment on YouTube, purchases on Amazon. The learning, researching and reading relate to Google, Facebook, Wikipedia, and one or another local medium. Watching videos connects to YouTube and Netflix. Social networking involves some platforms like Facebook, Twitter, Instagram, and Pinterest. Working relates to many different websites. Banking is the most forgotten activity by participants, who when recognising the bank's website wanted to return to the first part of the questionnaire.

Table 11. Actions on Websites

Action	Occurrences	Label
searching	239	3: more frequent
entertainment	167	
communication	140	
purchase	124	
learn	117	
investigate	114	
reading	101	2: frequent
watch videos	99	
social networking	95	
work	80	
banking	37	1: less frequent
download	35	
business	27	
gaming	25	
emailing	23	
produce content	22	
talk	17	
do daily things	17	
listen	16	
surfing	14	
planning	13	0: Not frequent
build apps	12	
answer questions	11	
posting	9	
be informed	7	
storage information	7	
messaging	4	
upload and share videos	3	
memes making	3	
coordinate	2	
translate	2	
use collaborative tools	2	
teaching	2	
gossip	2	
consuming pornography	1	
blogging	1	

Table 12 shows the values frequency in participants' answers, related to websites. Most of the participants find value in the information offered by the websites. It is possible to add content and news to information as they are also frequently mentioned and are closely related. Actions such as entertainment and communication have value in themselves. The services and knowledge provided by the websites are also valued. However, it is likely for participants, knowledge points to information. Labels 3 and 2 suggest the core values allocated by the Internet through the Web, and those at the bottom label might indicate means or actions (searching and shopping). Surprisingly, although learning is one of the primary values, participants tend to not relate learning to a particular website. In general, the responses reflect value-rational but not instrumentally-rational, revealing the predominance of System 1.

Table 12. Value received from websites

value, %occurrences	Label
information, 17.43%	3: More frequent
entertainment, 5.6%	2: Frequent
content, 5.1%	
news, 4.6%	
communication, 3.4%	
services, 2.9%	
knowledge, 2.6%	
videos, 1.8%	1: Less Frequent
goods, 1.68%	
ease, 1.68%	
reliable 1.5%	
speed, 1.5%	
email, 1.1%	
multimedia, 1%	0: Not Frequent
convenience, 0.8%	
kind, 0.8%	
links, 0.8%	
nothing 0.8%	
products 0.8%	
education, 0.8%	
searching, 0.7%	
access, 0.7%	
money, 0.7%	
storage, 0.7%	
people, 0.6%	
shopping, 0.6%	

Table 13 shows how often participants mention a value they think they give to websites. Most participants know that to use the Web, they must exchange their data and their behaviour even when they are only surfing (views to websites). Only 6.9% consider they are not giving anything in return. Some pay for services and others generate content either in a specific way (personal posts or content related to their work) or through the news they share. Few people carry out Web activities similar to those offered by top companies such as searching, advertising, sales. In general, they consider that their participation on the Web is valuable and that is why they obtain the content and services they are looking for. These seem to be responses from System 1 because the first section of the questionnaire does not have the question: What values does participant give to websites?

Table 13. Values to websites

value, %occurrences	Label
personal data, 16.2%	3: More frequent
views, 11.6%	
information, 8.5%	
nothing, 6.9%	
money, 5.2%	2: Frequent
user's content, 3.7%	
behaviour, 2.4%	1: Less Frequent
potential client, 1.8%	
news, 1.5%	
make presence, 1.4%	
reliable information, 1.3%	
participation, 1.2%	
opinion, 1.1%	
private information, 1.1%	
popularity, 0.9%	0: Not Frequent
searching, 0.9%	
contribution, 0.9%	
communication, 0.7%	
downloads, 0.7%	
tendencies, .6%	
advertising, 0.5%	
goods, 0.5%	
posts, 0.5%	
products, 0.5%	
profile, 0.5%	
selling, 0.5%	

Table 14 shows the responses about the negative values received from the websites. Participants believe ads have the worst value, although it is also popular the belief that on the Web nothing is negative. While answers to the first part of the questionnaire put erroneous information in the first place, it goes down to a third-placewhen participants relate it to the websites that they usually use. It is also interesting to note that while aesthetics is not a typical value, the website bad layout is considered negative by many.

Table 14. Bad values from websites

value, %occurrences	Label
ads, 19.8%	3: More Frequent
nothing, 8.94%	
erroneous information, 5.8%	2: Frequent
lack of privacy, 2.8%	
bad layout, 2.8%	
data acquisition, 2.4%	1: Less Frequent
exposure, 1.63%	0: Not frequent
monopoly, 1.4%	
time wasting, 1.4%	
bias, 1.2%	
geolocation, 1%	
restrictions, 0.9%	
searching, 0.7%	
bad people, 0.7%	
bad service, 0.7%	
bad sites, 0.7%	
spam, 0.6%	
bad content, 0.5%	
difficult to use, 0.5%	
not ease, 0.5%	
fake sites, 0.5%	

Additionally, the tabulation indicates that 46.31% of the participants believe that their participation is of interest to websites; and, 25.4% of the participants would pay or are already paying for the services received from websites.

6.2.2 The countries' top-website classification

This section describes the manual classification process of countries' top websites and some relevant findings. The process was complex because data seem to vary constantly, the language of websites content, its origin and main purpose. Among many findings, those considered important for both the present investigation and future research are described below. The findings are the outcome of observing websites content with the sole purpose of classifying them. If there is a particular interest, the raw data are digitally attached to this thesis with the links to websites.

6.2.2.1 Top websites variation

To find out if there is variation in the number of websites by type and country that could change the country-web-profile, from September 2016 to April 27, 2018, thirty-eight times data from Alexa was collected. The first two times, data were from the interviewees' origin country. For three times (21/Apr/2017, 26/Apr/2017 and 25/Jul/2017) data from 186 countries were collected from Alexa. As of July 25, 2017, and for thirty-three times, Alexa's data from 104 countries were collected to search for correlations, which corresponds to the hundred and three countries ranked by Hofstede plus Cyprus (origin country of one participant). The list of the hundred and three countries is the same that Table 22 in Appendix B shows. The data was provided alongside this thesis document.

Based on empirical observation, the result was favourable to research objectives. The variations are minimal compared to the websites themselves, and negligible concerning the type. That is, during the aforementioned period, the number of websites by type is maintained in almost all countries. Even more, the popular websites are almost the same, suggesting that the country-web-profile not vary significantly during the period of the investigation. The following facts corroborate these statements:

- Google.com, google.xx (xx = country domain), YouTube.com, and Wikipedia have kept their positions within the twenty-five top-websites of all countries. In most of the countries, these four websites are within the top ten including Facebook.
- There are five popular porn websites in almost all countries (except China, Iran, Turkey, Russia, Kuwait, United Arab Emirates) that have kept their position in the list of the most seen of each country. Figure 10 shows the position chart of pornhub.com, xvideos.com,

livejasmin.com, xhamster.com and xnxx.com among the top hundred worldwide, as they had been monitored between March 2017 and April 2018.

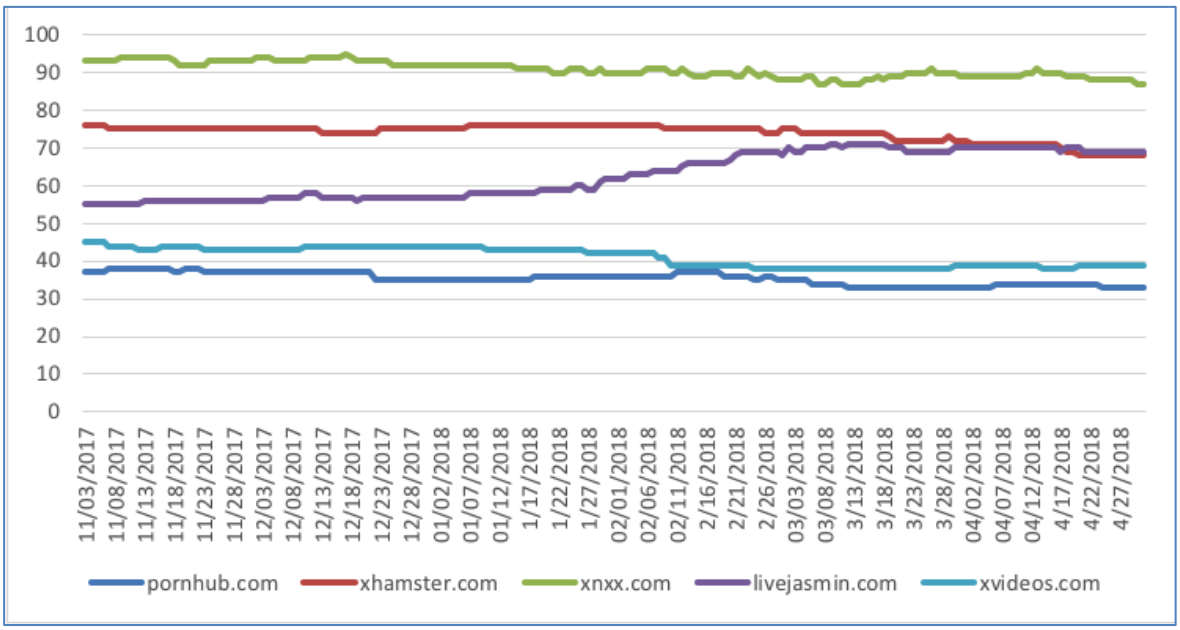

Figure 7. Popular porn websites worldwide

- The case of ad servers is interesting. They keep their position on the list for a while, then disappear (maybe because their cookies are considered viruses), but new ones take their place, as is the case of onclickads.net that gave way to onclkds.com and then to deloton.com. There are others that maintain their position on the list, as is the case of doubleclick.net, a subsidiary of Google. Figure 11 shows these observations.

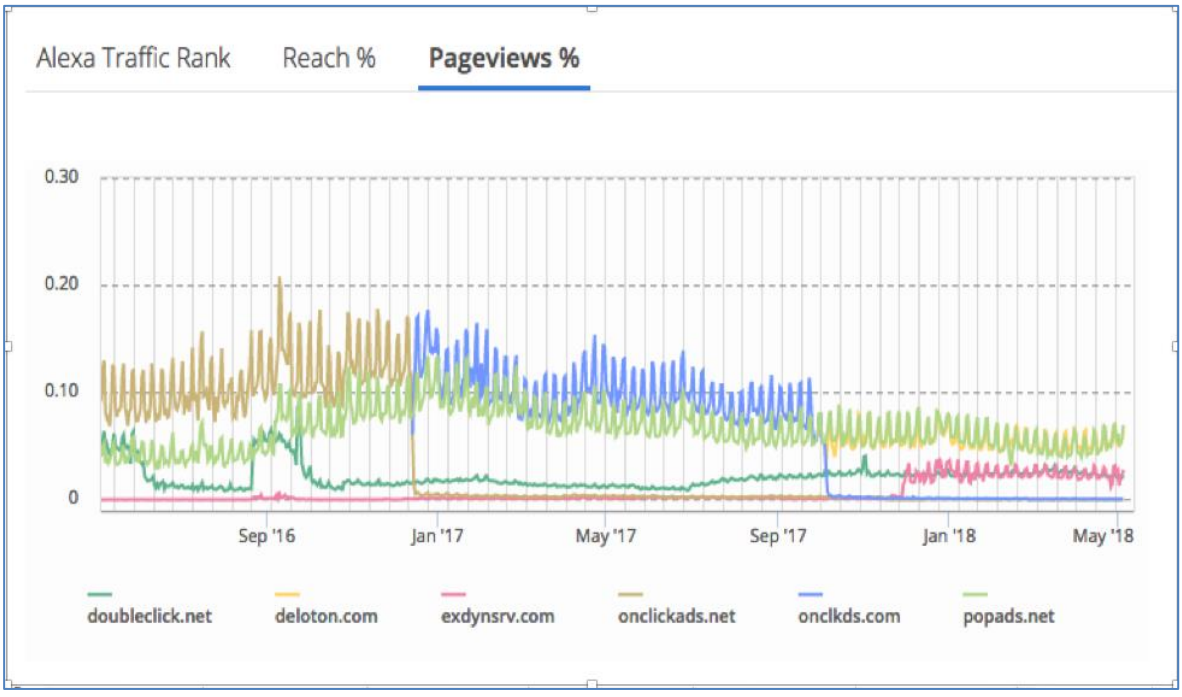

Figure 8. Top ad-server sites worldwide

6.2.2.2 Origin of top websites

To determine the origin of top websites sometimes was straightforward, other times extremely difficult, even almost impossible within the research time. It was straightforward when most of the websites are local or belong either to US, Russia or China. It was difficult in the case of porn sites, video, torrent portals, some media, with domains like ".com" and other uncommon domains; and almost impossible in the case of ad-server sites.

Countries with more local websites (same country) are US 91, China 79, and Russia 77. Another relevant case is Iran with 71. The most common foreign websites for all countries are of US; representing an average of 38% of the top websites of each country. Regarding regions[39], the countries with the largest and least number of US websites within their top hundred are: in EAP China 14 whilst Japan 29; in EUCA, Russia 13 whilst Ukraine 52; in LAC, Brazil 31 whilst Puerto Rico 57; in MENA, UAE 14 whilst Libya 51; in SA, Nepal 25 whilst Pakistan 42; in SSAf, Angola 23 whilst Sierra Leone 59. Among US more popular websites within other countries are Google, YouTube, Facebook, Wikipedia, Live, Yahoo, Reddit, LinkedIn, Instagram, Netflix, Amazon, Twitter, IMDB, Office, Apple, eBay, Microsoft, Stackoverflow, Github and Bing.

After the United States, the countries with the most significant presence on the Web are Russia, UK, France and China, each with around 4% worldwide in average calculated over the top websites of each country. Among Russian's popular websites in other countries are Vk.ru, Ok.ru, Mail.ru, Yandex.ru, Rambler.ru, Kinogo.club/Kinogo.cc, Rutracker.org. Among the UK's popular websites in other countries are Onclickads.net, Adf.ly and Bet365. Other popular websites worldwide are Dailymotion from France, AliExpress from China. Other countries with popular websites worldwide are Spain and Canada 3% each; Germany, Netherlands and India 2% each; Japan, Egypt, Brazil and Taiwan 1% in one. The global presence of some countries is primarily due to a single site, such as Canada with Pornhub.com, or Sweden with Thepiratebay.org. Figure 12 shows the distribution.

It is the notorious popularity of websites from one country to another. As suggested by the participant P48, this may reflect the origin of most immigrants, as is the case of Russian sites in Germany and Latvia, Ukrainians in the Netherlands. Another possibility is the influence of a country in a region, as might suggest the popularity of Egyptian websites in Arab countries.

It is difficult to determine the origin country of some media and porn websites of ".com" domain. The information leaves doubts. In Arab countries like Lebanon, most of the media websites, which

[39] Again, based on the World Bank classification, regions are: EAP, East Asia & Pacific; EUCA, Europe & Central Asia; LAC, Latin America & Caribbean; MENA, Middle East & North Africa; NA, North America; SA, South Asia; and, SSAf, Sub-Saharan Africa

are identified as local by Lebanese people, have their servers in the US, UK and France. More curious is that most of these websites present the same news, the same photos, and even seem written by a single author, contrasting with the Egyptian media sites. MindGeek's headquarters are in Luxembourg (MindGeek, 2018); its website Pornhub.com is in Canada (Bergeron, 2016); and, its IP 216.18.168.16 belongs to the US company Reflected Networks, Inc.[40]

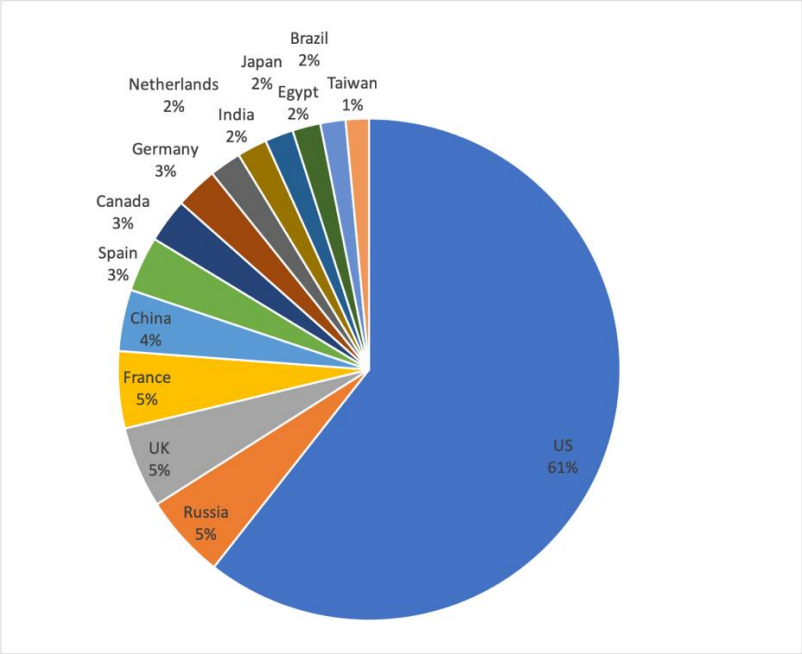

Figure 9. Origin country of most popular websites worldwide

Sometimes, the "Terms and Conditions" section of websites with uncommon domains such as ".io", ".ly", ".to", ".lat", ".bid", ".net" has their origin country, e.g., in the case of ad-server sites like US's Erq.io and UK's Adf.ly. Occasionally, websites do not show the "Terms" section. Thus, the information on the website's origin was taken from the notes presented by Alexa and SimilarWeb. In other cases, it was necessary to google information about the domain registration company (from sites like ARIN, Whois, Whoer). However, the information provided by Registrars points to where servers are located, or the name of a company that registers the domain. If the website's origin could not be determined, it simply remained as "Foreigner".

6.2.2.3 Language and the main objective of websites

Voluntarily, people fluent in website's language helped to its classification: Iman Naja with Arab websites, Taekyun Will Him with Korean's, Armin Pop with German's, Belfrit Batlajery with Indonesian's, Sakchan Luangmaneerote with Thai's, and Amber Bu with Chinese's. With their help, it was possible to have more findings:

[40] https://whois.arin.net/rest/net/NET-216-18-160-0-1/pft?s=216.18.168.16 , and http://reflected.net/

- In Asian countries above all, for a Western observer, sometimes it was difficult to determine the type of website. The massive users' contribution, especially with text, has transformed merchandising and media sites either in social networks like Reddit, or community sites, or portals with many services for users, overwhelming their original objective. Examples in South Korea are Never.com, Tistory.com, Donga.com, 11st.co.kr; in China are Sina.com.cn, weibo.com, yesky.com; and Ck101.com, Pchome.com.tw, and Icook.tw in Taiwan. For locals, community engagement matters more than the website's original purpose: from company media to community media, from shopping sites with private advertising to shopping mediated by community opinion. In short, regardless of the type of website, in Asian countries such as China, Taiwan, South Korea, the increasing interactivity of the community in comparison with Western countries and even more with Latin American and African countries is noteworthy.
- Within each country, preferences for specific types of media differ, such as local, regional, international, political, social, user's content, news aggregator, specialised, tabloid, sports. Analysing the differences could be interesting.
- Media website layout varies from culture to culture, regarding images, text, and order. Arab websites have more images than websites from other countries. The text in Arab websites is disorganised. Asian websites have more text than Western, Latin and African media websites.

Briefly, in most cases, the websites varied little their position among the hundred most viewed by country, and this variation does not affect the classification by type. In the worst-case scenario, others of the same kind join the list. Thanks to volunteers, language was not a barrier. In a few cases it was difficult, and in very few, it was impossible to determine the origin country of websites. Therefore, the classification was successful, allowing to establish the country-web-profile required to perform the hypothesis tests.

6.2.3 Hypothesis testing results

The websites classification by type allowed to build the country and user profiles of their top websites. With the profiles, three general hypotheses were tested by finding Pearson's correlations using IBM SPSS Statistics version 24 for Mac. The first alternative hypothesis H_{g1} assumes there is a positive/negative correlation between country-web-profiles. The second alternative hypothesis H_{g2} assumes there is a positive/negative correlation between the country-web-profile with Hofstede's cross-cultural dimensions. The third alternative hypothesis H_{g3} assumes there is a positive/negative correlation between the country-web-profile with the user-web-profile. The results of the

significant Pearson parametric correlations at level 0.01 (**) and 0.05 (*) both 2-tailed are presented below.

6.2.3.1 H_{g1}: country-web-profile correlations

The correlations among country-web-profiles suggest at least two things: (i) that there is a statistical relationship, causal or not, of the types of popular websites between two or more countries: (ii) the websites of a country are popular in another country. In Appendix B, Table 23 shows all the country-web-profile correlations found.

Classifying correlations by regions[41], the results allow us to draw some interesting conclusions such as the following four. First, there are influential countries within regions. Figure 10 shows influential countries by region. Second, there are country networks within regions. Figure 10 also shows country-networks (influential and less influential within regions) as there is one network by region except in EUCA – Europe and Central Asia – that has five regions. Figure 11 show EUCA's networks. Third, there are countries whose country-web-profile correlates with countries of other regions, suggesting trading alliances. Fourth, negative correlations show the country-web-profile of one country is significantly different from another(s), as in the case of Swedish country-web-profile correlating negatively with country-web-profiles of Spain, Portugal, Hungary, Panama, Mexico, Argentina and Malaysia.

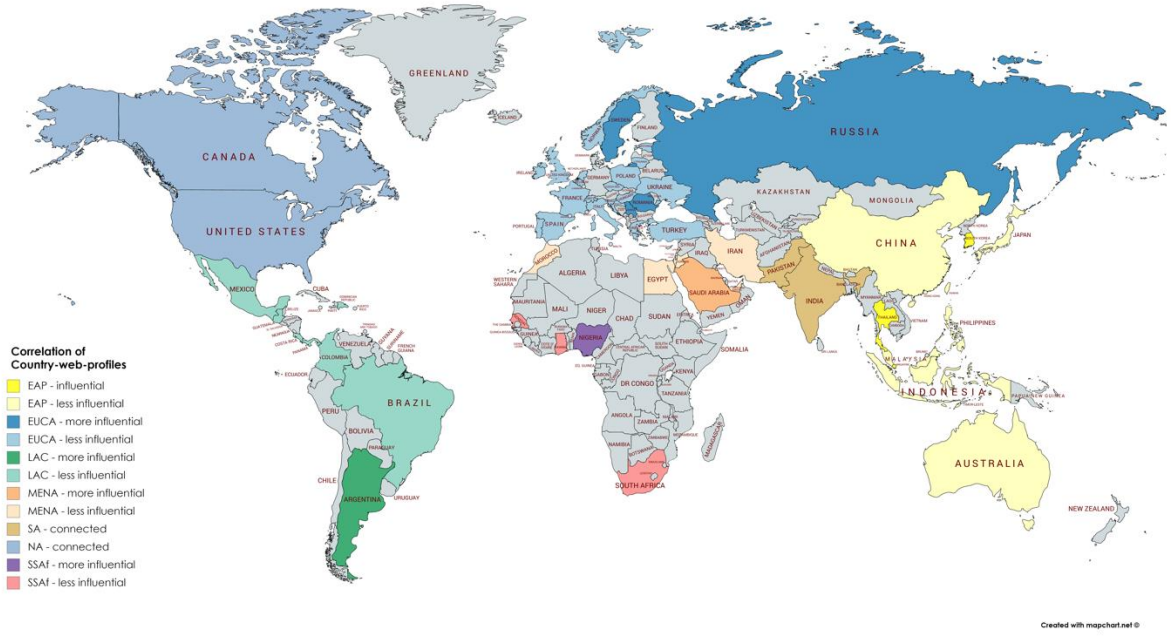

Figure 10. Influential countries within regions

[41] Regions according to the World Bank

Figure 11. Europe country networks

6.2.3.2 H_{g2}: Hofstede's cultural dimensions

There are some significant positive/negative correlations between the type of site and Hofstede's cultural dimensions[42]. It should be clarified that there are three sets of site types. The first set categorises whether the site is local, tailored, or foreign – TW1 in Table 7. Within each country-web-profile, the sum of these three types is one hundred, corresponding to the country's hundred top websites. Thus, if H_{o2} is false (the alternative H_{g2} hypothesis is more likely to happen), the conclusion takes the form: "The number of TW1 within the top websites of a country suggests its PDI/UAI/IDV/MAS/LTO/IVR tendency". Additionally, the World Bank data of Internet users and secure servers, both per country, were also correlated with the cultural dimensions of Hofstede.

The second set categorises whether the site is for searching, e-commerce, ad server, governmental, financing, community, social network, technology, gaming, academy, pornography, referencing, video, media, or portal – TW3 to TW17 in Table 7. Within each country the sum of these fifteen types is up to one hundred, depending if all websites are classified. In other words, one hundred is distributed among different types of websites, suggesting variety. Thus, if H_{g2} is more likely to occur, the conclusion takes the form: "The number of different TW3/…/TW17 within the top websites of a country suggests its PDI/UAI/IDV/MAS/LTO/IVR tendency".

[42] Hofstede's cultural dimensions (see Chapter 5, 5.1.4 Cultural Comparison) are: Power Distance (PDI), Uncertainty Avoidance (UAI), Individualism (IDV), Masculinity (MAS), Long-term orientation (LTO), and Indulgence (IVR).

The third set establishes the origin country of a foreign website to a country – TW2 in Table 7. For each country, the sum is up to a hundred but should be equal to or less than the number of foreign sites of the same country. Thus, if H_{g2} is true, the conclusion takes the form: "The number of TW2 within the top websites of a country suggests its PDI/UAI/IDV/MAS/LTO/IVR tendency". Table 15 shows the significant 2-tailed bivariate Pearson correlations at levels 0.01 (**) and 0.05 (*).

Table 15. Significant correlations between the type of sites and Hofstede's dimensions

Type of site/Variable	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long-Term Orientation	Indulgence
Foreign		-.294**			-.456**	.282*
Tailored		.227*				
Local		.297**			.422**	-.247*
Searching				-.244*		
E-commerce	-.331**	.561**			.585**	
Ad Server	.410**	-.499**			-.486**	
Governmental					-.225*	.277*
Finance	-.325**	.370**				.417**
Community				-.366**	.297**	
Social Network	-.557**	.548**			.356**	
Tech					-.368**	.364**
Academy	-.204*		-.271**	-.240*	-.259*	.260*
Media	.219*	-.224*				-.347**
Portal				-.214*		
NewZel-site	-.281*					
US-Sites					-.427**	.504**
China-Site					.282**	
Russ-Site					.304**	-.275*
Spain-Site		-.211*				
UK-site						.246*
Neth-site					-.260*	
Jap-site			.246*		.231*	
Swedish-site			-.338*			
Indonesia-site			-.276*			
Australia-site		.338*				
Egypt-site					-.281*	-.290*
Qatar-site					-.447*	
Malaysia-site	.269*					
Taiwan-site				-.402**	.422*	
Mex-site						.468**
Hungary-site			.367*			
Germ-site	-.253*				.316**	
Isr-site	-.256*					
Singp-site				-.309*		
Italy-site		.348*				
SouthKorea-site					.459**	
UAE-site	.321*				-.397*	
Lithuania-site					.397*	
Estonia-site					.368*	
Ukranian-site		.668*				
Iran-site					-1.000**	
Internet users	-.515**	.596**			.437**	
Secure servers	-.636**	.629**			.364**	

Below are possible interpretations of these results for each of Hofstede's dimensions.

6.2.3.2.1 Power Distance

A higher number of ad server/media websites suggest the country's high respect for authority. Figure 12 displays the positive correlation between the numbers of e-commerce sites of a country with the Individualism ranking. A higher number of different e-commerce/finance/social networks/academy websites suggest the country's tendency to value freedom. When comparing the number of both ad server and e-commerce websites with the ranking of power distance, it is evident that when there is no leadership of e-commerce sites like Amazon, the ad server sites are in higher numbers. For example, in the US and EU, there are few ad servers while in third world countries they are in greater numbers. Additionally, within a country, the number of websites from Malaysia/UAE suggests its tendency to respect to authority; and, the number of websites from New Zealand, Germany and Israel suggest their tendency to value freedom.

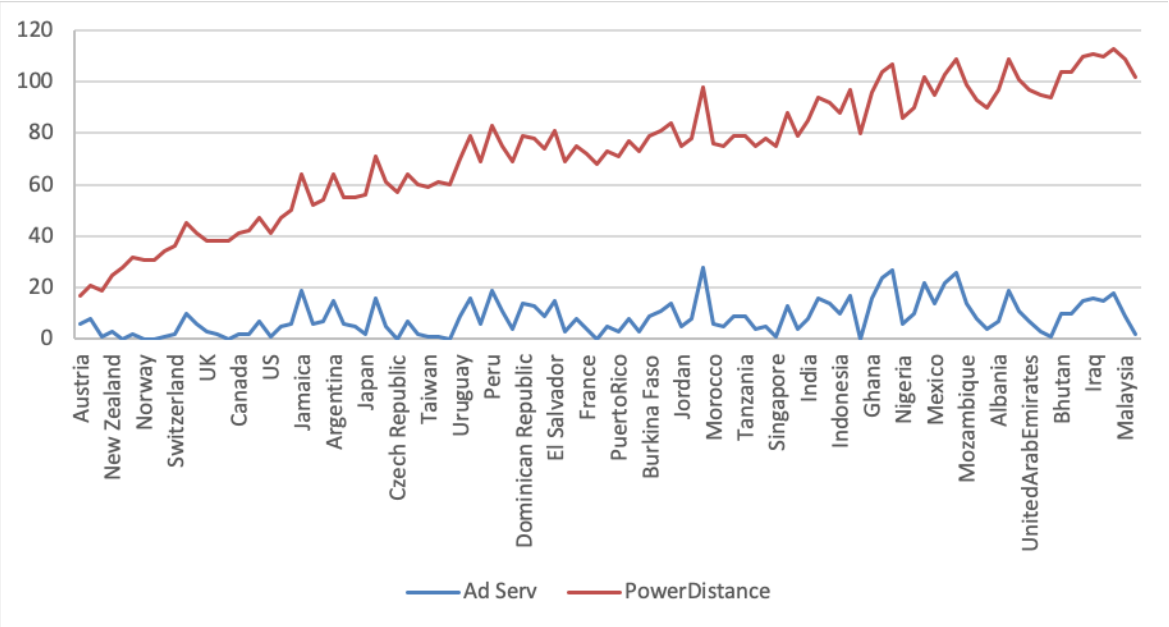

Figure 12. Number of Ad Server sites within 100 top websites of a country correlates positively with Power Distance

6.2.3.2.2 Individualism

A higher number of tailored/local sites within the top websites of a country suggests its tendency to appreciate the 'I' over the 'We'. A greater number of foreign sites within the top websites of a country suggests its appreciation of collectivist values. Another interpretation can be the collectivistic ones have an alienation tendency. A greater number of different e-commerce/finance/OSN within the top websites of a country suggests its tendency to appreciate the 'I' over the 'We'. A greater number of different ad server/media websites within the top websites of a country suggests its tendency to collectivistic values. The results suggest the opposite happens with individualism than with power distance, i.e., the more individualistic cultures are,

tend to prefer specific e-commerce websites, while in collectivistic cultures there are a lot of sharks around. Figure 13 shows how the number of e-commerce websites correlates with the individualism ranking. Additionally, within a country, the number of websites from Australia/Italy/Ukraine suggests its tendency to appreciate the 'I' over the 'We'. Within a country, the number of websites from Spain suggests its tendency to collectivist values.

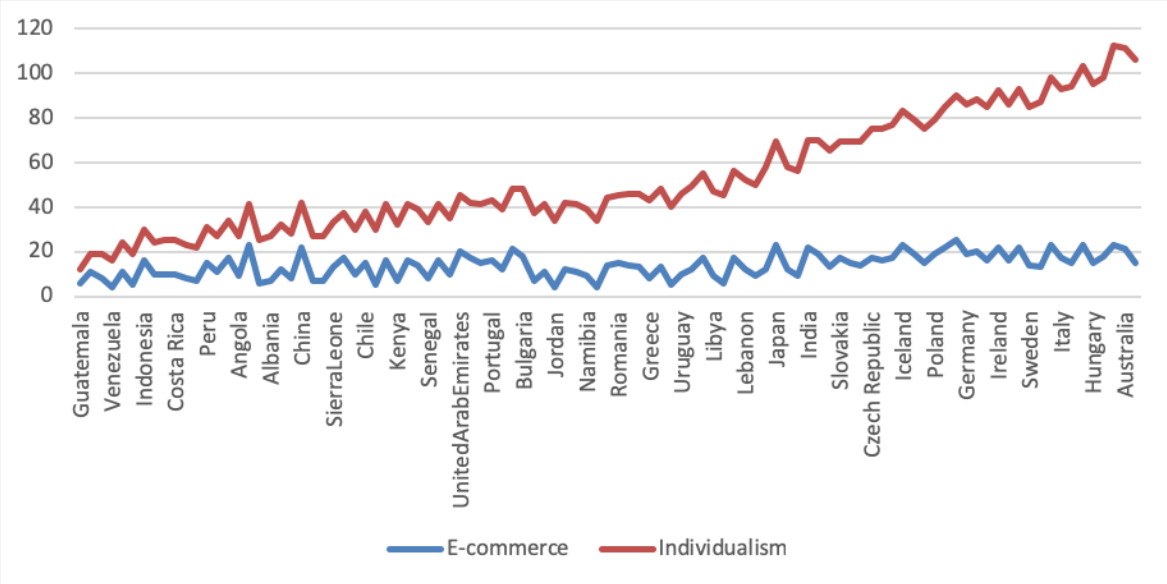

Figure 13. Number of e-commerce websites within most viewed websites of a country correlates positively with Individualism

6.2.3.2.3 Masculinity

A more significant number of different academic websites within the top websites of a country suggests its tendency to cooperation and modesty. Within a country, the number of websites from Japan/Hungary suggests its tendency to competition. Within a country, the number of websites from Sweden/Indonesia suggests its tendency to cooperation and modesty.

6.2.3.2.4 Uncertainty Avoidance

A higher number of different searching/community/academy/portal websites of a country suggests its tendency to value opinion, levels of trust, seeking rational to decide, controlling aggression. Within a country, the number of websites from Taiwan/Singapore suggests its tendency to value opinion, levels of trust, seeking rational to decide, controlling aggression.

6.2.3.2.5 Long-Term Orientation

A higher number of local websites within the top websites of a country suggests its pragmatic tendency. A greater number of foreign websites within the top websites of a country suggests its tendency to prefer immediate reward and recognition. A more significant number of different e-

commerce/community/social network websites of a country suggests its pragmatic tendency. A greater number of different ad server/government/technology/academy websites of a country suggests its tendency to prefer immediate reward and recognition. Within a country, the number of websites from China/Russia/Japan/Taiwan/Germany/South Korea/Lithuania/Estonia suggests its pragmatic tendency. Within a country, the number of websites from the US/Netherlands/Egypt/Qatar/UAE/Iran suggests its tendency to prefer immediate reward and recognition.

6.2.3.2.6 Indulgence

A higher number of foreign sites within the top websites of a country suggests its tendency to free gratification and joy of life. A greater number of local sites within the top websites of a country suggests its tendency to strict social norms. A more significant number of different government/finance/technology/academy websites of a country suggests its tendency to free gratification and joy of life. A higher number of different media websites of a country suggests its tendency to strict social norms. Within a country, the number of websites from US/UK/Mexico suggests its tendency to free gratification and joy of life. Within a country, the number of websites from Russia/Egypt suggests its tendency to strict social norms.

6.2.3.3 Hg3: User-web-profile

The general hypothesis Hg3 assumes there is a correlation between the user-web-profile and the country-web-profile, suggesting that the participant/group[43] has the same websites preference as her origin country regarding the type of sites, i.e., both profiles TW1 and TW3 correlate with TW17.

The results suggest that the user-web-profile of most participants has a positive 2-tailed Pearson correlation at level 0.01 with the web profile of their origin country. The exceptions, when the null hypothesis H_{03} is true, are P2, P5, P15, P16, P17, P18, and P24. In Appendix B, Table 24 shows the significant correlations in detail. These results suggest in some way that most of the participants use, proportionally, the same types of websites as those of their origin country.

As a summary, the proposed methodology was applied in its entirety in two domains. The first domain is a group of seventy-six participants from different countries through three method types (interviews, focus groups and workshops). The second domain is the hundred and three countries top website classification. The evidence collected in both domains yields results to answer research questions and addressing the research problem. The latter is the subject of the next chapter.

[43] Participant in the case of workshops and interviews, and group in the case of a focus group

Chapter 7: Conclusions

The thesis has explored the role of values in shaping the evolution and the control of the Internet and the Web. Beyond the TCP/IP and the technological infrastructure, this research approaches interdisciplinary to the Internet and the Web by considering them as interaction spaces created by the channelled communication of social imaginaries. The literature review focuses on social imaginaries, values and control. The chapter about the alternative history of the Internet analyses the role of values in the design, operation, control and governance of the Internet and the Web, according to the social imaginary behind the screen. The novel methodology aims to explore the values that are important to the users of the Web, named the social imaginary who is in front of the screen. The literature review, the analysis of the Internet evolution, and the outcome of the methodology application have given insights to answer the research questions: (i) How to understand the Internet and the Web regarding the social imaginaries behind and in front of the screen? (ii) How values relate to control on the Internet and the Web? (iii) What are the values the user refers to the Internet and the Web? The research outcome shows the Internet commercial orientation, differences in values linked to social imaginaries, users' values differences regarding either their value-rational action or their instrumentally-rational action, cultural values on collective action on the Web at country and regional level, and the controlling attitude of both social imaginaries.

Chapter 7 has four sections. The first section begins with social imaginaries to frame responses. This section answers the three research questions one by one. The second section labelled “Limitations” discusses the positive and negative aspects of the methodology. The third section has conclusions detailing contribution. The last one discusses ideas for further work.

7.1 Answering research questions

7.1.1 Revisiting social imaginaries

This section approaches social imaginaries from moral. Castoriadis (Castoriadis, 1997) thought about social imaginaries as a conglomerate of people - magma in his words - whose action disrupts the inherited logic of a society towards a new paradigm, a new values system. In the vision of Castoriadis, social imaginaries do not confront, but instead, they are groups of human groups whose action replaces old ideas with new and better ones, incorporating them into the inherited logic producing a social transformation, a paradigmatic change. For Taylor (Taylor, 2004) and Mansell (Mansell, 2012), social change cannot be explained by a single magma of people, but by the

confrontation between two value systems in the hands of those who are protected behind structure while controlling those outside.

Mansell (Mansell, 2012) proposed two social imaginaries to understand the Internet: those behind and those in front of the screen. The research takes Mansell's idea but rethinking the weak and dominant social imaginaries whether in front or behind the screen. In the beginning, the distinction between dominant and weak social imaginaries relied on their controlling attitude towards the Internet. The dominant social imaginary behind the screen are stakeholders such as private companies, media, governments, and civil society organisations. The weak social imaginary behind the screen are academics and others who have a voice about the Internet and the Web, and their voice can raise beyond academic limits. Engineers and technicians are part of the dominant social imaginary behind the screen who find themselves balancing between two morals.

On the one hand, engineers design, program, implement, test and maintain the algorithms that govern the Internet; i.e., engineers have direct control over the Internet. On the other hand, engineers follow the command of their employers - stakeholders. The weak social imaginary behind the screen is also accountable to its sponsors.

Those in front of the screen can be either a weak or a dominant social imaginary. On the one hand, it seems straightforward to think about end users as the weak social imaginary because their action can follow whether the moral of the chameleon, the moral of the child or the moral of man[44]. The chameleonic human being acts according to circumstances, rules, the planned stimuli, living in reality built by institutions, artefacts and media while imagining their "synthetic freedom". Both the instrumentally-rational actions and the value-rational of the chameleon follow a script for their social coexistence. The instrumentally-rational ones are mainly oriented to obtain means to reach social-standardised objectives - values as ends -, allowing the human being to advance within the social structure. These standard objectives have a price, an economic value. Value-rational actions deviate from the planned goal, distract attention, are necessary for the consumer society, the economy model fostered by institutions. Thus, both institutions and media, and the human being herself make space to control actions. However, these controlled actions do not mean that the human being has internalised the moral imposed by the structure because when winds (paradigms as fundamental values) change, the chameleon will change accordingly. The chameleon social imaginary is passive; it is not a subject that performs a social transformation, suggesting that it would come from the institutions or perhaps from the market. However, such a suggestion is almost impossible to happen, because the institutions become an establishment monitoring substantial

[44] These three types of morals are taken from Cortina (Cortina, 1991).

changes not to occur, only functional improvements. The market is not transformative in itself; it depends on the response of the chameleon social imaginary and others.

The social imaginary with moral of man is composed of individuals who self-impose their own goals, that is, they overestimate the instrumentally-rational action that pursues whether standardised objectives (a system values established by the social structure) or transcendentals to satisfy the ego. The latter involves personal satisfaction and positive spill-overs like altruism and solidarity. This social imaginary with moral of man is not a conglomerate with capacity for transformative action; it is made up of individualistic, selfish individuals who share or cooperate to satisfy personal aspirations. The space they place (~privacy?) to perform their instrumentally-rational action gives them control over their action, i.e., they interpose intentionality to the action. Their effort might help to build knowledge, presenting new ideas that improve current ones, but their action is individual. The individualism of this social imaginary promotes the criticism and improvement of these ideas. Briefly, the action of the social imaginary with moral of man is not transformative but might underpin new ideas for a conglomerate to interiorise them for the collective action. It is possible to imagine the weak social imaginary behind the screen as groups of individuals with the moral of man.

The social imaginary with the moral of child overestimates their value-rational action. Values as ends are what they like to get. They are easy preys of the marketing that shows them new values every day. Furthermore, they value action itself, like sharing, collaborating, playing, participating. The social imaginary with the child moral has a transformative action as they do not interpose intentionality before acting. Therefore, it is more likely that from the social imaginary with the moral of the child to emerge a disruptive action. As in a democracy, the tipping point can be a majority acting on a shared idea, or on the illusion of a close collective that pushes the chameleonic to join towards a social change.

In all the three morals (chameleon, man, child), the technology is a means for instrumentally-rational, value-rational and control actions. There are individuals with one of three morals whether behind the screen or in front of it. Chameleons are means, being on either side. Those who have the moral of man control their action either in front of the screen or behind. Those who have the moral of the child want to control for control; their activity might support institutions or crumbles them, then others arise. This reasoning reinforces both the social imaginary of Castoriadis and the elitism of Kant (Kant, 1993) or Scheler (Frings, 1997). It seems the social-disruptive capacity lies down with those with the child moral who do not place space for action. Those with the moral of man use media and ads to program the mind of those with the moral of the child for social organisation. However, mind programming is not enough; controllers should design the efficient

structure for allocating goods, services and security, keeping the action of those with the child moral in place. When the structure is efficient, freedom is a construct, and the social imaginary with the moral of man does not conceive freedom out of the structure. The latter makes rethink in what extent is it convenient to value the instrumentally-rational action over the value-rational, and who the weak social imaginary is and who the dominant one is. It seems those with the moral of the child are means for the collective action that transforms the social. However, no one uses her System 2 most of the time (Kahneman, 2011). A new better idea might empower all man, child and chameleon to be part of the magma of magmas that transforms the social when the time comes.

7.1.2 Answering RQ1: How to understand the Internet and the Web regarding the social imaginaries behind and in front of the screen?

Following Mansell, the present research started by conceiving two social imaginaries: the social imaginary behind the screen, and those in front. Engineers, private companies, academics, governments, media, organisations are behind the screen, while the connected people are in front of the screen, aka the public. The investigation has shown that social imaginaries conceive the Internet in different ways. Engineers see the Internet as layers of algorithms that control communication over a network of networks infrastructures. The main controlling algorithm is the TCP/IP, a communications protocol in the public domain. The Internet physical infrastructure organises according to the private business of data transportation. Private companies coordinate among themselves to send data among their autonomous networks connecting companies, governments, institutions, and the public. The private sector, academy, and technical communities collaborated to create Internet content and services for the social imaginary in front of the screen. The latter might pay for content and services or accessing free because a third party who is interested in the data generated for those in front might pay to providers.

The Web is an information system whose architecture consists of protocols which are in the application layer of the TCP/IP that create links to information and a mechanism to retrieve it. The Web architecture is also public domain. The Web has facilitated the information delivery and social networking, transforming the Internet into social-commercial spaces under the watchful eye of governments who, together with the private sector, seek the most appropriate way to regulate these spaces. Private companies, governments, civil organisations and the public have their values, habits, and interests, that is, they are agents that interact in these spaces, or fields governed by protocols which reflect power and class relations. Such is the commercial and governmental interest, and the participation of the public that scholars consider the Internet as the technology that leads the technological revolution that has transformed the global economy by creating value and opportunity, and, at the same time, deepening inequality. For some authors, this paradox

occurs because the deployment of technology is not complete. For others, the technology underpins network effects, i.e., the technology magnifies the distinction between rich and poor on a global scale.

The Internet is either a means or an end to the private sector. This document suggests the Internet is an end for ISPs, CDNs, IXPs, Ad-servers, data brokers, and content and service providers because their businesses depend on it. The success of the last ones consists as much in innovating as in adapting its offer quickly in front of the action and reaction of the users, to the point of having them comfortable and confined in the digital world. The private companies that finance the Internet, that is, those who pay to the ISPs and others, consider the Internet as a means to their business ends, i.e., they could not depend on the Internet, but it is useful for their purposes.

According to Mazzucato (Mazzucato, 2014), the success of large-scale entrepreneurial businesses is due to the nudge of governments as in the case of the Internet and businesses around. The US fostered its TCP/IP on autonomous networks of allied countries during the cold war, then core and peripheral countries of the trading routes incorporated it, to finally be released to the public domain. Internet access to other countries is a business issue. However, until 2016, the global coordination of the root domain name system, IP address, and other Internet protocol core resources have been in the hands of the US government. The management of these resources (and others) has brought conflicts to Internet governance that is the establishment of agreements (which are embodied in protocols) between governments, private companies and representatives of civil society. Scholars and engineers have proposed models to overcome conflicts, but they take a dogmatic position by holding democracy as a sine qua non when democratic and non-democratic countries are discussing Internet control issues. Since their approach is institutional, the key is to understand what kind of democracy are they referring. As a counterpoint, the IETF has an open Internet governance model to which anyone can join (IETF, 2012). Another critical issue is to understand why P2P networks that are not within the hierarchy of names and domains are invisible or demonised.

On their discipline and research field, academics approach the Internet and the Web from a wide variety of understandings ranging from communication, social construction, economic transformation, regulations, to transhumanism. Some of them have whether a positive or negative attitude to the Internet and the Web. Others try to be neutral before the facts of the digital world, but they can fall into subjectivities if their conclusions reached inside walled gardens spill over different contexts or pretend to be universal. Decontextualization or the application of ideas in uncontrolled environments have consequences on social imaginaries that possibly nourish capitalism which bases its success on not internalising negative effects. There is no neutrality

because it is tough to identify the externalities of ideas deployment, but surely an entrepreneur will take advantage of them to whether raising to the top or joining the long tail. Thus, the prevailing moral behind the screen is that of capitalism more than democracy.

For those in front of the screen, the results of this research suggest that: (i) most of them see the Internet in many ways, but above all as a convenient means to search and read relevant information; (ii) for some, the Internet is a means to achieve their purposes. This investigation has found evidence of both instrumentally-rational action and value-rational of those in front of the screen. For this research, on the Internet, those who collaborate and those who mainly use their System 1 are the dominant social imaginary in front of the screen. The person who relates convenience, freedom, privacy and security to the Internet is more likely to be part of the weak social imaginary in front of the screen. The investigation suggests that the person who uses his System 2 concerning the Internet has control over himself, and faces the risks by exhibiting the controlling behaviour similar to the dominant social imaginary behind the screen. However, this person is an individual whose action whether through or out of the Internet is not socially disruptive, but his Internet activity suggests there is a double-closure, control of control, an observation of observation, leading to consider the interdependence of social imaginaries, not their confrontation.

7.1.3 Answering RQ2: How values relate to control on the Internet and the Web?

The fundamental value – as a principle - of any technology is to fulfil its design objective (Friedman, et al., 2008), i.e., initially it has no value in itself, but as a means (Khun, 1970), and as such, it is important to control it (Deleuze, 1992). The fundamental value of the Internet is TCP/IP and the value the Internet adds to communication is its centralised and hierarchical system of assigning numbers – IANA - which has underpinned the emergence of top global companies that have transformed the global economy. The TCP/IP fundamental values are around utility and performance: affordability (openness, minimalism and access neutrality), reliability (efficiency) and robustness (Goldsmith & Wu, 2006). On the Internet, robustness is a technical principle relying on centralisation and hierarchy. During the early years of the Internet, the basis of its robustness was idealism and then changed to controlling attitudes whether for political or economic interest. The Web is a means to empower the Internet. Most of those behind the screen are on the Internet because of the Web. Through the Web, the social and business spaces translocated to the Internet.

Understanding the value of the Internet as a means complicates because of both the Internet, as a communications technology, has passed through different domains (ICANN, 2017) and the communication is the fundamental activity of the social system (Luhmann, 1995). The Internet has

penetrated almost every corner of the planet and has become massively popular to the point of depending on it, giving the idea of its value as an end. The research considers a broad understanding of values, that is, the values are what is worthy, whether principles, means or ends, and of any kind: personal, moral, social, economic, and collectivistic. The investigation starts analysing the values evolution of the Internet, from a philosophical approach; i.e., the technology as the articulating axis of the social-academic-economic-ideological system (Bunge, 2012). The Internet is considered the key element of the technological revolution that has transformed the global economy, creating value and in turn deepening inequality (Perez, 2009). The development of the Internet and its control have supported capitalism, perhaps have accelerated it (Williams & Srnicek, 2013), suggesting the values of Western society (Deleuze, 1992) are empowered with the Internet: competition, productivity and consumption. However, non-democratic countries like China have successfully internalised those values (Mishra, 2018). Taking ideas from Parsons (Parsons, 2005), the control of the Internet is valuable for an effective social organisation through fully informed institutions which preserve values. Following the ideas of Luhmann (Luhmann, 1995) and von Foerster (Foerster von, 2003), the control of technology is valuable if institutions and corporations are also observed, leading to think about the intersubjective communication as a means to improve the social structure.

The literature review and the findings of the present research give an idea about control on the Internet. Algorithms control the Internet (DeNardis, 2009). Engineers implement algorithms reflecting standards and protocols agreed by stakeholders (Ibid). Technically, the Internet control relies on the communications protocol called TCP/IP, which was built upon ideas from cybernetics and military needs: a communications control technology (Cerf & Cain, 1983). Since 1996 (see Gore Bill), the private sector controls most of the Internet infrastructure. Although TCP/IP ensures that messages reach their destination regardless of the path taken by data packets, the private sector controls the Internet traffic in their networks - local, national and regional - and negotiate traffic with others, but upon a centralised naming and addressing function.

Regarding their interests, the dominant social imaginary behind the screen controls the Internet. The Internet is commercial and as such follows the logic of capital; i.e., all values have economic value at the expense of the market (Skeggs, 2014). The private sector wants to control the Internet to safeguard their commercial interest. Behind the screen, stakeholders offer value on the Web competing to get value from users. Institutions regulate commercial practices and social action while allocating data for the public good (Howard, 2011). Through the Internet, institutions become more efficient by observing and collecting information about business practices and social action (Podesta, et al., 2014). Whether due to commercial competition, or for political purposes, or supporting the public good, interested parties view the control of the Internet as an opportunity.

Internet governance forums are valuable to stakeholders and users. In the Internet ecosystem, the multistakeholders interact (behind the screen) to the point of depending on each other, making difficult decisions and shared the Internet control. They must negotiate. As Laura de Nardis describes, there is a war for Internet governance (DeNardis, 2014). Those in front of the screen observe the multistakeholders who while debating and negotiating expose their interests (IGP, 2017), giving the possibility to users to become observers of their observers, leading to the idea of mutual control. This research suggests that if these forums have enough popular participation, shared values and interests will come to light; e.g., the Internet governance bottom-up model ~IETF reveals the attitudes and interests of social imaginaries. On the other hand, the role of engineers is a sensitive issue because they have the highest responsibility when designing and creating technology. The Tao of the IETF can be a way to dilute this responsibility since its bottom-up governance model seeks broad participation from stakeholders including the public.

The value of this research is that it shows how the Internet can be useful to people beyond providing information. The Internet is a technology that enables the observation of observation. The value in both observing others and being observed is to know how to control one's actions. The Internet offers people the opportunity to become an observer of their observers. While observing stakeholders, the user can control her action on the Internet with a specific purpose; i.e., to use the Internet as a means to extract and produce value. This investigation considers that the self-controlled individual performs instrumentally-rational actions on the Internet, leading to produce value with a specific personal purpose. The observer can also join or foster the collective action which is valuable to both the community goods creation (Hess & Ostrom, 2007), to underpin social action (Shirky, 2009), as was the case of the Web 2.0., to change the social structure (Luhmann, 1995), and possibly to disrupt society.

This research suggests that collective action is not part of the Internet governance, but it is the true control, i.e., the dominant social imaginary in front of the screen does not negotiate but collaborate in such a way to disrupt society. On the Internet, the collective action provoked a paradigm shift by translocating the social place to the digital space, i.e., from Web 1.0 to Web 2.0. However, it seems another paradigm shift on the Internet is not going to occur anymore because private companies transform the social production to the efficient allocation of space, services and values as means, confining the social imaginary in front of the screen to their convenient privacy. Nowadays, Internet governance is about market regulations, governments attitudes coordination, and technological improvement, while the user is satisfied on what the Internet let her observe. Therefore, on the Internet the communication is not intersubjective, leaving the social improvement up to those behind the screen.

The research outcome suggests that those in front of the screen do not care who controls the Internet. While most of the user actions on the Web are consumption oriented - value rational -, the self-determined individual controls her activity on the Web obtaining the value as a means to create value. The evidence found shows that instrumentally-rational action is not frequently carried out on the Web and that it is independent of the user's place of origin, whether she is from a modern or third world country. The value-rational action is worthy because when reaching a tipping point of some actors, it can disrupt society. The instrumentally-rational action is individualistic, it cannot serve for disruption, but to come up with good ideas that empower the magma of people for social change to occur.

In summary, the thesis exposes the control of communication between and within networks as the value of TCP/IP, as well as user's self-control as the Internet fostered value, provided that the action of the social imaginary in front of the screen is instrumentally-rational, which implies the Internet as a means of observation instead of consumption. The opposite occurs behind the screen, the Internet as a means of control and induction of consumption. However, in the global Internet, stakeholders' interests are at stake and paradoxes arise. Thus, they need to negotiate and to agree on the controlling protocols, overcoming their values differences. The latter is not the case of those who are in front of the screen, who might whether assume a chameleon attitude or agree on common new values, provoking magmas of collective and coordinated actions, whether regionally or globally.

7.1.4 Answering RQ3: What are the values the user refers to the Internet and the Web?

Whilst the question of values in the design, operation and governance of the Internet are well documented, relatively little is known about the values that are important to the users of the Web, who have been so central in driving forward its growth over the past 25 years. It is considered a broad understanding of values to avoid concentrating only to those referred by the western social imaginary behind the screen such as democracy, freedom and privacy. The thesis has an original empirical methodology that has been applied to explore the values that the social imaginary in front of the screen have in mind when on the Web. The methodology consists of both a qualitative and a quantitative section. The qualitative section focuses on user interviews to explore both their value-action and instrumentally-rational actions on the Internet. The quantitative section aims to find evidence of cultural values upon the classification of the most popular websites by country.

Upon second-order cybernetics and psychology, this research suggests that values are mental controls programmed by the observer. Values are anchors (Tversky & Kahneman, 1973) programmed in the human mind (Hofstede, et al., 2010) & (Bourdieu, 1990), whether to encourage

or to restrain action (Keeney, 1992). What the person considers worthwhile or it is essential in/for her life (Friedman, et al., 2008) can be reprogrammed whether from behind the screen through media (Marcuse, 1964) and advertising (Packard, 2007) & (Mooij de, 2014), or by the self through unlearning (Bateson, 2002), needing a slow and reflective thinking process (Kahneman, 2011) which also needs self-determination (Žižek, 2009). In short, the values that control human action can change. The paradoxes of the information society or the will of the individual can motivate the change (Mansell, 2012), but the change of social and cultural values for better ones (Khun, 1970) needs the collective action of a majority of people within a place (Castoriadis, 1997).

The research suggests an interdependence between the multistakeholders and the collective action of those in front of the screen. The interdependence is not new, but the Internet offers the possibility of making it transparent, leading to think about the main values of the Internet as both as a communication means and as an observation means. Through observation, whoever is behind the screen can develop strategies of communication and digital values assignment presented as convenient, safe, comfortable and adequate to make life easier for who is in front of the screen. The above carries a risk, the individual can accommodate with technology in such a way that his critical thinking atrophies; i.e., those who are in front of the screen simply accept the values that the Internet presents to them; in other words, Licklider's system L2 does the instrumentally-rational action for the user, inhibiting his System 2.

The methodology was oriented to know the values that users relate to the Internet, seeking to differentiate between the action based on a non-instinctive reflection - using the Internet as a means for a specific purpose -, and the value-action. The interviewees' answers and the cultural differences found seem to differ from the values spoken by the dominant social imaginary to justify their control practices.

It is necessary to clarify. Chapter three of this thesis distinguishes between the Internet and the Web. In the case of the methodology and the interviews, they referred more to the Web, because it is what the weak social imaginary sees. The users do not see the cables and servers of the Internet, but what the Internet browser presents to them, this is the Web or the door to the Internet and the Web itself (especially for the weak social imaginary in front of the screen). For this reason, the questions for interviewees were around the Web. Below are the answers to RQ3 considering the qualitative and quantitative analysis of the results obtained. The qualitative study focused on the values from the participant's instrumentally-rational action on the Web. The quantitative analysis has two parts. The first presents the outcome of the value-rational actions. The second shows the cultural values regarding the activity on the websites most viewed by country.

7.1.4.1 Values upon Instrumentally-rational actions on the Web

Regardless of their origin place answers to the first section of the questionnaire show participants internet-related activity is instrumentally-rational. These actions reflect that the user knows the benefits and risks of the Web, being willing to assume them. The latter suggests the user acts on the Web even knowing his actions are observed through the Internet controlling infrastructure. Participants related to personal, social, economic, moral and collectivist values those actions. Most of them are personal values, more precisely values as means. It is possible, to conclude that the twenty-two per cent of values coincides with those mentioned by the social imaginary behind the screen: social values. Collective and moral values are scarcely mentioned. Another conclusion is that the instrumentally rational action is not exclusive of the modern man, since the Waoranies had a higher number of these actions than other groups, and some of them fulfilled the requirements to be considered slow thinking.

Following the methodology, answers related to System 2 reflect a variety of values, like the collective ones "to grow a community", "to preserve culture"; the personal ones "advance in the chess league", "to scale in work", "to be happy"; the control related ones "to spread the word of God", "to manipulate others"; the economic ones "to keep clients satisfied", “to have massive sales”; the social ones "to have friends", "bragging", "to provoke dialogue"; the learning oriented and collective ones "to understand the meaning and to socialize it with the community"; the efficiency oriented ones "to have time for better things", "to conveniently perform daily tasks", "to get knowledge faster", "to make better life decisions", "to have more cost-effective results on hand", "to save time and money "; the challenging oriented ones "to get unpredictable results, surprises"; the free expression and moral ones "to give an honest and objective opinion".

These results suggest some interesting ideas. Feeling safe behind *Licklider’s system L2*, the system L1 exhibits selfish behaviour rather than gylany. Either community values as Eisler conceives or community´s functions as Shirky interprets are not predominant on the Web. Maybe they were at the time when the Web 2.0 emerged, or they are part of the media rhetoric about the communication democratisation to keep public engagement on the Web to underpin digital platforms business as Bauman, Srnicek and Williams pointed out. Also, it is likely private companies reacted timely to take advantage of the imagined digital revolution, dissolving community values into comfort, convenience, efficiency and opportunity as O'Reilly envisioned, taking out the necessary strength for the revolution to occur (following Castoriadis idea). Remembering Kant’s philosophy, it seems the Internet is not a means to overcome selfish human nature; it just empowers it. Joining together personal and economic values occurrences lead to think to the Internet as a narrow space where the non-social human being is conveniently living according to

values allocation by profitable companies. Therefore, somehow, Table 12 confirms the success of the Internet in offering personalised value to those in front of the screen: The Internet is a value-trading space, as values are saleable.

Another interpretation comes from the methodology design that encourages instrumentally-rational actions, leading to think that when the human being creates space for interaction, she exhibits a selfish attitude, there is an intention, planning but not spontaneity. The values of modern society seem to strengthen this attitude. The Internet allows creating a space between the individual and his peers, giving the former the control feeling. The question is whether this control is real as von Foerster proposed or if it is limited to a virtual environment adequately separated from the space controlled by those behind the screen? The possibility that institutions and companies induce the instrumentally-rational actions of those in front of the screen contradicts the ideas of Srnicek and Williams who see in modernity a path towards post-capitalism. The chameleonic individual adapts consciously to his or her physical or virtual environment that builds her synthetic freedom. The control space is a mirage created by platforms for the social imaginary in front of the screen, i.e., there is no such thing as a social construction but comfortable confinement created by platforms. Following Castoriadis idea, perhaps, the path towards a post-capitalist society relies on the unconscious action, the populist one that emerges from collective coordination away from the social space created by institutions through technology. The purpose of the speculative tone of these ideas is to rethink the attitude towards the immediate convenience of using technology instead of giving value to free interaction with peers either from self-determination or spontaneity.

7.1.4.2 Values upon value-rational actions on the Web

Value-rational actions are the most common and frequent, regardless of the user and her culture. These actions reflect that users have an idea of what they want: search, entertain, communicate, purchase, learn, investigate. These actions are directly associated with the so-called capitalist platforms or top-sites: Google, YouTube, Facebook, Amazon, Netflix; and, one community platform: Wikipedia. Some local newspapers are the most read. Popular social networking websites are Facebook, Instagram, WhatsApp, Snapchat and Pinterest.

The most popular value-rational action on the Web is to search for reliable information on the Web. Participants linked entertainment, content, communication and services directly to top-sites. Most of them are aware that they are giving their personal data to websites whose service and information are not worth to pay in most of the cases. Some of them see themselves as content producers.

The social imaginary in front of the screen does not consider their actions to have negative consequences on them nor others. Typically, they do not like Ads. Concomitantly with the most popular value-rational action, some participants dislike the erroneous information. Some also believe that they do not receive bad things from the Web. Although aesthetic values were scarcely mentioned, almost all participants tend to dislike the website bad layout. The same occurs with privacy which is the only modern social value mentioned in negative terms by participants. Almost half of the participants do not feel observed on the Web. The results show that most participants from Europe and the US believe the Web observes them, while participants from other countries do not care or do not know it.

There are some value differences, since something that has value for someone may be worthless for someone else. One example is about recognition. Some interviewees relate social networking directly with recognition: “to have many followers”; while for P52 it is not valuable, despite having a YouTube channel with 2M subscribers.

It seems the value-rational action is also mostly individualistic as the instrumentally-rational, in some cases selfish, but as being massive is effectively exploited by a few platforms that are world leaders to personalise the value the social imaginary in front of the screen want.

7.1.4.3 The similarities and cultural differences

Scrutinising cultural values on the Web was a challenge, an experiment that produced positive results. On the one hand, trying to establish cultural values within a society is difficult because there are social class distinctions, several human groups with different customs and folklore, media aimed at a specific audience, political parties, and economic and productive factors, among others. The literature on cross-cultural studies has methods that require examining a culture to compare with another. The latter needs a significant statistical sample of data with the communicational characteristics of the target population. Thus, cross-cultural studies might divert the purposes of this thesis.

On the other hand, the methodology sought a way to find if there are cultural values in the Web activity of the social imaginary in front of the screen. Participants answered the matrix questions using their origin country top websites. Statistical data about the most popular websites per country enable cultural comparison and confirm the results of value-rational actions. Search websites are the most popular, specifically Google which is the number one in most countries and is among the ten most popular in Russia, China, Malta, Nepal, Senegal, South Korea and Vietnam (during the research period September/2016 - April/2018). Other global top-websites are YouTube, Facebook, Amazon and Wikipedia. Netflix is also a top site, but its popularity drops in countries like India,

Egypt, China that produce their series and movies. Torrents are also popular but banned in modern countries. Government and local media sites are specific to each state. Although, in cases like Lebanon, there are abundant and popular media whose hosting is whether in the US, FR, UK, Germany or Russia. There are two elephants in the room, the ad servers and the porn sites. Ad servers are very popular in countries where Amazon is not. Participants referred them scarcely. There are five porn sites among the hundred most popular in almost all countries and might have the same owner.

The notorious popularity of US websites in most countries suggests the American culture as the dominant on the Web and the Internet penetration regarding trading routes. However, variations from country to country of US websites and the significant presence of websites from other countries within regions suggest the regionalisation of the Internet (see Table 23). The correlations between the origin of the most popular websites per country and their type with the cultural dimensions of Hofstede suggest that the web activity at a national level reflects cultural values. For example, the highest positive correlation is in individualism and long-term orientation with the most viewed websites. That is to say, those countries that within the Hofstede scale are more individualistic and oriented to planning have more local websites, have more e-commerce websites and fewer ad servers, more social networking sites, more percentage of their population uses the Internet, and have the most significant number of secure servers. Another example is university websites which are popular in third world countries who value equality, collaboration, trust, rational decisions, indulgence and establishment.

The difficulty encountered in classifying websites from countries such as China, South Korea and Taiwan also reflects cultural differences. Several websites of these countries contain a strong interaction between users. Initially, they were marketing or media websites. They end up being social networks (in the Reddit style) with much text written by interacting users. The websites seem to adapt to the user's interaction and even facilitates it by providing subscription and digital services such as email, references, location and news. This kind of websites was not found in countries in other regions; e.g., it is possible to consider that they are a kind of Amazon where the recommendation systems as a social network are placed at the top.

Therefore, regardless of the country, users perform the same value activities, since they visit the same types of sites. However, the number of kind of websites and their origin country reflect cultural differences.

7.2 Limitations

The methodology is original and serves for the specified purposes. With the experience and results obtained, its positive and negative aspects are analysed for the qualitative and quantitative sections. This analysis serves to improve its use in the future, or as an inspiration to design a new methodology according to the needs of the research.

The questionnaire had two sections. The first section allowed to find instrumentally-rational actions. However, since these actions were less frequent, most of the interviewees found them repetitive and even annoying. Many were surprised when asked about negative values or externalities. In summary, VFT as an elicitation technique works and delivers the expected results. Beginning by asking about actions was a good strategy instead of asking directly about values.

In the second section, the users felt comfortable with the matrix-questions because of their familiarity with the websites. Users responded quickly, although initially, the list of 100 websites seemed quite long. Many of them tended to go back to the first section to increase more actions that could tie with the websites that they recognised in the second section, e.g., banking. Most of the times the positive and negative values per site coincided with answers to questions of the first part of the questionnaire. Seldom, there was no relationship between the values of one section with the other. As explained in the methodology, to consider action as instrumentally-rational there must be coherence between the answers of both sections, and this is perhaps the key to the questionnaire success.

The use of the questionnaire whether in workshops, focus groups or personal interviews brought insights and experience. From experience, each of them has its advantages and disadvantages. The workshop is the most apparent to obtain individual responses if conducted freely and anonymous. In the workshop, the participants might tend not to complete the questionnaire because it demands effort. The focus group delivers a broader selection of answers. However, a participant may monopolise the conversation and even polarise it, compelling the facilitator to intervene. Personal interviews are the best means but demand effort. In no case, the process lasted less than an hour and a half to complete both sections. Thanks to local help in the organisation of workshops and focus groups, no difficulties were observed by conducting them on Skype.

The coding process was helpful, but when fitting codes into categories questions come up. It was not easy to relate to values due to interpretations. The results in table 9 show there are values in the activity of users on the Web, and grouping into categories contribute to a debate. The scale is also useful to highlight the frequency with which participants mention value and draw conclusions.

It is possible, and perhaps advisable, to expand the sample of participants and process the data following the same technique. More participants would allow the consideration by gender, income, academic and social level. Another possibility is to change the elicitation technique, e.g., instead of VFT, a negative approach: asking about what they do not do on the Web, and why not? Alternatively, to focus on needs instead of values. More data might come from dark web users as interviewees.

The classification of websites was demanding and left many doubts. It was not possible to classify all websites by their origin, primarily due to the lack of information and commercial practices that hide this information. It is very labour-intensive to classify sites of different languages, and it often involves the reading of the terms and conditions to locate their origin. The fifteen types of sites initially proposed were not enough. It could be interesting to include types of media, portals and academics. Sometimes the doubt remained whether the site was a social network/media/portal or a marketing site due to the advertising and purchasing options displayed. As no backup theory or previous research was found, the most significant doubt remains if the country-web-profile built upon origin and type of websites reflects cultural values. The only evidence found is the correlations with the Hofstede model.

Other questions concern the reliability of Alexa data. During the research time, it was not possible to know how Alexa obtains the data from all countries. Likewise, it is unclear how data vary across extended periods. Sometimes the Alexa data was compared with the SimilarWeb and, although there were variations, these did not impact the top country-web-profile regarding the kind of websites.

7.3 Contribution

The investigation found a solution to the research problem, answers to research questions with the help of an interdisciplinary approach and a novel methodology. The research contributes to rescue Castoriadis' idea of social imaginaries by downplaying the importance of the instrumentally-rational action and highlighting the value-rational action of the collective with the adaptive response of innovators for social disruption to arise. The research found evidence that shows that those in front of the screen can have a controlling attitude Internet related. The latter contributes to understand the Internet double-closure; i.e., von Foerster idea about observing observation through communication technology. The theoretical analysis suggests that if this attitude comes from the instrumentally-rational action it allows to reach personal objectives, and if it comes from the value-rational action it can achieve a paradigm shift. In this way, research considers the appearance of

Web 2.0: ideas from the academy deemed good by a mass of people cause a social and economic transformation that is quickly exploited by private companies through new business models.

It is possible to argue that qualitative analysis is limited to the responses of seventy-six people with a medium-high level of education from indistinct countries. However, there are arguments in favour that explain the methodology contribution. The sample follows the proportion of Internet users worldwide; this is two-thirds are not from the first world. Of twenty-one participants from the modern western world, fifty-five are from the rest of the world. The level of similar education gives a certain degree of security of their level of knowledge of technology and that the participants use their K2 system before an elicitation technique. The semi-open-ended questions give the interviewee room to elaborate and refine their response. The matrix questions reduce the space by presenting the user with a list of one hundred most popular websites in his country on which he must corroborate the actions that he discussed and giving value in the first part. The results show that the technique is successful. All the participants carry out instrumentally-rational activities with the Internet; they want to obtain means to fulfil their objectives. Several of them, regardless of whether they are modern or not, want to control others with the Internet. Also, irrespective of whether or not they are from the first world, few of them have coherence between their instrumentally rational actions and the value-rational ones. The types of websites they use in their country are correlated with the kinds of country top websites, suggesting that they are typical local users.

Another contribution of the methodology is its quantitative section whose results suggest some ideas to those reviewed in the literature, such as the following. First, the globalised Internet is reinforcing through regional networks. The former leadership of US websites gives way to regional ones, leading to consequences, among others the deceleration of global platforms that will be forced to change business model which should remain attractive to not lose the interest of its users who are behind walled gardens which in turn can strengthen or weaken the top-websites by laws and regulations. Another consequence is the responsibility at the local or regional level to incorporate the non-connected, suggesting it is no longer a global enterprise. Thus, UN interest to the Internet through its ITU and others will be decentralised handling particular interests. The regionalisation of the Internet leads us to think about a grouping of cultures based on shared values and not on specific interests that are often exogenous, such as the trading routes establishment. It is the opinion of this research that the Internet is not fracturing because its heart is still intact: the TCP/IP and IANA are still on the go. When the Internet became commercial it was IANA's old idealism that underpinned its globalisation; the people translocated the social space to the Internet, then the innovative response of the businessmen allowed a social-economic transformation.

Second, this research contributes to discuss Internet governance elitism. Not only core countries and private companies want to control the commercial Internet; all governments wish to while regulating within their limits. For core countries, the Internet is fracturing because they are losing their hegemony by the counterweight of the leaders within regions and the local development. However, this “fracturing” might be related to equality and justice - modern values – for non-core countries. Moreover, regardless of government and private companies’ intentions, users also want to control the Internet activity and as a counterbalance just a few exhibits a collectivist attitude. The controlling attitude of social imaginaries behind and in front of the screen and the continuous control distribution through more countries seem to confirm the technology double-closure where different value systems converge to act.

Three, there are common interests on the Web like searching, social networking, referencing and pornography consumption provided by global web sites; and there are others provided by whether local or regional websites like reading news, watching tv series and films, and banking. Purchasing is the only action which draws a digital divide. In core and peripheral countries, e-commerce sites are popular while ad-servers in other countries. Ad server intentions are not clear. The results contribute to the discussion because local users of non-core countries look for ways to do business on the Internet, while in developed countries, e-commerce is organised and monopolised. However, ad servers are unstable; they do not stand long within country top websites as many of them suddenly disappear. Possibly they are collecting personal information or affecting the user's experience like a virus. However, the moment an ad server starts to lose popularity the next one takes the post. The latter suggests a kind of game between those who are in front of the screen and the ad servers, a double control.

In this way, the results of this thesis have contributed to solving the research problem: users have control on the Internet, both individually and in groups. Individually, those in front of the screen can give themselves a space to control their action on the Internet, reflect, their activity is instrumentally-rational, use the Internet as a means to achieve their objectives, knowing the costs involved in their action. By sharing a good new, the collective effort of those in front of the screen is transformative, provoking a paradigm-shift a values system change, creating an opportunity for those behind the screen.

7.4 Further work

The research has been extensive and covers many theoretical and historical aspects from the interdisciplinary and systemic approach, linking facts and concepts from cybernetics, philosophy, sociology, psychology, economics, business and computer science to understand the Internet and

the Web as a system where different values systems coexist and evolve through the social imaginaries. Each fact and concept can underpin new investigations. It is also possible to develop theoretical research from a transhumanist approach which seems negative. In the practical aspect, the methodology can be improved to find more evidence.

This research has suggested that those in front of the screen are not a weak social imaginary, but they can be if the ideas that gave birth to the Internet and the technologies around it end up inhibiting the slow thinking of the human being. System 2 inhibition is a risk to humanity. Furthermore, Internet of things, cybersecurity gaps, and the possibility that technologies become autopoietic will increase the risk, creating others. The Internet of things means greater comfort, efficiency, convenience, ease, and in turn massive penetration, invasion of privacy, less effort to do things, among others. Stakeholders who participate in Internet governance forums are not the only ones who are behind the screen and can control the Internet. Those who do not want to show themselves might cause the most significant harm.

Transhumanism challenges the conclusions of the present investigation. It is possible to refer back autopoiesis to address transhumanism. On the one hand, according to Matura (Maturana & Varela, 2004), organisms are autopoietic, they do not have central control, but they self-regulate and self-coordinate among themselves through an inter-objective communication that allows them to develop, to adapt themselves structurally. On the other hand, the human being organises within groups, communities and societies of which he has developed a dependency for his daily life. Societies build a central control that regulates, establishing a values system based on daily practice, that can change if the human conglomerate acts. Luhmann (Luhmann, 1992) thinks intersubjective communication builds the society, can change the social structure. Social structure channels communication, making standards regardless of location. Channelled communication controls and globalises social structure (Ibid). For Maturana communication between human beings is also inter-objective, is a means of evolution (Maturana & Verden-Zöller, 2008). The latter is debatable since it involves the consequences recognition of living in a society on our biology beyond values and beliefs. Additionally, the consequences of developing, improving and using technology for our convenience and comfort, from clothes, blankets, living under a roof, eat canned food, mobilise by car, use computers and cell phones, to live confined in our digital world. Behind all this technology there are welfare and market purposes that consumers accept.

In the Harari timeline (see 2.1.1) the third stage is transhumanism (Harari, 2016). According to him, in the coming decades new techno-religions could conquer the world promising old rewards (happiness, peace, prosperity and even eternal life), but here on Earth through algorithms and genes. Harari talks about two kinds of techno-religions: technoliberalism and the religion of data.

The first affirms that humans have already completed their mission and now, through technology, they should pass the relay to a new human model with improved physical and mental capabilities that will allow him to remain autonomous even in the face of the most sophisticated non-conscious algorithms. This new intelligence is developing rapidly, so humans must actively improve their minds if they want to keep their autonomy (Ibid). Dataism holds that the universe is data flows and the contribution of any phenomenon or entity to data-processing determines its value. The dataism arises from the confluence of two ideas.

The first is from evolutionary biology that now considers organisms as biochemical algorithms. The second is the continuous sophistication of the algorithms. In this way, dataism believes that digital algorithms will decipher and surpass biochemical algorithms (Ibid). For the dominant social imaginary behind the screen, dataism offers innovative control technologies. For the weak social imaginary behind the screen, dataism is a unique global theory that unifies all scientific disciplines because it provides a common language for science, breaking down the boundaries between academic disciplines. Based on these ideas, it is possible to imagine an autopoietic technology: So efficient and autonomous algorithms that the human being is not necessary for their development, improvement and maintenance. Autopoietic technology is communication evolution due to the different realms it occurs in: from interobjective in organisms to intersubjective in the social to interdigital in algorithms. The possibility of autopoietic technology and the comfort and confinement of humans to technologies make Harari's transhumanism more real, i.e., human beings will not take control over themselves because they will be *happy*.

In this possible future scenario, whether wanted it or not, the inequality based on the digital divide can be positive, because it gives the hope that all those who are not on the Internet or do not have access to all the digital technologies, still need to rely on their System 2. Nevertheless, there are some discussions on the table to avoid the Marscusian/Deleuzian future. The dominant social imaginary behind the screen should rule in favour of freedom instead of privacy and vertical communication. Stakeholders should rethink the impact of private, public, and community goods.

These are the issues that Internet governance forums should address in the immediate future. Internet governance forums mostly arise within walled gardens, which explains their initial adherence to local values, that is, a focus on local regulation. Given that the Internet is a commercial enterprise, the local regulation does not pose a problem since the private sector will find ways to do business. These local regulations may very well be subject to local values as long as they do not impede the end-to-end communication of the users in front of the screen. Bad decisions by Internet governance forums, whether local or global, may result in less participation of diverse social imaginaries, or in the imposition of global regulations which end up overriding local

values. The attempt to minimise these extreme outcomes is what fuels this present investigation in order to offer alternatives that would prevent an imminent Internet governance crisis.

Among the topics reviewed in this document, three, in particular, need further discussion given their relevance and theme. First, the new ACM Code of Ethics and Professional Conduct (ACM, 2018) henceforth, the "Code," places all the responsibility of the consequences and externalities of the technological development and deployment on the computing professional. Given these externalities, by definition, entail social, legal, environmental issues relating to the global economy, the burden imposed on the computing professional is enormous, demanding unrealistic skills and foresight in a variety of disciplines. The Code has no mention of the employer. For this reason, we can attribute blame to Vincent Cerf and his team for the proverbial digital divide. The ACM should approach ethics from the perspective of the philosophy of technology, that is, it should address the intentions of the stakeholders to include the financiers. The latter would help anticipate potential externalities and assign responsibility before the actual deployment. The Code should incorporate inputs from science, ideology and art as well. For example, the second-order cybernetics approach would clear up and contribute to improving the relationships between social imaginaries on the Internet. It is still a challenge to find a balance between ideology, the human being and nature. Through the Internet, art is a personal and local expression that, when crossing borders, challenges the interpretation and values of diverse social imaginaries.

Second, the investigation approached to instrumentally-rational actions from values. A complementary approach would be from needs. The complementary approach could shed light on how to deal with inequality since the dominant social imaginary behind the screen estimates the Web is an opportunity to those most in need. The needs approach could give insights to some evidence found; e.g., ad-server websites are more popular in developing countries, suggesting that third-world users are seeking for alternatives to produce value in contrast to the comfortable first-world users who buy and sell from secure and convenient online stores. Furthermore, the needs approach can foster analysis of shortcomings regarding cultures to find alternative understandings of competing values, such as freedom and privacy, leading to challenging global regulations on the Internet.

Third, the values mentioned by interviewees do not reconcile with those highlighted by the dominant social imaginary behind the screen. Three possible explanations follow: (i) they do not consider values such as privacy, democracy, freedom, security, and human rights to be a priority. (ii) Some even refer to these values in negative terms. Despite their negativity, the social imaginary in front of the screen does not refrain from using the Internet. (iii) The methodology focuses on individual action. Thus, collaborative action is not likely to be mentioned. Perhaps, in the focus

group the collaborative action might come up, but it was not the case. Therefore, the methodology can improve by (i) adding a section about collective action; (ii) adding value statements. The needs approach may address those improvements either positively or negatively. Therefore, there is room for more research.

On the findings, it would be interesting to dig for more answers to the following topics:

- 'The regionalisation of the Internet, leading to the influence that countries have within regions' (Table 23). The Internet regionalisation suggests a confluence of cultural values, an alienation of values, i.e., the change of local values by those offered by the regional dominant social imaginary behind the screen. It seems that there is a tendency to use regional websites than those of the US which initially were more popular, suggesting the influence of American culture is ephemeral.
- 'The regionalisation/globalisation of the Internet for trading purposes. On the one hand, there is branding, a tool for product standardisation and market globalisation. On the other hand, there are variations of US websites in countries and regions, and the variations of the dominant country websites in regional countries. Both possibilities rethink the trade routes described by Wallerstein, leading to think of cultural alienation by the market.
- 'The presence and sustainability of pornographic sites. Porn sites are almost as popular as social networks or media sites, in practically all countries. The porn industry seems as global and successful as the top companies, as the same porn sites are popular in almost all countries. This phenomenon suggests that despite cultural and universal values, we are human overall, although only a few interviewees find value on these websites.
- 'The transparency of interviewees. The methodology had the purpose of finding the values that the interviewees related to the Internet and the Web. The methodology was designed thinking that the interviewees can talk fast and not sincerely when responding. However, it is not possible to ensure that they had talked about everything they do on the Web. Showing them the most popular websites was also aimed to let them expand their answers, but, it is not possible to guarantee either that they did it because they could feel observed by the interviewer, despite guaranteeing their anonymity.

In this way, the literature review contributed ideas to focus on the research problem, answer research questions, and to develop the research methodology. The application of the methods in different scenarios and groups of participants contributed with evidence to answer the research questions and gave light to solve the research problem. However, there were some limitations to overcome, and many ideas came up for further investigations.

Appendices

Appendix A

Friday, March 24, 2017 at 11:17:46 AM Greenwich Mean Time

Subject: Your Ethics Submission (Ethics ID:23318) has been reviewed and approved
Date: Friday, 9 September 2016 at 08:55:23 British Summer Time
From: ERGO
To: Melgarejo Heredia R.

Submission Number: 23318
Submission Name: Value Exchange
This is email is to let you know your submission was approved by the Ethics Committee.

Comments
1.Approved on conditions outlined by second reviewer.

2.There is little risk associated with this proposal; and so we are happy to approve on the following basis: (1) no data has been collected yet (his supervisor seems to have held up the resubmission) (2) any further workshops receive approval from the hosts in advance (3) no personal data is collected.

Click here to view your submission
Coordinator: Rafael Melgarejo Heredia

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Figure 14. ERGO Approval 23318

PONTIFICIA UNIVERSIDAD CATOLICA DE VALPARAISO

Escuela de Ingeniería Informática

Valparaíso, 3 de octubre de 2016

Señor
Rafael Melgarejo
Presente

Estimado Rafael:

Reciba un cordial saludo de parte del Comité Organizador de la XLII Conferencia Latinoamericana de Informática (CLEI 2016), www.clei2016.cl.

El evento CLEI 2016 se realizará del 10 al 14 de octubre, en la ciudad de Valparaíso, en organización conjunta del Departamento de Informática de la Universidad Técnica Federico Santa María y la Escuela de Ingeniería Informática de la Pontificia Universidad Católica de Valparaíso.

Mediante la presente se le invita a dictar el **TALLER SOBRE EL INTERCAMBIO DE VALOR CON VALORES EN LA WEB** el que se ha programado para el día lunes 10 de octubre, de 14:00 a 18:30 horas. Asimismo a participar en los diferentes eventos de esta Conferencia, la principal de Latinoamérica.

Esperando poder contar con su distinguida presencia, y sin otro particular, se despide muy atentamente de usted,

ESCUELA DE INGENIERIA INFORMATICA Pontificia Universidad Católica de Valparaíso-Chile
ESCUELA

Claudio Cubillos
Presidente Comité Organizador CLEI 2016

pucv.cl
Av. Brasil 2950, Valparaíso-Chile
Tel: (56-32) 227 3000
Fax: (56-32) 221 2746
Casilla: 4059

Figure 15. CLEI's workshop acceptance letter

Gmail **Rafael Melgarejo <rmelgarejo@gmail.com>**

Notificación de aceptación de su propuesta de Tutorial para EVI 2016

Yudith Coromoto Cardinale Villarreal <ycardinale@usb.ve> 8 de septiembre de 2016, 16:23
Para: Rafael Melgarejo <rmelgarejo@gmail.com>
Cc: Mildred Luces <milluces@gmail.com>, Nataly Carmona <natalycarmona@gmail.com>, Eric Gamess <egamess@gmail.com>, Junior Altamiranda <jraltamiranda@gmail.com>

Estimado Profesor Rafael Melgarejo

Ante todo reciba un cordial saludo y de nuevo nuestro agradecimiento por el apoyo que nos brinda para lograr un exitoso EVI 2016.

Me es grato notificarle que su propuesta de Tutorial:

"WORKSHOP VALUE-EXCHANGE ON THE WEB"

ha sido aceptada.

A la brevedad, las Profesoras Nataly Carmona y Mildred Luces lo contactarán para informarle sobre el apoyo financiero que la organización podrá ofrecerle

--
Yudith Cardinale V, PhD
Profesor Titular
Universidad Simón Bolívar
Dpto. de Computación y T.I
Caracas, Venezuela, 1080-A

Figure 16. EVI's workshop acceptance letter

Appendix B

Table 16. Democracy index (Intelligence Unit, 2017), ***Freedom index*** (Abramowitz, 2018)***, Internet Users and Secure servers*** (World Bank Group, 2016)***, trading kind of participant*** (Wallerstein, 2004) ***&*** (Babones, 2005)

#	Country	Code	Internet Users	Secure Servers	Wallerstein	Democracy	Freedom
1	Albania	AL	63	38	O (Other)	H (Hybrid)	P (Partly)
2	Angola	AO	12	5	O	A (Authoritarian)	N (Not Free)
3	Argentina	AR	69	63	S (Semi-peripheric)	F (Flawed Democr)	F (Free)
4	Australia	AU	85	1460	C (Core)	D (Democratic)	F
5	Austria	AT	84	1496	C	D	F
6	Bangladesh	BD	14	1	P (Peripheric)	H	P
7	Belgium	BE	85	980	C	F	F
8	Bhutan	BT	40	17	O	H	P
9	Brazil	BR	59	77	S	F	F
10	Bulgaria	BG	57	182	O	F	F
11	Burkina Faso	BF	11	1	P	H	P
12	Canada	CA	88	1309	C	D	F
13	Cape Verde	CV	43	52	O	F	F
14	Chile	CL	64	145	S	F	F
15	China	CN	50	10	P	A	N
16	Colombia	CO	56	57	O	F	P
17	Costa Rica	CR	60	104	S	F	F
18	Croatia	HR	70	266	O	F	F
19	Czech Republic	CZ	81	867	O	F	F
20	Denmark	DK	96	1973	C	D	F
21	Dominican Republic	DO	54	31	O	F	P
22	Ecuador	EC	49	42	O	F	P
23	Egypt	EG	38	5	O	A	N
24	El Salvador	SV	27	26	S	F	F
25	Estonia	EE	88	1143	O	F	F
26	Ethiopia	ET	12	0.2	O	A	N
27	Fiji	FJ	46	52	P	H	P
28	Finland	FI	93	1782	C	D	F
29	France	FR	85	813	C	F	F
30	Germany	DE	88	1757	C	D	F
31	Ghana	GH	23	5	P	F	F
32	Greece	GR	67	192	C	F	F
33	Guatemala	GT	27	21	O	H	P
34	Honduras	HN	20	13	P	H	P
35	Hong Kong	HK	85	904	C	F	P
36	Hungary	HU	73	366	S	F	F
37	Iceland	IS	98	3407	C	D	F
38	India	IN	26	7	P	F	F
39	Indonesia	ID	22	8	P	F	P
40	Iran	IR	45	6	S	A	N
41	Iraq	IQ	17	1	O	H	N
42	Ireland	IE	80	851	C	D	F
43	Israel	IL	77	289	C	F	F
44	Italy	IT	66	289	C	F	F
45	Jamaica	JM	42	64	S	F	F
46	Japan	JP	91	971	C	F	F
47	Jordan	JO	53	28	O	A	P
48	Kenya	KE	46	9	P	H	P
49	Kuwait	KW	82	223	O	A	P

Appendix B

#	Country	Code	Internet Users	Secure Servers	Wallerstein	Democracy	Freedom
50	Latvia	LV	79	457	O	F	F
51	Lebanon	LB	74	48	O	H	P
52	Libya	LY	19	4	O	A	N
53	Lithuania	LT	71	244	O	F	F
54	Luxembourg	LU	97	2914	C	D	F
55	Malawi	MW	9	1	P	H	P
56	Malaysia	MY	71	104	S	F	P
57	Malta	MT	76	1864	C	D	F
58	Mexico	MX	57	39	S	F	P
59	Morocco	MA	57	6	O	H	P
60	Mozambique	MZ	9	2	O	H	P
61	Namibia	NA	22	28	O	F	F
62	Nepal	NP	18	4	P	H	P
63	Netherlands	NL	93	2828	C	D	F
64	New Zealand	NZ	88	1298	C	D	F
65	Nigeria	NG	47	3	P	A	P
66	Norway	NO	97	2033	C	D	F
67	Pakistan	PK	18	2	P	H	P
68	Panama	PA	51	122	S	F	F
69	Peru	PE	41	32	O	F	F
70	Philippines	PH	41	14	P	F	P
71	Poland	PL	68	547	O	F	F
72	Portugal	PT	69	316	C	F	F
73	Puerto Rico	PR	79	65	P		
74	Romania	RO	56	229	O	F	F
75	Russia	RU	70	126	O	A	N
76	Saudi Arabia	SA	70	54	S	A	N
77	Senegal	SN	22	5	P	F	F
78	Serbia	RS	65	64	O	F	F
79	Sierra Leone	SL	3	1	P	H	P
80	Singapore	SG	82	932	C	F	P
81	Slovakia	SK	78	393	O	F	F
82	Slovenia	SI	73	807	O	F	F
83	South Africa	ZA	52	130	S	F	F
84	South Korea	KR	90	2320	C	F	
85	Spain	ES	79	362	C	D	F
86	Sri Lanka	LK	30	14	P	F	P
87	Suriname	SR	43	81	O	F	F
88	Sweden	SE	91	1755	C	D	F
89	Switzerland	CH	87	3102	C	D	F
90	Syria	SY	30	1	P	A	N
91	Taiwan	TW	84		O	F	F
92	Tanzania	TZ	5	2	P	H	P
93	Thailand	TH	39	30	S	H	N
94	Trinidad and Tobago	TT	69	127	S	F	F
95	Turkey	TR	54	67	S	H	N
96	Ukraine	UA	49	66	O	H	P
97	United Arab Emirates	AE	91	355	O	A	N
98	United Kingdom	GB	92	1383	C	D	F
99	United States	US	74	1650	C	F	F
100	Uruguay	UY	65	107	S	D	F
101	Venezuela	VE	62	13	S	A	N
102	Vietnam	VN	53	15	O	A	N
103	Zambia	ZM	21	4	P	H	P

Table 17. Actors of the Internet Ecosystem and the Internet Governance Ecosystem, based on (Raymond & DeNardis, 2016) ***and*** (ISOC, 2018)

Actor (from ISOC Organic Internet)	**Relating ISOC and R&D areas**
ICANN ~US Dept of Commerce	RDN.1, RDN.6, ISOC.1. ISOC.6
IANA ~US Dept of Commerce	RDN.1, RDN.2, ISOC.1
US Dept of Commerce	RDN.1, ISOC.1, ISOC.2, ISOC.3, ISOC.4, ISOC.6
IETF	RDN.1, RDN.2, RDN.3, RDN.4, ISOC.6
Internet registrars and registries (local, regional, national)	RDN.1, RDN.4, RDN.6, ISOC.1, ISOC.5
Root servers	RDN.1, RDN.4, RDN.6, ISOC.5
Other standard bodies (ITU, W3C, IEEE, MPEG, JPEG, ISO)	RDN.2, ISOC.6
IXP operators	RDN.3, ISOC.5
Private network operators	RDN.3, ISOC.5
CDN	RDN.3, ISOC.5
National governments/agencies	RDN.3, ISOC.2, ISOC.3, ISOC.4
ISPs	RDN.1, RDN.6, ISOC.4, ISOC.5
Private end-user networks	RDN.4, ISOC.5
Standard setting organisations	RDN.4, RDN.6, ISOC.6
national statutes	RDN.4, RDN.6, ISOC.2, ISOC.3, ISOC.4
multilateral agreements	RDN.4, ISOC.2, ISOC.3
software companies	RDN.4, ISOC.3, ISOC.4, ISOC.5
private end-users	RDN.4, ISOC.4
Response teams: emergency and computer security incident	RDN.4, ISOC.5
Certificate authorities	RDN.4, ISOC.5
E-commerce sites	RDN.5, ISOC.4, ISOC.5
Financial intermediaries	RDN.5, ISOC.5
Search engines companies	RDN.5, RDN.6, ISOC.4, ISOC.5
Social media companies	RDN.5, ISOC.4, ISOC.5
Content aggregation sites	RDN.5, ISOC.4, ISOC.5
Smartphone providers	RDN.5, ISOC.4, ISOC.5
Advertising intermediaries	RDN.5, ISOC.4, ISOC.5
email providers	RDN.5, ISOC.4, ISOC.5
statutory and constitutional law	RDN.5, ISOC.2, ISOC.3, ISOC.4
network operators	RDN.4, RDN.5, ISOC.5
Accredited dispute resolution providers	RDN.6, ISOC.5, ISOC.6
Content intermediaries	RDN.5, RDN.6, ISOC.4, ISOC.5
International treaties	RDN.6, ISOC.2
Reputation engines	RDN.6, ISOC.4, ISOC.5
Content networks	RDN.3, ISOC.4, ISOC.5
ISOC (IETF, IAB, IRTF, IESG)	RDN.2, ISOC.3, ISOC.5
Universities and Academic Institutions	ISOC.3
Machines/Devices	ISOC.4
Individuals	ISOC.4

Appendix B

Table 18. List of Participants

P#	Origin Country	Gender	Age	Academic	Group	Group City	Method
1	Argentina	f (female)	51	u (Uni. degree)	G1	Buenos Aires	i (Interview)
2	Chile	F	21	c	G2	Valparaiso	w (Workshop)
3	Chile	m (male)	20	c	G2	Valparaiso	w
4	Chile	m	22	u	G2	Valparaiso	w
5	Chile	m	27	u	G2	Valparaiso	w
6	Spain	m	78	u	G3	Bilbao	i
7	Thailand	f	44	u	G4	Bangkok	i
8	UK	q	38	u	G5	Southampton	w
9	UK	m	29	u	G5	Southampton	w
10	Ecuador	m	25	c (still in Uni)	G6	Yasuni	fg (Focus Group)
11	Ecuador	m	27	c	G6	Yasuni	fg
12	Chile	m	21	c	G2	Valparaiso	w
13	Chile	m	23	u	G2	Valparaiso	w
14	Peru	m	41	u	G2	Valparaiso	w
15	Ecuador	m	25	u	G2	Valparaiso	w
16	Chile	m	21	c	G2	Valparaiso	w
17	Chile	m	32	u	G2	Valparaiso	w
18	Chile	m	19	c	G2	Valparaiso	w
19	South Africa	m	39	u	G5	Southampton	w
20	UK	f	33	u	G5	Southampton	w
21	UK	f	25	u	G5	Southampton	w
22	Cyprus	f	24	u	G5	Southampton	w
23	Russia	f	29	u	G5	Southampton	w
24	France	m	43	u	G7	Toulouse	i
25	Colombian	f	23	u	G8	Toulouse	fg
26	France	m	21	u	G8	Toulouse	fg
27	France	m	25	u	G8	Toulouse	fg
28	France	m	24	u	G8	Toulouse	fg
29	Ecuador	f	21	u	G8	Toulouse	fg
30	Spain	m	52	c	G9	Barcelona	i
31	Spain	f	48	u	G10	Barcelona	fg
32	Spain	f	45	u	G10	Barcelona	fg
33	Spain	m	50	c	G10	Barcelona	fg
34	Peru	m	48	u	G10	Barcelona	fg
35	Spain	f	41	u	G10	Barcelona	fg
36	Spain	m	42	u	G10	Barcelona	fg
37	Spain	f	36	u	G10	Barcelona	fg
38	Ecuador	f	38	u	G10	Barcelona	fg
39	Ecuador	f	41	u	G10	Barcelona	fg
40	Venezuela	f	20	c	G11	Caracas	w
41	Venezuela	f	54	u	G11	Caracas	w
42	Venezuela	m	18	c	G11	Caracas	w
43	Venezuela	m	20	c	G11	Caracas	w
44	Venezuela	m	23	c	G11	Caracas	w
45	Venezuela	m	55	c	G11	Caracas	w
46	Venezuela	m	45	u	G11	Caracas	w
47	UK	m	23	u	G12	Southampton	i
48	Germany	m	29	u	G13	Munich	i
49	UK	m	30	u	G14	Southampton	i
50	US	m	51	u	G15	Boston	fg
51	US	f	50	u	G15	Boston	fg
52	Ecuador	m	50	u	G16	Quito	i
53	Nigeria	m	26	u	G17	Southampton	i
54	Poland	f		u	G5	Southampton	w
55	Ecuador	m	54	u	G18	Quito	fg
56	Ecuador	m	53	u	G18	Quito	fg
57	Ecuador	m	52	u	G18	Quito	fg
58	Ecuador	f	51	u	G18	Quito	fg

P#	Origin Country	Gender	Age	Academic	Group	Group City	Method
59	Ecuador	f	50	u	G18	Quito	fg
60	Ecuador	m	20	u	G19	Quito	w
61	Ecuador	f	21	u	G19	Quito	w
62	Ecuador	m	21	u	G19	Quito	w
63	Ecuador	f	22	u	G19	Quito	w
64	Ecuador	m	22	u	G19	Quito	w
65	Ecuador	m	24	u	G19	Quito	w
66	Ecuador	m	22	u	G19	Quito	w
67	Ecuador	m	26	u	G19	Quito	w
68	Ecuador	f	23	u	G19	Quito	w
69	Ecuador	m	22	u	G19	Quito	w
70	Ecuador	m	23	u	G19	Quito	w
71	Ecuador	f	21	u	G19	Quito	w
72	Ecuador	m	24	u	G19	Quito	w
73	Ecuador	m	45	u	G19	Quito	w
74	Ecuador	f	22	u	G19	Quito	w
75	Ecuador	m	23	u	G19	Quito	w
76	Lebanon	f	32	u	G20	Southampton	i

Table 19. Answers to semi-open-ended questions

# P	What are you doing on the Web?	Why do it on the Web particularly?	Why is this important for you? Why does is make your life better?	What is the main value? What is worth for you?	Give an example of when doing it on the Web doesn't give the value you expect	What alternative to doing it on the Web?	What are the bad consequences for every one of you doing it on the Web instead of using the alternative?	What constraints/blocks/impediments limit you from realising more of the main value in Column 4?	How could your life be better if these constraints were removed?
1	investigate	knowledge, curiosity	information, curiosity satisfaction		bad information, no information	keep looking, comparing	be ashamed	pay for information	investigate more
	read	research, information, news	information, leisure, news		wasting time	if not worth it, forget it			read more
	interact	sociability, curiosity, knowledge, to analyse others	know other's reaction, to analyse others, knowledge, feels safe behind the screen		don't make it	end of interaction	being hurt		no inhibitions
	play	leisure, forget the daily routine	mental agility, challenge, competence, leisure		frustration	seek other game	derision	pay to use the app	keep playing
	work	working tool	productivity, economic, value, investigate collaborators		not finish the job, doing it wrong	use other tools	waste money		earn more
	purchase	hobby, comfort, price comparison	pleasure, value for money		bad product, don't get it, devolution, discomfort	search another site, buy in person	waste money	distance	buy more
	banking	necessity	knowledge, control		too expensive	keep in the mattress	money stolen	pay for service	
2	Learn	everything is on the Web	obtain specific knowledge	understanding	ignorance	teachers, library	lack of information	Search for malicious educational resources	None that overpass my personal aim
	Listen to music	most is free, choice	My personalized playlist	joy	musical displeasure	search music in stores	lack of music	Copyright	get all free music that I want
	Research	to acquire new competences for future jobs	Personal enrichment	Personal enrichment	frustration	searching related mentors	lack of information	lack of information	unlimited knowledge
	Entertainment	escapism from everyday activities	Enjoy in leisure time	fun	angry	read	lack of games choices	cheating and hacking	there are not too many options of fair games
	Socializing	Having few hours to dedicate only to social interest, contact with distant people	contact with anybody wherever	interpersonal relationship	solitude	face to face communication	inability to socialize	Impersonation without moderation	social morbus
3	communication	constantly interact with close friends and relatives, to be informed about what happened with my relatives and close friends	Particular information, and online, about what happens to those around me	Information		Find the way, any moment to communicate with others, possibly face to face	Misunderstanding what is practically dialogued by not noticing the reaction and emotions of the other		
	upload and share videos	So that the subscribers who could not attend the event feel part of it	Share every event that we can record	Growing more than a channel, as a community	That since it is not an official audio-visual record, the organizers accuse copyright violation		That some of those who staged the battle (of rap) feel left to carry for some reason	Can only be understood by Spanish speakers	

Appendix B

# P	What are you doing on the Web?	Why do it on the Web particularly?	Why is this important for you? Why does is make your life better?	What is the main value? What is worth for you?	Give an example of when doing it on the Web doesn't give the value you expect	What alternative to doing it on the Web?	What are the bad consequences for every one of you doing it on the Web instead of using the alternative?	What constraints/blocks/impediments limit you from realising more of the main value in Column 4?	How could your life be better if these constraints were removed?
	be informed	to be informed about what is happening in my country, to be informed about what is happening in the world	Information about the latest events	Honest and avant-garde information	Manipulation of information	Search for more independent sites that express clearly and honestly			
	watch videos	have fun, escapism	Escapism	Escapism from everyday actions	Losing time watching videos for hours		Give more importance to videos than study		
	Learn	Learning is more dynamic on the Web	knowledge	Balance between the theoretical study (in paper) and the didactic study		Studying with the help of books or material provided by teachers			
4	learn chess	want to improve my technique, escapism	improve my knowledge	To overcome and to advance within the chess league	find little practical plays	search for chess books	Errors in the information delivered from the plays	cannot learn from foreign language sources	
	communicate with people	necessary when organizing tasks, useful to help others, escapism	deliver a message and obtain the desire objective	total communication with no interruptions	cannot talk with someone at the least expected time	find another way to communicate with people I need to	problems with the service or lack of communication	problems caused by ISP	
	play videogames	let me share with others, give me access to other games	entertainment without interruption	entertainment with no interruptions	interruption of an online game	play offline	Disconnection problems	access to some gaming servers	
	learn programming languages	help me to understand the logic, let me to practise and do exercises	optimal learning	apply knowledge earned for future jobs	find not clear information to learn	search for programming books	errores en la información entregada de las jugadas	poca documentación en mi lenguaje nativo	
5	Watch	entertainment, culture, information	Learn in a didactic way besides entertainment	Learning	Not to find the requested material	Read books and journals	Appearance of inappropriate content	Age limit for some content, morality	As legal and ethically possible
	Communicate	know about my contacts	Be able to know the status of my contacts, friends, colleagues, etc.	Connectivity	Cannot access to my account, lose my contacts	Telephone and other media not web-based	Lack of communication	I must know the recipient	does not apply
	Reading	entertainment, information	Learn or entertainment	Learning	Not to find the requested material	Books	Finding false or dubious credible material	know what to search	Search until found
	Interaction on social networks	entertainment, communication, leisure	find friends and contacts	Job contacts or interpersonal relationships	be alone	other channels of communication	to supplant identity	Do not generate content that violates morality, does not supplant identity	Even what is considered ethical or does not detract from others
	Shopping	save money, access to a wider catalogue	sell and buy hard-to-find things in physical stores	Buy at a reasonable price	fraud	Fairs and shops of the sector	defrauding others	Only online payment methods	Sell items that are penalized today and that report benefits
	Download multimedia content	entertainment	Leisure and amusement time	Availability of requested material	Breach laws when pirating content	Mercado legal, cine, radio	do not share content	intellectual property laws	To profit from content of which I do not have intellectual property
6	to communicate	make it public, to comment with humour, to give another version of Spanish conquer to Latino	To make it more pleasant and digestible, as the original book is in old Castilian and is heavy to read	Disclosure, provoking dialogue	Biased Spanish readers, or critics. In the USA there was greater acceptance, but not in Spain	Start with Facebook, looking for more public he opened a blog that didn't reach many audience. Then	Disappointed that nobody reads https://twitter.com/FelixloGarcia	Lack of promotion	Publish a book, eBooks

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		America, to rescued other versions about it				he started to twit to support his blog			
	Memes making	public opinion about politics, to critique, do and spread memes	political responsibility	try to be honest, objective	take side, effort to understand how to use technology	manually	Closure	censorship	Broader audience
	learning	digital self-taught	hobby, looking what to do						
7	Searching information	curiosity, leisure, work	all information, detail I am looking for	Easy, convenient, paperless	time	gathering information from newspaper, book, TV , other medias	fake information	limited information, not deep	continue
	Watching YouTube (movies, music, food tube, etc.)	for fun, hobby	cool stuff and free	Easy, convenient	addiction, waste time	go to movies, playing sport, TV, radio, doing other hobbies, etc.	waste time with stupid stuff	limited information, copy right	continue
	Playing social network,	messaging, free time, fun, stalking	networking, connection to old friends, fun things	Enjoy	addiction, not real contact, no real communication	telephone, hangout, etc.	waste time, health problem (eyes)	Too much ads, spam, etc.	continue
	Online shopping	easy, convenient, save time	discount/ choices/ quality and reliable suppliers	Easy, convenient, variety	not get what I want, lost money	go shopping at stores	waste money	cannot try	continue
	Reading	hobby, free time, learning	free information, trustworthy and variety	Easy, convenient, paperless	information maybe not true	reading books, magazine, etc.	waste time, health problem	limited information, not deep, have to pay for full version, etc.	continue
8	shop	ease, cheaper deals	I don't have to go into busy shops	time save but a better experience	returning items	Shopping in person-gate		£ PayPal sage sites customer services	spend! :)
	communicate	ease, fast, worldwide	contact people all over the world	huge! I stay in contact with friends	losing contact	try again?		none	talk talk talk
	learn	accessible, vast resources, ease	learn when and where I want	invaluable! Access to learning is awesome	losing all my work	Doing it all again?		whether if is online or not	learn all of the things!
	news	up to date, fast, ease	faster better way of reading the news	faster, better way of reading the news	important to stay informed	reloading		Murdoch mad?	read everything
	tv + movies	access, free, availability	Relaxation, ease to access when I want	same as it is good is relax and chill	net glides crooning	read a book - how novel ha ha		£ sites	watch news stuff before available
	work	learn, share, update	remote work completed in on time	related to learning, but again invaluable	losing all my work	not sure		stress internet access	
	photo + art	participate, innovate, interact	share my work	I love sharing my work and having feedback	? A plagiarism	Not sharing images?		sharing in image? Sites	
9	Dark meming	comedy, satire, viral communication	recognition, mass audience	self-expression	being flagged, dislikes	stand up, comedy, dry meming	be constrained in negative light (dry memer)	technological restricted to sharing images and specific fans	gain greater coverage
	Gaming	social, escapism, relaxation	high scores, greater skull	invaders skill values, problem solving, history	losing	build super games	hack the server, not loan off yourself / family due to addiction	ping cates	own age

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	messaging	social, networking, romantic	inner work / social network	having enjoyable conversations, organising events	no friends	physical human interaction	being abusive	mainly constrained to textual information	the same as I would have normally
	consuming pornography	convenience, research, searching	vivid escapism, fun, enjoyment	intrinsic health benefits, relaxation	Cipher virus	my imagination	revenge perm / believing that if reality?	Time	Decreased productivity
	learning	self-development, research, winning (argument)	enlighten	broader my knowledge	you end up on lad bible pointless browsing	a library, ask friends	you research something illegal	the? Of the way information and resources are coded	access all the journals and dbases my heart desires
	shopping	find cheap deals, more selection, keep us with technology	new goods and services	making available products otherwise I wouldn't have access to	be sent the wrong product, no delivery, seller steals my money	make it yourself or by from the highstreets	not being honest about your identity or haltering when buying	biggest constraints are probable based on geography	upgrade my computer by lots of physical instruments
	banking	sending money, paying bills, checking balance	lots of money	keeping an eye of my finances	incorrect?	walking to the bank	improper spending	badly designed, UI, band-end infrastructural	have a more enjoyable VX
10-11	consultation	ask teachers (linguistics, anthropologists, education, psychology), look for synonyms and antonyms, Laboral history in the social service	complete assignment given by teachers. To satisfy curiosity	help others to understand meaning, socialize within the community from a university requirement	Nothing	Difficult to go to the city. They don't have physical books; thus they try to find another Internet access point		access only in specific points, relatively close. They don't have telephone land line, and little cellular coverage (12 Km from community)	
	Communicate	be in contact with Guaorani friends from other provinces: Napo, Pastaza, Orellana. Guaorani does not have alphabet, they are adopting Latin's due to their contact with Spanish speakers (researchers)	information about their relatives who are disperse	to be in touch with their relatives. To ask for help. To pass voice	harassment, bullying, envy	Try to enhance access, but giving turns to youngsters who should explain their purpose of use			
	Send information	to researchers, about Guaorani culture, to help the development of the community, that helps researchers to give advice and material according to community							
	Coordinate	to confirm with researchers their action over community, researcher's support upon community							
	Watch	musical videos, soaps							
	Gaming	video games of sports, car racing							

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	Download	music files, MP3							
	Interact	use Facebook to upload pictures of their community, idem with messenger and twitter	Socialize their community, show their environment	to publish their own videos in order to have more friends, to promote themselves about their performance, to receive feedback			Youngsters from 13 to 16 are in social networks, and they don't like to help to community		
	Write	to send and receive assignments, to store	they are writing their history	to preserve culture		store in different servers (yahoo, Hotmail, Gmail (3))			
	Translate								
12	Answer questions	to know, to solve, satisfaction	To solve a problem	Find optimal solution	Find nothing	Find a solution and share it			
	Entertainment	forget my assignments, distraction	forget my daily concerns	Nothing	feeling it was a waste of time	Looking for something to do			
	Research	to obtain knowledge, satisfaction	To know and generate new knowledge	Data and information	wrong information	Obtain data somewhere else	Obtain nothing	Not all you find is correct	
	Communication	socialise	Keep relations	Make new friends	lose contacts		To have no contacts	Not all are friendly	until losing interest in people
	Read news	be informed	understand people's actions		bias or bad opinion	Talk with people			
	Storage information	be able to consult information							
	Work	convenient							
13	read news	be informed about breaking news	To know about something in specific	Know about something relevant to me	only showbiz news	search in another portal			
	listen music	easy to find, not use personal storage	listen to songs of new groups	Find my favourite band	don't find the music I try to find	use another searcher			
	talk	communicate with people from other locations	to know about people close	talk to my abroad friends	if they are not available to talk	leave a message, or try another time			
	watch videos	not use personal storage, entertainment, interesting	Relax	Find a movie that I really like	watch boring movies	search for something similar			
	information search	to know about an issue, find a solution to any problem	Find specific information	the right information	not to find information	search for information outside the Web			
14	read news	be informed up to date	breaking news national and international	useful and reliable information	not value news	keep searching using other media			
	email	to communicate	immediate response	strengthen communication	no response	resend			

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	social network	be communicated with environment	Presence in our academic activities	more impact and presence	not have followers	change strategy			
	watch	For academic purposes, entertainment	videos with high impact content, and applied them for educational purposes	my students to see	broken links	keep searching			
	build apps	share information with working groups	facilitate information exchange	efficiency	that the application is no longer free	other apps			
	information searching	to supplement the bibliographic material	obtaining reliable information	reliability	plagiarised information	other sources			
	use collaborative tools	Exchange information with working groups and colleagues	facilitate collaborative work	free apps	not to satisfy user's needs	other alternatives			
	chatting	to communicate	be communicated	efficient communication	virus	other communication way			
	download documents	to supplement the development of new material	reliable documentation	reliable documentation	viruses or corrupted	find other places			
	entertainment	listening music, watch videos of technology history	pastime	satisfaction	Ads	other sources			
15	Communication	I need to stay connected with family and friends	To be assured that my distant families are well	To know all are fine	problems generated when saying or publishing something	Use more traditional media like post mail, phone calls, go out	to communicate offensively	censorship from sites, connection problems	as usual
	Entertainment	I need to entertain me when I'm saturated	In order to work better. Breathe a little if making a very long task	to clear the mind	be distracted and wasting time	do sports, talk to somebody	watch inappropriate content, economically affect someone	Much of content is restricted	Watch all kind of movies, listen to all music I wanted without paying
	Research	I need to collect literature in my field of study	To move forward in my work	keep going	get misinformation to delay what I do	read books, search on physical journals	plagiarize content, view documents without paying	Much content has copyright, or should pay to have it	Download any kind of information
	Share content	I need to distribute class material to my students	for my students get class material easily	information is delivered to all on time	that shared information in not adequately delivered	Use more traditional media like photocopies, books, booklets	to share something that it is not mine	Much content has copyright, or not possible to share	might enrich my class material with different sources
	Banking	I don't have time to go to the branch	to invest little time in this activity	Do all transactions without wasting time	Some problems may come up when doing transactions	Go to the branch or send somebody	receive or transfer illegal funds	limited functionality	
	Shopping	It's a little bit faster way to shop things that I needed	to acquire cheaper and things, in a faster way	Not to spend to much time doing this activity	being scammed of be dissatisfied	Go to the store	sell illegal things, or defrauding someone		
	Read news	I like to be informed	To know breaking news in a quick way	be informed	to read misinformation	Read printed media	spreading false news		
	Gathering data	I need to do research	To taste hypothesis generated in my research	obtain results and the possibility to validate quickly	Inadequate data that cause errors	Gather data in a traditional way	using data for not honest purposes	A lot of not public data	I would use a broad kind of data

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	Download programs	I need a variety of software, and reuse implementations that already exist	To do things in a fast way	automate tasks	software with bugs that produces bad outcomes		economically affect someone	Much of the software cannot be downloaded	Download any kind of software
	Learn	There is no time to attend lectures, or there is no help on doing something	To solve a problem or necessity. To learn	learn more things	Learn wrong things	Take online classes, ask for help to experts	learn things to harm others		
16	searching	less complex, independence from others, necessity	easy and fast answers	save looking and walking time	find outdated information	Have the time to ask other people			
	read news	curiosity, public interest, planning	breaking news						
	MOOCs	education, self-dedication	good education opportunity						
	Communication	have social life, public interest	interaction at distance	have a conversation	not get messages				
	Storage	work, education	access from different places to files	read my files and keep privacy	others might see my files without my authorisation, or be deleted				
	Publishing	have public opinion, society	make public my ideas	that my followers and relatives read my writings	Nobody reads				
17	read articles	to obtain knowledge	expand my vision	something new that contributes to my training	not find a new article	search again	unsubscribe, or new articles never show		it's continuous, not limits yet
	quotes purchases	shopping	good price, quality and speed	low price products	not find a product	go to the store and shop	find products that are expensive than in the store	requires payment through authenticated sites	
	check email	by necessity at work	timely information to make decisions	timely and reliable information	not obtain information	phone call	not receive email	plain text doesn't have emotions	
18	read news	need to be informed	relevant information everyday	100% useful information for my daily living	information that is not to my liking	none		Not possible to edit uploaded information	manage news' information to my way
	listen music	need to enjoy	daily distraction to not getting bored	music that is according to my taste	not find the music that I like it				
	search information research related	need to deliver a good research work	useful information for my job	accurate information of what my research requires	find information not related at all to my research	search in conventional sources (books, etc)			
	learn through tutorials, or pdf	need to learn different things that might be useful	expand my knowledge of different tools that I use or need	learn in the best possible way	tutorials that teach not what they say they teach	search books that teach what I need			
19	shop	faster, cheaper, comes to me	I gain time for other things	easy and fast	having to return an item in person	shopping in place, but that's no good	none	some online shops allow merchants arbitrage opportunities	
	work	without the web my last job would not have existed	work life balance	makes it easier to be your own boss	a breakdown of the open web we have now	bricks and mortar		income generation is always tricky online	grow exponentially

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	game	relax, hang out with friends	sometimes victory, sometimes relaxing	enjoyment	DDOS hit on servers	not much, these friends live too far away		both time and money	not much, can't game all the time
	tv and movies	relax, hang out with my wife	to be entertained	unwinding and time with my wife	limits connection for others in the house	normal tv or the movies		services are split so you have to pay more to see it all	spend too much time watching tv
	chat	stay in contact, granny updates	maintain relationships	it eases long distance contact with loved ones	if the system fails as times to chat are often pre-booked	not really calling on a landline does not allow for media share		security and also the cost of broadband in other countries	not really
	news	stay up to date, get alternative views	to get an informed and balanced view of events	being in the know	being lied to	tv news		pay walls	
	learn	to gain new styles	to continue learning	speed of learning new skills	out dated info	traditional learning		the fact that MOOCs are not recognised by industry	learn more
22	shop	love it							
	read		the news						
	education		online courses						
	communicate	convenient	contact with people						
	gaming	relax, escapism, entertainment							
	produce	self-expression, curating							
23	study	curiosity, lack of some knowledge, upgrade	enlighten	any kind of education	none	offline education	none	hidden feedback; face to face interaction	carry on studying
	work	home based office, fast VPN, no wasting time on transport	everyday job duties	fast communication	misunderstanding	normal office	neglecting my duties	hidden feedback; face to face interaction	perform faster and better
	research	unknown meanings, lack of some knowledge, references	find answers	specific knowledge	no answers	library	none	lack of data available	same
	plan and book travel	fast planning, variety of options, lack of time	custom holiday	world exploring	false expectations	travel agent	none	not all options on the web	the same
	entertainment	fun, mood boost, obtain knowledge	fight boredom	variety of quality time	time waste	theatre, cinema, sports	policy violation	lack of emotional level	use every resource
	shop	good prices, variety of goods, rare finds	good quality service	great choice of goods	frauds	offline shopping	payment violation	to actually see the product before buying	same
	socialize	keep in touch, new connections, professional links	friends connection	society adjusting	lack of offline communication	offline meetings	becoming a misanthrope	emotional reactions	same

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24	work	convenient, ease to access data	efficiency, save time and money	commitment	lack of access	manually	the shield of objectivity	not sure if the Internet is the right tool	confidence
	communicate	to communicate with others	I don't want to be forgotten	recognition	a bad mirror	play social	isolation in the midst of full communication	a bad or a partial image	self-confidence
25-29	information search	about games, to be informed, do assignments	discover strategies, easy access, use whenever, wherever	speed, effectivity	non-trustable info, wrong information	go to library, ask somebody	Ads, non-authenticity, cheating, difficult to know veracity	not known how to search specific information, how to access to it	more use of the Web
	Watch videos	entertainment		free, portfolio	hate comments	go to cinema	Ads, when stops, auto charge of other videos, books and cinemas may disappear	Services according location, streaming not allowed, different laws	get bored
	social interaction	communication	easy to interact, timely, all in it	networking, share, stocking	stalkers, don't have likes,	use telephone, talk to people,	conflict, too many messages, many typos	access to profiles or publications	not interesting, no romantic, no mystery, lack of privacy; definitively a better life
	communication	among partners		clarity	somebody has seen but doesn't answer	telephone go to somebody	too many times waiting for an answer, Spam, unwanted messages	asynchrony	no contamination, freedom if no mind contamination
	work	coordination		precision, procedures are written, evidence	wrong information	go to the library, to someone's place	loose work by blackouts, difficult to coordinate when many people interacts, intrusive	Procrastination	very productive
	read news	easy, cheap, many sources, personalisation	A need for their environment, easy access, links, store, practical	Build a convenient opinion	typos, bad correspondence between written and pics	nothing, tv (others), listen to radio	be sad, disappointed, dependency	paid services limit information	read more, be well informed
30	information searching	ease, fast, cheap, updates, comfort	planning, location	real, trustee, updated	depends: other values finding, or procrastination	difficult to say, print press	be disconnected, when urgency, waste time in alternatives searching	weak signals	Not really
	leisure	ease, fast, cheap	entertainment, gaming	Immediate achievement of goal	better alternatives presenting	print press			
	posting	Professional promotion	as an alternative medium of promotion, engagement	don't know	comments	word of mouth, self-recommendation		don't know how to explode it, or don't have the time	Use twitter, Instagram
	Banking	comfortable	accounts controlling	time saving		go to the branch			
	Gossip	find out what others are doing	know others' work						
	shopping	convenience, choice, price							
31	work	all applications online (transnational enterprise)	impossible to work if not, quickly, easiness,	saving time, efficiency, interaction, access information,	to find things already done, external issues that affect work planning	don't do it online, not possible (works with	(not like online applications, because so	over information, dispersion, saving time?	continue as it is

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-39			access, convenience, professional development, to be updated	convenience, interaction, practical		people of different locations and online), by phone	much trouble), no healthy, not personal interaction, stress (everything is too quickly), not be patient with doing it not online	Not really over charged with other things … on the Web! mechanization, dependency	
	email	online, instead of Outlook, separate depends on target, according subject, as a history record	communication, information exchange, traceability, traceability	evidence,	bad news, reboot, virus, hacking, wrong addressing	phone, post mail, fax	mail post forgetting, more superficiality, standardization, acronyms, language impact, not reading emails just words - maybe context loosing, bad communication (other languages too)	dependency don't trust in others word	transparency, equality
	shopping	easy, no time wasting, variety, cheap price	leisure, to save (time, money), liability	saving time, choice, have time to do better things	identity impersonation, wrong merchandise, bad service	go to store, possibly less shopping, it is preferable to buy by phone as we love to speak with humans	buying things don't really like, not be on time	can't try the product before purchasing, more risks	money (if not practical)
	banking	to consult, accounting	convenience, control, availability	quickly, control	not control over account locking when transactions, cost and location	go to branch	confident and anxious	insecurity, risks (relative are different)	costs of services, if not continue as it is
	searching	to investigate, leisure, to work, contacts	to find, to identify, to choose, to learn, curiosity, to know something to chat, translate, be informed, news	variety, fast	homonyms know something not expected	not possible to work, really difficult	sometimes difficult to find information	quality of information, manipulation, personalization	search for other brain, how to process?
	watch	only medium, not TV, other media collapsed	information, videos, tutorials, entertainment, learning, exercising, hobby, listen music	enjoyment, learn, work	Ads, not correspondence between title and content	nothing	loosing imagination, Lack of discernment, self-memory not using, Not signed in Lose the quality of the experience, anxiety on watching series	liability, false issues, bad quality	more consuming, look for quality, better experience only virtual!!!
	communication	easy, email (if not personal number, wasting time), sharing, be informed	texting, promotion, engagement, researching, professional & personal topics	asynchrony, direct channel	find somebody unexpected, bad news	phone, post mail, fax	Lack of fixation and inattention; be afraid of personal contact; less formal; we need to talk (Spanish people prefer to talk)	creativity, privacy, dependency/afraid with supervisors, how to separate personal vs professional	dependency
	selling	easy, quickly, convenient, recycling	enhance selling, take advantage of digital tools, convenience, targeting, optimization	obtain money, better to sell than push to the bin	paying time	traditional		many bids, not really to sell, more competitive	earn more money, everyone in its own paradise, sedentarily

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			of possible clients, take advantage of information						
	gaming	socialize, challenge, like it, entertainment	engagement be a community	socialize, joy	be challenged very badly	nothing	ludopathy, vice	personal contact	boring, vice
	socialize	to be informed, engagement, to sell, sharing, opinion	be informed, to communicate, stalking, collect information, to post: to share, to register	bragging	bad/good news,	nothing, maybe less interaction	buffer, colds, superficial, hypocrisy, only good face showing	show only happy face, it is not a reality	not possible, always a persona not real (see only what you want to see), too human
40	research	ease access from my home, convenience	Greater knowledge for university use or for labour enforcement	Learn distinct topics that help me to scale in a future work for a company that gives me benefits and economic stability	Research in unreliable sources or with non-truthful information that leads me to perform bad investigations and later not to obtain the objectives that I should reach for my final purpose	Keep informed about reliable sources	The shame of going to an important place and talking about something that is not right		
	communication	communicate with distant relatives, convenience	Do not lose affective contact						
41	Email	research, learning	reliable information	Validated information with scientific value	don't find the right information		Procrastination		nothing
	searching	research, learning	reliable information	Validated information with scientific value	don't find the right information	Ask peers, find other sources, library, newspaper		better search engines	nothing
	download books and presentations	research, learning							
	banking	transfers, payments							
42	Search for information about C++	get knowledge, develop mental ability, Improve my programming skills	To get more knowledge about C++ programming that leads to code and to run an excellent program	Feel the satisfaction of being equal to the level of knowledge of my brothers who are graduates of this same area that is Computer science.	Don't find the information	To search by other means, or ask a peer	Click baits or incomplete information, Deceiving millions of people with false information	Deletion of information for false content	
	Code for C++, html, PHP	get knowledge, for my work, entertainment	Acquisition of knowledge and varieties of information	knowledge acquisition	procrastination	search in other reliable sources	Misuse of the web and its information.	plagiarism	total knowledge sharing
43									Find code for many computer languages at medium and advanced level like C++, JavaScript, OOP like PHP, HTML, Visual Basic

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44	socializing	communicate with relatives, Transmitting event information, entertainment	social life	To spread the word of God	Receive insults and grievances	find another platform, search for alternative sources: manuals, telephone, face to face communication	That they stop believing in God, that there is conflict between people, that there is division	Be careful with what is published, time, internet failures	Share the word of God every moment
	searching	To meet research requirements	knowledge acquisition	knowledge acquisition	don't find	books	The knowledge acquired is unsuccessful	The hard disk does not give me more storage capacity, internet faults	acquire all the possible knowledge
	shopping	buying	new stuff	Acquire an item that supplies a need	don't find	go to the store	The item to buy is unnecessary, the item purchased is damaged, scam	Item with defects, money	Supply each need with specific items
	program download	have new tools, entertainment	Work or meet needs that facilitate what to do	For work or meeting needs that facilitate what to do	don't find	buy programs	programs with virus	The programs do not run, failures in the internet, the hard disk reaches its limit of capacity	download as much as possible to keep clients satisfied
45	Knowledge searching	Use the information within lectures, I love to know for pleasure to acquire knowledge	for lectures	Maintain my level of knowledge and have money to survive	Not being able to have the necessary level for my classes or even the conversations in daily life as I like to share what I know	books	waste a lot of time when information is not well organized	To be able to devote the necessary time	I am passionate, and I would like to do it without needing to restrict to what is necessary for my work
	share with my social groups biking, theatre, choral, football	Escapism from routine, commitment to personal tastes, receive advice from experts	amusement	Have sports activities that allow me to compete and share with others passionate about the activity and cultural activities to enjoy the beauty and my personal skills	I do not want to do the activities alone, but prefer to be shared	Do the task by myself and search for peers in common places	The information that circulates in the distribution lists is dispersed and lost a lot of time	Have resources for activities knowing what everyone has	To be able to share my time in all activities
	email	exchange of work information keep contact with friend, plan lecturers and social activities	Necessary for my job	engagement and keep my contact network	don't have communication, and unable to fulfil my responsibilities	contact by telephone	too much emails		Do it from mobile devices anywhere
46	Searching for musical videos and talks of Christian nature	enrich my knowledge of other cultures, I contrast and nourish my experience as a singer, for entertainment	Growth in my development as a singing director and as a Christian facilitator and educator	satisfaction	Not get the required information	Asking other professionals and printed bibliography	be aware that I got fake information	Not to consult again because of mistrust	would reach the maximum of possible human creativity and development
	searching for writings about personal development	be informed, offers me other performance improvement techniques, acquiring of new tools to apply to my personal development	More and better tools to help others achieve their life purpose	Expertise in the development of products for integral and personal development	Not get the required information				

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	Socializing	Establish strategic alliances, Enjoy the "how to" of the other, promoting professional services	to exchange experiences, Enrich and strengthen ties of friendship and fellowship between colleagues and clients	friendship	Not get the required information				
47	shopping	convenient, joy, fast, efficient, more choice	convenient makes him happy, impressive how efficient Amazon is, investigate options, makes more proper decision	convenience, speed	order something that is not right, sometimes inconvenient to return an item, annoyed when wrong, gets irritate	going to the shop	spend more money, temptation there, think less about spending	there aren't many so that it is they are so successful, sometimes need to around to accept the package, feel guilty because neighbours can be annoyed then helping a lot	allow more flexibility, less reliant on the good will of my neighbours
	socializing	maintain connections with longest distance people, organizing social events and activities, news filtering, what is important to him	not quite sure if it makes life better, because they are not really important, are weak connections; don't know if it is good to have a lot of weak connections; organize social events is convenient	maintaining the weaker connections, with little effort	annoying posts from people, immature posts, garbage	let the weak connections die	services are shallow, materialistic and superficial, doesn't contribute to a good state of mind, poisonous content	none	
	watch	the amount of content is more and varied; access to different services; instead of TV license, the content that the Web offers is better, choice, control, quality (other places)	like good quality TV that some Web services offer;	quality of the content, choice, control, choose what he likes, instead of by tied to TV scheduled	the reliability of internet connections, the regional access to content	Buy a TV license, terrestrial TV	none	the region content licenses	have more choice, watch more
	search	looking for information about his research; the large proportion of research materials are available online, obvious place to use to find	it is a necessity; the Web is a large information repository	helps to find more information quicker	when you find the resource, but you cannot access, find the reference but not the book/article	Walk to a library and look for, get recommendations from people	information overload, you need to be good on filtering out	construct the right query otherwise get lost	be more convenient, more time, be more efficient
	planning	a lot of information available on the Web to go an to look for, in advance on going; most of information in English, planning routes using	more control, more information about the places to go; security, be informed; maximize your time	control, informed, secure, reliable information	when information is wrong, especially in a foreign country	go to the place and try to find information, asking somebody	trust, less flexible, you think you know how to get, and no time for changes	language, not everything in English	more control be more informed

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		proper transport, work out before go							
	banking	convenient, track spending;	convenient, transparency; easy to access money which is both good and bad	convenience	easy to make a mistake, and big deal to rectify it	go to the branch, or telephone banking	accessing money is very easy that makes hard to save money	none	
	promotion	doesn't cost any more money; reach a relative larger audience, across locations; do more multimedia stuff	valuable; get more followers, likes, feedbacks	low cost, potential reach	when the response is not expected, overestimation of fun base, be cautions on quality posts	offline promotion such as posters, less frequently and less often because of the cost	if the quality of the post is not good, can irritate people	none, if you have control on what you post	
48	seek information	most updated and comprehensive form, best source of eBooks	time saving, efficient system; there isn't any other alternative as good as the Web; other ways may cost time and money, convenient	there is a lot of crab, but also a good stuff. I relay on the Internet to make better decisions for my life.	in terms of information replace anything else. If you cannot find something in the Web, but only in cognitive terms, not as full experience in terms of smelling, being in a place. It's cognitive, not the real experience. Like read a book, not a full feeling. Therefore, on the Web there are more less personal values than in reality. Less constraints than in real life	You can ask friends, people. But, I don't think there are many alternatives, maybe all people relay on the Web, if something is not on the Web is possible to think it doesn't exist	the people or organizations who control information control people, this is very dangerous. The information may be centralized and controlled	Commercial interests that rank information, may bias my opinion	I don't think they can be removed. People have different incentives. The government should no control the Internet, because I don't want to get told what kind of information I should receive or not
	education	MOOCs; reading news; podcasts: international politics, economics	physical university are not necessary, when learning a specific subject; it's free	utility: better decisions in term of my career in personal life, because is better information by being on the Web. It easy to do things, a kind of sensitivity of your personal values is diminished. You behave different it's easier to do things on the Web than personal	Interaction is limited	that could be like lose in life quality, going backwards	MOOCs may have some bias. You have to rely on names. Trust on certain sources…that could lose	time, or don't find the right MOOCs	My life will be much better. Have the right opinion
	socializing	easy; efficient, nobody has in its mind a lot of contact's information; Easier to chat than email	it's not real socializing, it's scratching on the surface; it's really shallowed	convenience, location independent in the shallow communication	when is about deeper conversations, the Web is not a good media. The more emotional the worst the Web gets More value to personal interaction	find a new source on the Web as well	you may be away from reality if you do it too much	the information exchange is very shallow	The experience of a face to face conversation is more enjoyable, so it is not possible to get it from the Web
49	shopping	perceived price, convenience	It is not important, it is better to buy it personally	products delivered quicker and cheaper	house hold items are expensive to get on the Web	going high street	Shops could be closed, lose jobs, less face to face interaction could harm society	Hard to judge quality of items just from images/reviews. Something things you want to test/experience yourself before buying.	Can buy more and be confident in what I'm buying.
	communication	easy, that's where people are; instant	because everybody is online. I prefer to speak face to face, but it's convenient; to keep long distance contacts	lots of people, any time	sometimes people don't use certain platforms, there is a tendency to talk to them less, it's unfair	write letters, phone calls	very few - maybe older generation would receive less personalised and frequent messages	Not everyone on same platforms.	All friends and family contactable in one place.

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	education	vast wealth of resources available on line, so probably everything is online; convenient; reading news, free, instant	not sure it does, aware of filter bubbles - treats media perhaps as more entertainment than fact	vast array of information	when reading inaccurate or bad news reports	printed (books, newspapers, etc)	Death of print media, closure of libraries	If anything, too much information. Would be useful to know what is more trusted than other things and seeing information that is impartial or not delivered to me because of my interests.	Could have more nuanced discussions and society is more temperate
	personal admin	convenience; access; most companies offer incentives to do things on the Web	navigate daily life; convenient to do things online; do a lot of things in the lunch break	convenience	when things aren't design well, meaning to revert and doing it offline	calendars	Physical products and businesses will maybe go out of business.	Bad design, not compatible,	Daily life less clogged up with menial admin tasks that are frustrating. Can reclaim my time.
50-51	google everything	recipes, plane tickets; compare prices, reviews	convenient; suggestions maybe improve your search	convenience,	the bunch of personalized ads, junk	try to find information from other sources	the Web kills a lot of things	trust in information	super, keep dreaming
	socializing	curiosity	it connects to people that you normally don't see every day; connects in a convenient way; it reconnects to some forgotten relatives, to observe	your own time, do it when you want it	there is anonymity, sometimes what you read may hurt you	go visit your neighbours, use the phone, write letters. We live in a small circle, the Internet hinders it	loss of humanity sense, human contact	sometimes is overwhelming, abundant information	don't know, maybe better maybe worst, it could turn to easy, so people just don't do it again
	shopping	comparison; convenience; read reviews	comparison in your own home instead of going over the place; variety, prices, reviews	don't feel the pressure to buy, convenient	scams, bad ads	go to the store	loss of customs, way of life	sizes	Great, but not really sure, because no big change
	gaming	to play with others who are unpredictable, emotionally	cheap entertainment; socialising	unpredictable, full of surprises	losing all the time, vice, a lot of updates	go to a casino	none	time, technology -> game builders change the game every time, changing rules	I will be god, I will be able to beat anybody, become a professional
	research	easy, read papers, comments; engaging; easy, make notes, look at photographs	I don't believe there is any other way to do these times	useful and necessary tool	pseudo-science all time	go to the library, a bookstore, and feel the book	people lose their jobs, companies closing	time to do more	Incredible, obtain more knowledge
	work	convenience, info, access to intranet	convenient	saving time, information at hand	none	go to work	time, congestion	lack of access	more efficient
52	search	on hand news; work, have business related subscriptions	access to resources not obtainable otherwise; if not on the Web, spend more time searching, less up to date information	choice, search results are much more cost effective, convenience	not free available even within the subscription, need additionally payment	Attending trade shows abroad, visiting local embassies, or local government agencies. Review several resources on magazines, tv, newspapers	the Web alternative requires less man hours, so int the end it costs jobs	None, because I have already chosen the much more convenient	

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	entertainment	choice	cost/benefit is optimal; most music is free; the price of movies subscription is more cost effective than obtaining the desire products individually	ease of use	I sometimes don't find a particular film, I am looking for, especially when it is a new release	renting physical movies, buying CD, DVD	the Web alternative requires less man hours, so int the end it costs jobs	None	
	everyday things	convenience, ease	convenient	time and money saving	lack of access	manually	less workers	lack of access	trust
53	chat	cheaper form of communication, ease of use	makes you feel connected and closed to love ones; ease of use	effective communication	only when lack of internet, no access	voice call	constant declining of human connection	The internet infrastructure is not really good. It is not distributed effectively, sometime lack of access, broadband	nothing
	listen to music	the only way to access to some kind of music; other kind of access involves piracy	humans like music, it is not a question	entertainment	only when lack of internet, no access	buy pirat stuff, original is not convenient (expensive, maybe you don't like the music)	don't know		Nothing, listen to more music
	surfing	get information; read news: political, sports, entertainment	get information	information	only when lack of internet, no access	buy newspaper and watch TV	exposed to other cultural values, that might not be acceptable, bad news, pornography		nothing, access to more information
	watch videos	entertainment, education (learn from videos)	learning	entertainment	only when lack of internet, no access	cable TV read books	exposed to other cultural values, that might not be acceptable, bad news, pornography		Nothing, watch more videos
	work	use online repositories; communicate with colleagues	if not on the Web, I should travel long distance, and may lose my work	earn living	only when lack of internet, no access	travel, offline backup	don't know		nothing
	daily things	time saving	convenience	my time	lack of access	travel	less jobs	lack of access	time and money saving
54	(Facebook) communicating, checking timelines of my friends, sharing with other friends' important information	connect with friends/family from the other side of world; see what is happening with my friends when I don't have time to meet up or phone	stay close with friends/Family	free and easy way of communicating	paying to communicate, deletion of my albums	phone, other social media websites, Gmail, Skype		being forced to have a messenger app while using mobile, I do try to use the social media only when I need, I don't require 24/7 access.	none
	(Google) researching	finding websites; finding info	get the right info	able to find many websites/services	not being able to see all websites, hidden information	other search websites, not having interest in hiding info		some websites are paid to be shown first,	

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	YouTube, listening to music, talks, watching channels	get info; entertainment	educate / relax	being able to listen for free	have to pay for it	buying CDs		not able to watch all channels on Yt if I am in England	watch anything
55-59	banking	convenience	time saving; it's dumb if not; cheaper, or free	trust in the system or blind faith, gullible, personal time	service is not 24/7, too many information to register beneficiaries	payment through cell, no alternative if urgent	unemployment	hacking, phishing	confident
	entertainment	relax; change activity; read news, as an alternative of work	not really happy; shared interested	free, choice	pornography, Ads, wasting time, absorption, divagation	watch the ads and pornography, delete	Little contact with people nearby	no limits	none
	work	connect with distant team work; transborder	control; realisation	ease to reach clients	lack of access, divagation, payment trust	wait until deposit from other sources	none	internet access, digital literacy	earn more money
	communication	necessity; to connect with distant relatives; low cost	connect with other	Confidence that I am communicating with another human being	not sure about who is the receiver	cut communication, call by phone	To be connected is more attentive of the absent person than of the present. The subject disappears, interacts with digital things. Behaviour changing. New behavioural ethics. Absorption	if a bot of a robot, cut communication, feel an idiot	confidence
	research	access to journals	knowledge; to be updated	help, new ideas through know others'	find not reliable information, frustration	change source, it's not the Web, is the site	dead of libraries, unemployment	time processing improve searching	reliability improve time
	searching	reliable information	knowledge; access	satisfaction, reliability	overabundance of information	postpone, call or ask somebody, look physical books to more accurate information	none	don't know how to ask	reliability improve time, knowledge acquiring
	blogging	Need to convey ideas	satisfaction; selfish; divulgation, experimentation	recognition	bad behaviour, hate, bad orthography	search another blog, or not matter	alienation, not interaction	ignore me, not having readers, , writing something not interesting	selfish, write more
	business	all are connected; is immediate	marketing, business site	ease, comfort, market, compare competence	haggling, arguing	don't know, not to do business	reductionism, few participants	competitors' prices	more trading finds another option
	shopping	ease access, broadcast; cost reduction; convenience	sell and buy things	ease, convenience	not sure about product quality	take the risk	reductionism, few participants	trust, fear	keep shopping
	education	ease, convenience, reliable material	useful tutorials, impersonal	independence, time, cost saving, convenience	few human interaction	acceptance search another channel	no go to library	time, discipline, not deep learning	it depends how to apply those courses, not sure
	socializing	Belong to groups of interest	easy to use, personal satisfaction, social recognition	Happiness, pursuit of joy	too many masks, pretending, business of the persona, shallow	not taking seriously, keep it superficial as a distraction only	Life is a catalogue	keep in the digital space	be connected with distant friends

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60	Learning	ease, a lot of information, up to date	learn more, know more, worldwide information; Because it is the Web, it is easy to keep up to date	Learn for personal development	when information is wrong	Books	Total Internet Dependency	Lack of time	Perfect
	Socializing	many options of social networks; up to date; ease of information exchange	Variety to know my friends better; Everyone use it; chat is easy and quick	be informed about my friends	procrastination using social networks	chilling out	Total Internet Dependency	Lack of time	Perfect
	Entertainment	ease, wide variety, free	with services as YouTube is quick; a lot of choice around the Web; They profit by advertising	free entertainment	Get bored	TV	Total Internet Dependency	Lack of time	Perfect
61	Communication through social networks	Use of Facebook, Instagram, others; easy to use	keep in contact with friends; easy use of tools	communicate with friends	lack of internet access, interference	call the ISP	Less face to face communication	Have a reliable ISP	Talk to people every moment
	Searching	easy to use; many sources information; do assignments	easy to search what I need; many sources information; information searching to do assignments	Extensive knowledge due to the amount of information	When there is no information	Books, encyclopaedias	affects learning	abundant information	access to all information
	Entertainment, games and multimedia	online games with friends; musical videos	entertainment with friends; Do assignments when listen to music	When playing, friendship emerges	When there is nobody to play, or lack of internet access	Family time, or do another activity	keep virtual friends mainly	too many people connected	
	News	be informed	topics of interest	Know about good and bad things that happen local and globally	Bad information	read newspapers	knowledge bias	abundant information	access to all information
62	research	finding more information my research improves	be a better person	improve	when information is not found	books	down of libraries	laziness	Continuous improvement
	searching	finding more information my research improves	Because it allows to be a better professional and better student	do assignments	when information is not found	go to library	down of books	lack of time	do better assignments
	tutorials	self-learning	Allows to be better every day through self-learning	better professional	a bad or unfinished tutorial	not online courses	no have right question nor answers in real time	Lack of attitude of improvement	a better professional
	banking	ease	be safe without carrying money for personal transactions	expedite transactions	lack of access	go to the branch		system fault at the branch	Not to waste time in banks
	communication	improve communication between people	be able to relate with others	be communicative	when there is nobody to chat	personal meetings	losing contacts	only spend time on the cellular, not talk	improve interpersonal relations
	entertainment	more choices	availability of many kinds of entertainment	be entertained	when there is no choice	go to the cinema		no availability	be entertained
	socializing	improve social networking	to meet people	socializing	too many unreliable people	go to the pub		bad people	more friends

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63	Do searching and research	ease than doing through books, information in one place, and efficiency	Allows my tasks to be done in a short time to be able to perform other activities	Work done more efficiently and without delay	When the information I require is missing and I need books or other outside help	search in books or encyclopaedias	The lack of research, this is because most of the time only the first page found on the internet is chosen without performing an intensive search.	Lack of information or searching methods	Easy access to information allowing me to perform my work in a more agile and simple way
	social networking	talking on social networks allows communication with relatives and friends, it is efficient and easy to use		Not signed in Communication with friends, family and co-workers	The moment I am calling through a social network and the signal is not as expected, causing conflicts in communication	wait and keep trying	Not signed in You cannot determine the reactions of the other person, because it is very different to speak directly than by messages or telephone	Lack of dialogue with people nearby	Faster communication with family and friends
	listen to music	There is a great variety of music with hundreds of contents	I find in a single place all the music without having to spend hours looking for	Hundreds of music in a more efficient way	Don't find the music I want	Find if someone has the music	The ease of finding the music on the web, causes the authors of such music to earn less money	Availability of new stuff	To be able to have all the music at my fingertips
	banking	It is fast and without wasting time	Not signed in I do not have the need to go to the bank and wait in the line, in the comfort of my house I can do it	Not signed in Efficiency and speed in banking procedures	The bank information system is offline	call the bank		Bank system with problems and many delays	Ease of transferability without requiring annoying queues at the bank
	shopping	It is simple to use and easier for those with limited time; Variety of content	It is more comfortable, and I do not have to spend a travel ticket to go to a certain place to do the shopping	Easy to buy and with a wide variety of content	Don't find something that I really need	go to the store	Loss of employees, because purchases are made online and no outside help is required	The things I require are not on the page, therefore it causes me to not be able to buy it	More efficient and faster purchases; Without leaving home
64	communication	easiness, Availability of other people, Speed of response	Keeps up-to-date on other people's status, allow immediate communication with anyone, many things are urgent	immediacy	Limitation of data and signal	landline	lack of communication with people that don't update their communication software	Limitation of data and signal	24/7 communication without restrictions
	research	information, reliable sources, up to date	comparing information, determinate real data, In the world of technology everything is quickly obsolete	portfolio	no reliable sources	books	Editorials with sales losses. Copyright Infringement	copyrights	free and reliable information
	entertainment	Variety of genres, Online	Allow many things to do, Allow human interaction	portfolio	restriction by location	TV		restriction by location	keep up to date

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	business	mass marketing, Preferences, free sites	Allow to reach many people with a click, Online businesses are in vogue, I can publish massively at no cost	mass marketing	Offer at lower price	Hang signs on the wall	tax evading	Little seriousness, little reliability	massive sales
65	searching	easy way to find information; many different sources; access	optimizes time; finding of any type of information; By being free you can get a lot of information	Internet optimizes my time, can get different kind of information very quickly, thus I can do other tasks	rarely there is no results	books	books are boring, authors don't get money	paid information, sites with too much security	more quality information
	watch	variety; amusement; free	watch want you want anytime; saving	portfolio	wanted videos are not available	tv	movie creators don't get money for their work	copyrights	watch newer high quality videos
	post	reach to more people							
	downloads	free and easy to install programs							
	news	variety from different sources							
	communication	cheaper, ease to access; speed, security	instant communication; encrypted communication						
	entertainment	variety							
	shopping	variety	any kind of products at different prices						
	sales	opportunity to promote in different sites	easy and quick to sell because products are announced in different sites						
66	communication	It's the only easy and instant way I can communicate with friends and family; Because the way we communicate is instantaneous;	Because it simplifies the way I communicate; Because it is an innovative way of knowing	Instant communication	When I can not connect in a desired way	go to the park		Slow response from website	faster communication
	banking	Because it's an easy way and I'm not leaving home; Simplify the work	Because it streamlines banking processes; Because I do not leave home	Streamline banking processes	when not robust system	go to the branch		The system cannot be appropriate	easiness when making transactions
	entertainment	Lots of series, movies and videos without leaving	Because I have entertainment and leisure with just a click	Entertainment and leisure at clicking	When sites don't have want you want	go to the video store		Premium services	better quality and new videos

# P	What are you doing on the Web?	Why do it on the Web particularly?	Why is this important for you? Why does is make your life better?	What is the main value? What is worth for you?	Give an example of when doing it on the Web doesn't give the value you expect	What alternative to doing it on the Web?	What are the bad consequences for every one of you doing it on the Web instead of using the alternative?	What constraints/blocks/impediments limit you from realising more of the main value in Column 4?	How could your life be better if these constraints were removed?
		home; The large number of videos on the web							
	searching	Because the web houses all the information in the world; Easy and simple query, just type what we want and click	Because it is an easy way to find information	easy way to search for information	filtered searching not accurate	go to the library		bad search engines	faster searches
	information delivery	Because on the web I can store information and share it; It could be safer to storage information on the Web	Because storage in the cloud is gigantic	big storage	free storage is limited	use flash memory		premium services	cloud storage more accessible
67	communication	Need to know about others; Know what happens to the world; Consult unknown things	be calm; Be aware of tragedies; be informed about political and economic local and global news	communication with friends and relatives	Too many Ads on Facebook is disgusting	cell phones, landline	if group work, I won't be able to send my part	Technology needed to attach to the communication system	If technology were accessible, all people might communicate without limits
	assignments	learn and solve problems; understand lecture's topics	understand topics; apply acquired knowledge to daily life	Meet study requirements	sometimes is difficult to find the right information	libraries	Breach of duty	Restriction of books and knowledge that costs	if knowledge is free and accessible, all might know
	downloading	learn to use new technological tools	learn and know new technologies for my career	Understand and be updated in my career	Go through many pages to be able to download content	old technology		hardware requirements and costs	if all might develop for a single system, would be easiest
	Leisure (music, videos)	entertainment; tranquillity; amusement	escapism; relax from working stress; Getting out of the ordinary in life	Use the taste of music sound and distraction with videos	Spotify, ads and disliked music	LP, iPod		music access restrictions due to cost	free music
	Internet services development oriented	Update computer skills; Develop state-of-the-art software	offer state of the art technology; Develop state-of-the-art software	Use and test new technologies	Does not support proper documentation for all languages	doesn't work		Cost of using technology	all might learn to use technology and might innovate
68	Searching	Access to large amounts of information; self-research; assignments	It allows me to have several sources of information for my benefit; It helps me to know more about the world; It is useful for professional search	to learn every day	When dubious sources of information exist, they can give me erroneous information that does not help me to improve my knowledge	read books	Just believe in the information displayed on the internet	too much information	The overabundance of information cannot be removed, but you can look for an alternative like learning basic things of all subjects
	Social networking	fast communication; ease; free	It helps me to get in touch with people immediately; It is interactive and offers me several communication options; Most communication applications are free,	Keep contact with distant relatives	Hacking on social networks, leading to the misuse of personal accounts	Keep low profile on social networks. Use cellular phone	Personal communication is affected	bad service from the ISP	There would be no communication problems and you are always in touch

Appendix B

# P	What are you doing on the Web?	Why do it on the Web particularly?	Why is this important for you? Why does is make your life better?	What is the main value? What is worth for you?	Give an example of when doing it on the Web doesn't give the value you expect	What alternative to doing it on the Web?	What are the bad consequences for every one of you doing it on the Web instead of using the alternative?	What constraints/blocks/impediments limit you from realising more of the main value in Column 4?	How could your life be better if these constraints were removed?
			only the internet is needed						
	news reading	learning; be informed with up to date news; curiosity	It helps me to grow up; It is important to know the current state of the world; I like to know about different topics from different places	to know more about the world	Rumours, bad information	Accept information only from official sources	to know about fake news that affect others	Unreliable sources of information	People well informed
69	communication through social networks	Use of Facebook, video calls; easy and quick	There is no waiting time or hang ups in the experience; It's handier compared to the mobile app	Communication with relatives from abroad	When the internet falls or when there is interference which does not allow fluid communication	Call on the phone or wait for the internet to re-establish itself	It could affect the fact of not seeing us in person and only through social networks	Not having availability of a good quality internet or fibre optic	I could talk to people at any time or I could even talk to them for hours and hours
	research and searching	easy and quick; large amount of information	Everything at hand, either by phrases or by words; You can find all kinds of information, in virtual libraries or in search engines	Do university tasks more quickly and easily	When there is no research topic on the internet and it is needed to obtain from the library	Search in our house encyclopaedias or ask the parents	It could affect the teaching of teachers	Sometimes the information is blocked or protected by the author	Access to all kinds of information and could do my jobs, tasks without any problem
	entertainment, multimedia content	Diversity of photos and videos; Movies; YouTube videos	Does not cause boredom; Movies that I did not have opportunity to see them in the cinema; Variety of content, taste classification	Allow to learn new things through entertainment	When there is no content I'm looking for or when there's nothing interesting in YouTube or Netflix	Play sports or play with family	Not going to the movies, could affect the cultural development of the country, by not paying the established tax	The type of entertainment is not appropriate or is very vulgar	I could spend time looking for and exploring new entertainment without fear of seeing inappropriate things
70	Gaming	ease, free, play with others	Not necessary to study or to investigate in order to play; not necessary to pay for most of the games; you can play with people all the world around	simple	bad connection		Does not socialize with people directly	need to pay	more entertainment
	communication	fast, real time	time saving; not need to wait in order to communicate	ease	lack of internet coverage		Abuse of trust, identity theft		
	banking	fast, real time; Without leaving home	Because it is important to conduct transactions without queuing; Because it is important that our balance is updated instantly; Because it is not necessary to move to the bank	efficient	lack of security		Less people working in the banks	security	More confidence and you could do all the transactions at home

# P	What are you doing on the Web?	Why do it on the Web particularly?	Why is this important for you? Why does is make your life better?	What is the main value? What is worth for you?	Give an example of when doing it on the Web doesn't give the value you expect	What alternative to doing it on the Web?	What are the bad consequences for every one of you doing it on the Web instead of using the alternative?	What constraints/blocks/impediments limit you from realising more of the main value in Column 4?	How could your life be better if these constraints were removed?
	watch videos	ease, free	easy to find what you want; not need to pay	productive	go to cinema		Less work in the cinema	malware	You could see more movies without my computer and my information being affected with information theft
	listen to music	free	not need to pay	ease	go to concerts, buy music		less work in production companies	malware	You could download more music without information theft
	research	large amount of information; time saving	the Web gives to us the necessary information; time saving on searches	productive	when references must be books			when it is necessary to pay for books	better way for researching
	Business	ease, fast, without leaving home	real time communication; real time; convenient	productive					
	searching	it helps with my assignments; solve daily problems	helps with my university studies; helps with everyday problems	do tasks faster	Bad information, or poor translated	encyclopaedia, library	Stop visiting libraries to find information	Outdated pages or payment information	It could make more extensive consultations, obtaining a more updated information and of a brief way
	listen music	I relax listening to my favourite music; Discover new musical tendencies	When I relax I make things better; Be informed about new songs and artists	entertainment	when some music that I don't like appears	MP3, CD, Cassette	Stop using CDs or MP3s	not free services	Listen to all the music I want without paying or watching ads
71	chatting with mates	keep in touch with my mates; Chatting with my mates about university assignments	can tell me about things I did not know; Performing college tasks with peer help through chat	long distance communication	procrastination	cell phone, boarding games	No longer talking face to face and giving more importance to chatting	bad Internet connection	Keep chatting
	Facebook	Be informed about events	Being able to attend events in my spare moments	entertainment	procrastination	boarding games	Easy distraction on the activities to be performed	bad Internet connection	More entertainment
	watch series	as a hobby; When I find myself bored	Carry out activities in my free time; When I watch series in English I can learn more about the language	entertainment	addiction to series	Watch using DVDs	No longer buy movies or DVDs, thus sellers are harmed	Incomplete or paid series	Watch series without paying or watching ads
72	Learning	Information is easier to find; There are more sources of information	Because you can search for specific information in fractions of a second; Because many people have shared this information available	Learning	When erroneous, or susceptible information is found	books, magazines	Loss of value of information	Too much misinformation	Better and easier learning

Appendix B

# P	What are you doing on the Web?	Why do it on the Web particularly?	Why is this important for you? Why does is make your life better?	What is the main value? What is worth for you?	Give an example of when doing it on the Web doesn't give the value you expect	What alternative to doing it on the Web?	What are the bad consequences for every one of you doing it on the Web instead of using the alternative?	What constraints/blocks/impediments limit you from realising more of the main value in Column 4?	How could your life be better if these constraints were removed?
	entertainment	Because you find free entertainment content	Because the trend of sharing on the web	Amusement	When poor quality content is found	cinema, magazines	Loss of intellectual property	poor content quality	more entertainment
	communication	Because it has a much lower cost, to communication by other means; Because you can communicate with people from other countries	Because it is a relative cost since it is paid for the service and not for the time; Because the distance barrier is avoided	Help approach people	When the internet connection is bad	text messages, post mail	Loss of personal communication	High communication costs between countries	communicate with more people
73	Research	You have the most up-to-date books; You have help from forums	to be updated; Support solutions	Always be investigating options	When searching for texts these are not in the network	go to the library	loose property rights	some documents are not free	more information to process
	Learning	courses; Acquire new skills	more economic; improve knowledge	improve skills	When registering online the course does not open	read books in Spanish	loose property rights	bad translations	read up to date documents well translated (Chinese)
	social networking	communication	keep in contact with the family	stay connected	when network congestion	call by land line	not free calls	slow communication	be always connected
	entertainment	TV programs	price	Have variety entertainment at low cost	pay and don't receive the product	go to the movies, watch TV	no income to providers	slow entertainment	be always connected
74	Searching	To ensure that the data is valid; Investigate some topic of interest; Learning	Help on assignments and university work; We increase knowledge; Learn about unknown topics	knowledge	When the information we seek is wrong, confidence in what we consult decreases.	books	When you look for the wrong information, you share badly, and it affects all those who believed that your information was correct	Not all pdfs or books are available, sometimes you have to pay for once you used that book	Learning and feedback might improve
	Communication	send and receive information; communicate with relatives and friends who are distant	Improve communication; To have contact especially with relatives who are not in the country	communication	When the internet is bad you cannot communicate in the way you expect	landline		One limitation may be the internet provider I hired, it is often bad, and you cannot have the communication you expect, or the electric light	Excellent communication
	Entertainment	listen to music; watch videos on YouTube; Check Facebook or any other social network	Have music at hand helps me to entertain and relax; Have a bit of entertainment, also watch videos to learn about some topic; You can know the current status of the person you want	amusement	In the same way as the previous example, when the internet is not loaded the songs or videos you want to hear or see	iPad or any offline device	The CDs or other media are already little used and affects the artist or producers	A limitation may be the internet provider that I hired, many times it is bad and you cannot have the answer that I hope	Entertainment would be better, at least in the music that I love
	shopping	View catalogues online; Buy interesting things	It can give you the idea of buying without spending time in stores;	entertainment	Things on the internet are often not the same in real life, for example in colour, texture, etc.	go to store	Locals are affected because they pay rent, and they have to sell	At least when you buy clothes, you need to try and actually see the	Everything would be online and save time

# P	What are you doing on the Web?	Why do it on the Web particularly?	Why is this important for you? Why does is make your life better?	What is the main value? What is worth for you?	Give an example of when doing it on the Web doesn't give the value you expect	What alternative to doing it on the Web?	What are the bad consequences for every one of you doing it on the Web instead of using the alternative?	What constraints/blocks/impediments limit you from realising more of the main value in Column 4?	How could your life be better if these constraints were removed?
			You can buy cheaper things online				more expensive than online and therefore users prefer to buy online	object to convince us to 100%	
75	Searching	be informed about new technology; Search for database usage documents	Not signed in; Have information to talk; For my professional life	Be aware of new technology, new programming languages	Lots of outdated information	Libraries, Encarta 2006	Not books anymore	Outdated pages	Always have information on current technology
	Watch videos of favourite artists	Listen to music from my favourite artists; To know dance choreographies	Being able to relax when I'm stressed; Learn new dance steps	Learn new songs and learn new steps	Music genres I do not like	CD, cassette, LP	No longer buying music CDs from artists	Low bandwidth	listen to music in a continuous way
	Use Facebook to chat with friends	know about my mates' activities; maintain communication	Do not lose a friendship	Plan outings or events between friends	boring conversations	Call my friends by phone or send letters	Telephone companies	Always have internet	Not to depend on Wi-Fi
	Make university inquiries	do assignments; do informs; do programs		Gain semester	wrong information	Go to the university library, or other libraries	No longer used physical books	Paid information pages	Do tasks faster
	Game Guides	Find Secret Coffers; Search exceptional equipment	Have knowledge to help other players; Have 100% of the game	Finish the game with all the trophies	Little or no detailed information	Discover for yourself or consult a friend	Finish the game quickly and lose interest in the game	blocked sites	Have the satisfaction of finishing the game at 100%
76	watch	entertainment, attach to tv shows and movies, having something in the background	feel more positive, escapism, passing time	feel good and passing time	waste of time	try another thing to do	interference with commitment	location restriction from providers	keep watching
	social aggregation	keep updated, get knowledge, entertainment	feel connected, passing time, learn new stuff	learning	waste of time	watch something online	offend others unintentionally		keep aggregating
	read	entertainment, keep updated, get knowledge	feel connected, passing time, learn new stuff, from multiple sources	stay connected	waste of time	watch something online, or do social networking			possible less time if there is not limit to watching
	search	learning	have responses	learning		ask someone online	bad information		
	communicate	stay in touch	feel connected, passing time	unload problems on someone else, have a listening ear	if an obligation	look to something else to do	frustration to don't control conversation	Bandwidth	communicate more often
	shopping	convenience, price comparison	save money and time	save money and time	impulsive purchases	go to a physical shop or try different websites	get a debt	not easy way to pay	buy more

Appendix B

Table 20. Answers to Matrix questions - Part 1

P#	More frequent activities regarding # of country websites	Total Sites	Type of Website #TW used (see Table 7)														
			3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	read news and social 11, investigate on media and social networks 6, work using online services 6, interact in OSN 5, play in OSN 5, purchase 5, banking 3	26	1	5	3	3	1	0	1	6	0	0	0	0	5	1	0
3	be informed 7, watch videos 7, communication 3, upload and share videos 3, learn 4	16	1	0	0	0	1	0	0	5	0	1	1	2	5	0	0
4	communicate with people 3, learn programming languages 3, learn chess 2, play videogames	5	1	0	0	0	0	0	0	3	0	0	0	0	1	0	0
6	communicate 6, learning 3, memes making 1	8	1	1	0	0	1	0	0	3	0	0	0	0	1	1	0
7	reading 9, searching 3, playing social network 3, shopping 3, watch 1	17	2	3	0	0	1	0	0	4	0	0	0	0	6	1	0
8	learn 12, news 11, work 9, shop 8, communicate 8, photo+art 8, tv+movies 7	19	2	2	1	2	1	1	0	4	0	0	0	1	3	2	0
9	learning 6, shopping 4, messaging 4, dark meming 2, banking, consuming pornography 1, gaming 0	18	1	4	0	2	1	1	0	4	0	1	0	0	3	1	0
10-11	consultation 7, send information 7, communication 5, watch 5, write 4, translate 2, download 1, gaming 0	13	1	1	1	0	1	0	0	4	1	0	0	0	2	2	0
12	entertainment 14, answer questions 11, research 10, read news 10, work 9, storage info 7, communication 6, shopping 1	38	2	4	0	1	1	1	0	8	2	1	1	2	12	2	1
13	information 11, read news 6, talk 5, watch video 5, listen music 3	23	3	0	0	0	1	0	0	4	0	0	1	4	8	1	1
14	email 3, build apps 3, read news 2, tools usage 2, communication 2, reliable documents 2, social networking 1, watch 1, information 1, satisfaction 1	8	1	1	0	0	0	1	0	1	0	0	0	0	2	2	0
19	work 9, news 8, tv & movies 5, shop 5, chat 4, game 2, learn 2	18+1	1	2	1	1	2	1	0	5	1	0	0	2	1	2	0
20	shopping 8, work 7, read 5, search 5, educate 2, communicate 1, produce 1	19	1	6	1	2	1	1	0	5	0	0	0	0	2	0	0
21	read 13, entertainment 10, education 6, shopping 5, communication 4, produce 4, work 3	23	1	4	1	2	1	1	0	5	0	1	0	1	5	1	0
22	read 12, shop 8, produce 8, work 7, education 6, communicate 5, gaming 0	31	2	12	0	0	1	2	0	6	0	0	0	0	7	1	0
23	research 13, work 11, shop 10, socialise 8, study 7, plan/book 5, entertainment 5	31	2	9	1	1	2	2	0	7	0	0	0	0	5	2	0
25-29	information search 8, work 7, watch 5, read 5, social interaction 3, communication 2	23+1	2	3	1	2	1	0	1	5	0	0	0	3	3	3	0
30	information searching 11, posting 6, shopping 5, leisure 3, banking 3, gossip 2	17+2	1	7	0	3	1	1	0	3	0	0	0	1	1	1	0
31-39	searching 10, watch 7, email 4, shopping 4, communication 3, socialise 3, work 1, selling 1, banking and gaming 0	19+5	3	4	1	0	1	0	0	5	0	0	1	0	7	2	0
40	communication 30, shopping 21, research 20, banking 11, watch 7	41	2	3	0	8	1	1	0	5	0	0	0	0	12	8	1
41	searching 6, email 4, banking 2, download 1	10	3	1	0	2	0	0	0	1	0	0	0	0	2	1	0
42	search 8	9	2	1	0	0	1	0	0	1	0	1	0	1	2	0	0

P#	More frequent activities regarding # of country websites	Total Sites	Type of Website #TW used (see Table 7)														
			3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
43	video 7, search 6, code for C++ 5, Listen & watch 5, JavaScript 5, Products 1	12	2	1	0	0	1	1	0	1	0	0	0	2	3	1	0
44	search 20, download 17, socialising 9, shopping 4	26	2	7	0	2	1	2	0	3	0	0	0	0	4	5	6
45	search 3, share 3, email 2	6+2	2	0	0	0	1	1	0	3	0	0	0	0	0	1	0
46	Search for personal development 3, socialising 3, Search thing about Christianity 2	4	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
47	shopping 6, watch 5, search 4, planning 4, promotion 4, socialising 3, banking 2	22	1	8	0	2	1	1	0	4	0	0	0	1	2	2	0
48	seek info 9, education 4, socialising 3	11+4	2	1	0	3	1	0	0	4	1	0	0	1	2	0	0
49	education 6, personal admin 4, shopping 2, communication 2	10+1	1	2	1	1	1	0	0	1	0	0	0	0	4	0	0
50-51	research 11, shopping 8, gaming 4, google 3, socialising 3, work 3	24+3	1	4	1	2	3	2	3	2	0	0	0	1	7	1	0
52	search 11, everyday things 9, entertainment 5	21+3	1	3	2	1	2	1	0	6	0	0	0	1	4	3	0
53	surfing 14, daily things 8, chat 4, work 2, watch 2, listen 1	24+2	2	2	0	1	2	0	0	6	0	0	0	1	10	2	0
54	socialising 1, searching 1, entertainment 1	3	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0
55-59	communication 9, searching 8, work 8, research 7, banking 6, entertainment 4, education 4, socialising 3, business 3, shopping 3, blogging	30+2	2	3	4	1	3	1	0	5	0	0	0	1	6	6	0
60	entertainment 24, learning 8, socialising 7	24	2	3	0	1	1	1	0	3	0	1	0	0	8	3	1
61	entertainment 4, searching 4, communication 2	8	1	0	0	1	0	0	0	4	0	0	0	0	2	0	0
62	communication 10, research 9, searching 9, entertainment 6, tutorials 5, socialising 5, banking 2	22	2	2	1	1	2	2	0	3	0	0	0	1	5	3	0
63	searching/research 4, social networking 3, shopping 3, listen to music 2, banking 1	13	2	3	0	1	1	1	0	3	0	0	0	0	2	0	0
64	business 13, entertainment 12, communication 10, research 8	28	3	4	1	2	2	0	0	3	0	1	0	1	8	0	3
65	searching 17, watch 7, news 6, shopping 4, sales 3, post 3, entertainment 2, downloads 1, communication 1	35	2	4	4	2	1	0	0	3	0	2	1	1	13	2	0
66	searching 9, information delivery 2, communication 2, banking 1, entertainment 1	15	2	0	0	2	1	1	0	3	0	0	0	1	4	1	0
67	assignments 12, communication 6, leisure (music/video) 4, internet services development 4, downloading 2	23	4	1	0	1	0	2	0	3	0	0	0	1	7	3	1
68	searching, social networking 5, news reading 3	12	2	2	0	1	0	1	0	3	0	0	0	0	3	0	0
69	entertainment 13, research/search 7, communication 6	19+2	3	0	0	2	0	0	0	5	0	2	0	2	7	0	0
70	communication 9, banking 8, research 4, business 3, watch 2, gaming 1		2	5	2	1	3	2	0	3	0	0	0	1	2	3	0

Appendix B

P#	More frequent activities regarding # of country websites	Total Sites	Type of Website #TW used (see Table 7)														
			3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
71	searching 18, watch 6, chatting 4, listen music 3, FB	28	3	1	0	2	0	2	0	3	0	0	2	3	8	4	0
72	learning 8, entertainment 7, communication 3	17	3	0	0	3	0	1	0	4	0	0	1	2	3	0	0
73	entertainment 14, research 12, learning 11, social networking 6	39+2	3	3	2	2	3	3	0	7	0	0	2	2	9	5	0
74	searching 20, entertainment 13, communication 10, shopping 7	38	3	5	0	2	1	2	0	6	0	0	2	3	9	4	1
75	searching 13, watch 7, socialising 5, academy 5, gaming 5	24+1	4	0	1	2	0	0	1	4	0	0	1	3	6	3	0
76	read 16, search 7, watch 6, communicate 2, social aggregation 1, shopping 0	31	3	3	0	0	2	1	0	4	1	0	1	1	14	1	0

Table 21. Answers to matrix questions - Part B

P #	#websites where your participation matter	websites worth to pay	Dislike	Value Given	Value received
1	FB, Merch 4, Twit, Media, Wap, Gov, Fin 3, Skyp	Merch 4, Fin 2	exposition, fees, bad service, geo-localisation, bad service, product restriction	nothing, opinion, money, persona data	information, good deals, communication, service, entertainment
3	YouT, Goo.cl, FB, Instag, Wap	YouT, Goo.cl, Insta, Netflix, Wap,	Ads, anyone can edit, not up-to-date	content, information, behaviour, opinion, money, time	entertainment, learning, reliable information, news, communication, opinion, video
4	YouT, Goo.cl, FB, Twi		no privacy, ads	information	learning, order, reliable information, communication, entertainment
6	Facebook, twitter, wikipedia, whatsapp, amazon, blogspot	google.es, twitter, wikipedia, yahoo, whatsapp, amazon, blogspot	They may misuse my personal information, commits too much to people, forms a circle like a pineapple (closed), It is very aggressive, people interact more and with violence, Subjectivity, incorrect information, biased in the news of its banner (against a political party), and links to the Ads, compromise to answer, not sure how to promote		
7			too many Ads		searches, videos, communication, email, news, goods, information
8	Goo.uk, YouT, FB, Twit, Insta, Netflix, Wordpress	goo.uk. Twit	Ads, trolls,	data, content	
9	goo.uk, FB, Merch 4, Wikip, Twit, Port 1, Lnkin, Media 3, Fin 2, Tumb, Github, Xvid	Wikip, Lnkin, Paypal, Ebay, Santander	ads, personal info, bad sellers, nothing, logic in, everything, tale, prices	personal data, posts, sellers, edition, update, money, expression, selling, collaboration	large DB, access to my friends, selection, cheap products, fraud information, news, email, networking, jobs, ease, products, services, collaboration, large demand
10-11	Goo.ec, Yahoo, Twit, Instag, Wap		surveillance, don't know, unfriend ship	nothing, personal data, information, content, feedback, videos	information, videos, friends, promotion, email, ID verification, followers, communication, learn English
12	YouT, blogspot.cl, Live, Merch 2	netflix, linkedin	nothing	content, behaviour	entertainment, information, contacts, news
13	YouT, FB, OSN 2, netflix, blogger, slideshare	netflix, codeadnetwork.com	interface, ads, bias, need 2 b online, flippantly, restrictions	behaviour, data, information, images, videos, nothing	videos, information, news, services, status, images, algorithms, anime
14	FB		ads, nothing, little space	videos, information, contacts, emails, documents, files	information, ads, emails, documents
19	FB, Amz, Lnkdin, Reddit, netflix, edx.org	Amz, Lnkdin, Sky, mailchimp, edx	my data, thought police, security, dead links, layout	my data, money, data, none, participation	coverage, ease, friends' attention, cheap goods, info, nonce, networking, chat, entertainment, education, fellow students
20	Goo.uk, YouT, FB, Wikip, Twit, LinkdIn, Instag, Paypal, gov.uk, OSN 1, Merch 4, Fin 1, Dropbx	Goo.uk, Dropbx		targeted advertising, donations, brand building, product sold profit, freemium model, free but converted to, in app purchases	info, entertainment, social, products, connection, jobs, security, convenience
21	Goo.uk, YouT, FB, Amz, Wikip, Media 4, Instag, Paypal, Dropbx, Merch 1, Wap	Goo.uk, YouT, FB, Wikip, Media 2, Instag, Dropbx, Merch 2, Wap	use	links, AdSense, views, money, participation, up to date, access to products, service, use	entertainment, info, answers, communication, video, photos, gossip, news, secure payment, buying, fast money, storage, shopping, access, efficiency
22	goo.uk, goo, FB, Wordpress, OSN 1, mailchimp	wordpress, mailchimp	pop ups, lack of privacy	popularity, advertise, promotion	education, entertainment, satisfaction, learn, discover, promotion, advertising

Appendix B

P #	#websites where your participation matter	websites worth to pay	Dislike	Value Given	Value received
23	All except for the Gov	apple	privacy exposure, incorrect information, ads, limited tools, lack of reviews, unsorted data, false information, slow feedback, subscription	personal data, audience, fees, content, money, knowledge	goods, social media, links, videos, music, tutorials, info, email, news, security pay method, entertainment, shopping, tools, reviews, code solutions, file sharing, open source code, travel options
25-29	goo.fr, goo, YouT, FB, Wikip, Amz, Linkdin, Portal 2, Instag, OSN 1, Gov 1, Fin 2, Merch 1, Video 1, Game 1	Linkedin, Portal 2, Video 2, Fin 2, Merch 1, Game 1	repeated info, cookies, ads, privacy policy according to location, ask for money, lack of info, disorganisation, security questions, no control, expensive, no streaming, vulgarity, racism, location restriction, bad service, bias, slow, no helpline 24/7, old movies, vice	make it more efficient, watch ads, likes, personal info, legitimate, donations, popularity, as a potential client, info, serious networking info, internet access, service, personal time, original content, money, diversity, ideas	google cares me, efficiency, huge data base, availability, variety, channel accounts, global interaction, knowledge, culture, ease, shopping, info, hashtags, tendency, content, opportunity, money, free videos, enjoyment, newsfeed, news, actuality, access, services, apps, news, visual satisfaction, information design, sharing, trust, buy tickets, quality, hope, gambling
30	goo.es, youT, Amz, Yahoo, Wap, Merch 5, Fin 3, DropBx, OSN 1	Amz, Wap, PayPal, Merch 3, DropBx, Fin 2	monopoly, page rank, too generic, no quality, lack of products, premium is expensive, not value for money, not friendly interface, business, selfish, nothing	another user, valuable posts, watching ads, info, money, potential client, ratings, reliable user	info, backup, sharing, liability, warrants to access, clients, info know-how, satisfaction, choice, confidence and convenience, don't bother others, security, offers, video, no questions when returning, bank services, selling options
31-39	not us but our tendencies, YoutT, Wikip, Linkedin, booking, pubmed, bbc	Amz, Wikip, Instag, Wap, Scopus	monopoly, manipulation, ads, not personal, not suggestions, if not clustered easy to lose things, one-click buying, format, spam, more social than professional, delivering time, saturation, time consuming, trust in sellers, page rank, bias, not selective searching, need to pay, location and language restriction	information, tendencies, personal info, consumer profile, personal interests, money, potential client, popularity, reads, trust	reliable info, diversity, content, education, entertainment, opinion, blogs, speed, catalogue, their shopping policy, kindle, references, service, contacts, be in touch, synchronicity, calls, text, news, doctor appointments, fines
40	YouT, Goo, FB, Live, Blogspot, Twit, Instag, Wikip, Fin 2, Media 2, AdServ, Msn	YouT		general info	content, info, service
41	goo.ve, goo, Fin 2	goo.ve, goo, Fin 2	slow	info, commitment	sharing, commitment
42	goo.ve, goo, YouT, FB, Blogspsot, Wikip, Amz, Xvid, Jkanime	goo.ve, goo, YouT, Wikip		behaviour	info, entertainment
43	All	all except Twit	Ads	behaviour, product info	info, entertainment, products, email, downloads
44	FB, Wikip, Merch 2, Media 3, Fin 2, Portal 3	goo.ve, youT, FB, Merch 1, Media 3, Wikip, Portal 2, OSN 1, Techn 1	ads, spam, send seller's info after buying, bias, spam, limitations, not reliable info, everything	personal data, info	info, social interaction, buying items, link (Ad Serv), banking, shopping
45	goo.ve, goo, FB, Twit, WikiP, Wap		lack of info, fake links, useless info, retweets are not always useful and disperse my attention, bias	statistics, profile	links, people with affinity, news, up to date info, data and useful info
46	goo.ve	goo.ve	Sending indecent advertising material	behaviour	The intrinsic value in the information obtained
47	YouT, FB, Amz, Merch 6, Wikip, Twit, Linkedin, Instag, Netflix, DropBx, Soundcloud	Amz, Merch 4, Linkdin, Netflix, DropBx, Fin 1	link between searches and google account, the amount of garbage of the news feed, shallow content, attention seeking from behaviour; the ecommerce interfaces are not really good, disconcerting about Amazon monopoly, feeling guilty on contributing to that; trust issues because you are dealing with other people; ads, sponsored content; junk mail; news feed, garbage, it's a fake, superficial; none, ads aren't too intrusive; a lot of content is mainstream; regional licence; too many ads; It is not really personalised, trust issues; trust and security, what they do with my data? Ownership is in question; the policy: need to spend at least £40 for one person's goods; expensive	data; content; me be on the site allows others to contact me, my participation contributes to the FB ecosystem; money; selling things, writing reviews, popularity; contribute to the ecosystem; readership; money;	quality, very powerful; functionality, hosting content; convenience of maintaining weak social connections, finding out events within an area, facilitator between users; convenience, delivery time, one stop shop, original content of video; diversity on things, good deal on 2nd hand stuff; easy to access information, a good level of detail; formal curation, others contribute with filtered and good information; seeing what friends are doing; email; job search; news; opinion; security; watch, shop, download music; good quality tv, choice, control over it; good value for money; recommendations, reviews; intermediary, aggregated info; storage access, functionality, works very well; none, probably security; convenience; functionality, hosting of content
48	goo.de, youT, goo, Amz, FB, twit, Linkdin, OSN 1, ACD 1, Fin 2	all if no ads	platform economy, it's a monopoly; seduces you to waste time; fee structure, could be cheaper; they could be bigger, more material producing; complicated	not in the moral sense, but data for their further analysis; data, they can easily sell me stuff; I make them more successful, Metcalfe law, they analyse my data and sell it probably; increase the traffic to the site; I increase the	convenience, education, entertainment, suggestions, shopping, database of people easy to use, info, opinion, watch, access to financial market, trading

P #	#websites where your participation matter	websites worth to pay	Dislike	Value Given	Value received
				followers, and my data; Knowledge exchanging, exchange information and support other students; feedback that makes their business better, it takes feedback very seriously	
49	goo.uk, youT, FB, Amz, Media 2, Gov.uk, Fin 1, Merch 1	Media 2, Amz, Fin	monopoly, ads, quality of reporting can be iffy, low quality stories, it could be more transformational, access, encourages to spend money, sport	my imprint, they make money from my data; my presence, my participation encourages others to participate; reviews; my presence, a source of revenue; my presence, they achieved their aim of channel shift (instead of a phone call, it's cheaper to offer online services); channel shift	convenience, entertainment, education, a platform to communicate, to share ideas, content, and to organise events; news; goods; get admin done; banking; deals
50 - 51	goo, wikip, Merch 1, Media 1, Fin 2, Comm 1, Portal 1, Game 1	Goo, YouT, Wikip, Merch 3, Netflix, Media 1, Fin 2, Portal 1, Tech 2, Gov 1, Game 3	not sustainability of their products; ads, junk info from others; have killed bookstores; policy anyone can edit; expensive commission; not UpToDate movies; not value info; ads; fees; some articles are not good; not trusted info; bad organised, not reliable info; not well documented; difficult to navigate	money; comments, ratings, opinion; personal data; edition and posting info; my presence; money, 15y as a user, I sold more than 2000 articles, bought 1000, eBay considers me a valuable user, they contact me; stuff; subscription; contribution to bloggers; reviews; participation	services for free; tutorial, classes, learn to game, to compare products, ads but sometimes are useful; social info; eBooks; valuable info quite trustable; money; entertainment; opportunity to sell and buy; news; info; services; tools, software, documentation, code; tracking services
52	Media 1, Wikip, Amz, Linkedin, netflix, portal 2	YouT, Goo, Portal 3, Wikip, Twit, Amz, Fin 2, Netflix, Dropbox	Ads; sometimes users update the information constantly including irrelevant information; most of the news are from a different region of the country; design for iOS is poor, Ads that consumes a lot of time to charge, mostly are local news; not all articles are available in different languages; age restriction; product shipment restriction; need to update personal information every time, crashes often; leaving a group is not anonymous, not easy to access info of people not related; crashes constantly; regional restriction; small free storage; bias; access to info expires very soon; never warn about maintenance time; not user friendly	nothing (even I am a publisher, my channel has 2M visits); comments; they can cross reference information, editions; my product reviews are taken very seriously; endorsing contact skills; ratings; money	main source of entertainment; speed and alternative information, options; up to date on my friend's activities; news; free email; info; news and recent events; price comparison; banking; messaging; up to date on the professional activities of my contacts, professional groups; government services; entertainment; check out keynote speeches of new products; storage; sharing; pictures; CV for potential employees; info for international trade
53	All except Fin 1+dropbox	Goo, Goo.ng, Portal 1, FB, Wikip, Media 4, Twit, Merch 2, Fin 1, Comm 1, DropBox, GitHub	site design, illegal videos	my data, money, popularity, posts, content	information, email, maps, entertainment, surfing, communication, connection to family and friends, get a lot of info from good people, goods, articles, sharing, job recommendations, news, banking, sports info, blogging service, connection, videos, answers, storage, code sharing
54	goo.uk, youT, FB		ads, tracking me what I am searching online to tailor ads	google can track my preferences; add user, growth of popularity	free search; access to the worldwide music/ e-courses, TEDx talks; free communication
55 - 59	goo.ec, youT, goo, Media 3, Portal 5, Merch 3, Fin 3, Wap, Gov 4, Netflix, DropBox, OSN 1,	Wikip, Portal 3, Merch 2, Fin 3, Wap, Gov 3, netflix, Dropbox, OSN1 1,	intrusion, monopoly, gossip, segmentation, limited space, ads, design, complexity, feel insignificant, ads, resource consuming, invasive, competence, boring, not user friendly, not up to date, regional restricted, not 100% reliable, ads	behaviour, personal data, my contacts, new consumer, trust, participation, edition, participation, potential client, money, goods, professional profile, information	knowledge, personalised searches, learning, entertainment, contacts' calendar, gossip, relate with distant people, news, email services, backup of data, services, information, space, access to others, communication channel, breaks vertical communication, speed, categorization, trust in the trade, trade, speed communication, video call, video conference, professional relations, money, value for money, trust, security, storage, connect with people, domain, agility, books
60	all except porn site		ads	views	content
61	goo.ec, youT, Wikip, Blogspot	Wap	ads, inconsistent, bad links, fake people	views, communication, knowledge, searching	knowledge, speed, communication, info, searching for people and topic
62	blogspot, Amz, Fin 2, Merch 1, Wap, Netflix, github, dropbox, Portal 1	Fin 1, Wap, netflix, Portal 2, github, dropbox	layout design	views	reliable info, entertainment
63	all	goo.ec, youT, goo, FB, Wap, Dropbox, youtube-mp3	ads, updates, easy to modify info, unfriendly, unclear costs, cracks, not good service, layout	views, info, as a user, more sales	efficiency, speed, agility, faster communication, more info, easiness, reliable storage of info, fast shopping, easy downloading

Appendix B

P #	#websites where your participation matter	websites worth to pay	Dislike	Value Given	Value received
64	youT, Merch 1, Wikip	Media, Netflix, Stackoverflow	suggestions, poor portfolio, lack of classified ads, publication costs, not easy to use, restrictions, searching filters	results, views, news, articles, goods, ads, transactions, reviews, info	info, videos, easiness, news, offers, ads, vouchers, series, movies, answers
65	Goo.ec, YouT	goo.ec	ads	results, views	information, entertainment
66	goo.ec, FB, Fin 1, goo.es, OSN 1, Media 1, netflix, stackoverflow, portal 1	FB,Wikip, goo.es, OSN 1, Media 1, netflix, Dropbox, Portal 1		my data, my information	info, meet new people, news, entertainment, knowledge, storage
67	FB, Media 3, github	netflix, github, dropbox	page rank, ease content, at finger tips, money from ads, restrictions, free service, premium service, no reliable info	my searches, my publications, my private data, my contribution	info, bad and good knowledge, info about others, news, world news, server services, searching, communication, money collection, entertainment, free limited storage
68	goo.ec, youT, goo, FB, Wikip, Amz	goo.ec, youT, goo, FB, Wikip, Amz, Wap, Dropbox	surveillance, personal tendencies, registration, more info in English than Spanish, location restriction	my private data, contribution	knowledge, info, entertainment, videos, news, product announcement, communication, storage
69	youT, FB, Wikip, blogspot, Media 4, Instag, Porn 2, Comm 1, SnapChat	YouT, Twit, Netflix, YouTub-mp3, SnapChat	ads, undesired sites, not valid info, lack of privacy, subscription	views, accounts, contributions, blogs, tweets, sport news, chats, as a client, downloads	speed, ease, miscellaneous multimedia content, integration with other OSN, diverse and comprehensive info, diverse info, sport news, entertainment, content, chatting, adult content, educational info, videos, music
70	all	goo.ec, youT, goo, fb, portal 3, twit, Amz, Merch 3, Gov 2, github, Fin 2	irrelevant info, the acquisition of my info	personal data	knowledge, info
71	YouT, FB, Media 2, Wikip, Wap, Slideshare, github, Merch 1, dropbox, OSN 1, youtube-mp3		ads	visits, downloads	speed, ease, multimedia content, integration with other OSN, some kind of news, info
72		goo.ec, youT, goo	ads	information	info, entertainment, communication
74	YouT, FB	netflix	ads, poorly correct information, not all movies	views, info	communication, information, entertainment
75	YouT, FB, Instag, Wap, Ask.com, Game 1			searches, videos, friends, news, images, communication, statistics, movies, surveys, info, documents, files, music	speed, precision, global, top social, news local/international, quick overview, photos of friends, online, local statistics, videos hd, open questions, easy info, examples of documents, downloading, optional search, free movies, services, games
76	YouT, Wikip, Blogspot, stackoverflow, workpress, Merch 2, OSN 3, Media 1	stackoverflow	lack of links, ads, lack of content, political bias, layout, nothing, poor bandwidth, brief content	views, reviews, participation, information, communication, backup, nothing	information, entertainment, communication, price comparison, services

Table 22. Origin of top websites

Country	Origin of top Websites												
	Local	Tailored	Foreign	US	RU	UK	FR	CN	ES	CA	DE	NL	IN
AL	33	7	60	45	0	3	2	1	5	1	1	1	0
AO	41	5	54	23	0	3	1	3	2	0	1	0	0
AR	11	5	84	48	2	3	3	1	0	2	1	1	1
AU	59	6	59	43	0	4	0	2	0	2	1	1	0
AT	29	3	68	42	3	0	1	1	1	2	16	1	0
BD	40	2	58	38	2	2	2	1	1	2	0	1	1
BE	27	6	67	39	3	1	13	1	1	2	4	2	0
BT	39	1	60	35	2	2	2	1	4	1	1	2	7
BR	47	6	47	31	0	5	2	2	1	1	0	0	0
BG	52	3	45	32	4	2	1	1	1	1	0	1	0
BF	14	1	85	30	1	3	37	1	3	0	0	1	1
CA	25	9	66	52	1	5	0	2	0	25	1	1	0
CV	15	2	83	38	2	3	2	1	5	1	1	1	1
CL	34	6	60	42	0	3	1	2	3	1	0	1	0
CN	79	2	19	14	2	0	0	79	0	0	0	0	0
CO	26	9	65	38	1	4	3	0	6	1	1	2	0
CR	23	3	74	42	1	3	3	1	10	1	1	1	0
HR	43	5	52	34	0	3	2	1	1	2	5	1	0
CZ	55	1	44	28	5	2	1	1	0	1	0	1	0
DK	41	4	55	38	1	2	2	1	1	2	1	1	0
DO	20	1	79	46	3	5	2	1	6	1	1	1	0
EC	22	3	75	56	1	3	1	2	3	2	1	1	0
EG	50	5	45	20	1	3	3	1	1	1	1	3	1
SV	16	3	81	39	2	6	2	1	13	1	0	1	1
EE	32	8	60	25	22	0	1	2	1	1	1	1	2
ET	17	1	82	56	1	7	2	2	1	3	2	3	1
FJ	13	2	85	51	1	3	4	2	2	4	2	1	9
FI	44	4	52	36	6	1	2	1	1	1	1	1	0
FR	55	3	42	33	1	1	55	1	0	1	2	0	0
DE	45	3	52	42	5	2	0	1	0	1	45	0	0
GH	22	6	72	40	2	6	2	3	1	1	0	1	2
GR	66	6	28	21	1	0	3	0	0	1	0	1	0
GT	20	2	78	43	1	5	2	1	8	1	1	1	0
HN	15	1	84	41	1	5	1	2	11	1	0	1	1
HK	34	4	62	23	1	0	1	14	0	1	0	1	0
HU	56	6	38	25	2	1	2	1	1	1	0	1	0
IS	34	3	63	42	0	6	1	2	0	3	2	1	0
IN	47	6	47	34	1	5	0	1	1	1	0	1	47
ID	47	12	41	23	1	0	1	0	1	2	1	0	1
IR	71	8	21	15	3	0	0	0	0	0	1	1	0
IQ	19	2	79	42	2	5	3	1	4	4	1	1	1
IE	19	9	72	45	1	13	2	2	0	2	1	1	0
IL	38	4	58	37	9	4	0	2	0	1	0	2	0
IT	37	10	53	35	4	1	3	1	0	2	0	3	0
JM	7	2	91	51	3	4	1	3	5	3	1	1	5
JP	53	8	39	29	0	2	2	6	0	1	0	0	0
JO	26	2	72	27	1	5	2	1	2	1	1	2	0
KE	29	7	64	28	3	8	2	1	1	3	1	1	3
KW	11	2	87	45	2	4	2	1	0	2	1	0	6
LV	33	10	57	24	22	2	1	1	1	1	1	2	0
LB	29	2	69	35	3	3	0	2	1	3	0	3	1
LY	12	1	87	51	3	4	3	2	2	3	2	2	1
LT	35	14	51	24	14	1	2	1	1	1	3	1	0
LU	17	4	79	44	6	4	5	1	1	1	9	1	0
MW	12	2	86	44	2	13	3	2	3	2	1	2	1
MY	30	4	66	36	3	0	3	5	1	3	0	1	1

Appendix B

MT	24	3	73	42	1	12	1	2	1	3	3	1	0
MX	18	6	76	46	2	3	2	0	9	1	2	2	1
MA	43	3	54	29	1	2	6	1	2	0	0	1	0
MZ	12	5	83	39	1	3	3	1	5	2	1	1	1
NA	13	3	84	44	2	6	5	1	5	2	1	1	2
NP	49	4	47	25	1	0	1	0	3	2	2	0	7
NL	27	1	72	38	9	3	2	2	1	2	2	0	0
NZ	28	6	66	43	0	6	3	3	0	4	0	1	0
NG	37	4	59	42	0	5	1	1	1	1	0	4	0
NO	42	4	54	40	1	1	1	1	1	2	1	1	0
PK	31	3	65	42	1	2	2	1	3	2	1	1	0
PA	20	2	78	44	1	3	3	1	9	1	0	1	0
PE	20	7	73	53	1	7	1	2	2	1	1	1	0
PH	14	8	77	43	2	1	1	2	2	4	0	3	2
PL	52	9	39	28	3	2	0	1	0	1	2	0	0
PT	36	6	58	41	4	2	3	1	2	1	1	1	0
PR	21	2	77	57	2	0	4	2	1	3	1	1	0
RO	27	9	64	38	4	0	3	1	1	1	2	1	0
RU	77	2	21	13	77	0	1	1	0	0	2	0	0
SA	30	1	69	36	0	2	3	2	1	2	1	2	0
SN	31	3	66	29	1	1	27	0	4	1	0	2	0
RS	37	3	60	41	2	2	3	1	0	1	0	2	0
SL	9	1	90	59	2	11	2	1	2	1	0	1	0
SG	20	3	77	41	6	1	2	9	2	3	0	2	0
SK	50	8	42	28	2	0	2	1	0	1	0	1	0
SI	46	2	52	37	1	0	1	2	0	2	3	2	0
ZA	33	7	60	44	1	3	2	1	0	0	1	1	0
KR	55	2	43	26	1	0	1	12	0	1	0	0	0
ES	36	7	57	41	1	2	2	2	36	2	1	1	0
LK	33	1	66	39	1	3	4	1	1	3	1	2	2
SR	18	1	81	51	2	5	5	1	0	2	1	10	0
SE	43	3	54	43	1	1	2	1	0	1	2	1	0
CH	29	5	66	41	3	1	3	1	0	1	10	1	0
SY	8	0	92	45	4	4	3	2	2	3	1	1	1
TW	67	5	28	17	0	0	1	7	0	1	0	0	0
TZ	23	5	72	42	2	7	3	0	1	2	1	2	0
TH	34	5	61	43	2	2	1	4	1	1	1	0	0
TT	15	2	83	54	3	0	5	2	1	3	1	3	1
TR	61	3	36	27	2	1	1	1	0	0	3	1	0
AE	21	3	76	43	3	1	2	1	1	2	1	1	9
UK	31	7	62	52	1	31	1	1	0	2	1	0	0
UA	34	8	58	14	25	0	0	1	1	0	3	6	0
US	91	0	9	91	0	3	1	1	0	1	1	0	0
UY	22	8	70	39	1	2	3	1	9	1	0	2	1
VE	29	7	64	45	0	5	1	2	3	2	2	1	0
VN	61	4	35	27	0	0	1	1	1	1	0	0	1
ZM	15	2	83	48	2	5	2	1	1	2	1	2	3

Table 23. Significant correlations of country-web-profiles

Country	Region	Correlates with									
		Country1 and ρ (pi-val)	C2 , pi-val	C3, pi-val	C4, pi-val	C5, pi-val	C6, pi-val	C7, pi-val	C8, pi-val	C9, pi-val	C10, pi-val
South Korea	EAP	China .598**	Taiwan .395*	Singapore .333*	Spain -.351*	Poland .352*	Saudi Arabia .443*				
Singapore	EAP	Thailand .640**	Philippines .376*	South Korea .333*							
Thailand	EAP	Japan .322*	Indonesia .997**	Singapore .640**							
Indonesia	EAP	Japan .321*	Thailand .997**								
Japan	EAP	Indonesia .321*	Thailand .322*								
China	EAP	South Korea .598**	US -.232*								
Taiwan	EAP	South Korea .396*	US -.334								
Philippines	EAP	Singapore .376*	Canada .279*								
Australia	EAP	CocoIslands 4.84**	Turkey .499*	Norway .345*							
Hong Kong	EAP	South Africa .962**									
Malaysia	EAP	Sweden -.403*									
New Zealand	EAP	Canada .279*	UAE .907**	Saudi Arabia .456*	India .738**						
Sweden	EUCA	Spain -.479**	Portugal -.397*	Hungary -.590**	Panama -.400*	Mexico -.463*	Argentina -.429**	Malaysia -.403*			
Russia	EUCA	Lithuania .445**	Estonia .603**	Ukraine .845**	US -.326**	Tonga .369**					
Slovenia	EUCA	Kosovo .948**	Serbia .948**	Palaw .948**							
Romania	EUCA	Hungary .558**	Lithuania .556**	Estonia .478**							
Serbia	EUCA	Kosovo 1.000*	Slovenia .948**	Croatia -1.000							
Netherland	EUCA	Italy .314*	Croatia -.999*	Qatar .387*	Lebanon .477*	Nigeria .477**					
Poland	EUCA	Ireland .504**	Norway .517**	Qatar .404*	Lebanon .866**	South Korea .352*					
Belgium	EUCA	Cyprus .300*	France .973**	Cote D'Ivoire 1.000**							

Appendix B

Lithuania	EUCA	Russia .445**	Romania .556**								
Estonia	EUCA	Russia .603**	Romania .478**								
Hungary	EUCA	Sweden -.590	Romania .558**								
Croatia	EUCA	Netherlands -.999	Serbia -1.000								
Ireland	EUCA	UK .483**	Poland .504**								
Spain	EUCA	Sweden -.479**	Panama .301*	Mexico .684**	South Korea .-351*	Pakistan .866*					
France	EUCA	Belgium .973**	Morocco .540**	Senegal .952**	Cote D'Ivoire .973**						
UK	EUCA	Ireland .483**	South Africa .750*	US .359**							
Norway	EUCA	Poland .517**	Australia .345*								
Italy	EUCA	Netherlands .314*									
Ukraine	EUCA	Russia .845**									
Portugal	EUCA	Sweden -.397*									
Greece	EUCA	Cyprus .225*									
Turkey	EUCA	Australia .499**	Saudi Arabia .498*	Lebanon .549**	Morocco .690**						
Switzerland	EUCA	Tonga .471**	Nigeria .285*	Lebanon .690**							
Czech Republic	EUCA	Tonga .406**	Senegal .636**								
Argentina	LAC	Panama .311*	Mexico .578**	Colombia .339*	Guatemala .401**	Dominican Republic .458**	Sweden -.429**				
Mexico	LAC	Guatemala .315*	Argentina .578**	Spain .684**	Sweden -.463**	Israel .543**					
Costa Rica	LAC	Colombia .604**	Dominican Republic .803**	Ghana .689**							
Colombia	LAC	Costa Rica .604**	Argentina .339*								
Dominican Republic	LAC	Costa Rica .803**	Argentina .458**								
Guatemala	LAC	Mexico .315*	Argentina .401**								
Panama	LAC	Argentina .311*	Spain .301*	Sweden -.400							

Brazil	LAC	Senegal .363*									
Saudi Arabia	MENA	Qatar .449*	Morocco .437*	Palestine .433*	Algeria .935**	Turkey .498*	Senegal .433*	South Korea .443*	Philippines .456*		
UAE	MENA	Algeria .756*	Qatar .350*	Palestine .672**	Senegal .595**	Philippines .907**	India .609**				
Egypt	MENA	Qatar .608**	Palestine .858**	Algeria .943**	Senegal .603**						
Jordan	MENA	Qatar .519**	Palestine .994**	Algeria .935**	Senegal .739**						
Lebanon	MENA	Palestine 1.000**	Qatar .571**	Senegal 1.000**	Netherlands .477*	Poland .866**	Switzerland .690**	Turkey .549**			
Morocco	MENA	Algeria .679*	Turkey .690**	France .540**							
Iran	MENA	US -.998*									
Israel	MENA	Mexico .543**									
US	NA	Canada .272**	Russia -.326**	UK .359**	China -.232*	Taiwan -.334*	Iran -.998*				
Canada	NA	US .272**	Philippines .279*	New Zealand .279*							
India	SA	Tonga .375**	Philippines .738**	UAE .609**							
Pakistan	SA	Spain .866*									
Nigeria	SSAf	Ghana .641**	South Africa .962**	Netherlands .477**	Switzerland .285*	Coco Islands .589**					
Ghana	SSAf	Nigeria .641**	Costa Rica .689**	Coco Islands .461*	Qatar .689**						
South Africa	SSAf	Nigeria .962**	UK .750*	Hong Kong .962**							
Senegal	SSAf	Brazil .363*	France .952**	Czech .636**	Egypt .603**	Qatar .470**	Saudi Arabia .443*	Lebanon 1.000*	Palestine 1.000*	Jordan .739**	UAE .595**

Appendix B

Table 24. Significant correlations between user-web-profile and country-web-profile

Participant	p-value
P1	.847**
P3	.795**
P4	.604*
P6	.713**
P7	.851**
P8	.910**
P9	.914**
P10-11	.862**
P12	.903**
P13	.815**
P14	.841**
P19	.839**
P20	.927**
P21	.966**
P22	.938**
P23	.959**
P25-29	.912**
P30	.910**
P31-39	.910**
P40	.914**
P41	.826**
P42	.808**
P43	.803**
P44	.930**
P45	.680**
P46	.536*
P47	.930**
P48	.787**
P49	.764**
P50-51	.974**
P52	.912**
P53	.947**
P54	.600*
P55-59	.893**
P60	.943**
P61	.776**
P62	.952**
P63	.907**
P64	.945**
P65	.835**
P66	.885**
P67	.941**
P68	.929**
P69	.878**
P70	.942**
P71	.925**
P72	.831**
P73	.951**
P74	.955**
P75	.902**
P76	.942**

Glossary of Terms

Alexa… Amazon's website displaying Internet traffic statistics of the most popular websites

APC… Association for Progressive Communications

Appian Way… the ancient trading route

ARPA… The US Advanced Research Projects Agency who founded the Arpanet development

Arpanet… Advanced Research Projects Agency Network, the early Internet

AS… Autonomous Systems or independent networks

Autopoiesis… self-construction

BGP… Border Gateway Protocol provides process-to-process data exchange for applications

Big Data… methods and technologies that allow the extraction of information from vast amounts of data that have been gathered

BITNET… The old US NREN, a co-operative U.S. university computer network with early Internet and Web capabilities

Capitalist logic… Skegg's idea that value and values are transformed into economic value

ccTLD… country code Top-level domains for IP addressing

CDN… Content Delivery Network

CERN… European Organization for Nuclear Research

CIR… Critical Internet Resources

Clark's principle… We reject kings, presidents and voting. We believe in rough consensus and running code

CLEI… Centro Latinoamericano de Estudios en Informatica

CoCom… Coordinating Committee for Multilateral Exports

Complexity paradox… the trust in engineers; the distributed and decentralised communication technology (the Internet) allows either the loss of human control from structure or control enhancement through standards and protocols

Glossary of Terms

CSP… Content and Service Provider

CV… Contingent Valuation is a method for estimating the value that a person places on a non-market good

Cybernetics… the science of communications and control

DANTE… Delivery of Advanced Network Technology to Europe, the old European 'NREN'

DARPA… Defence Advanced Research Projects Agency, ARPA renamed

DG Connect… The European Commission's Directorate General for Communications Networks' Content and Technology department

DHCP… Dynamic Host Configuration Protocol

DMCA… Digital Millennium Copyright Act

DNS… Domain Name Systems of the Internet

DoD… Department of Defence, the early TCP / IP

Dominant social imaginary… stakeholders, those behind the screen

EAP… East Asia & Pacific

EIU… The Economist Intelligent Unit

End-to-end… a network design principle to reside the specific app characteristics in the final communication nodes, not in the intermediary ones

EU Geant… the new european NREN

EUCA… Europe & Central Asia

EVI… Escuela Venezolana de Computacion

FAO… UN Food and Agriculture Organisation

FCC… US Federal Communications Commission

First-order cybernetics… to control communications through a loop or a a feedback closure

G-8… inter-governmental political forum, now G-7 without Russia

GDP… Gross domestic product

Gore Bill… Al Gore's proposal to the US NREN High-Performance Computing Act of 1991

gTLD… generic Top-Level domains for IP addressing

H-LAM/T system… Human – Language Artefacts Methodology / Training, Engelbart's model to extend human capabilities

Habitus… the mechanism (operational closure) through which members of a class shape their practices

Hg… General Hypothesis

HTTP… Hyper Text Transfer Protocol

IANA… Internet naming and numbering authority

ICANN… Internet Corporation for Assigned Names and Numbers

ICT… information and communication technology

IDV… Hofstede's Individualism cultural dimension

IETF… Internet Engineering Task Force

IG… Internet Governance

IGF… Internet Governance Forum

Information scarcity paradox… digital information is expensive to produce but almost free to reproduce

instrumentally-rational action… seeks efficient means to satisfy individual purposes

Internet2… the new US NREN.

IPv4… version 4 of the IP that handles 232 unique addresses

IPv6… version 6 of the IP that handles 2128 unique addresses

IR… Dahl's International Relations theory

ISOC… Internet Society

ISP… Internet Service Provider

ITU… UN specialized agency for ICT

IVR… Hofstede's Indulgence cultural dimension

IXP… Internet Exchange Point

JANET… the British NREN

System 1… Kahneman's System 1 or the fast thinking

System 2… Kahneman's System 2 or the slow thinking or the non-instinctive reflection

L1… Licklider's System 1 or the user

L2… Licklider's System 2 or the intelligent answering mechanism (computers, cloud, networks)

LAC… Latin America & Caribbean

LTO… Hofstede's Long-term cultural dimension

MAS… Hofstede's Masculinity cultural dimension

MENA… Middle East & North Africa

MLM… Multilateral model for IG

MSM… Multistakeholder model for IG

NA… North America

NAM… Not-aligned Movement

Nasdaq… Nasdaq Stock Market, American stock exchange

NAT… Network Address Translation

NATO… North Atlantic Treaty Organization

NCP… The early TCP protocols

Nested club… exclusive group of people within a walled garden

NGO… Non-governmental organisation

NLS project… On-Line System project of Engelbart or the first personal computer system

NN… Net Neutrality principle... to equal and non-discriminating information data flows for all

NORSAR… Norwegian Research Foundation

NREN… National Research and Education Network

NSF… The US National Science Foundation

NSFNET… a US project to pass the Internet from the military to academia

ODI… Open Data Institute

OSN… Online Social Network

P1...P76… each P# relates to an interviewee

P2P… Peer to peer networks

packet-switching… a method to send and receive information through the network by dividing data in small sets

PCP… Port Control Protocol

PDI… Hofstede's Power Distance dimension

Postel's principle… be conservative in the sending behaviour and liberal in the receiving behaviour

PUCE… Pontifical Catholic University of Ecuador

Q1…Q9… semi-open-ended questions

Q10…Q24 matrix questions

RAND… Research ANd Development, a research corporation for the US military

SA… South Asia

SDG… The UN Sustainable Development Goals

Second-order cybernetics… to control communications and observers through a double-closure

Social imaginary… an ethos that enables people to make sense of developments in society

Social imaginary in front of the screen… the group of people who use the Internet and the Web

Social imaginary behind the screen… stakeholders

SRI… Stanford Research Institute

SSAf… Sub-Saharan Africa

Stakeholders… private companies, governments, and civil society organisations interested in controlling the Internet

TBL… Tim Berners-Lee

TCP / IP… Transmission Control Protocol / Internet Protocol

The Hexagon… Bunge's Philosophy of Science Model with the technology as a centre

The MacBride Report… "Many Voices One World", the UNESCO report for a communication web to people

Tier 1… ISPs who do not pay for data traffic services

Tier 2… ISPs who pay for data traffic to Tier 1

TLD… Top-level domain for IP addressing

TOR… The Onion Router, a network of peers

TPP… Trans-Pacific Partnership

TW1..TW17… types of websites

UAI… Hofstede's Uncertainty Avoidance cultural dimension

UCLA… University of California

UDP… User Datagram Protocol, to send messages known as datagrams, handling host-to-host communication

UN… United Nations Organisation

UNESCO… United Nations Educational, Scientific and Cultural Organization

URI… Uniform Resource Identifier

USSR… the ex-Union of Soviet Socialist Republics

Value Focused-thinking… Keeney's model to find interviewee's values

value-rational action… for altruistic purposes, keeping ethic, aesthetic, cultural and religious values

Values… mental controls programmed by the observer

VSD… Value Sensitive Design framework, Friedman et al values framework to develop technology

W3C… World Wide Web Consortium

Walled garden… a network where ISPs and content providers control service and content, and keep security

WB… The World Bank

Weak social imaginary… the Internet users, those in front of the screen

Web 1.0… the early Web

Web 2.0… a social platform upon the Web

WGIG… Working Group on Internet Governance

WIPO… World Intellectual Property

WTO… World Trade Organisation

WTP… Willingness to pay for a non-market good

XHTML… eXtensible HyperText Markup Language

Bibliography

Abramowitz, M. J., 2018. *Freedom in the World,* Washington: Fredom House.

ACM, 2018. *ACM Code of Ethics and Professional Conduct.* [Online]
Available at: https://www.acm.org/code-of-ethics
[Accessed 22 June 2018].

ACU, 2014. *ACU debunks Obama's statement on Net Neutrality.* [Online]
Available at: http://conservative.org/acu-debunks-obamas-statement-on-net-neutrality/
[Accessed 7 3 2017].

Alexa, 2016. *The top 500 sites on the Web by country.* [Online]
Available at: http://www.alexa.com/topsites/countries
[Accessed August-December 2016].

Anderson, K., Brooks, C. & Katsaris, A., 2010. Speculative bubbles in the S&P 500: Was the tech bubble confined to the tech sector?. *Journal of Empirical Finance,* 6, 17(3), pp. 345-361.

Antonelli, C. & Patrucco, P. P., 2016. Organizational innovations, ICTs and knowledge governance: the case of platforms. In: J. M. Bauer & M. Latzer, eds. *Handbook on the Economics of the Internet.* Cheltenham: Edward Elgar Publishing Limited, pp. 323-343.

Appadurai, A., 2006. Disjuncture and Difference in the Global Cultural Economy. In: M. G. Durham & D. M. Kellner, eds. *media and cultural studies. Key Works.* Revised ed. Oxford: Blackwell Publishing, pp. 584-604.

Armijos, J., 2013. *Uso de la tecnología de la información y de la comunicación para crear aplicaciones en línea para el aprendizaje de idiomas – Waoterero.* [Online]
Available at: http://repositorio.puce.edu.ec/handle/22000/11400

Arnesen, T., 2006. *Thorstein Veblen - A Critic of Society, Tradition and Technology.* [Online]
Available at: http://utmark.nina.no/portals/utmark/utmark_old/utgivelser/pub/2006-2/art/Arnesen_2_Utmark_2_2006.html

Asamblea Nacional, 2008. Constitución de la República del Ecuador. *Registro Oficial,* p. http://pdba.georgetown.edu/Constitutions/Ecuador/english08.html.

Babones, S. J., 2005. The Country-Level Income Structure of the World-Economy. *Journal of World-Systems Research,* 11(1), pp. 29-55.

Baran, P., 1964. *On Distributed Communications: I. Introduction to Distributed Communications Networks,* Santa Monica: United States Air Force Project RAND.

Bibliography

Barlow, J. P., 1994. The Economy of Ideas. *Wired,* 2(3), pp. https://www.wired.com/1994/03/economy-ideas/.

Barlow, J. P., 1996. *A Declaration of the Independence of Cyberspace.* https://www.eff.org/cyberspace-independence ed. Davos: Electronic Frontier Foundation.

Barnes, S. B., 2006. A privacy paradox: Social networking in the United States. *First Monday,* 9.11(9).

Bateson, G., 2002. *Mind and Nature: A Necessary Unity.* s.l.:Hampton Press.

Battelle, J. & O'Reilly, T., 2004. *Web 2.0 Conference.* [Online]
Available at: http://conferences.oreillynet.com/cs/web2con/view/e_sess/5854

Bauman, Z. & Bordoni, C., 2014. *State of Crisis.* Cambridge: Polity Press Ltd.

Baumol, W. J., 1972. On Taxation and the Control of Externalities. *The American Economic Review,* 62(3), pp. 307-322.

BBC, 2013. *China employs two million microblog monitors state media say.* [Online]
Available at: http://www.bbc.co.uk/news/world-asia-china-24396957

BBC, 2013. *What is the G8 and what does it do?.* [Online]
Available at: http://www.bbc.co.uk/newsround/22937970
[Accessed 5 2018].

Benedict XVI, 2005. *Truth and Tolerance: Christian Belief and World Religions.* San Francisco: Ignatius Press.

Benzine, D.-E. & Gerland, P., 1995. *Accessing and Using the Internet,* New York: UN - United Nations Population Fund.

BEREC, 2018. News and Newsletters. *Body of European Regulators for Electronic Communications,* Volume https://berec.europa.eu/eng/news_and_publications/whats_new/.

Bergeron, M., 2016. L'énigme MindGeek, Du Luxembourg à Montréal. *La Presse,* Volume October 10, pp. http://plus.lapresse.ca/screens/5af271ce-5112-411d-8502-319e5d5fa7e7__7C__2tXW0KGJgOr7.html.

Berners-Lee, T., 1989. *Information Management: A Proposal.* [Online]
Available at: https://www.w3.org/History/1989/proposal.html
[Accessed 2 2018].

Berners-Lee, T., 1996. *The World Wide Web: Past, Present and Future.* [Online]
Available at: https://www.w3.org/People/Berners-Lee/1996/ppf.html
[Accessed 2 2018].

Berners-Lee, T., 1999. *Weaving the Web: The Original Design and Ultimate Destiny of the World Wide Web by its inventor.* s.l.:Harper.

Berners-Lee, T., 2014. *Tim Berners-Lee on the Web at 25: the past, present and future.* [Online]
Available at: http://www.wired.co.uk/magazine/archive/2014/03/web-at-25/tim-berners-lee
[Accessed 11 6 2015].

Bijker, W., Hommels, A. & Mesman, J., 2014. Studying Vulnerability in Technological Cultures. In: A. Hommels, J. Mesman & W. Bijker, eds. *Vulnerability in Technological Cultures: New Directions in Research and Governance.* Cambridge: The MIT Press, pp. 1-26.

Bitcoin Project, 2018. *Bitcoin is an innovative payment network and a new kind of money.* [Online]
Available at: https://bitcoin.org/en/
[Accessed 2018].

Bodleian Lib, 2004. *Instructions for American Servicemen in Britain, 1942: Reproduced from the Original Typescript, War Department, Washington, DC.* 2nd revised ed. s.l.:The Bodleian Library.

Bohannon, J., 2016. *Psychologists grow increasingly dependent on online research subjects.* [Online]
Available at: http://www.sciencemag.org/news/2016/06/psychologists-grow-increasingly-dependent-online-research-subjects

Bonvillian, W. B., 2006. The Once and Future DARPA. In: F. Fukuyama, ed. *Blindside: How to Anticipate Forcing Events and Wild Cards in Global Politics.* s.l.:Brookings Institution Press.

Bookchin, M., 2015. *The Next Revolution. Popular assemblies & The Promise of Direct Democracy.* London: Verso.

Boulding, K., 1985. *The World as a Total System.* s.l.:SAGE Publications Inc..

Bourdieu, P., 1989. Social Space and Symbolic Power. *Sociological Theory,* 7(1), pp. 14-25.

Bourdieu, P., 1990. *The logic of practice.* s.l.:Stanford University Press.

Bourdieu, P., 2010. *Distinction.* s.l.:Routledge.

Bradsher, K., 2017. *China Blocks WhatsApp, Broadening Online Censorship.* [Online]
Available at: https://www.nytimes.com/2017/09/25/business/china-whatsapp-blocked.html

Brand, S., 2018. *The Well.* [Online]
Available at: https://www.well.com/about-2/
[Accessed 2018].

Braun, V. & Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology,* 3(2), pp. 77-101.

Brynjolfsson, E., Hu, Y. & Simester, D., 2011. Goodbye Pareto Principle, Hello Long Tail: The Effect of Search Costs on the Concentration of Product Sales. *Management Science. Forthcoming,* 57(8), pp. 1373-1386.

Buckley, W., 1967. *Sociology and Moderns Systems Theory.* s.l.:Prentice Hall.

Buhrmester, M., Kwang, T. & Gosling, S. D., 2011. Amazon's Mechanical Turk: A New Source of Inexpensive, Yet High-Quality, Data?. *Perspectives on Psychological Science,* 6(1), pp. 3-5.

Bunge, M., 2005. Elusive Memories of Technoscience. *Perspectives on Science,* 13(2), pp. 142-165.

Bunge, M., 2012. El Impacto Social de la Innovacion Tecnica. In: *Filosofia de la tecnologia y otros ensayos.* Lima: Universidad Inca Garcilaso de la Vega, pp. 21-46.

Bunge, M., 2012. El Sistema Técnica-Ciencia-Filosofía. In: *Filosofía de la tecnología y otros ensayos.* Lima: Universidad Inca Garcilaso de la Vega, pp. 87-103.

Bunge, M., 2012. Politica y Moral. In: *Filosofía de la tecnología y otros ensayos.* Arequipa: Universidad Inca Garcilaso de la Vega, pp. 165-174.

Bunge, M., 2012. Por una Tecnoetica. In: *Filosofia de la tecnologia y otros ensayos.* Lima: Universidad Inca Garcilaso de la Vega, pp. 105-124.

Bush, G., 1991. *Remarks on Signing the High-Performance Computing Act of 1991.* [Online]
Available at: http://www.presidency.ucsb.edu/ws/?pid=20320
[Accessed 1 2018].

CAIDA, 2018. *ARank.* [Online]
Available at: http://as-rank.caida.org/?page=1
[Accessed 17 5 2018].

CAIDA, 2018. *AS Rank IPv4.* [Online]
Available at: http://as-rank.caida.org/about
[Accessed 1 4 2018].

Carr, L. & Melgarejo, R., 2018. *Net Neutrality: Delivering Internet Data,* http://edshare.soton.ac.uk/15757/1/NetNeutrality.pdf: s.n.

Carson, R. T. & Groves, T., 2011. Incentive and information properties of preference questions. In: J. Bennett, ed. *The international handbook on non-market environmental valuation.* s.l.:Edward Elgar, pp. 300-321.

Castells, M., 1997. An Introduction to the Information Age. *City,* 2(7), pp. 6-16.

Castells, M., 2009. *The Information Age: Economy, Society, and Culture. Vol II: The Power of Identity.* 2nd revised ed. s.l.:Wiley-Blackwell.

Castoriadis, C., 1997. *The Imaginary Institution of Society.* Cambridge: MIT Press.

ccn, 2019. *Bitcoin price.* [Online]
Available at: https://www.ccn.com/bitcoin-price/

Centro Latinoamericano de Estudios en Informatica, 2016. *CLEI2016.* [Online]
Available at: http://www.clei2016.cl/

Cerf, V., 1998. *I Remember IANA.* [Online]
Available at: https://tools.ietf.org/html/rfc2468
[Accessed 1 2 2018].

Cerf, V. G., 2016. Keeping the Internet Open. *Communications of the ACM,* 9, 59(9), p. 7.

Cerf, V. G. & Cain, E., 1983. The DoD Internet Architecture Model. *Computer Networks,* 7(Elsevier Science Publishers B.V. (North-Holland)), pp. 307-318.

Cerf, V. G. & Google, 2012. The Organic Internet. *IEEE Internet Computing,* 16(5), pp. 103-104.

Cerf, V. G. & Kahn, R. E., 1975. A Protocol for packet Network Intercommunication. *IEEE Trans on Comms,* Com-22(5).

Cerf, V., Ryan, P. & Senges, M., 2014. Internet Governance Is Our Shared Responsibility. *Law and Policy for the Information Society,* 10(1), pp. 1-41.

CERN, 2017. *The birth of the web.* [Online]
Available at: https://home.cern/topics/birth-web

Cerny, P., 1990. *The Changing Architecture of Politics: Structure, Agency and the Future of the State.* London: SAGE.

Chalk, A., 2017. *Belgium's Justice Minister calls for loot box ban in Europe (Updated).* [Online]
Available at: https://www.pcgamer.com/belgium-says-loot-boxes-are-gambling-wants-them-banned-in-europe/
[Accessed 3 2018].

Chapelle de La, B., 2008. Multi-Stakeholder Governance - Emergence and Transformational Potential of a New Political Paradigm. *Managing Complexity: Insights, Concepts, Applications,* Issue https://doi.org/10.1007/978-3-540-75261-5_16, pp. 335-348.

Chertoff, M. & Simon, T., 2015. *The Impact of the Dark Web on Internet Governance and Cyber Security,* London: Chatam House, The Royal Institute of International Affairs.

China Telecom Global Limited, 2015. *Global network coverage.* [Online]
Available at: http://www.chinatelecomglobal.com/product/detail.html?cate_id=900008
[Accessed 1 2018].

Cho, H., Rivera Sanchez, M. & Lim, S. S., 2009. A multinational study on online privacy: global concerns and local responses. *new media & society,* 11(3), pp. 395-416.

Chomsky, N., 2005. *Master Mind* [Interview] (10 11 2005).

Chomsky, N., 2009. *Cartesian Linguistics: A Chapter in the History of Rationalist Thought.* 3rd ed. Cambridge: s.n.

Chomsky, N. & Dieterich, H., 1999. *La sociedad global.* Mexico: Editorial Politica.

Chung, N., Nam, K. & Koo, C., 2016. Examining information sharing in social networking communities: Applying theories of social capital and attachment. *Telematics and Informatics,* Volume 33, pp. 77-91.

CISCO, 2016. *The Zettabyte Era: Trends and Analysis,* s.l.: s.n.

Community of Democracies, 2018. *Warsow Declaration.* [Online]
Available at: http://www.community-democracies.org/
[Accessed 1 2018].

Corcoran, M., 2016. *Democracy in Peril: Twenty Years of Media Consolidation Under the Telecommunications Act.* [Online]
Available at: http://www.truth-out.org/news/item/34789-democracy-in-peril-twenty-years-of-media-consolidation-under-the-telecommunications-act
[Accessed 1 2018].

Cortina, A., 1991. *La moral del Camaleón.* Madrid: Espasa Calpe.

Cortina, A., 2001. Valores morales y comportamiento social. In: F. Garcia de Cortazar, ed. *El siglo XX: mirando hacia atras para ver hacia adelante.* Madrid: EBCOMP S.A., pp. 319-345.

Cramer, T., 2016. Ad Blocking: A Symptom of a Larger Problem. *ECONTENT,* 39(3), p. 9.

Crocker, G., 2012. *A Managerial Philosophy of Technology.* London: Palgrave Macmillan.

Crocker, S. & RFC 1, 1969. *Host Software.* [Online]
Available at: https://tools.ietf.org/html/rfc1
[Accessed 2 2018].

Crozier, M. J., Huntington, S. P. & Watanuki, J., 1975. *The Crisis of Democracy. Report on the Governability of Democracies to the Trilateral Commission,* s.l.: New York University Press.

DARPA, 2015. *oN-Line System & "The Mother of All Demos".* [Online]
Available at: http://www.darpa.mil/about-us/timeline/nls
[Accessed 4 12 2015].

Davies, D. W., 1966. *Proposal for a Digital Communication Network,* London: National Physical Laboratory.

Day, M. J., Carr, L. & Halford, S., 2015. *Developing the 'Pro-human" Web.* Oxford, ACM.

Deleuze, G., 1992. Postscript on the Societies of Control. *The MIT Press,* Volume 59, pp. 3-7.

DeNardis, L., 2009. *Protocol Politics: The Globalization of Internet Governance.* s.l.:The MIT Press.

DeNardis, L., 2012. Hidden Levers of Internet Control. *Information, Communication & Society,* 15(5), pp. 720-738.

DeNardis, L., 2014. *The Global War for Internet Governance.* s.l.:Yale University Press.

Derrida, J., 1994. *Specters of Marx: The State of the Debt, the Work of Mourning and the New International.* s.l.:Routledge.

Diamond, P. A. & Hausman, J. A., 1994. Contingent Valuation: Is Some Number Better than No Number?. *Journal of Economic Perspectives,* 8(4), pp. 45-64.

Doggett, S. L., 2000. *Beyond the Book: Technology Integration Into the Secondary School Library Media Curriculum.* s.l.:Libraries Unlimited.

Drake, W. J., Cerf, V. G. & Kleinwächter, W., 2016. *Internet Fragmentation: An Overview,* s.l.: s.n.

Durkheim, E., 1982. *The Rules of Sociological Method.* New York: The Free Press.

EA, 2017. *Star Wars Battlefront II.* [Online]
Available at: https://www.ea.com/en-gb/games/starwars/battlefront/battlefront-2
[Accessed 3 2018].

Eagleton, T., 2011. *Why Marx Was Right.* New Haven: Yale University Press.

Echeverria, B., 2005. *La modernidad de lo barroco.* 1st reprint ed. Mexico: Ediciones Era.

EFF, 2017. *Trans-Pacific Partnership Agreement.* [Online]
Available at: https://www.eff.org/es/issues/tpp
[Accessed 12 2 2018].

Eisler, R., 2003. *El Caliz y la Espada: Nuestra Historia, Nuestro Futuro.* 8th ed. Santiago: Cuatro Vientos.

EIU, 2017. *The Inclusive Internet: Mapping Progress 2017.* [Online]
Available at: https://theinclusiveinternet.eiu.com/

Žižek, S., 2009. Discipline between the Two Freedoms. In: M. Gabriel & S. Žižek, eds. *Mythology, Madness, and Laughter: Subjectivity in German Idealism.* London: Continuum International Publishing Group, pp. 95-122.

Žižek, S., 2015. Sinicisation. *London Review of Books,* 37(14), p. 30.

Ekbia, H. R. & Nardi, B. A., 2017. *Heteromation and Other Stories of Computing and Capitalism.* Cambridge: The MIT Press.

Electronic Frontier Foundation, 2017. *Net Neutrality.* [Online]
Available at: https://www.eff.org/issues/net-neutrality
[Accessed 7 3 2017].

Engelbart, D. C., 1962. *Augmenting Human Intellect: A conceptual framework,* Washington: Air Force Office of Scientific Research.

EPIC, 2015. *Max Schrems v Irish Data Protection Commissioner (Safe Harbor).* [Online]
Available at: https://www.epic.org/privacy/intl/schrems/

Escuela Venezolana de Computacion, 2016. *EVI 2016 - Tutorial.* [Online]
Available at: http://www.concisa.net.ve/2016/evi-2016-tutoriales/

European Commission, 2017. *Next Generation Internet Initiative.* [Online]
Available at: https://ec.europa.eu/digital-single-market/en/next-generation-internet-initiative

Facebook, 2016. *State of Connectivity 2015: A Report on Global Internet Access.* [Online]
Available at: http://newsroom.fb.com/news/2016/02/state-of-connectivity-2015-a-report-on-global-internet-access/
[Accessed 5 2017].

FAO, 2017. *Applications of the contingent valuation method in developing countries.* [Online]
Available at: http://www.fao.org/docrep/003/x8955e/x8955e03.htm

Feyerabend, P., 1982. *Science in a Free Society.* reprint ed. s.l.:Verso.

Feyerabend, P., 2010. *Against Method.* 4th ed. London: Verso.

Field, A., 2013. *Discovering Statistics Using IBM SPSS Statistics.* 4th ed. London: SAGE Publications Ltd.

Foerster von, H., 2003. *Understanding Understanding: Essays on Cybernetics and Cognition.* New York: Springer.

Fortune, 2017. *Fortune Global 500.* [Online]
Available at: http://fortune.com/global500/list

Friedman, B., Kahn, P. H. & Borning, A., 2008. Value Sensitive Design and Information Systems. In: K. E. Himma & H. T. Tavani, eds. *The Handbook of Information and Computer Ethics.* s.l.:John Wiley & Sons, Inc, pp. 69-100.

Frings, M., 1997. *The Mind of Max Scheler: The First Comprehensive Guide Based on the Complete Works (Marquette Studies in Philosophy, Book 13 of 14).* s.l.:Marquette Univ Press.

Fukuyama, F., 1992. *The End of History and the Last Man.* s.l.:Free Press.

Fukuyama, F., 2012. *Origins of political order: from prehuman times to the French revolution.* s.l.:Profile Books Ltd.

Fukuyama, F., 2015. *Political Order and Political Decay: From the Industrial Revolution to the Globalization of Democracy.* s.l.:Profile Books.

Fukuyama, F., 2918. Against Identity Politics. The New Tribalism and the Crisis of Democracy. *Foreign Affairs,* Volume September/October, pp. https://www.foreignaffairs.com/articles/americas/2018-08-14/against-identity-politics-tribalism-francis-fukuyama.

G8, 2011. *G8 Declaration Renewed Commitment for Freedom and Democracy,* Deauville: G8 Summit.

Gale, D. et al., 2007. *nsfnet-legacy.* [Online]
Available at: http://www.nsfnet-legacy.org/archives/06--Community.pdf
[Accessed 26 7 2015].

Gallardo, E., 2012. Lo público en los procesos comunitarios de los pueblos indígenas en México. *Polis,* 31(http://journals.openedition.org/polis/3650).

Garcia Canclini, N., 2005. *Hybrid Cultures. Strategies for entering and leaving modernity.* s.l.:University of Minnesota Press.

Géant, 2017. *GÉANT – at the heart of Research and Education networking.* [Online]
Available at: https://www.geant.org/About

Georgia Tech, 2016. *NTIA Chief Lawrence Strickling Speaks at Public Policy Forum on New Internet Governance Policy.* [Online]
Available at: https://www.iac.gatech.edu/news-events/stories/2016/11/ntia-chief-lawrence-strickling-speaks-georgia-tech-new-internet-governance/583375
[Accessed 1 3 2018].

Gewirtz, J. B., 2017. Milton Friedman's Misadventures in China. *The American Scholar,* Volume Winter, pp. https://theamericanscholar.org/milton-friedmans-misadventures-in-china/#.

Global Media Policy Working Group, 2010. *Mapping Global Media Policy.* [Online]
Available at: http://www.globalmediapolicy.net/node/786
[Accessed 1 2018].

Goldman Sachs, 2018. *Global Economics Analyst. Landing the plane.* New York: Goldman Sachs.

Goldsmith, J. & Wu, T., 2006. *Who controls the Internet? Illusions of a Borderless World.* s.l.:Oxford University Press Inc.

Gomez, R. J., 2010. What Is That Thing Called Philosophy Of Technology?. In: P. Lorenzano, H. Rheinberger, E. Ortiz & C. Galles, eds. *History and Philosophy of Science and Technology, Vol. 4.* Oxford: EOLSS Publishers Co. Ltd., pp. 47-80.

Goodrich, K. & Mooij de, M., 2014. How 'social' are social media? A cross-cultural comparison of online and offline purchase decision influences. *Journal of Marketing Communications ,* 20(1-2), pp. 103-116.

Gould, G. M., 1895. The Dogmatism of Science. *Science,* 2(43), pp. 554-555.

Gracie, C., 2014. *Alibaba IPO: Chairman Ma's China.* [Online]
Available at: http://www.bbc.co.uk/news/world-asia-china-29119121

Graham, G., 2017. *Behaviorism.* [Online]
Available at: https://plato.stanford.edu/archives/spr2017/entries/behaviorism/

Graham, P., 2016. *The Refragmentation.* [Online]
Available at: http://paulgraham.com/re.html
[Accessed 2 2018].

Grossman, L., 2006. *You — Yes, You — Are TIME's Person of the Year In 2006, the World Wide Web became a tool for bringing together the small contributions of millions of people and making them matter.* [Online]
Available at: http://content.time.com/time/magazine/article/0,9171,1570810,00.html
[Accessed 9 12 2015].

Guillen, M. F. & Suarez, S. L., 2005. Explaining the Global Digital Divide: Economic, Political and Sociological Drivers of Cross-National Internet Use. *Social Forces,* 12, 84(2), pp. 681-708.

Haas, B., 2017. *China moves to block internet VPNs from 2018.* [Online]
Available at: https://www.theguardian.com/world/2017/jul/11/china-moves-to-block-internet-vpns-from-2018

Hallgren, M. M. & McAdams, A. K., 1998. The Economic Efficiency of Internet Public Goods. In: *Internet Economics.* Cambridge(Massachussets): MIT Press, pp. 463-526.

Han, B.-C., 2013. *La sociedad de la transparencia.* 1st, 5th reprint ed. Barcelona: Herder.

Han, B.-C., 2015. *The Transparency Society.* s.l.:Stanford Briefs.

Hanna, R., 2009. Freedom, Teleology, and Rational Causation. In: G. Mohr, ed. *Kant Yearbook. Kant and German Idealism.* s.l.:De Gruyter, pp. 99-142.

Harari, Y. N., 2016. *Homo Deus: A Brief History of Tomorrow.* London: Harvill Secker.

He, L. & World Economic Forum, 2018. *3 critical battles China is preparing to fight.* [Online]
Available at: https://www.weforum.org/agenda/2018/01/pursue-high-quality-development-work-together-for-global-economic-prosperity-and-stability/

Hess, C. & Ostrom, E., 2007. *Understanding Knowledge as a Commons. From Theory to Practice.* Cambridge: MIT Press.

Hio, L., 2017. *Loot boxes in video games: Cool rewards or gambling trap?.* [Online]
Available at: http://www.straitstimes.com/singapore/cool-loot-or-gambling-trap
[Accessed 3 2018].

Hofstede, G., 2001. *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations.* London: SAGE.

Hofstede, G., Hofstede, G. J. & Minkov, M., 2010. *Cultures and Organizations: Software of the Mind.* 3rd ed. s.l.:McGraw-Hill Education.

Holcombe, R. G., 1997. A theory of the theory of public goods. *The Review of Austrian Economics,* 3, 10(1), pp. 1-22.

Howard, A., 2011. *Radar. Insight, analysis and research about emerging technologies.* [Online]
Available at: http://radar.oreilly.com/2011/05/brightscope-financial-adviser-data.html

Huntington, S., 1994. *La Tercera Ola.* s.l.:Paidos.

Huntington, S. P., 1993. The Clash of Civilizations?. *Foreign Affairs,* 72(3), pp. 22-49.

IANA, 2017. *Root Servers.* [Online]
Available at: https://www.iana.org/domains/root/servers
[Accessed 2 2018].

ICANN, 2015. *The IANA Functions,* https://www.iana.org/about/informational-booklet.pdf: ICANN.

ICANN, 2016. *BYLAWS FOR INTERNET CORPORATION FOR ASSIGNED NAMES AND NUMBERS A California Nonprofit Public - Benefit Corporation.* [Online]
Available at: https://www.icann.org/en/system/files/files/adopted-bylaws-27may16-en.pdf
[Accessed 2 2018].

ICANN, 2017. *History Project | Interview with Vint Cerf, ICANN Board Chair.* [Online]
Available at: https://www.icann.org/en/history/icann-usg
[Accessed 1 3 2018].

ICANN, 2017. *ICANN Wiki, Lawrence Strickling.* [Online]
Available at: https://icannwiki.org/Lawrence_Strickling
[Accessed 1 3 2018].

IETF, 2012. The Tao of IETF: A Novice's Guide to the Internet Engineering Task Force. In: N. Oever ten & K. Moriarty, eds. s.l.:IETF, p. https://www6.ietf.org/tao.html.

IGF, 2017. *About the IGF.* [Online]
Available at: https://www.intgovforum.org/multilingual/tags/about
[Accessed 2 2018].

IGP, 2017. *What is Internet Governance.* [Online]
Available at: https://www.internetgovernance.org/what-is-internet-governance/
[Accessed 1 3 2018].

Intelligence Unit, 2017. *The 2016 Democracy Index report, Revenge of the "deplorables",* s.l.: s.n.

Internet2, 2017. *The Internet2 community: enabling the future.* [Online]
Available at: https://www.internet2.edu/about-us/

InternetLiveStats.com, 2017. *Internet Live Stats.* [Online]
Available at: http://www.internetlivestats.com/

ISOC, 2017. *Brief History of the Internet.* [Online]
Available at: https://www.internetsociety.org/internet/history-internet/brief-history-internet/
[Accessed 24 1 2018].

ISOC, 2018. *Who Makes the Internet Work: The Internet Ecosystem. Our Internet Ecosystem.* [Online]
Available at: https://www.internetsociety.org/internet/who-makes-it-work
[Accessed 21 1 2018].

ITU, 2015. *ICT Facts & Figures. The World in 2015,* Switzerland: ITU.

ITU, 2018. *ITU Committed to connecting the world.* [Online]
Available at: https://www.itu.int/en/Pages/default.aspx
[Accessed 6 2018].

ITU, 2018. *Public Consultations.* [Online]
Available at: https://www.itu.int/en/consultations/Pages/default.aspx
[Accessed 19 2 2018].

Jackson, J., 2012. *Vint Cerf: The Internet doesn't need the ITU's help.* [Online]
Available at: https://www.itworld.com/article/2716908/networking/vint-cerf--the-internet-doesn-t-need-the-itu-s-help.html
[Accessed 2 2018].

Jacobs, M. & Mazzucato, M., 2016. Rethinking Capitalism. An Introduction. In: M. Jacobs & M. Mazzucato, eds. *Rethinking Capitalism. Economics and Policy for Sustainable and Inclusive Growth.* West Sussex: Wiley Blackwell, pp. 1-27.

Jasanoff, S., 2007. *Designs on Nature Science and Democracy in Europe and the United States.* New Jersey: Princeton University Press.

Jisc, 2017. *History.* [Online]
Available at: https://www.jisc.ac.uk/about/history

Johnston, A., 2016. *Jacques Lacan.* [Online]
Available at: https://plato.stanford.edu/entries/lacan/

Jung, C. G., 1991. *The Archetypes and the Collective Unconscious.* 2nd ed. London: Routledge.

Kagan, R., 2003. *Of Paradise and Power: America and Europe in the New World Order.* s.l.:Alfred A. Knopf.

Kahneman, D. K., 2011. *Thinking, Fast and Slow.* London: Penguin Books.

Kant, I., 1993. *Groundwork for the Metaphysics of Morals - 1785.* 3rd ed. s.l.:Hackett.

Kant, I., 2017. *Idea of a Universal History on a Cosmo-Political Plan - 1784.* [Online]
Available at: http://philosophyproject.org/wp-content/uploads/2013/02/IDEA-OF-A-UNIVERSAL-HISTORY-ON-A-COSMPOLITAN-PLAN.pdf
[Accessed 2018].

Kassa, 2017. *Zorgen online games voor een gokverslaving bij kinderen?.* [Online]
Available at: https://kassa.bnnvara.nl/gemist/nieuws/zorgen-online-games-voor-een-gokverslaving-bij-kinderen
[Accessed 3 2018].

Kaul, I., Grunberg, I. & Stern, M. A., 1999. *Global Public Goods. International Cooperation in the 21st Century.* New York: Oxford University Press Inc..

Keane, L., 2017. *How Publishers Should Respond to Ad-Blocking in 2017.* [Online]
Available at: http://blog.globalwebindex.net/marketing/adblocking-2017/?utm_campaign=Trends+Webinar+Email&utm_medium=email&_hsenc=p2ANqtz--Q5Oy_2lga7mP05RkfxuZACdKdG1HkqU4qRCQzjCIzieBIFc8qt8H7mQhO56O5F_kApMgzA1QPGrnomNsmM9XQLchOMg&_hsmi=52148191&utm_content=52148191&utm_source=hs_email&hsCtaTracking=df4eeedd-1426-41b3-9a27-7fe54a29bf04%7C6b2665fa-2bed-40a3-b882-2413b6f329a2

Keeney, R. L., 1992. *Value-Focused Thinking. A Path to Creative Decisionmaking.* Cambridge(Massachusetts): Harvard University Press.

Kekic, L., 2007. *The Economist Intelligence Unit's index of democracy,* London: Economist Intelligence Unit.

Kent State University, 2019. *SPSS Tutorials: Pearson Correlation.* [Online]
Available at: https://libguides.library.kent.edu/SPSS/PearsonCorr

Khun, T. S., 1970. *The Structure of Scientific Revolutions.* 2nd enlarged ed. s.l.:The University of Chicago.

Kierkegaard, S., 1976. *Soren Kierkegaard's Journals and Papers.* s.l.:s.n.

Kim, B.-K., 2005. *Internationalizing the Internet: The Co-evolution of Influence and Technology.* Cheltenham: Edward Elgar.

Kim, M., 2017. *EA Lowers the Cost of Unlocking Star Wars Battlefront 2 Heroes by 75 Percent.* [Online]
Available at: https://www.usgamer.net/articles/ea-lowers-the-cost-of-unlocking-star-wars-battlefront-2-heroes-by-75-percent
[Accessed 3 2018].

King, M., 2016. *The End of Alchemy: Money, Banking and the Future of the Global Economy.* s.l.:Little, Brown.

Klein, H. K. & Kleinman, D. L., 2002. The Social Construction of Technology: Structural Considerations. *Science, Technology, & Human Values,* 27(1), pp. 28-52.

Kohlberg, L., 1984. *Essays on Moral Development: Vol .II. The Psychology of Moral Development: The Nature and Validity of Moral Stages.* s.l.:Harper&Row.

Krugman, P., 2013. *Bernanke, Blower of Bubbles?.* [Online]
Available at: http://www.nytimes.com/2013/05/10/opinion/krugman-bernanke-blower-of-bubbles.html?src=me&ref=general
[Accessed 10 12 2015].

Kulwin, N., 2018. The Internet Apologizes …. *New York Magazine*, 13 4, pp. http://nymag.com/selectall/2018/04/an-apology-for-the-internet-from-the-people-who-built-it.html.

Lam, K., 2018. Trump administration sues California over newly-signed net neutrality law. *USA Today,* Issue https://www.usatoday.com/story/news/2018/09/30/net-neutrality-trump-administration-files-lawsuit-against-california/1483650002/.

Latour, B., 2004. *Politics of Nature: How to Bring the Sciences into Democracy.* Cambridge: Harvard University Press.

Latour, B., 2017. Europe and the Politics of Nature. In: M. Slob, ed. *Nature in modern society now and in the future.* The Hague: PBL Netherlands Environmental Assessment, pp. 24-37.

Lawlor, L., 2016. *Jacques Derrida.* [Online]
Available at: https://plato.stanford.edu/archives/win2016/entries/derrida/

Lee, C., 2018. *Gaming industry lobbyists questioned about lootboxes.* [Online]
Available at: https://www.youtube.com/watch?v=W1hQHZedRSE
[Accessed 3 2018].

Leiner, B. M. et al., 2015. *Brief History of the Internet.* [Online]
Available at: http://www.internetsociety.org/internet/what-internet/history-internet/brief-history-internet
[Accessed 4 12 2015].

Levine, P., 2007. Collective Action, Civic Engagement, and the Knowledge Commons. In: C. Hess & E. Ostrom, eds. *Understanding Knowledge as a Commons. From Theory to Practice.* Cambridge: The MIT Press, pp. 247-276.

Lévi-Strauss, C., 1969. *Las estructuras elementales del parentezco.* Spanish ed. Barcelona: Paidós.

Levitt, S. D. & Dubner, S. J., 2009. *Freakonomics.* New York: HarperCollins.

Licklider, J. C. R., 1960. Man-Computer Symbiosis. *Transactions on Human Factors in Electronics,* 3, Volume HFE-1, pp. 4-11.

Licklider, J. C. R. & Taylor, R. W., 1968. The Computer as a Communication Device. *Science and Technology,* 4.

Locke, J., 2014. *Two Treatises of Government.* s.l.:s.n.

Lovelock, J., 2007. *The Revenge of Gaia: Why the Earth is Fighting Back and How We Can Still Save Humanity.* s.l.:Penguin.

Luhmann, N., 1992. Operational Closure and Structural Coupling: The Differentiation of the Legal System. *Cardozo Law Review,* Volume 13, pp. 1419-1442.

Luhmann, N., 1995. *Social Systems.* s.l.:Stanford University Press.

MacAskill, E. & Dance, G., 2013. *NSA Files: Decoded. What the revelations mean for you.* [Online] Available at: https://www.theguardian.com/world/interactive/2013/nov/01/snowden-nsa-files-surveillance-revelations-decoded#section/1
[Accessed 2 2018].

MacBride, S. et al., 1980. *Many Voices One World,* Paris: United Nations Educational, Scientific and Cultural Organization.

Magnusson, P. et al., 2008. Breaking through the cultural clutter. A comparative assessment of multiple cultural and institutional frameworks. *International Marketing Review,* 25(2), pp. 183-201.

Mansell, R., 2012. *Imagining the Internet: Communication, Innovation, and Governance.* Oxford: Oxford University Press.

Manyika, J. et al., 2011. *Big data: The next frontier for innovation, competition, and productivity,* s.l.: McKinsey&Company.

Manyika, J. et al., 2016. *Digital Globalization: The New Era of Global Flows,* s.l.: s.n.

Marcuse, H., 1964. *One Dimensional Man.* 3 ed. Boston: Beacon Press.

Markoff, J., 2006. *What the Dormouse Said: How the 60s Counterculture Shaped the Personal Computer Industry.* Reprint ed. New York: Penguin Publishing Group.

Markoff, J., 2017. Robert Taylor, Innovator Who Shaped Modern Computing, Dies at 85. *The New York Times*, 14 4, pp. https://www.nytimes.com/2017/04/14/technology/robert-taylor-innovator-who-shaped-modern-computing-dies-at-85.html.

Marx, K., 1853. The British Rule in India. *New/York Daily Tribune*, 25 6, p. https://www.marxists.org/archive/marx/works/1853/06/25.htm.

Maslow, A. H., 1943. A Theory of Human Motivation. *Psychological Review,* 50(4), pp. 370-396.

Maslow, A. H., 1970. *Motivation and personality.* 2nd ed. New York: Harper & Row.

Maturana, H. R. & Varela, F. G., 2004. *De Maquinas y Seres Vivos. Autopoiesis: La organizacion de lo Vivo.* 6th ed. Santiago: Lumen.

Maturana, H. & Verden-Zöller, G., 2008. *The Origin of Humanness in the Biology of Love.* Exeter: Imprint Academic.

Mazzucato, M., 2014. *Building the Entrepreneurial State. A new framework for envisioning and evaluating mission-oriented public investments,* London: s.n.

MBMMaverick, 2017. *The Largest Battlefront Community Online.* [Online]
Available at:
https://www.reddit.com/r/StarWarsBattlefront/comments/7cff0b/seriously_i_paid_80_to_have_vader_locked/dppum98/
[Accessed 3 2018].

McChesney, R. W., 2008. *The Political Economy of Media: Enduring Issues, Emerging Dilemmas.* s.l.:NYU Press.

McLuhan, M., 2002. *The Gutenberg Galaxy.* 11th reprinted ed. Toronto: University of Toronto Press.

MindGeek, 2018. *Global Presence.* [Online]
Available at: https://www.mindgeek.com/about/
[Accessed 6].

Miniwatts Marketing Group, 2017. *Inernet World Stats.* [Online]
Available at: http://www.internetworldstats.com/stats.htm
[Accessed 26 1 2018].

Minkov, M. & Hofstede, G., 2011. The evolution of Hofstede's doctrine. *Cross Cultural Management: An International Journal,* 18(1), pp. 10-20.

Mises Von, L., 1986. *La accion humana. Tratado de Economia.* 4th ed. Madrid: Union Editorial.

Mishra, P., 2018. The Rise of China and the Fall of the 'Free Trade' Myth. *The New York Times Magazine,* Great Walls(Feb 11), p. MM42.

Mislove, A. et al., 2007. *Measurement and Analysis of Online Social Networks.* New York, ACM, pp. 29-42.

MIT Technology Review, 2017. *50 Smartest Companies 2017.* [Online]
Available at: https://www.technologyreview.com/lists/companies/2017/intro/#nvidia

Mohammed, R., Fisher, R. J., Jaworski, B. J. & Paddison, G., 2004. *Internet Marketing: Building Advantage in a Networked Economy.* New York: McGraw-Hill.

Mol, A., 2017. Natures in Tension. In: M. Slob, ed. *Nature in modern society now and in the future.* The Hague: PBL Netherlands Environmental Assessment, pp. 88-103.

Mommaas, H., Dammers, E. & Slob, M., 2017. Nature Policy in the Anthropocene. In: M. Slob, ed. *Nature in modern society now and in the future.* The Hague: PBL Netherlands Environmental Assessment, pp. 106-117.

Mooij de, M., 2014. *Global Marketing and Advertising: Understanding Cultural Paradoxes.* 4th ed. s.l.:SAGE Publications Inc.

NASDAQ, 2017. *Nasdaq Quotes.* [Online]
Available at: http://www.nasdaq.com/symbol/

Nelson, T., 1994. *Literary Machines.* s.l.:Mindful Press.

Netflix, 2017. *Q416ShareholderLetter.* [Online]
Available at: http://files.shareholder.com/downloads/NFLX/3692252734x0x924415/A5ACACF9-9C17-44E6-B74A-628CE049C1B0/Q416ShareholderLetter.pdf
[Accessed 7 3 2017].

Newman, D., 2014. *Cloud: Not New, Just A Big Disruption To How We Communicate.* [Online]
Available at: https://www.forbes.com/sites/danielnewman/2014/06/10/cloud-not-new-just-a-big-disruption-to-how-we-communicate/#2f90b0ec74ea
[Accessed 2 2018].

NIC, 1983. *Defense Data Network Newsletter.* [Online]
Available at: https://www.rfc-editor.org/rfc/museum/ddn-news/ddn-news.n26.1
[Accessed 1 2018].

Nipper, A., 2018. *PeeringDB Update,* Dakar: Proceedings Africa Internet Summit.

Noronha, F. & Higgs, K., 2010. The internet is a “radically different” place because of APC. *APC,* Volume https://www.apc.org/en/node/10678/.

Norris, P., 2001. *Digital Divide. Civic Engagement, Information Poverty, and the Internet Worldwide.* 5th Reprinted, 2006 ed. New York: Cambridge University Press.

NORSAR, 2016. *ARPANET NORSAR becomes the first non-US node on ARPANET, the predecessor to today's Internet.* [Online]
Available at: https://www.norsar.no/about-us/history/arpanet-article774-270.html
[Accessed 1 2018].

Norton, W. B., 2014. *The Internet Peering Playbook. Connecting to the Core of the Internet.* s.l.:s.n.

NSF, 1993. *NSF 93-52 - Network Access Point Manager, Routing Arbiter, Regional Network Providers, and Very High Speed Backbone Network Services Provider for NSFNET and The NREN(SM) Program.* [Online]
Available at: https://w2.eff.org/Infrastructure/Govt_docs/nsf_nren.rfp
[Accessed 5 2017].

Nussbaum, M. C., 2010. *Not for profit: Why democracy needs the humanities.* s.l.:Princeton University Press.

OffGuardian, 2016. *"The web we want"? No, don't think so….* [Online]
Available at: https://off-guardian.org/2016/04/13/the-web-we-want-no-dont-think-so/
[Accessed 8 3 2017].

O'Hara, K. & Stevens, D., 2006. *Inequality.com: Power, Poverty and the Digital Divide.* Oxford: OneWorld Publications.

Olavsrud, T., 2015. *IDC says big data spending to hit $48.6 billion in 2019.* [Online]
Available at: http://www.cio.com/article/3004512/big-data/idc-predicts-big-data-spending-to-reach-48-6-billion-in-2019.html

Olhede, S. & Rodrigues, R., 2017. Why data is not a commodity. *Significance, The Royal Statistical Society,* Volume October, pp. 10-11.

Overton, D., 2017. *Next Generation Internet Initiative - Consultation,* s.l.: s.n.

Packard, V., 2007. *The Hidden Persuaders.* New York: Ig Publishing.

Parsons, T., 1991. *The Social System.* s.l.:Routledge.

Parsons, T., 2005. *The Social System.* Taylor & Francis e-Library: Routledge.

Pepper, R. & Jackman, M., 2017. *State of Connectivity 2016: Using Data to Move Towards a More Inclusive Internet.* [Online]
Available at: https://newsroom.fb.com/news/2017/02/state-of-connectivity-2016-using-data-to-move-towards-a-more-inclusive-internet/

Perez, C., 2009. Technological revolutions and techno-economic paradigms. *Working Papers in Technology Governance and Economic Dynamics,* Volume 20.

Perez, C., 2016. Capitalism, Technology and a Green Global Golden Age: The Role of History in Helping to Shape the Future. In: M. Jacobs & M. Mazzucato, eds. *Rethinking Capitalism. Economics and Policy for Sustainable and Inclusive Growth.* West Sussex: Wiley Blackwell, pp. 191-217.

Podesta, J. et al., 2014. *Big Data: Seizing Opportunities, Preserving Values,* Washington: s.n.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y. & Podsakoff, N. P., 2003. Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Applied Psychology,* 88(5), pp. 879-903.

Popper, K., 1962. *Conjectures and Refutations: The Growth of Scientific Knowledge.* New York: Basic Books.

Poteete, J., Janssen, M. A. & Ostrom, E., 2010. *Working Together: Collective Action, the Commons, and Multiple Methods in Practice.* Princeton: Princeton University Press.

PTI, 2018. *Public Technical Identifiers (PTI).* [Online]
Available at: https://pti.icann.org/#latest_updates
[Accessed 12 2 2018].

Raymond, M. & DeNardis, L., 2016. *Multi-stakeholderism: Anatomy of an Inchoate Global Institution,* Cambridge: CIGI Chatham House. The Royal Institute of International Affairs. Global Commission on Internet Governance. Paper Series No. 41.

Raymond, M. & Smith, G., 2016. *Organized Chaos: Reimagining the Internet.* s.l.:McGill-Queen's Press - MQUP.

Raynor, M. E. & Cotteleer, M., 2015. *The more things change: Value creation, value capture, and the Internet of Things.* [Online]
Available at: https://dupress.deloitte.com/dup-us-en/deloitte-review/issue-17/value-creation-value-capture-internet-of-things.html

RFC 2132, 1997. *DHCP Options and BOOTP Vendor Extensions.* [Online]
Available at: https://tools.ietf.org/html/rfc2132
[Accessed 2 2018].

RFC 2663, 1999. *IP Network Address Translator (NAT) Terminology and Considerations.* [Online]
Available at: https://tools.ietf.org/html/rfc2663
[Accessed 2 2018].

RFC 3935, 2004. *Mission and principles RFC.* [Online]
Available at: https://www.ietf.org/rfc/rfc3935.txt
[Accessed 3 2018].

RFC 4271, 2006. *A Border Gateway Protocol 4 (BGP-4).* [Online]
Available at: https://tools.ietf.org/html/rfc4271
[Accessed 4 2018].

RFC 4677, 2006. *The Tao of IETF: A Novice's Guide to the Internet Engineering Task Force.* [Online]
Available at: https://tools.ietf.org/html/rfc4677

RFC 6722, 2012. *Publishing the "Tao of the IETF" as a Web Page.* [Online]
Available at: https://tools.ietf.org/html/rfc6722
[Accessed 3 2018].

RFC 6887, 2013. *Prot Control Protocol (PCP).* [Online]
Available at: https://tools.ietf.org/html/rfc6887
[Accessed 2 2018].

RFC 760, 1980. *DoD Standard Internet Protocol.* [Online]
Available at: https://tools.ietf.org/html/rfc760

RFC 791, 1981. *Request For Comments.* [Online]
Available at: http://www.ietf.org/rfc/rfc0791.txt

Roberts, A., 2012. WikiLeaks: the illusion of transparency. *International Review of Administrative Sciences,* 78(1), pp. 116-133.

Rorty, R., 1982. *Consequences of Pragmatism.*
http://www.filosofia.it/archivio/images/download/argomenti/RortyConsequencesPragmatismIntro.pdf ed. Minneapolis: University of Minnesota Press.

Roschelle, J. & Teasley, S., 1995. The Construction of Shared Knowledge in Collaborative Problem Solving. In: C. O'Malley & Springer, Berlin, Heidelberg, eds. *Computer Supported Collaborative Learning.* s.l.:NATO ASI Series (Series F: Computer and Systems Sciences), vol 128, pp. 69-97.

Rushe, D., 2015. *Nasdaq reaches new record high, 15 years after dotcom tech surge.* [Online]
Available at: http://www.theguardian.com/business/2015/apr/23/nasdaq-new-record-high-dotcom-bubble
[Accessed 25 10 2015].

Sánchez-Vázquez, A., 1984. *Ética.* 4th ed. Barcelona: Grijalbo.

Salinas, S. & Balakrishnan, A., 2018. Mark Zuckerberg has been talking and apologizing about privacy since 2003 — here's a reminder of what he's said. *CNBC,* 2018(19 Dec 2018), pp. https://www.cnbc.com/2018/12/19/facebook-ceo-mark-zuckerberg-privacy-apologies.html.

SBA U.S. Small Business Administration, 2014. *About STTR.* [Online]
Available at: https://www.sbir.gov/about/about-sttr
[Accessed 28 1 2016].

Schumpeter, J., 2003. *Capitalism, Socialism and Democracy.* s.l.:Routledge.

Schwartz, P. M., 2004. Property, Privacy, and Personal Data. *Harvard Law Review,* 5, 117(7), pp. 2055-2128.

Scruton, R., 2006. *The trouble with Islam, the European Union - and Francis Fukuyama.* [Online]
Available at: https://www.opendemocracy.net/democracy-fukuyama/trouble_3605.jsp

Scruton, R., 2013. Prefazione. In: E. M. Radaelli, ed. *Il Domani - Terribile o Radioso? - del Dogma.* Milano: Aurea Domus, p. II.

Sen, A., 1999. Democracy as a Universal Value. *Journal of Democracy,* 10(3), pp. 3-17.

Sen, A., 1999. Global Justice: Beyond International Equity. In: I. Kaul, I. Grundberg & M. A. Stern, eds. *Global Public Goods.* New York: UNDP - Oxford University Press, pp. 116-125.

Sen, A., 2001. *Development as Freedom.* Oxford: Oxford University Press.

Sen, A., 2010. *The Idea of Justice.* s.l.:Penguin.

Sherry, J. & Brown, C., 2004. History of the Internet. In: H. Bidgoli, ed. *The Internet Encyclopedia, Volume 2 (G - O).* s.l.:John Wiley & Sons, pp. 114-123.

Shirky, C., 2009. *Here Comes Everybody. How change happens when people come together.* s.l.:Penguin Books.

SimilarWeb LTD, 2016. *Get insights for any website or app.* [Online]
Available at: https://www.similarweb.com

SimilarWeb, 2016. *All Categories.* [Online]
Available at: https://www.similarweb.com/category

Skeggs, B., 2014. Values beyond value? Is anything beyond the logic of capital?. *The British Journal of Sociology,* 26 2, 65(1), pp. 1-20.

Soares, A. M., Farhangmehr, M. & Shoham, A., 2007. Hofstede's dimensions of culture in international marketing studies. *Journal of Business Research,* 60(3), pp. 277-284.

Sobel, R. S., Gwartney, J. D., Stroup, R. L. & Macpherson, D. A., 2013. *Understanding Economics.* 14th ed. Canada: South-Western.

Soros, G., 2006. Soros y sus consejos para la democracia Las fundaciones del millonario promueven las sociedades abiertas como medio para alcanzar un orden mundial justo. *El Pais,* Volume Dec 3, p. https://elpais.com/diario/2006/12/03/domingo/1165121560_850215.html.

Soros, G., 2009. General Theory of Reflexivity. *The Financial Times Limited,* Issue October, pp. https://www.ft.com/content/0ca06172-bfe9-11de-aed2-00144feab49a.

Srinivasan, B., 2017. *AMERICANA. A 400-Year History of American Capitalism.* New York: Penguin Press.

Srnicek, N., 2017. *Platform Capitalism.* s.l.:Polity Press.

Srnicek, N. & Williams, A., 2015. *Inventing the Future: Postcapitalism and a World Without Work.* London: Verso.

Stacy, C. C., 1982. *Getting Started Computing at the AI Lab,* Cambridge: MIT - AI Laboratory.

statista, 2018. *Number of monthly active Facebook users worldwide as of 4th quarter 2017 (in millions).* [Online]
Available at: https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/
[Accessed 1 3 2018].

Steinberg, J., 2013. Spinoza's Political Philosophy. *The Stanford Encyclopedia of Philosophy,* Winter edition(Edward N. Zalta (ed.)), pp. https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=spinoza-political.

Steinmetz, R. & Wehrle, K., 2005. What Is This “Peer-to-Peer” About?. In: R. Steinmetz & K. Wehrle, eds. *Peer-to-Peer Systems and Applications. Lecture Notes in Computer Science.* Berlin: Springer-Verlag, pp. 9-16.

Stiglitz, J. E., 2015. *The Great Divide: Unequal Societies and What We Can Do About Them.* New York: W. W. Norton & Company Inc.

Stiglitz, J. E., Sy, J. H. & Spar, D. L., 1999. Knowledge and Information. In: I. Kaul, I. Grunberg & M. A. Stern, eds. *Global Public Goods.* New York: UNDP The United Nations Development Programme. Oxford University Press, pp. 306-363.

Strickling, L. E., 2017. *Correspondence Strickling to Crocker.* [Online]
Available at: https://www.icann.org/en/system/files/correspondence/strickling-to-crocker-06jan17-en.pdf
[Accessed 1 3 2018].

Tapscott, D., 1997. *Digital Economy: Promise and Peril in the Age of Networked Intelligence.* New Edition ed. s.l.:McGraw-Hill Inc.

Taubman, A., 2009. International Governance and the Internet. In: L. Edwards & C. Waelde, eds. *Law and the Internet.* Oxford: Hart Publishing, pp. 3-44.

Taylor, C., 2004. *Modern Social Imaginaries.* Durham: Duke University Press.

Tennison, J., 2015. *Why is open data a public good?.* [Online]
Available at: http://theodi.org/blog/why-is-open-data-a-public-good

The Economist, 2017. The world’s most valuable resource is no longer oil, but data. *The Economist,* 6 5.

The Economist, 2017. Video games could fall foul of anti-gambling laws. *The Economist,* Volume Dec 7th.

The Economist, 2018. Perfected in China, a threat in the West. *The Economist,* Volume June 2nd.

The Guardian, 2018. *Mark Zuckerberg apologises for Facebook's 'mistakes' over Cambridge Analytica.* [Online]
Available at: https://www.theguardian.com/technology/2018/mar/21/mark-zuckerberg-response-facebook-cambridge-analytica
[Accessed 21 3 2018].

The Tor Project Inc, 2015. *Tor Metrics - Estimated number of clients in the Tor Network.* [Online]
Available at: https://metrics.torproject.org/clients-data.html
[Accessed 26 12 2015].

The Web We Want, 2017. *Web We Want.* [Online]
Available at: https://webwewant.org/
[Accessed 8 3 2017].

The World Bank Group, 2016. *World Bank Open Data. Free and open access to global development data.* [Online]
Available at: http://data.worldbank.org/

The World Bank, 2017. *World Bank Country and Lending Groups.* [Online]
Available at: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups
[Accessed 2019].

Toulmin, S., 1992. *Cosmopolis: The Hidden Agenda of Modernity.* Chicago: The University of Chicago Press.

Treviño, J., 2001. *Talcott Parsons Today: His Theory and Legacy in Contemporary Sociology.* Lanham: Rowman & Littlefield.

Trigg, A. B., 2001. Veblen, Bourdieu, and Conspicuous Consumption. *Journal of Economic Issues,* 35(1), pp. 99-115.

Tufekci, Z., 2015. Algorithmic harms beyond Facebook and Google: Emergent Challenges of Computational Agency. *Colorado Technology Law Journal,* 13(2), pp. 203-218.

Turck, M., 2016. *The Power of Data Network Effects.* [Online]
Available at: http://mattturck.com/the-power-of-data-network-effects/

Tversky, A. & Kahneman, D., 1973. *Judgment under uncertainty: Heuristics and Biases,* Oregon: ARPA.

Tversky, A. & Kahneman, D., 1985. The Framing of Decisions and the Psychology of Choice. In: V. T. Covello, J. L. Mumpower, P. J. M. Stallen & V. R. R. Uppuluri, eds. *Environmental Impact Assessment, Technology Assessment, and Risk Analysis.* s.l.:NATO ASI Series, pp. 107-129.

UKWA Open Data, 2016. *Website Classification Dataset.* [Online]
Available at: http://data.webarchive.org.uk/opendata/ukwa.ds.1/classification/

United States Senate, 2013. *A Review of the Data Broker Industry: Collection, Use , and Sale of Consumer Data for Marketing Purposes,* s.l.: Staff Report for Chairman Rockefeller.

US Congress, 1992. *Management of NSFNET. Hearing before the Subcommittee on Science of the Committee on Science, Space, and Technology, U.S. House of Representatives, One Hundred Second Congress, Second Session..* [Online]
Available at: https://eric.ed.gov/?id=ED350986
[Accessed 1 2018].

US Congress, 1996. *Telecommunications Act of 1996.* [Online]
Available at: https://www.gpo.gov/fdsys/pkg/PLAW-104publ104/html/PLAW-104publ104.htm
[Accessed 1 2018].

Veblen, T., 1899. *The Theory of the Leisure Class.* New York: MacMillan.

Villanueva, O. et al., 1992. *Biófilo Panclasta, el eterno prisionero.* Bogota: Alas de Xue.

W3C Technical Architecture Group, 2004. *Architecture of the World Wide Web, Volume One. W3C Recommendation 15 December 2004.* [Online]
Available at: https://www.w3.org/TR/2004/REC-webarch-20041215/

Wallerstein, I. M., 2004. *World-systems Analysis.* 2nd printing, 2005 ed. Durham: Duke University Press.

Wang, J., 2008. *Brand New China : Advertising, Media, and Commercial Culture.* s.l.:Harvard University Press.

Warfield, J., 1976. *Societal Systems: Planning, Policy, and Complexity.* New York: Wiley Interscience.

Warfield, J., 2006. *An Introduction to Systems Science.* Singapore: World Scientific Publishing Co. Pte. Ltd..

Waters, D. J., 2007. Preserving the Knowledge Commons. In: C. Hess & E. Ostrom, eds. *Understanding Knowledge as Commons. From theory to practice.* Cambridge: The MIT Press, pp. 145-168.

Weiss, J., 1985. Max Weber's distinction between Means-End Rationality and Value-Rationality - Rationale, Scope, Difficulties. In: G. Seebass & R. Tuomela, eds. *Social Action.* s.l.:D. Reidel Publishing Company, pp. 207-223.

WGIG, 2005. *Report of the Working Gr oup on Internet Governance ,* Geneva: United Nations.

Wikipedia, 2017. *Website.* [Online]
Available at: https://en.wikipedia.org/wiki/Website

Williams, A. & Srnicek, N., 2013. #ACCELERATE MANIFESTO for an Accelerationist Politics. *Critical Legal Thinking,* Volume May 14, pp. http://criticallegalthinking.com/2013/05/14/accelerate-manifesto-for-an-accelerationist-politics/.

Winner, L., 1993. Upon Opening the Black Box and Finding It Empty: Social Constructivism and the Philosophy of Technology. *Science, Technology, & Human Values,* 18(3), pp. 362-378.

Winner, L., 2014. Technologies as Forms of Life. In: R. L. Sandler, ed. *Ethics and Emerging Technologies.* London: Palgrave Macmillan, pp. 48-59.

Wirtz, B. W., Schilke, O. & Ullrich, S., 2010. Strategic Development of Business Models: Implications of the Web 2.0 for Creating Value on the Internet. *Long Range Planning,* 4-6, 43(2-3), pp. 272-290.

Wolff-Mann, E., 2018. *Only good for drug dealers': More Nobel prize winners snub bitcoin.* [Online]
Available at: https://finance.yahoo.com/news/good-drug-dealers-nobel-prize-winners-snub-bitcoin-184903784.html
[Accessed 2018].

World Bank Group, 2016. *Digital Dividens,* Washington: s.n.

Zupancic, A., 2012. *Ethics of the Real: Kant and Lacan (Radical Thinkers).* s.l.:Verso; Reprint edition.