

UNIVERSITY OF SOUTHAMPTON

FACULTY OF LAW, ARTS AND SOCIAL SCIENCES

**CENTRE FOR HIGHER EDUCATION MANAGEMENT AND POLICY AT
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School of Management

**PROPOSAL FOR A GOVERNANCE DECISION-MAKING MODEL
IN A PORTUGUESE PUBLIC UNIVERSITY (PPU)**

Volume I of II

by

Margarida Mano

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ABSTRACT

The primary aim of this thesis is to establish principles for a governance decision-making model in a Portuguese Public University (PPU) and for the decision support system which supports it. The proposed model assumes a comprehensive understanding of how the decision making process is developed in the current context of change within the Portuguese higher education system, and is based on the university top managers' perceptions.

The mainly public Portuguese system, has suffered during the last decades the pressure from growing global mass tendencies, globalization and competitiveness in higher education. At the beginning of the twenty-first century PPU view the Bologna Process as a challenge and an opportunity which demands a shared management of the tensions that result from the ever changing relations between the University, the State and Society.

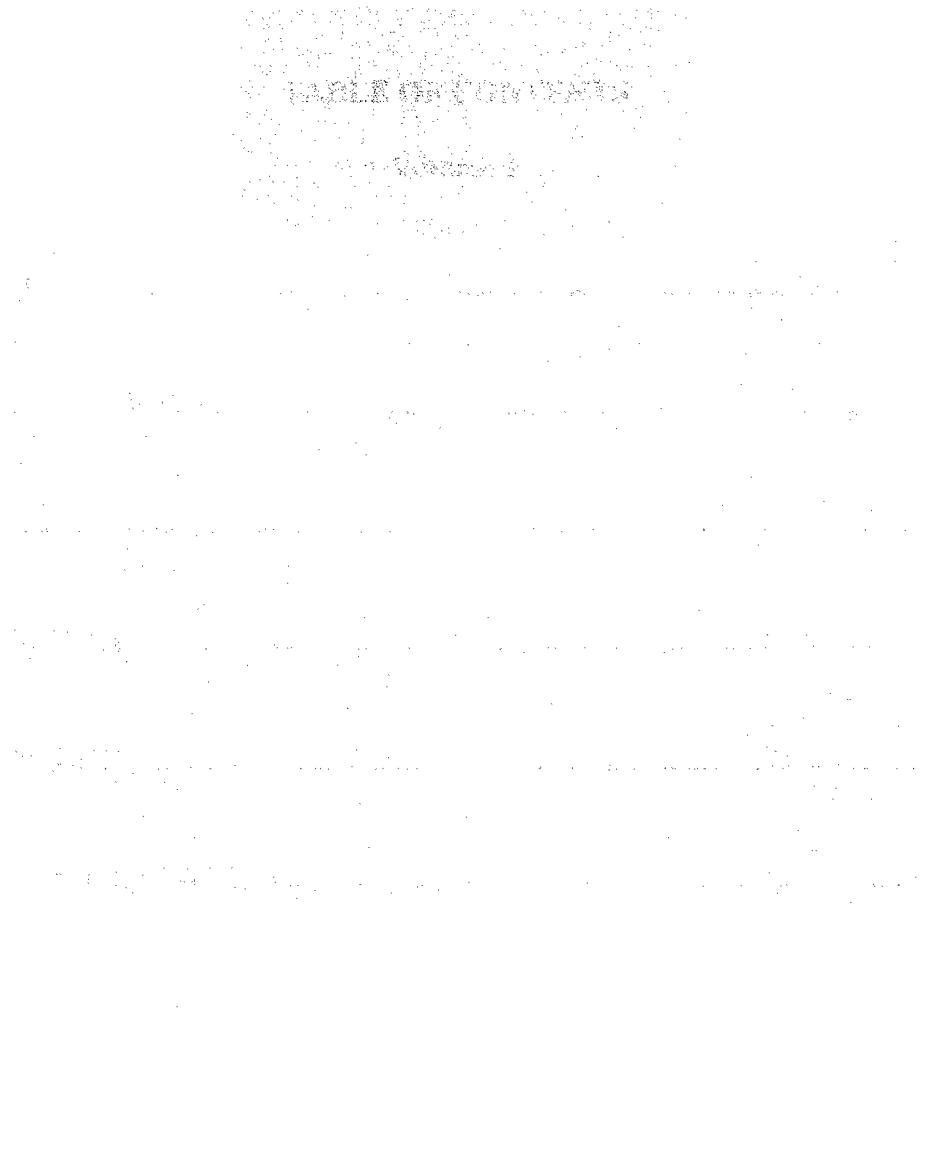
The literature review suggests that a management change in the university organization must be based upon a deep understanding of the "invisible glue" which crafts institutional cultures, strengthening traditional values such as collegiality and autonomy in a new entrepreneurial culture. This change model presumes mechanisms of systematic integration of external evaluation towards continuous improvement according to Total Quality Management models.

In this case study, 30 interviews were performed at two distinct organizational levels (University and Faculties) allowing for the characterization of the current governance model and, most importantly, to propose a governance and decision-making model based upon the critical needs of the strategic decision-makers, as supported by the literature review.

The study of governance and decision-making processes, when applied to PPU, makes evident the critical importance of principles such as collegiality and democratic management, as well as performance analysis through support systems and organizational structures.

The proposed governance model, empirically tested and validated, with approximately 2000 quotations structured into 5 levels, for a total of 366 codes, is based upon five integrated and inter-related sub-systems: strategic mission definition, governance, structuring of the decision-making process, decision-making support system and performance assessment systems.

Finally, the model's external validity was evaluated according to two different perspectives. First, in an attempt to evaluate its adequacy regarding TQM criteria a comparative analysis was performed with the Baldridge Education Criteria for Performance Excellence, and verified through a correspondence matrix specifically created with this purpose. Secondly, the remaining 12 PPU heads of administration were queried, through electronic survey, regarding the interest of each individual university in light of the model, which allowed for the inference of a high degree of accordance, among the inquiry universe, with the model principles. The proposed governance and decision-making model presents itself as an efficient management instrument to the strategic top of the studied PPU in the change management process that encompasses the University.



The current institutional research is developed in the scope of a Portuguese public institution, the University of Coimbra (UC). The Rector and the Presidents of the Faculties, including the Faculty of Economics - where the pilot-study was developed - gave formal consent to use the institution's name in the study.

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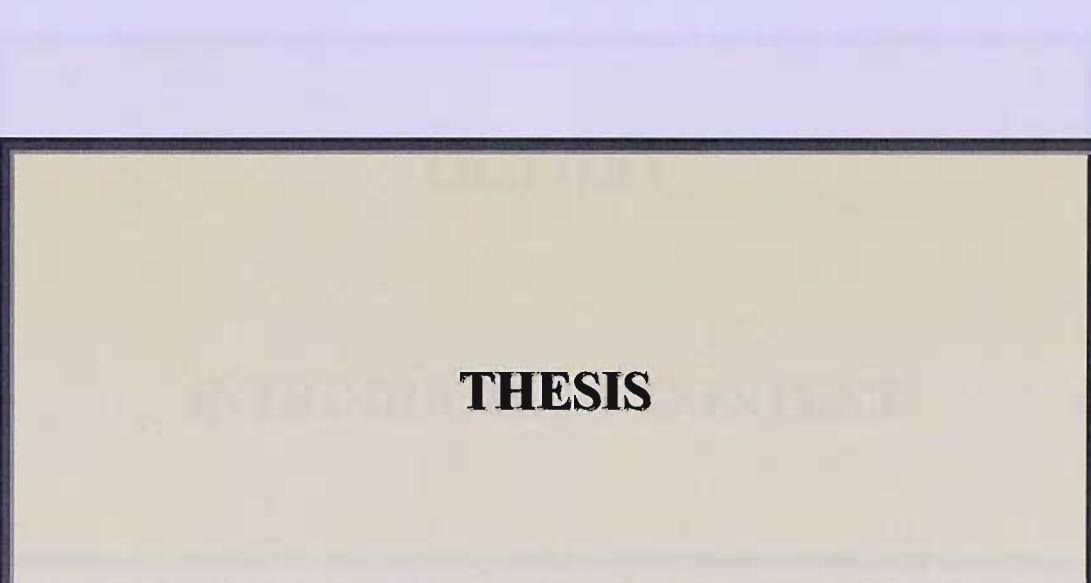
Thank you!

GLOSSARY OF KEY ACRONYMS

AAC	Coimbra Students' Association
ABC	Activity Based Costing
APCER	Portuguese Quality Certification Association
APQ	Portuguese Association for Quality
AR	Assembly of Representatives
BNQP	Baldridge National Quality Program
BSC	Balance Scorecard
CA	Administrative Council
CC	Academic Board
CD	Executive Board
CEO	Chief Executive Officer
CHEMS	Commonwealth Higher Education Management Service
CIPES	Centre for Research in Higher Education Policies
CNAVES	National Higher Education Assessment Council
CNES	Higher Education National Council
CP	Pedagogical Board
CPAC	Coimbra Academic Initiation Code
CQI	Continual Quality Improvement
CRE	European Rector's Conference
CRUP	Rector's Conference of Portuguese Public Universities
CVCP	Committee of Vice-Chancellors and Principals
DGESup	Directorate-General for Higher Education
DL	Decree-Law
DMP	Decision Making Process
DN	Portuguese Newspaper – “Diário de Notícias”
DSS	Decision Support System
ECTS	European Credit Transfer System
EFQM	European Foundation for Quality Management
EFT	Equivalent in Full Time
EQA	European Quality Award
ESMU	European Centre for Strategic Management of Universities
EUA	European University Association
FAC	Faculties (Research Model)
FCDEFUC	Faculty of Sports Sciences and Physical Education of UC
FCTUC	Faculty of Sciences and Technology of UC
FDUC	Faculty of Law of UC
FEP	Faculty of Engineering – University of Porto
FEUC	Faculty of Economics of UC
FFUC	Faculty of Pharmacy of UC
FLUC	Faculty of Humanities of UC
FMUC	Faculty of Medicine of UC
FPCEUC	Faculty of Psychology and Education Sciences of UC
FR	Financial Resources
FUP	Portuguese Universities' Foundation
GDMP	Group Decision Making Process
GDSS	Group Decision Support Systems

GT	Grounded Theory
HE	Higher Education
HEFC	Higher Education Funding Council
HEFCE	Higher Education Funding Council for England
HEI	Higher Education Institution
HES	Higher Education System
HESA	Higher Education Statistics Agency
HR	Human Resources
ICT	Information and Communication Technologies
IMHE	Institutional Management in Higher Education
INE	Portuguese Institute for Statistics
IPQ	Portuguese Institute of Quality
IR	Institutional Researcher/Institutional Research
IS	Information System
ISCTE	Portuguese Higher Education Institute for Employment and Companies
LAU	Law of University Autonomy
MBNQA	Malcolm Baldrige National Quality Award
MCES	Portuguese Ministry for Science and Higher Education
NCIHE	National Committee of Inquiry into Higher Education
NHEAC	National Higher Education Assessment Council
OCES	Portuguese Science and Higher Education Observatory
OECD	Organisation for Economic Co-operation and Development
OI	Other Institutions – University of Coimbra (Research Model)
OR	Operations Research
PCC	President of Academic Board
PCD	President of Executive Board / Deans
PCP	President of Pedagogical Board
PD	Primary Documents (Research)
PEX	Excellence Quality Award
PHE	Portuguese Higher Education
PHES	Portuguese Higher Education System
PI	Performance Indicators
POC-E	Official Accounting Plan for Education
PPHE	Portuguese Public Higher Education
PPU	Portuguese Public Universities
PR	Pro Rector
QAA	Quality Assurance Agency for Higher Education
QMS	Quality Management System
RAE	Research Assessment Exercise
RAFE	Portuguese States's Financial Administration Reform
SGQ	Quality Management System
SIES	Portuguese Information System for Higher Education
SIGARRA	Academic Information System – University of Porto
SPSS	Statistic Package for Social Sciences
T&L	Teaching and Learning
TQA	Teaching Quality Assessment
TQM	Total Quality Management
UA	University of Aveiro
UAB	Open University
UAç	University of Açores

UAlg	University of Algarve
UBI	University of Beira Interior
UC	University of Coimbra
UE	University of Évora
UGC	University Grants Committee
UL	University of Lisboa
UM	University of Minho
UMa	University of Madeira
UNL	New University of Lisboa
UP	University of Porto
UTAD	University of Trás-os-Montes and Alto Douro
UTL	Technical University of Lisboa
VR	Vice-Rector



THESIS

CHAPTER 1

INTRODUCTORY CONTEXT

After the 2010 census, the U.S. House of Representatives was to have been redistricted to reflect the changes in population. The House of Representatives is the lower house of the U.S. Congress, and it has 435 members. The House of Representatives is responsible for proposing legislation and for representing the interests of their constituents in the U.S. Congress. The House of Representatives is also responsible for electing the Speaker of the House, who is the leader of the House of Representatives.

Because of the changes in population, the House of Representatives was to have been redistricted to reflect the changes in population. The House of Representatives is the lower house of the U.S. Congress, and it has 435 members. The House of Representatives is responsible for proposing legislation and for representing the interests of their constituents in the U.S. Congress. The House of Representatives is also responsible for electing the Speaker of the House, who is the leader of the House of Representatives.

CHAPTER 1

INTRODUCTORY CONTEXT

1.1. The Portuguese Public Higher Education System: Context and Challenges

1.1.1. The Higher Education Pressure Factors

1.1.2. The Portuguese Higher Education System

1.1.3. Challenges and Strategies

1.2. Research Purpose, Objectives and Relevance

1.3. Research Design and Methodology

As the title suggests, this research analyses the governance decision-making model in a Portuguese public university (PPU). The main aim of Chapter 1 is to contextualise the importance of this research in the light of the characteristics and emergent issues that currently dominate the relevant study of governance and decision-making in the Portuguese public higher education system (PHES).

Section 1.1. provides an overall understanding of the Portuguese case, where the University studied is situated, and describes the recent context as well the key challenges it currently faces. In Section 1.2. the research purpose and its relevance are explained and in Section 1.3. a brief outline of the research design and methodology that were chosen to achieve the research purpose is presented.

Section 1.1. - The Portuguese Public Higher Education System: Context and Challenges

“Alice: Would you please tell me which way I ought to go from here?

Cheshire Cat: That depends on where you want to get it?”

Lewis Carroll

Nowadays, it is a formidable and rather unstable challenge to be responsible for the destiny of a higher education institution (HEI). The context of change has created pressure factors, which decisively determine the rules and freedom levels of university leaders, for whom the critical question has become increasingly “Where to go?” rather than “What to do?”

On the one hand, the ability and effective power of the individual to intervene in the environment of an institution may seem, in analytical terms, rather frail; on the other hand, contrary to what has happened in the recent past, the difference between isolation and the “Global Village” may be shortened with an easy-to-use cyber mouse.

The main concerns of this study, as the title suggests, are at the level of a case study of a PPU, in a national HE system where the governance model is under discussion. The global and national contextualization of HE helps to explain the tensions, which arise from the main external pressures that restrain the choices of those who govern a PPU university.

Against this background, this thesis presents a case study of a PPU with the aim of developing a conceptual and practical model of decision making within a contemporary university. It is hoped that this model will help to enhance our understanding of the operation of universities, both in Portugal and beyond.

Sub Section 1.1.1. - The Higher Education Pressure Factors

In spite of the ancient concept of the university, Higher Education is a recent notion, whose facets have been dynamically changed over the second half of the twentieth century. The university of the early twenty-first century has adjusted itself to a conjuncture of strong demographic, social, technological and political pressures which has transformed it, and has determined changes in the internal governance and decision-making processes. The main pressure factors can be briefly identified as:

Higher Education Massification - The exponential growth in the number of students that has occurred in the last decades, due to demographics and social policies, has changed the nature of HE. Starting out as an elite system, HE has transformed itself into a system for the masses with a tendency towards a universal system, in accordance with Trow's (1970) terminology.

Internationalization/Globalization - The Medieval Age universities have represented a wide range of institutions, whose boundaries were basically social ones and not geographic ones. With the growth of the nation-state, the modern university essentially gained a national identity. The recent phenomenon of globalization has turned HE into a worldwide perspective: the technological and capital transfer networks and the mobility of people have risen to a supra-national scale. States and institutions have become more integrated and dependent in a global network.

ICT Impact/Knowledge Explosion - The knowledge society is based on a combination of several elements: knowledge production, which originates from scientific research; knowledge transmission, through education and training; diffusion through information and communication technologies; and their usage in technological innovation. The explosion of knowledge at the level of its growth rhythm, and simultaneously, its specialization, is an important pressure factor in universities' choices. For Becher and Trowler (2001:4), the growth of disciplines and their fragmentation is "... *the most important, but often overlooked change, affecting Higher Education in recent years...*".

According to Clark (1996), the fragmentation of disciplines is the source of the ever-increasing complexity of the system, a more powerful source, as regards its effects, than the expansion of the number of students or their most varied entry in the labour market.

Change in the relationship between University/State and University/Society

– Besides the general change trends which have had an impact on HE in general, there is a change in **public higher education** that deserves reference in the scope of this study.

The relationship between the modern university and the state is based on a double dependency: the state regulates and provides financial resources to the university in order to develop its activity; the latter socializes its functions by providing a public service. This relationship is still an essential framework in public universities (PU).

However, over the last decades, there has been a qualitative change: the partnership between the public university and the state shifted to a partnership with society in a broader sense (public responsibility, but also social responsibility, market competition and labour market responsibility). Becher and Trowler (2001:7) identify it, in this context, as a force of pressure: *“the incursion of Industry in the relationship between the State and the University.”* This incursion is highlighted at the level of technological research, thus creating *“the triple helix”*. Knowledge is generated into an application and transdisciplinary perspective. Nevertheless the influence of industry in universities is not merely technological, but it can also be seen at an organizational and management level (“managerial” entrepreneurialism), or at the market level (marketing competitiveness and placement success).

This change of the relationship between University and the State could be contextualised in different aspects, such as: changes in financing public models; the common Democratic regimes in Western economies and the diminished role, in terms of control, of the national states that globalization policy encourages.

Sub Section 1.1.2. - The Portuguese Higher Education System

The **Portuguese Higher Education System** (PHES) has approximately 401.000 students and comprises 182 institutions (private and public; universities and polytechnics). See Appendix 1.1.2.a. for additional data.

The discussion on the university /polytechnic dichotomy has been in the spotlight recently. Some changes in the legal framework have made polytechnics closer to universities, without, however, making clear the principles of distinction between university and polytechnic education. The CNAVES (National HE Assessment Council) was called on to propose these principles, in Statement no. 8/2003, which maintained the binary system and dubiously characterized the polytechnic as an “experimental trend”.

Inevitably, as Trow (1996) explains, in a HE massification context, the question of “diversification” and “diversity” arises from the need to create diversified systems that may react to the market, thus promoting diversity in individual qualifications.

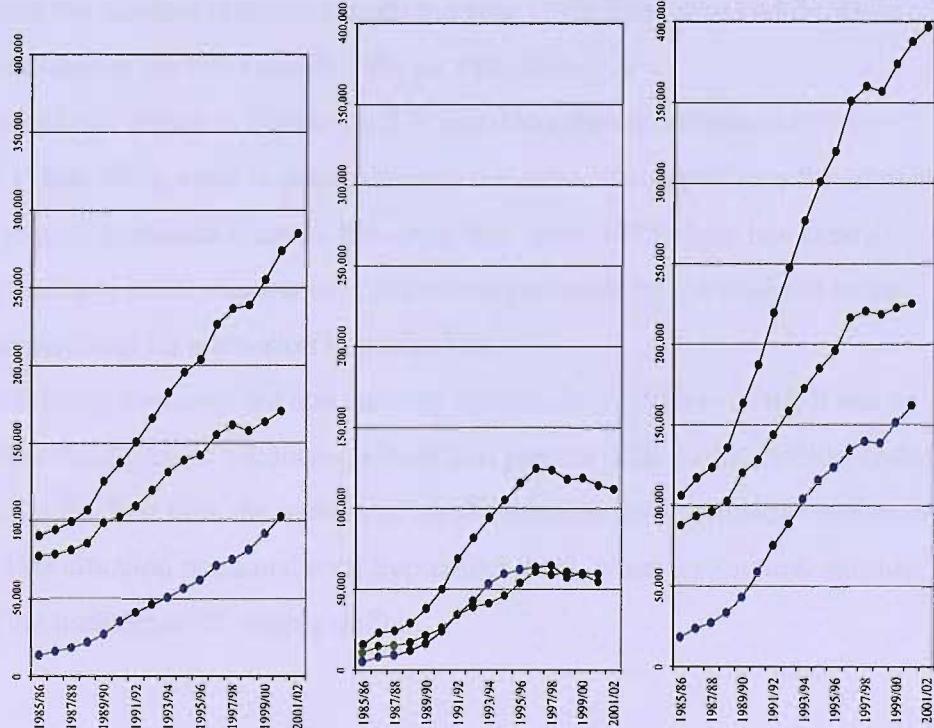
In Portugal, the public HES has a wide range of institutional and programmatic diversification possibilities, covering all 18 districts on the mainland and 3 of the island districts, and presenting a diversified structure in terms of regional coverage. The polytechnic institutes are more regional than universities: they can establish entry *quota* for local students. The growth of the private sector in the 1980s, with underlying market logic, did not correct the regional asymmetries; on the contrary, it led to a concentration of these institutions in more developed and populated areas (Lisbon and Porto).

The quantitative and qualitative changes in PHE, over the last years, have mainly resulted from the massification process. During the 17-year period analysed, in Figure 1.1.2.a., the number of enrolled students increased from 106,216 in the academic year of 1985/86 to 396,601 in the academic year of 2001/02. This corresponds to a growth rate of 273% and results from structural changes which happened in the system.

Figure 1.1.2.a. Evolution of Student Population in PHES (1985/86 to 2001/02)

Year	Higher Education									
	Public			Private			Public + Private			Total
	Non Univ.	Univ.	Total	Non Univ.	Univ.	Total	Non Univ.	Univ.	Total	
1985/86	13,168	77,367	90,535	5,081	10,600	15,681	18,249	87,967	106,216	
1986/87	15,609	78,671	94,280	8,042	14,806	22,848	23,651	93,477	117,128	
1987/88	18,072	81,330	99,402	8,992	15,113	24,105	27,064	96,443	123,507	
1988/89	21,396	85,637	107,033	11,891	17,013	28,904	33,287	102,650	135,937	
1989/90	26,567	98,873	125,440	16,432	21,510	37,942	42,999	120,383	163,382	
1990/91	34,745	102,538	137,283	23,839	26,071	49,910	58,584	128,609	187,193	
1991/92	41,057	109,628	150,685	34,391	34,348	68,739	75,448	143,976	219,424	
1992/93	46,101	119,726	165,827	42,735	38,961	81,696	88,836	158,687	247,523	
1993/94	50,837	131,414	182,251	52,960	41,323	94,283	103,797	172,737	276,534	
1994/95	56,378	139,027	195,405	59,102	46,066	105,168	115,480	185,093	300,573	
1995/96	61,644	142,212	203,856	61,751	53,918	115,669	123,395	196,130	319,525	
1996/97	70,805	155,483	226,288	63,552	61,010	124,562	134,357	216,493	350,850	
1997/98	74,713	161,682	236,395	64,569	58,985	123,554	139,282	220,667	359,949	
1998/99	80,924	157,933	238,857	57,313	60,620	117,933	138,237	218,553	356,790	
1999/00	91,282	163,726	255,008	59,711	59,026	118,737	150,993	222,752	373,745	
2000/01	102,877	170,653	273,530	59,501	54,672	114,173	162,378	225,325	387,703	
2001/02			284,789			111,812			396,601	

source: www.ine.pt



During this period a wide range of new schools, mostly private, were founded. This led to an increase of 613% of students enrolled in private HE compared to the 214% in public education. This increase presents an annual growth rate of approximately 10%. In the first year of that period the 13 PPU were responsible for 72% of the population of the system; in 2000/2001 this share had decreased to 44% (private and public polytechnic schools – 42%; private universities – 14%), though their number of students had grown by 129% in the period.

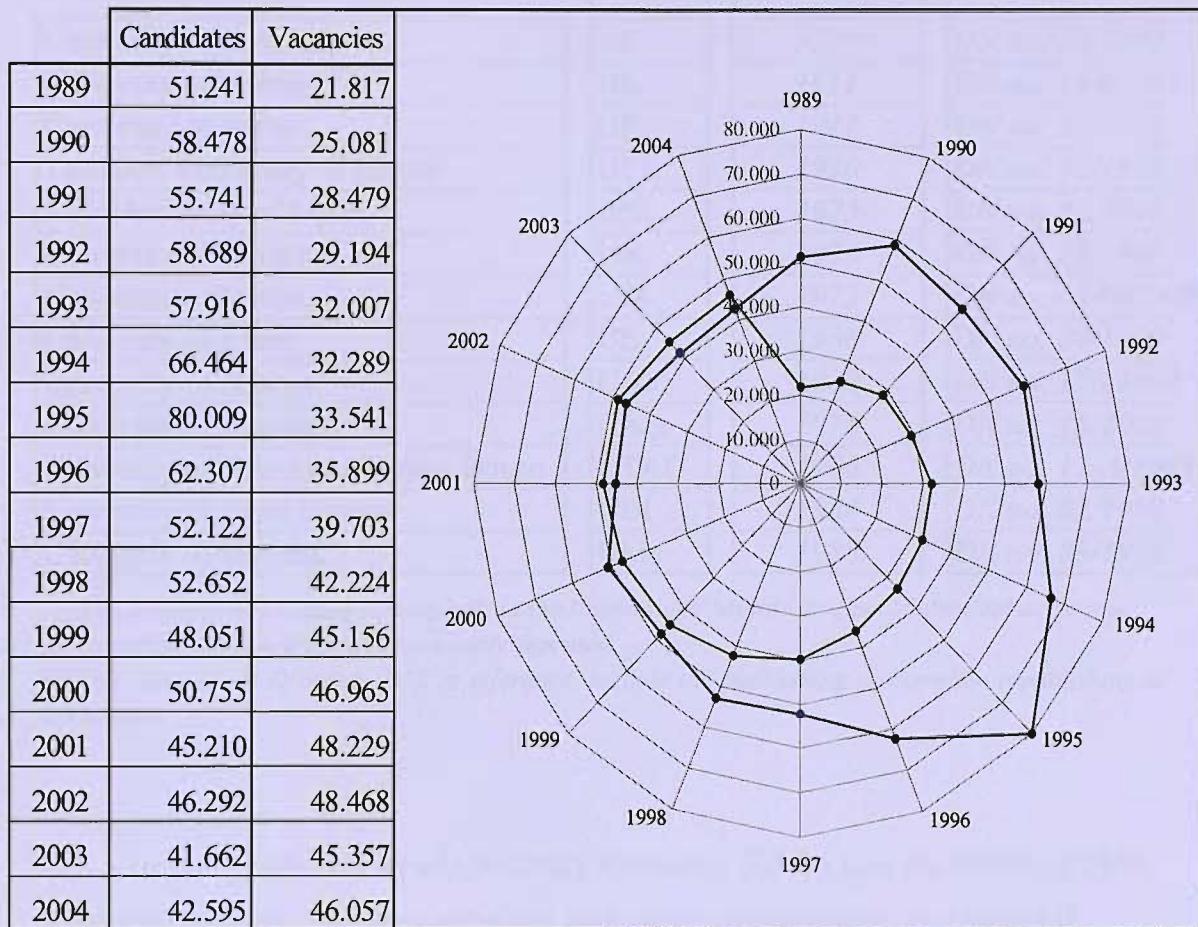
In spite of the significant growth rates in student enrolment in PHES over the past 15 years, and which are illustrated in the previous figure, it is possible, since the nineties, to identify some potential signs of tension in the system. During the academic year of 1991/1992, public HE reached its maximum growth limit (38%/year) and in 1994/95 public HE begins to decrease in annual growth rates. From the academic year 1997/98, the negative annual growth rates begin to be common in private HE.

According to a prospective study performed by Amaral and Teixeira (1999) the estimated decrease of the number of Portuguese candidates for HE in the next years is a reason for concern. The authors analysed the data based on a prediction of demand in elementary and secondary education in Portugal, until the academic year of 2005/2006, and predicting the resident population until the year 2010. The estimated decrease of the number of candidates for HE exceeds 20% for that period.

The analysis shown in Figure 1.1.2.b. considers the attractiveness of the Portuguese Public HE system in what concerns the national competitions for admission to the first year of graduated courses. It is clear that, since 1995, there has been a decreasing tendency in the number of applications presented by the students in the national competitions for admission in public HE.

Considering the applicant and vacancy figures, from 1989 to 2004, it can be concluded that the deficit of vacancies, which was present until the late 1990s, ended in 2001, when for the first time the number of candidates was lower than the number of vacancies. This situation remained until September 2004, when a structural surplus substituted the traditional HE supply deficit.

Figure 1.1.2.b. PPHE Admission 1989-2004



According to OCES, during the academic year of 2003/2004, the thirteen **Portuguese Public Universities (PPU)** were responsible for the education of 157,351 students, enrolled in courses which grant a degree (149,327 graduate students and 8,024 post-graduate students). Table 1.1.2.a. shows the list, acronyms, data foundation and current status of the PPU, which will be studied in the context of this research.

Table 1.1.2.a. List of PPU, Acronyms and Foundation Date

<i>Acr</i> ⁽¹⁾	<i>Foundation</i>	<i>Statutes</i> ⁽²⁾
University of Coimbra		
UC	1290	DN no. 30/2004
University of Lisboa		
UL	1911	DN no. 144/1992
University of Porto		
UP	1911	DN no. 23/2001
Technical University of Lisboa		
UTL	1930	DN no. 70/1989
New University of Lisboa		
UNL	1973	DN no. 35/2001
University of Aveiro		
UA	1973	DN no. 51/1997
University of Minho		
UM	1973	DN no. 4249/2005
University of Évora		
UE	1986	DN no. 84/1989
University of Açores		
UAc	1980	DN no. 178/1990
University of Algarve		
UAlg	1976	DN no. 15/2002
University of Trás-Montes Alto Douro		
UTAD	1986	DN no. 11-A/1998
University of Beira Interior		
UBI	1986	DN no. 82/1989
University of Madeira		
UMa	1988	DN no. 83/1998

(1) The acronym that is used corresponds to the Universities' initials. In case of identical acronyms, the e-mail domain used by each University was used.

(2) The Legislative Decision (DN) in reference, include the publishing or complete republishing of the statutes.

In 1988, with the Law of University Autonomy (LAU - Law no.108/88, of 24/9), public HEI attained “statutory, scientific, pedagogic, administrative and financial autonomy”. Since the Constitution of 1982, HE is foreseen as a fundamental right (“right to access the highest degrees in education and scientific research’). The compatibility between this fundamental right and the “progressive cost-free of all education degrees” places the government before a problem: how to massify HE cost-free. In this context, financing PPU (Appendix 1.1.2.a.) is a political problem, which cannot be solved by a mathematic formula.

Sub Section 1.1.3. - Challenges and Strategies

When developing a proposal for a governance decision-making model, there are important challenges, which demand clear strategies from the PPU leaders.

- The relationship between PPU and the Ministry/Government Office tutelage, with an in-depth look at responsible autonomy and accountability.

The **autonomy** demanded by PPU is often revealed in the sense of fighting off some “signs of setbacks” or “evidence of erosion” regarding the autonomy obtained in the 1990s. Multiple examples of restrictions on autonomy can be shown, such as: the inflexibility to decrease staff costs, due to inflexible academic labour laws or to manage fixed assets; the excessively bureaucratic administrative control models of the ministry/government office; and the absence of freedom for universities to establish the number of vacancies for graduates.

On the other hand, the first steps towards **evaluation** of universities were taken in a scenario with no prize or penalty system regarding the aims. Universities have not often looked in-depth into the pedagogical and scientific autonomy associated with global evaluation.

The practice of autonomy related to a sustained evaluation culture is apparently a consensual idea among the actors of public HES, but not yet an effective one.

- The need for institutional attributions and clarification of objectives regarding **public HES diversification**.

In the Portuguese case, where the population’s low levels of schooling is a problem [14.4% (n.e.); 34.4% (1st cycle - primary); 12.4% (2nd cycle - preparatory); 10.5% (3rd cycle – 7th-9th grades); 15.4% (secondary); 10.6% (higher education), in *Census 2001*], it’s important to clarify how and which public institutions must take on the social price of education.

Overall, PPU - some of them already integrate polytechnic teaching - have a consensual position at two levels:

- Configuration of the public system, in terms of the number of institutions and also in terms of geographical dispersal, is incompatible with a competitive dimension and with public interests. In this context, the creation of networks and articulation between institutions is the only way to minimize the elimination of some of them, which is probably inevitable.
- Lack of clarity, in terms of legal framing, regarding the mission and objectives of universities and polytechnics, reduces the desirable complementarities needed to achieve system diversification.

A reflection on this issue arises from the critical path of the Bologna process, for universities and polytechnics. Nonetheless, the debate on system diversification in PHE remains poor and incomplete if reduced to the binomial: university vs. polytechnic. Another relevant binomial, in the context of PPU management, must be: intensive research versus intensive teaching institutions.

- The successful participation of PPU, in 2010, within the European area of HE, ensuring quality levels achieved by systematic assessment processes.

Although the discussion of the process in CRUP (Rector's Conference of PPU) [http://www.crup.pt/docs/posição_CRUP_Bolonha.pdf] has been underway since 1999, it has taken some time for universities to realize that the **Bologna process** is irreversible.

The Trends in Learning Structures in HE project, an initiative carried out by the Confederation of Rectors' Conferences of the European Union, in cooperation with the CRE and EUA, has had a very important role in attaining the involvement of states and universities in the Bologna process. Eleven PPU participated in these studies and the conclusions proved that there was an involvement at different levels: mobility; degree structure and credit transfer. The inevitability of Bologna is a part of the agendas of Portuguese universities.

A characteristic of the Portuguese system is the degree designations. In PPU, in the school year 2004/2005, there are approximately 1500 degree designations (in Italy there are 80). A large number of different degree designations match the same programmatic content. The Bologna process demands reflection and action in the output of universities: society has to understand clearly and transparently what the HES provides. The system must standardize degrees in regards to the similarity of content.

Bologna represents a true revolution from the methodological perspective, if taken seriously and not faced as a re-engineering process by the European Credit Transfer System (ECTS). What is truly at stake is the confrontation of the educational paradigm: the classic concept, which privileges the superiority of knowledge and the primacy of teaching, and the new educational model, which balances pedagogical strategies, centered on students and the conditions in which they learn, valuing different types of intelligence and learning.

Section 1.2. - Research Purpose, Objectives and Relevance

The current governance model of PPU is under discussion. Amaral (2003:2-3), in the analysis of the Public Survey performed by CIPES regarding “HE Law Assessment, Revision and Consolidation” states that *“There is a great difference of opinions regarding higher education institutions’ governance models. If part of the answers encourages the current model and considers that the only source of acceptable legitimacy for the managers’ authority is the electoral-democratic, a significant number of answers also proposes a distancing from the current model and its substitution for nomination/choice of rector/president. This same division of opinions is presented as regards society’s involvement and the relative influence of the different institutional bodies in the institution’s governance”*.

According to LAU, the mission and the decision governance structures are similar and rigidly regulated in all PPU. The regulation exists at the level of the structure, composition and competencies of management bodies and at the level of management principles. The PPU governance model discussion is open and, in accordance with the announced legislative changes, PPU will soon be called upon to define the design of their individual governance model in a freer way. The objective of the research is to develop, in this scope, a case-study in a particular PPU – the University of Coimbra – about “How the university makes decisions?”, “How can decisions be more effective?”

Meanwhile, recent HE Laws (Development and Quality, in 2003, and Evaluation, in 2006) have framed this process: the governance model choices should enable institutional performance that is guided towards international institutional evaluation, according to European Standards (ENQA).

Considering preferences as rational wishes, the analysis of the preferences of the university decision-makers offers a conceptual chart of the reference rational model. A central objective of this research is to characterise and understand the university model.

In this context of changing management in Portuguese universities, the main purpose of this research is, based on the top managers’ perception, to establish principles

for a governance decision-making model and for the assessment and performance system, which must support it. The model must result on a holistic approach, with the integration of the main conceptual sub-systems (strategic definition of mission; decision-makers profile; internal organization and decision structures; decision support systems and performance and assessment perspective).

The final outcome of the research expected is a governance decision-making model, framed by a literature review covering organizational and institutional cultures, decision and governance, quality philosophy and DSS in universities and PPU.

The research is focused on the PPU where there is a lack of empirical studies on institutional research. In general, the contributions to understanding the decision-making process in PPU are scarce and no previous research has been conducted on analysing the integration of TQM models in the decision-making process. The model has an original view of DMP that could help to enhance the institution's performance.

It is also the first time that the conceptualization of DMP is made, in a PPU, in an in-depth and comprehensive way, based on data collected from different decision-makers, making this research relevant and original. This approach required a strong research process with an in-depth knowledge. The complexity of the research's analytic process, namely codification and triangulation, is supported by a data analysis software (Atlas.ti), which proved to encourage and enabled the creative process. This process has not been used before in the study of PHE.

According to the analysis of the final PPU Administrators' inquiry, the case of UC is thought to provide useful insights into some problems associated with the governance decision-making model in other PPU's. Thus, whilst as a case study, the research cannot be used to generalise more widely, there are suggestions that the research has a wide relevance beyond UC.

Section 1.3. - Research Design and Methodology

The research design is a detailed plan, which includes a complete programme for the research and intends to anticipate adequately the difficulties of the entire process, aiming to combine relevant outcomes with economy procedures.

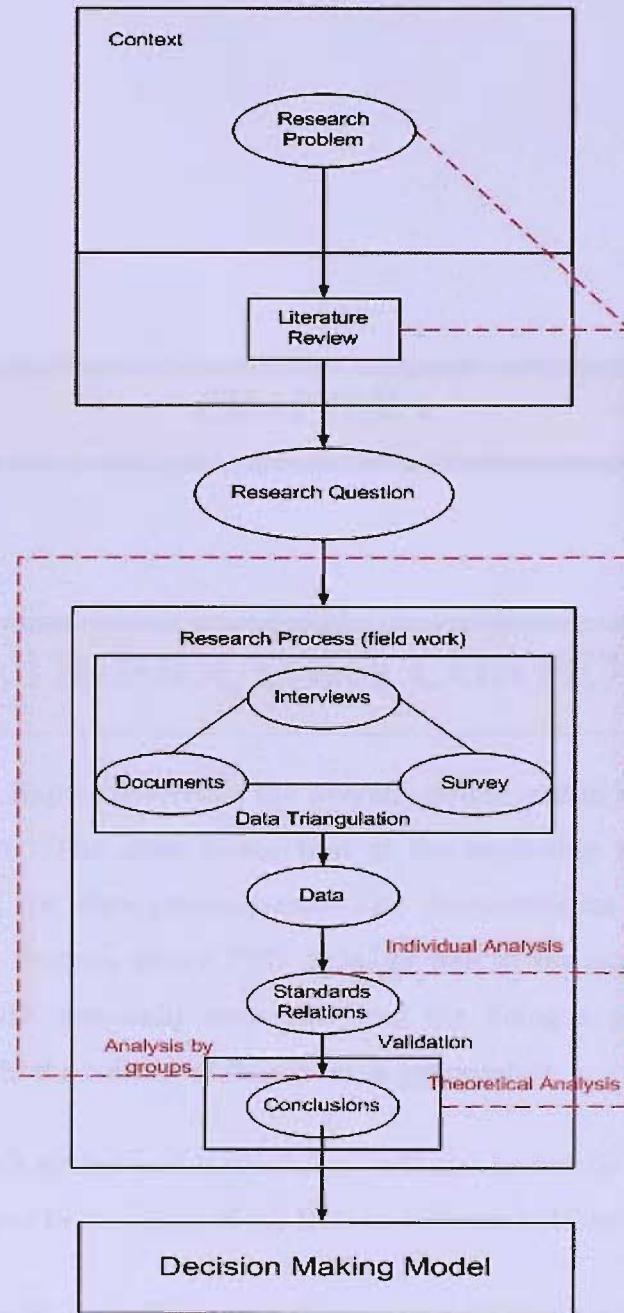
In the **Research Process Diagram**, presented in the next page, Figure 1.3.a., the main phases of research are ordered in a flowchart, where the dotted lines represent the importance of the analytical interaction between the research problem and the theory, in order to obtain a final model. The Research Model Diagram identifies the aspects, which support, influence and contribute to the model conclusions.

The research has an implicit exploratory stage from a theoretical and institutional perspective. A literature review on institutional culture; decision and governance; and quality and decision support systems in universities, and particularly in PPU is the obvious starting point to have an overview of the main issues associated with the research question. Also, from an institutional perspective, the research process project must be based on an institutional acceptance, as a preliminary step.

Next, the drawing foresees the model development, characterizing the unit(s) of analysis; conceptualizing the analysis in a locus and focus perspective and specifying the adequate research methodology (choosing the data collection instruments; selecting the samples and the participants) and applying it in a transparent and aware way. The possibility of research replication is a condition for the model reliability.

Finally, the sustainability of the final model should be achieved using a series of different and diversified tests and tactics throughout the research process. However, it seems important to ensure the value of the conclusions of the model using careful and reliable assessment, which is done by analysing the adequacy of the model to the Baldridge Excellence Framework 2005 and a PPU Administrators' inquiry.

Figure 1.3.a. – Research Process Diagram



The case study is an institutional research process based on the perceptions of a wide-range of decision-makers, where the results are based on a constructive perspective: the model results in a consensual synthesis of the decision-makers' strategic decision "world views". The theory is developed, based on the systemic cross-referencing of triangulations, based on the qualitative data obtained, essentially through 50 interviews, in an inductive research approach, using the grounded theory [Gaser and Strauss (1967)]. This methodological research approach is a potentially strong success factor in the future institutional implementation of the model.

CHAPTER 1

INTRODUCTORY CONTEXT

This first Chapter presented the overall context within which the research problem is placed. The main issues that at the beginning of the twenty-first century dominate HE were summarised. The characteristics of the Portuguese Higher Education System, where PPU fit in, as well as the main challenges that they are faced with, especially autonomy and the Bologna process, were then briefly presented, in the context of the research proposal.

The research design and methodology will also be briefly presented and will further be developed in the scope of the Research Process (Chapter 4).

Chapter 2 will critically review the relevant literature on the subject, with special emphasis on the institutional culture, governance models and decision support systems of PPU.

CHAPTER 2

LITERATURE REVIEW

CHAPTER 2

LITERATURE REVIEW

- 2.1. The concept of Mission**
- 2.2. Decision and Governance in Universities**
 - 2.2.1. The Decision-Making Process**
 - 2.2.2. The Decision-Maker**
 - 2.2.3. The Organization**
 - 2.2.4. Governance Systems**
- 2.3. Total Quality Management and Excellence**
- 2.4. Decision Support Systems in Universities**
 - 2.4.1. Information Systems and DSS**
 - 2.4.2. The Concept of Performance Indicators**
 - 2.4.3. DSS in PPU**

The main aim of Chapter 2 is to critically review the literature that is relevant to the study. Overall, it aims to highlight research and current thinking with regards to mission, decision and governance theories, and quality and decision support systems in universities. In this journey through the literature, the research focuses especially on PPU as changing organizations. It is widely recognised that there is a lack of applied research in the field on which this empirical study is grounded.

Considering the previous overview about the Portuguese public HE system and the research goals, a critical analysis of the problem's key theoretical concepts is presented along this chapter. The correct definition of the research's central question involves a solid vision of the structural vectors of university management in PPU.

In this chapter, the variables, which are considered to be essential in the governance and decision process, are analysed from a conceptual perspective which is based on the literature review. The problem is centred on the organization-university, which is analysed according to two perspectives: as an entity with a whole identity, visible in its mission definition, in its values as an institutional culture(s), and as a network of decisions, decision making and decision-makers. In this last perspective, the study is focused on the organization elements: structures, logics, circulation channels, the profile and rationality(ies) of decision-makers which determine the decision and may condition the success and efficacy of the governance model.

Section 2.1 briefly analyses the mission as a conscious choice of goals which motivates governance and the decision-making process, giving it a specific direction. Decisions determine goal-directed actions that must be undertaken to fulfil the specific vocation of the university. The centrality of the decision-making process, decision-makers and decision structures in university governance systems is discussed in Section 2.2, paying a special focus on the university's internal tensions which determine its governance as institutional culture(s) and dynamic territories. The research approaches the decision-making process activity as making part of the theory and practice of Total Quality Management (TQM) and organisational Excellence. The boundaries and virtues of TQM as a framework for governance in universities are analysed in Section 2.3 highlighting the current situation of the PHES. Finally, according to conceptual and measurement modelling requirements, in Section 2.4. the information system, decision support system and performance analysis tools are critically reviewed and an appropriate framework is selected as a board upon which the PPU governance must be analysed and measured.

Section 2.1. - The Concept of Mission

The mission of a university involves its specific vocation, which is determined by its history and by today's leaders' strategic vision. Past, present and future are combined in this core concept. The institutional mission portrays the way each institution positions itself in a competitive sector, taking advantage of its characteristics in a successful way.

In the first instance, the aspirations of the university – the vision – frame(s) its mission. Knowledge, dreams and strategic thinking are all important, when establishing these long-term goals, which can be imaginatively sensed in the thoughts of Salmi (2001:105). *"Imagine a university without buildings or classrooms or even library...Imagine a university without academic departments, without required courses or major or grades. Imagine a college opens 24 hours a day, seven days a week, 365 days a year. Imagine a college proposing a bachelor's degree in Individualized studies or in Interdisciplinary studies, with a catalogue of more than 4000 different courses. Imagine a degree valid only for five years after graduation. Imagine a college willing to reimbursement its students if do they not find a suitable job within six months of graduation. Imagine..."*

In a heterogeneous HEI universe – with private and public universities, polytechnics and colleges - of a broad scope – research focus, T&L approach, professional training goals, market and social service provision - it may not be easy to clearly understand what the mission of the University is. What does the corporate university, a strategic “umbrella” of an organization, have in common with Cardinal Newman's university, which cultivated “*knowledge for the sake of knowledge*”, and which according to Kerr [in Smith and Langslow (1999:11-29)] is “*an education suitable for (free) men*” and an instrument for the “*real cultivation of mind*”?

Considering the different perspectives referred in the literature – which are the next step - about the University’s mission, this research identifies the plurality of functions as the framing context which supports the case study’s mission.

Increasing Human Capital

This mission is based on the importance of human capital for economic and social development and on the universities’ role in these processes.

Adding value to human capital may be considered from a broader perspective: from Newman’s traditional comprehensive education of the individual, all the way to a productive process [Jorma (1996:122)] - according to an industrial and bureaucratic metaphor - whose final output results in a type of service. Becker (1993), for example, considers “education” as an investment where the feedback of human capital must be quantified and evaluated, based on a market and internal integration perspective.

Producing/ Generating Knowledge

Is knowledge creation the most important role of the university? This thought, which goes back to the medieval university, helps us to think about some of the most recent and important changes in HE. The exponential growth of knowledge and its availability has been changing global values. *“There are now over 1000 maths journals covering 62 major topic areas with 4500 subtopics. More academic works of history were published between 1960 and 1980 than in all previous time. Similarly, in chemistry more articles were published in two years in the mid 1990s than in all the years prior to 1900. Overall there appears to be a growth in output of around 4.8 per cent annually in most branches of science”*, Becher and Trowler (2001:14).

In this scope, the research and development dimensions of universities are valued as the structuring activity with competitive advantages in the global context.

Socialization

Does the university essentially convey social values? This concept sustains the university’s active involvement and social responsibility in the integration of social, cultural and organizational problems of communities and the cooperation with stakeholders. In its essence, socialization opens the university to “society’s voices”, highlighting and supporting the importance of the university’s extension activities and service provision.

Plurality of Functions

The university is multifunctional in its core. Its mission is diversity. This concept of university mission gathers a broader and wider collection of opinions where the following examples explain, in this context, a relevant synthesis:

- The image of the triangle of functions arises from Jaspers' (1960:51) classic concept of mission: "*The talk of the University may therefore be distinguished into three functions of research, the transmission of learning, education and culture. Each of these when considered in isolation is clearly inseparable from the other two*". In Jaspers' perspective, what distinguishes the university mission is the simultaneous coexistence of the three functions.

This triangle of objectives will be referred to as magical for being simultaneously simple, clear and general. According to Santos (1994:164), in Portugal, in the whirl of the 1960s, there was a change in one of the vertices of the triangle: the utilitarian and productive sense (service provision) replaced the cultural dimension of the university. Jaspers and Santos' magical triangles are represented in Figure 2.1.a..

Figure 2.1.a. Magical Triangles



Source: first triangle adapted from Jaspers (1960) and second triangle research results based on Santos (1994)

This context of change and confusion to which the university was subject in the last decades and which occurred due to explosion of functions was entitled by Santos as "*Ends without End*". These functions spread to universities and they may represent different models: "*active, flowing or passive service provision*". Service provision may

be linked to one of the base functions (scientific research and teaching know-how) or may arise from some non-essential assets, such as historical ones.

■ In the multifunctional line of thought, the OECD (1987) study of HEI is a classic. This organization sets forth the identification of ten functions for purposes of discussion and further analysis:

- Provide general, post secondary education;
- Research and scholarship development;
- Assist in fulfilling the man power needs of the “expert society”;
- Provision of high-level specialized education and training;
- Strengthen the competitive edge of the economy;
- Act as screening mechanisms for those who seek high-level employment;
- Provide social mobility;
- Offer a variety of services to their region and community;
- Act as paradigms of certain national policies;
- Prepare leaders for future generations.

From this point of view, the complexity of university mission is an essential trait which determines the activity and decision-making in University management.

■ Kogan, in Pedrosa and Queiró (2004), considers there is a context of function multiplicity in public Higher Education Institutions that in addition to the traditional mission of universities - *“the creation and testing of knowledge, its diffusion and the training of qualified human resources”* - takes on two new missions: *“to increase social equity and mobility”* and *“to support life long learning and economic development”*.

The research occurs in a large public university characterized by a multiplicity of goals. The research's frame is that the institutional definition of mission and values, and its internal assumption, is strategically important for governance and the decision-making process in institutions, as is highlighted in the Glasgow Declaration [EUA (2005:91)]: *“Universities’ multiple missions involve the creation, preservation, evaluation, dissemination and exploitation of knowledge. Strong universities require strong academic and social values that underlie their contributions to society. Universities share a commitment to the social underpinning of economic growth and the ethical dimensions of higher education research”*. In this Declaration, the development of different university missions and profiles to face the challenges of global competition

must be balanced by inter-institutional cooperation based on a shared commitment to quality.

The strategic definition and institutional assumption of the mission corresponds, in a large public university, to a hierarchy of multiple goals which critically frames the internal decision-making process in an institution where usually, according to Cohen and March (1974), inside power is diffused and decision-making process ambiguous. This paradigm determines the importance of studying institutional mission in the research case.

Section 2.2. - Decision and Governance in Universities

“If Knowledge is power, then new knowledge is new power, expanded knowledge is expanded power, and fragmented knowledge is fragmented power”.

Burton Clark

Different modes of analysis can be used when studying the decision-making process (DMP) in universities. In this research, two complementary approaches are used, considering:

- the university as the decision-centre of analysis which retains all the basic properties of the whole and which, despite the composite parts, cannot be further divided without losing them; and
- into the micro decision-centres, spread in the organization, where rationales and characteristics, similar or different from the whole, determine the final decision in an unknown way.

The PPU governance decision-making model is built on a multi-level unit of analysis design research, with the appropriate theoretical frameworks.

Simon's profuse work on the process of decision-making [Simon (1976); (1977); (1982); (1996)] is the fundamental theoretical framework of all the research: in an extensive way it supports the study of the organization and that of the decision-maker.

In a dynamic perspective, Choo's (1998) concept of the “knowing organization” completes the theoretical structure which inspires the research at PPU level: the university is a network where the DMP and the decision-makers are key dynamic factors. The decision process analysis in universities presupposes a characterization of the way decision-makers and universities adjust to change, how they react, pro-act and interact when faced with external pressures. Decision-making corresponds to the idea evaluation processes, to priority establishment and choices, thus producing results on the organization whose impact must be assessed.

Activity Theory also provides an integrative framework to understand the interactions between decision-makers, collective structures and strategic mission. With a psychological original paradigm (Leont'ev and Rubinstein), this theory conceptualizes development as a process of social interaction within a cultural and historical context. This interaction provides an interpretative basis from which decision-makers attribute meaning to their own actions with extended applications to computer-supported activities [Kaptelinin et al (1995)] or work and organizations [Blackler (1993) and (1995)]. A deep ethnographic research application to the strategic activity in universities is that by Gioia & Chittiped (1991) and Jarzabkowski (2003).

On an initial phase, Gioia & Chittiped (1991) develop the study on the nature and the importance given to the symbolic aspects of change management based on a strategic action effort, by the CEO. The idea that success must be recognised by the outside world is sustained by the feedback loops between the organization and stakeholders, in an understanding (sensemaking) and influence (sensegiving) relation. In spite of the present research having the same context – a “large public university” characterized by Cohen and March (1974) and “an organization of difficult management” according to Mintzberg (1979) – the aim of the analysis is different. Gioia & Chittiped (1991) study the change that occurs, measured by occurrences, over the research’s period of time (dynamic analysis), while in the current research it is developed at a specific time (static analysis) and the study of the desired change is performed according to a model based on future expectations. The study focuses on the governance meaning construction by the decision-makers, the way they understand “good governance” at decision-makers “sensemaking level”, rather than the implementation of the model. Sensegiving - the way that decision-makers effectively influence others to be successful - is a very important concept in the change action but outside the scope of this study’s analysis.

Jarzabkowski’s (2003) study is an empirical research of the micro practices of strategy in three UK universities. The typologies of the cases explain the relationship between strategic practices and continuity and change of strategy as practice. The current research is also a micro-study in the scope of activity theory, which implies an interaction between decision-makers and structures. Thus, both contribute towards a better understanding of the internal complexities of organizational positioning as well as to extend the field of strategic decision-making research. However, the aim of the analysis is different: while Jarzabkowski is concerned with strategy practice, that is,

how strategy emerges from the interaction between actors and their context, the current research is concerned, in a particular context (PPU), with finding the adequate model of governance and DMP. The first one seeks to learn how the practices are involved in the interaction among the parts and how they are mediators among components in strategy building. This research seeks to study the connection among components, not through practices (Backler's activity theory) but rather through the conceptualization of what is common and essential, whether these are practices, opportunities or ideas. In some dimensions, namely when studying DSS (a dimension which is not included in Jarzabkowski's study), the practices are examples, but not in all of them, as it is the case of the Mission, or even the DMP where structure typologies are studied and not the practices.

The aim of this study is not studying strategy, but rather the governance model which will enable the development of strategic action: strategic action is only one of the model's prospective dimensions.

Considering the PPU, Simon's organization, both perspectives, the "activity systemic", Blackler (1993), or the "knowing organization", and Choo (1998) support an analysis of two interacting poles in the DMP: the decision-maker and the organization. To conceptualise the DMP means analysing and characterizing the profile of the decision-maker, the manager or leader, their rationalities and competencies, the way they are driven by the organization and the way they guide it, in a context of change

. To conceptualise the DMP means to analyse and understand its mission, its power and governance structure models, its rationalities and, inevitably, its decision-makers.

Sub Section 2.2.1. - The Decision-Making Process

The terms “decision” or “choice” represent within economic theory a central role portrayed in the valorisation of economic agents which come essentially from the ability to create expectation and to determine reality.

In the present research, **decision is always a compromise**. The term “compromise” is not used in the strict relativist and evaluative perspective of Simon, that decision is a better solution “under the circumstances”, but rather an absolute compromise between its framework (values, premises, reading angle) and its result (implementation, impact, outcomes). In this perspective, decision is viewed as a stepping-stone:

- in a broader sense – so broadly that, according to Simon, it becomes almost synonymous of managing;
- and a more complex path - *“Every executive makes his decisions and takes his actions with one eye on the matter before him and one eye on the effect of these decisions upon the future pattern”*, Simon (1976:xviii).

From the decision-maker’s point of view, the decision remains a compromise considering that the deciding agent (individual, group of individuals or organization) gives the process a double character of:

- subjectivity through values, memories and perceptions; and
- objectivity through “hard” information and methodologies;

which may be balanced, or not.

Throughout the research, the DMP is also regarded as a **knowledge organization** motor. Regarding the use of strategic information, Choo (1998) considers *Decision-Making* - an information process and analysis - as one of the three processes which contribute towards the development of a knowledge organization, that is, an organization with the ability to grow and to adapt itself. The other two processes are *Sense Making* (interpretation of information from the external environment) and

Knowledge Creating (conversion of the tacit and explicit knowledge into knowledge integrated in the organization).

The **DMP phases**, considered in a broader sense, may be constructed according to the reality or problem's perception, its modelling, the creation of decisive parameters; the decision itself, the implementation of the decision; and the evaluation of the decision. Decision-making is often considered a sub-process of the latter which ends in the decision. Table 2.2.1.a. presents four different theoretical approaches to the DMP, which privilege specific phases. From the wide-ranging (starting with the identification of the problem and ending with the final assessment) and disaggregated (7 phases) perspective by Anderson, Sweeney and William (1994), to the more restricted definition (ending with the decision itself, without any focus consequence) by Mintzberg et al (1976). Each author details the analysis according to the relevance of critical factors which support the theory. In all studies, the conception of the decision (which means the study of alternative choices; the criteria definition; and the evaluation of the alternative options) may be analysed in a separate way and constitutes the core phase of the DMP in this research.

Table 2.2.1.a. Theoretical Studies about DMP Phases

Simon (1960)	Mintzberg et al. (1976)	Chaffee (1983)	Anderson, Sweeney, William (1994)
Intelligence	Identification	Choice	Problem
Project or Design	Development	Process	Alternatives
Choice Implementation	Selection	Change	Criteria Alternative Assessment Choice Implementation Outcome Assessment

Three phases will be considered in this research. Besides the phase where the solution is conceived which underlies the study of decision-makers' rationalities and styles, there is also a prior phase of problem identification. This phase corresponds to the initial phases presented in the table above [with the exception of Chaffe (1983)] where the study of the critical conditions and variables are rather relevant. Finally, there is the decision phase which considers the study to have some impact at credibility and monitoring level.

The DMP may be based on structured and unstructured decisions (Simon uses the dichotomy “programmed or non-programmed”). The first, which is repetitive and routine, may be included in the procedures upon which its processing will be facilitated. By contrast, non-structured decision may require judgement, evaluations, and discernment from the decision-maker when identifying the problem; every time they arise, they correspond to a “first time”. The DMP boundaries phases would have some flexibility according to these characteristics.

In the DMP, there are **relevant contextual factors** that are usually studied in an isolated way and which must be taken into consideration in the research:

- The environment, where the decision-makers develop their action, is not neutral to the DMP. Turban (1995) considers that the more complex and changing is the environment, the more difficult is the decision process which the decision-makers have to face. This difficulty can be seen twice: a large number of alternatives and a higher cost in mistakes that occur from decisions.

The risk and opportunities that the environment gives have been studied in the DMP and in multi-criteria analysis. The matter of “environment” was introduced by Simon (1956), in an innovative perspective. By placing the decision process in interdisciplinary territory, the author also valorises the “psychological” environment (theories of perception and of knowledge), suggesting an alternative approach to the traditional analysis of the decision-maker’s rationality. Later, Simon (1996) chooses the concept of the “artificial” (what is man-made), opposed to the “natural” (what nature creates). Thus, he introduces the concept of “inner” environment (the substance of the artifact) and “outer” environment (the means in which it functions). In the decision process, the internal and external environments are two obliged perspectives.

- Information and Communication - The quality of the decision process comes from the capacity of the decision-makers to access information about the problem and proceed with its analysis and interpretation. An approach is made by Scientific Management Methods (MS – Management Science; OR – Operations Research) and presupposes a structured decision process based on scientific methods and a quantitative information analysis.

Sometimes, during a decision process, the information available is not fully quantitative. It can include intuitions or experiences (soft information) upon which the decision will be based.

According to Sage (1991), the human information processing varies between verbal, logical, and analytical types, where computational support can prove to be very effective, and non-verbal types which can seem holistically intuitive and affective. Some of the psychological theories - such as the “recognition” process - which explain the forms of memory organization, and the learning processes, are framed in this latter context. Simon (1964) presents the chess player as an example.

In a decision process, the concept of information cannot be restricted *a priori* to its hard dimension, thereby possibly proving itself to be inadequate. Decision-makers are diverse and can evolve in cognitive style, propensity for detail or work habits. The relevance of the information does not depend on it being qualitative and generic but rather on the dialectic of the decision-maker.

Decision-makers must also recognise the “virtually obscene”, a moment of the information explosion where, according to Knight (ed.) (2003:114), “*managing information flow is akin to taking a drink of water from a fire hose*”. It is fundamental that the analyst of the decision process takes into account the types and means of access to information which are considered relevant by the decision-maker.

Organizational communication also has a very significant role and an effective power on the influence of decisions regardless of its transfer system through hierarchies or the informal communication system.

- Uncertainty and risk - Uncertainty in the decision process arises from everything which is related to the process and it is the cause of the decision-maker’s lack of knowledge which can have different sources: an information gap; a perception or incorrect expression of reality (ambiguity); reductionism or distorted premises; and simplification of complexity. Uncertainty can also come from external factors (innovation, the future) framed within the external environment or it can be a strategic uncertainty, that is, an uncertainty that occurs from actions of the remaining parts of the decision process.

Regarding game theory, this is a variable which may be a determinant factor in the decision process. The “*Prisoner Dilemma*” is an example which illustrates in a

conflict situation how each part should evaluate their strategic decision considering the risks involved in the different choices and the potential benefits [Conn (1971:39-45)].

Risk presupposes, besides uncertainty, a valorisation of the information.

- Conflict and Stress - The DMP can be characterized by situations of conflict and stress when there are internal tensions which affect decision-makers, when risk and uncertainty are present or simply in situations where the possible consequences of decisions are meaningful. Here, conflict may block the normal decision process.

Conflicts can be individual (individual decision process), organizational (when there are opposing choices on behalf of the individuals/groups in an organization) or inter-organizational [March and Simon (1958: chap 5)]. The study of the consequences of stress on the decision-maker is an example of individual conflict which is depicted in Heller's (1992) work. With regard to the organizational and inter-organizational conflicts, Conn's typology (1971:15) of the game theory highlights zero-sum conflicts, where the parts are competitive and have exactly opposing preferences (such as two football teams), and nonzero-sum conflicts, more common in the political scene where there is at least one possible scenario and where the preferences of the parts are not strictly opposed.

The conflict situations do not have to be associated with negative effects; on the contrary, they can contribute to the stability of the decision process as an instrument of change.

These contextual factors had a dialectic impact on the DMP: they can prevent negative effects due to the growth of complexity and instability they change, but they also can represent creative forces that encourage competitiveness and creativity. Despite the deep theoretical studies on each of these relevant critical factors in this field, there are no significant research studies on their impact in PPU, or on the integrated model approach to the study of these factors. There is a lack of an integrated theoretical basis upon which this empirical study is grounded.

Sub Section 2.2.2. - The Decision-Maker

The decision-maker is a central element in the DMP. His/her **profile**'s design could be based on characteristics of rationality, competence, psychology and *modus operandi*. According to the decision-phases established, it is simple to point out a desirable group of "skills" required for the decision-maker's profile:

- Ability to analyse problems – identify them, obtain relevant information, relate the problems to other information, and determine possible causes;
- Ability to judge - to develop alternatives based on the information available;
- Ability to decide - evaluate, develop and involve.

In the abstract sense, the concept of the decision-maker may be associated with different **individual models of rationality**. Rationality is the decision-maker's framework, in the DMP, in terms of cognitive behaviour. There are three types of rationalities which respect the principle of efficiency:

- optimization rationality, which presupposes a decision process based on the optimization of the decision-maker preferences' function. This model is often designated as the rational model;
- rationality by satisfaction presupposes that the decision-maker seeks the decision which satisfies him;
- psychological rationality considers that the characteristics of the individual personality are imperative in the decision-making process.

In 1946, Simon, in *Administrative Behaviour*, questions the concept of rationality, highlighting the limitations which are underplayed:

- Some of the premises of "perfect" environment which actually never existed, create limits to rationality. According to the author's arguments [Simon (1996)] there is a psychological environment in decision-making which determines bounded rationality, namely at the level of a complete knowledge of situations, in the capacity for

anticipation of the consequences and of future valorisations. Chaffee (1983:xxviii) refers: “*the central concern of administrative theory is with the boundary between the rational and the non rational aspects of human social behaviour*”.

In this context, it is necessary to distinguish between:

- the “economic man” who deals with the real world, is omniscient and has a rationality of maximization; and
- the “administrative man” who deals with the simplifications of the real world, hoping to satisfy aspirations, make choices without knowing all the alternatives and decide with relatively simple rules.

- The second level of limitations has to do with the plural condition of the term “rational” which requires an “appropriate adverb” (objectively, subjectively, consciously, deliberately, organizationally, personally, etc.).

This perspective of a subjective rationalization is later improved with the introduction of the concept of “*bounded rationality*” [Simon (1982)] and becomes essential in the analysis of social phenomena. The difference between the complexity of reality and the cognitive capacities of the decision-maker create a subjective rationality, and create space for the transition of Simon’s “*administrative man*” to another “*new man*”, like Boudon (1992)’s “*homo sociologicus*”.

The research is framed by Simon’s perspective of “*bounded rationality*”: the decision-maker’s rationality is subjective and always relative. In this sense, the rationality profile analysis must be crossed with other decision-makers’ mental representations, as is the case of perceptions.

Perceptions can also influence the DMP by using “framing effects” which are translated into the occurrence of different descriptions, on the same decision situation, and leading to different preferences. The mental representation of the stimuli may be different for different decision-makers. The original example of the “*Asian Disease*” problem, Tversky and Kahneman (1981:453) presents two different descriptions (opposed to risk versus risk profile) developed from two different reference points (gains versus losses) of an equivalent contingency situation. The traditional “framing effect” example is the double reading of a half glass (full versus empty).

There is no absolute consensus about these effects being the less frequent the greater the deep reflection of the decision-makers about their choices. Le Boeuf and

Shafir (2003) present a thesis that, although a deeper reflection may avoid errors, the “framing effects” persist even among “careful thinkers” since they correspond to “sincere attitudes” and not merely a less correct analysis of the situation.

The main perspective of the decision-maker’s behaviour analysis has become more cognitive. However, the importance of feelings has been developed in several studies. Bhattacherjee et al. (2002) argued in favour of the manageable influence of affections. The more experienced the professionals are, the greater their ability to focus their attention on relevant information. Affections will therefore only be integrated when they do not consider them irrelevant. Damásio’s (1994) neurobiological perspective supports the theory that although emotion and cognition are separate mental functions, there is an interaction between both: the emotive reactions create mechanisms that help decision-makers evaluate and react to the outcomes of their decisions. The decision process may be seen as a dynamic balance between cognition and emotion.

The research study is not framed by a theoretical psychological analysis of perceptions. However, one of the main sources of data collection is decision-makers’ thoughts and perceptions, so the researcher must avoid the potential data bias resulting from the individual mental representation of cognition and emotion.

Leadership may be considered as an ability of the decision-maker to induce others to accept a choice or an authority. Simon (1976:125) defined authority as the power to make decisions that influence others’ actions. This definition presupposes a relationship between the two parts: “leaders” and “followers”. In the authority relationship, the subordinate’s obedience is expected; that is, there are formal, social, psychological “punishments” when decisions are not accepted.

Four main approaches to leadership come from the literature:

- Psychological – based on the identification of the leader’s consistent qualities. Some of the features pointed out by Handy (1976) are intelligence, initiative, charisma, enthusiasm, self-confidence and the “helicopter factor”;
- Style – based on the way the leader exercises their authority, or their power [Conn (1971:149); Taylor and Farrell (1994:26)];
- Environmental or of contingency – based on the leader’s adjustment to context [Chase (1969)];
- Functional – centred on the action, that is, on the ability to achieve results [Quinn (1996:92)].

Using the concept of competence as a set of abilities based on the intelligence and experience of the decision-maker, it is relevant that a positive correlation between competencies and positive assessment of decisions cannot always be confirmed.

Examples include:

- the possibility of “*boss stress*” affecting the leader in terms of competencies “*when these relations are stressful the more intelligent leaders make poorer decisions than do leaders with lower intelligence*” [Fiedler et al (1992:46)].
- the leaders’ general acknowledgement that their subordinates have no relevant skills, may drive them away from commitment in the decision processes [Heller (1992)].
- the importance that the context of decisions and the behaviour of leaders may have on their performance [Yetton and Crawford (1992: 109)].

From an environmental perspective, the leader should adapt their style in a reactive way, according to circumstances (“navigation at sight”); or be pro-active, through a sense of occasion.

In action-centred leadership, the leader’s behaviour is determined within the organization and by the people they interact with, setting out the possible differentiated orientations for the task, for the team and for other individuals. In this context, the concept of transactional leadership matches up management of change and the emotional involvement of the leader and the team. “*The leader is, as highlighted by Pfeffer (1981), someone who is evaluated by the “symbolic results” rather than by the “substantive results” they present*” [Gomes (2000:95)].

Concepts of leadership and management are inseparable from each other and from the planning, coordinating and assessment process. This research project aims to study the perception held by academic decision-makers of the two concepts and to integrate in the governance decision-making model the leadership profile dimensions which are relevant to build a stronger university.

The decision-maker can be used as a collective noun if it means “**decision-making group**”: a group of people responsible for the decision process. The group decision-making process (GDMP) tends to be more complex, whether from the process

itself or the decision evaluation. Schwartz (1994:60-63) identifies 9 phases in this process (1 – identifying the problem; 2 – clarifying the problem; 3 – analysing the causes; 4 – presenting alternative solutions to the problem; 5 – choice; 6 – developing an implementation plan; 7 – clarifying the control; 8 – plan; 9 – assessment).

The existence of a decision-maker group can accrue benefits but also malfunctions. Turban's (1995) analysis highlights the usefulness of the involvement and participation of the various elements, namely in error reduction and resistance to decision reduction. However, initially the decision of a group tends to be more time consuming, and eventually privileges leniency in focus detriment.

In the domain of strategic decision processes, there is a vast area of research which focuses on the behaviour of decision groups (top management team or transversal work groups, like the task-force) and on the group's "*cognitive style*" [Leonard, Scholl and Beauvais (1996); (1998)]. The GDMP may be analysed from the point of view of individual feedbacks or in an organizational perspective.

In GDMP, the dialectic between management of internal conflicts and the construction of a consensus can be decisive. **Consensus**, defined as a generalized agreement between all or the majority of the group's members, is often seen as a desirable result for a group decision process. Whyte (1989:41) sees the consensus as the last aim of the group decision process: "*the task, after all, of a decision-making group is to produce consensus from the initial preferences of its members*".

Consensually sharing beliefs and behaviours may be regarded as a facilitator element in a GDMP, or even, as according to Schein (1991:246), the essence of the group culture: "*If there is no consensus or if there is conflict or if things are ambiguous, then, by definition, that group does not have a culture in regard to those things*". Consensus also tends to be seen as an enabler of decision implementation which is presented by Quinn (1980) as the need to "*crystallize*" the consensus before moving on to action.

In the context of this research, the analysis is the GDMP and it is very relevant to collegial decision bodies of the university. In the world of university politics, reaching a consensus is one of the keys for an effective use of decision criteria. If used as an essential element in the institutional change of universities, it could reduce conflicts and ambiguity.

The idea of a desirable consensus is clearly less controversial in the result-consensus of the decision than during the decision process. Occasionally, some perverse

effects of premature consensus could be identified in the decision process. The premature consensus can occur when not all the viable alternatives have been analyzed and evaluated. In this case, the premature consensus can sometimes be associated with the “disastrous group decisions” [Whyte (1989) exemplifies with international political decisions]. There are those who argue that the greater the expression of conflict in the group during the decision process is, the greater is the final consensus as well as the acceptance and satisfaction of the group, and the better is the final decision [Priem (1995), or even, as Wall and Nolan (1987)].

The research process must enable the analysis in the PPU governance decision-making model, of the nature of a virtuous DMGP and to what extent Whyte’s conceptualization of consensus as the goal is relevant.

Sub Section 2.2.3. - The Organization

One of the most important aspects of Simon's work, in the scope of DMP analysis, is its framework in organizations. Simon's cybernetic approach establishes some parallelism between the rationality of the organization and human rationality.

Organizations have a very strong energy over decision-makers, called "identification", establishing a strong connection, like "invisible glue", between individuals and the organization. This connection is strengthened by a cognitive and emotional commitment which determines a stronger motivation.

In organizations where profit is not the main objective, as it is the case of PPU, a strong identity may be related to the success of integration in the organization. According to Boulding (1989:173), this is the power that gives organization the ability to create relationships and stimulate its members: "*a major source of the integrative power of a community or organization in the degree to which the personal identity of the members involved is bound up with their perception of the identity of the community or organization as a whole*".

The importance of the organization comes from the pro-active environment that it internally creates, and that facilitates efficient decision-making at various levels: personal development, exercise of authority, structuring communication and the information system. Organizations are systems of cooperative behaviour whose members align their action with institutional objectives.

Another important perspective of analysis is the structure level of the organization with regards to power and counter-power, influence and authority.

Influence is a process by which the actor modifies the behaviour or attitude of another; **power** is the ability of influencing; and **authority** is the acknowledgement of that power by himself and/or by others. Handy (1994:142) sets out the five sources of power (physical, resource, position, expert, personal) and the six methods of influence (force, exchange, ecology, rules, persuasion, magnetism).

Rationality models may also be linked to **organizations** in the same way that it is possible to link the decision-maker to rationality models which are:

- Rational Model – reasoned problem solving [March and Simon(1958);
- Collegial Model – shared responsibility based on Chaffee and Tierney (1988);
- Political Model – the decisions are based on the political agents criteria [Allison (1971)];
- Bureaucratic or Process Model– structured interaction patterns in a dynamic and complex organization [Mintzberg, Raisinghani and Théorêt (1976)];
- Anarchic Model – based on decision by accident [Cohen, March and Olsen (1972)].

Appendix 2.2.3.a. makes a detailed presentation of these models based on the decision elements (values; alternatives; premises; information; choices; implementation; results; feed-back; advantages/disadvantages) and authors.

Considering the different vision of power, Mintzberg (1995) presents two models, common in European universities, which are democracy and professional bureaucracy.

The student movement of the 1960s made the power of social participation and the influence of university agents visible. From that decade on, a significant change occurred in the legal framework of European universities based on the principle of active participation in university governance bodies and with an integration of strong democratic elements in the university power structures. The university became a democratic organization: the pluralist nature of interests, conflicts and sources of power, which characterize the organizational life, are highlighted. This was the most common model in mainland Europe for many years and it structured the current framework of DMP in PPU.

The professional bureaucracy model is supported by a knowledge-based power system. The university is a cognocentric organization with a structural configuration, based on the power of professional academics, whose authority arises from knowledge. Clark (1983) approaches this aspect with particular emphasis “academic authority” in this sense. Throughout the different internal levels of authority, it is usual to find traces

of political, professional and bureaucratic authority. Professional and bureaucratic authority is also very common in the technical and management structures of different ministries. These university bureaucracies are sometimes regarded as “collegial organizations” where academics, whose authority and power are acknowledged, are at the top and the administrative structures are at the bottom.

The structural threats of the traditional bureaucratic model are a challenge to the sketch of the original organizational models that may answer to the complexity and instability of the university context (“*undercut the traditional bureaucracy rejecting its hierarchy, control structure and management procedures*”). One of the concepts associated with this ambiguous and unstable context is that of “*organized anarchy*” [Cohen and March (1974)] which will be considered further in due course.

The analysis of power structures and influence contributes towards a better understanding of the DMP in the political governance of universities.

The general framework of the main **characteristics of university organizational structures** should also be considered:

- Complexity, which can be seen in an horizontal (hierarchy); vertical (degree of specialization) or spatial (external) perspective;
- Formalization, namely organizational structure; and
- Centralization regarding power distribution in the organization.

From the organizational point of view, universities are usually described as “complex organizations” with a set of characteristics that tend to impose additional limitations to the internal process of decision and management. Baldridge, Curtis, Ecker and Riley (1978:20-23) enhance the importance of the “political” model in the university DMP, based on the critical differences compared with other organizations. These characteristics, revisited by Sporn (1999:24-72) and Julius, Baldridge and Pfeffer (2000) match namely: goal ambiguity; contested goals; client serving institution; problematic and changing technologies; fragmented professional staff and environmental vulnerability.

The growth of universities determined a greater **complexity** of internal relations with a consequent discussion regarding the relative power of organic units compared to the main entity. The autonomy of faculties should be viewed alongside questions about the ideal size of decision units. The centralised management supporters argue that a

higher rationalization of resources and attainment of scale economies can arise; also, the supporters of faculties' autonomy look at the central government as an entity which is excessively remote to operate in an efficient and flexible way in response to their specific problems.

The **autonomic organizational model** in PPU is positioned in two poles: faculties with financial autonomy in traditional universities, and faculties/departments with no autonomy in new universities. Experience proves that both models may present opportunities and restrictions to governance. However, one must unavoidably think about the breaking point in the autonomic model. To determine this critical point will depend on several factors: institutional culture (strategic power and positioning, management unit); common structures' weight and stability (strategic and/or economic criteria); efficacy level (decision promptness); efficiency level (competency dominance); and management flexibility level (decentralization).

Specific internal decentralization conditions, such as competency delegation on faculties' management bodies and faculties' permanent and updated access to central information, are main topics in the debate for autonomy.

An analysis of the advantages and disadvantages of the centralization process is very useful in a complex organization. Herbert (1976:Chap.VII) considers that centralising and specializing the decision process will serve three main aims: ensuring coordination, expertise and responsibility. Although communication problems may result from a centralized decision process, there are other factors. The main **centralization principles** are:

- A balance must be found between decision adequacy and cost. A top decision-maker should only be responsible for strategic decisions; otherwise, it becomes extremely expensive when he has to take less important decisions;
- If a decision comes from the hierarchy, it becomes more expensive financially and in time spent.

In a certain way, the degree of centralization of an organization could be an indicator of the image that decision-makers have of their dependents and of the decision control level.

Despite the tendency of faculties' autonomic tensions to diminish in situations of greater decentralization, Shattock (1999:275) asserts that decentralization does not always mean a growth on dynamism and responsibility in faculties, making it difficult for the central nucleus to have the ability to change.

The concept of decentralization can be analysed in different perspectives. Blau's analysis, seen in Calhoun, Meyer and Scott (eds) (1990), distinguishes between two types of decentralization:

- institutional, enabling greater flexibility of the internal structures;
- organizational which is the ability to redistribute funds internally.

Kogan (1999:277) shows that, due to the lack of resources and the growing external demands, namely in the domain of quality, the organizational tendency of universities leans towards administrative and bureaucratic centralization. "*Could this mean that bureaucratic values of predictability, conformity to set rules, due process and collective productivity overtake the individualistic and creative values assumed for academic work?*"

Centralization versus decentralization is also one of the main issues portrayed in Simon's (1976:37; 234-235) work. If the decision-maker does not merely want to play the role of "trouble-shooter"/"fireman", solving problems each time they come up, how and when do they decide and to what extent they should be involved in the decision? The answer to this question is connected with the decision analysis, decision control and decision styles. Should the decision-maker control the steps of the decision process? How? Decentralization will be maximised when the decision-maker only controls the choice of alternatives.

In the research, the governance decision-making model must take into account the dimensions of organizational structures and the domain and delegations associated with the intra-network sub-organization which characterizes centralization or decentralization of the university profile.

The study of the University as a complex multifunctional organization is a broader task that exceeds the current work. However, the approach to the organizational perspective of the DMP requires a mandatory reference to institutional values and cultures which is presented later.

The notion of **organizational culture** is a relatively recent theoretic work whose initial interest is closely connected to the behaviour of Japanese productivity since the 1960s. Japanese successes made the West think upon the cultural and conceptual differences of economic systems and their relevance to productivity: the organization begins to be considered a cultural phenomenon where agents conceptualise and act according to referential frames. The cultural dimension did not appease the theory of

organizations with the pragmatism of other approaches such as the Taylorist; instead, it outlined the need to contextualise, in social and behavioural aspects, the agents and the organization. Culture became part of the organization.

Considering Schein's (1985:9) "culture" definition: "*A pattern of basic assumptions - invented, discovered, or developed by a given group as it learns to cope with its problems of external adoption and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems*". Schein defines the following four culture levels:

- Artefacts: tangible and visible culture, whether by verbal (speeches, stories), behaviour (rituals, ceremonies) or physical (facilities, surroundings) manifestations;
- Assumptions: rules of interaction between organizational agents, undertaken according to codes which are shared in a conscious or unconscious manner;
- Shared values: institutional values that are integrated by the agents in a conscious manner. In the university, the subsequent fundamental academic principles behind the university values system must be highlighted:

Academic freedom – this value, which is one of the strongest sources of universities' innovation and competitiveness, has three enemies according to Balderston (1995:51-52)- lack of interest, isolation and inflexibility;

Institutional Autonomy – a relevant value, as a safeguard of the university's independence from the state and the market;

Multiversity – Kerr, in his work *The Uses of the University* (1st ed. 1963), largely contributes towards making this value explicit, consecrating the university as massive, open to society, having lost its traditional boundaries and, in a context of change and increase of requests, an organization that goes on unfolding itself into a multitude of functions;

Humanism - Jaspers' (1960:44-45;87-89) shows that over the last centuries humanism and the university have been bound through the centrality of man, as have the church and the university. This principle supports the idea of a harmonious relationship between man and science.

- Basic underlying assumptions which are shared by the agents in an unconscious and routine manner and dictate their attitudes and behaviour.

Culture is the “invisible glue” that gives unity to the institution, or to a group within the institution, in a dynamic context and in a continuous way. The notion of culture as an instrument of analysis and comprehension of society’s behaviour has been used as a new metaphor for organizations, after the Taylorist metaphor of the machine which Weber (1946) helps to define and the body metaphor, conceiving the organization as a living being. With the culture metaphor, the organization is compared to a micro-society always growing up.

As far as university cultures are concerned, the prosperity of the research can be illustrated by the set of **culture typologies** that emerge from theoretical literature, such as:

- Becher’s (1994) discipline typology defines tribes (academic cultures) based on homogeneous characteristics in the nature of knowledge which are rendered in basic discipline groups (territories);
- Tierney’s (1988) institutional type establishes key cultural dimensions for universities;
- Handy’s (1994:19-43) organizational typology contemplates four cultures: power; role; task and person (Appendix 2.2.3.b.);
- practices vs beliefs typology presented by Davies who resorts to Goddard and Leask (1992);
- adaptation abilities typology, by Arnold & Capella (1985);
- McNay’s (1996) typology, which crosses policy definitions and operational control, [also Cameron (1978) and Mintzberg (1995)];
- Baldridge et al. (1979:19-47) systematizes the use of four characteristic organizational culture models (Bureaucratic; Collegium; Political and Organized Anarchies).

An important question when studying the organizational culture of universities is to know if, as argued by Schein, the university is an heterogeneous organization where differentiated cultures coexist in a dynamic divergence, or, on the contrary, if there is an internal homogeneity which allows us to speak of university culture. In the research, Gomes’ (2000) **conceptual culture frame analysis** will be used. This analysis is based on Louis’ (1985) systematization reference according to a double perspective: the culture’s *locus* (location) and the *focus* (focus).

Focus on a characteristic

The following table, Table 2.2.3.a., presents the synthesis of an overview regarding some literature on institutional culture, offered by Gomes (2000:72):

Table 2.2.3.a. Culture Focus – Levels of Analysis

Levels of Analysis	Focus of Culture
natural	sources
	expressions
	effects
purposeful	management
reflective	nature

The natural level focuses the description of culture and the analysis of structures and functions. The second level is essentially concerned with the intervention models in cultural management and change. Lastly, the analysis of the culture's nature is what enables explanation and interpretation of institutional culture.

Locus on the organization

Considering the level of intra-organizational analysis, it is possible to identify three cultural *loci*; that is, three units of analysis whose location separates the sub-culture's nature, the internal cultures from the organization:

- Top of the pyramid – The university's strategic vertex develops the culture inward and outward;
- Vertical-*locus* – Faculties may be an example of *locus* and sub-cultures where the cultural integration is vertical to the organization;
- Horizontal-*locus* - In this unit of analysis, the difference occurs at a hierachic or professional category level, for example, among academic staff.

At the trans-organizational level, the analysis looks at what is common among groups from different universities. We should consider the first two culture typologies previously approached.

Territory: Discipline

The organization of the university into faculties, based on the traditional cathedra structure, has its roots on the principle that knowledge is associated with university power: discipline is the core of academic knowledge and the basic university structure. One of the most known metaphors regarding this subject is the one that Snow (1959) denominated by “*two cultures*”. Snow critically analyses the existence of two hostile cultures whose division caused major problems when the British and American educational systems tried to adapt to change: more than an academic matter this is a cultural threat to society. The paradigm of the “*two cultures*” is an old question [Kerr (1982:9-10) argues that it is almost as ancient as culture itself] and will remain in many of the philosophers, physicists and politicians’ debates.

Becher and Trowler (2001:44-47) analyse the relationships between academics and the areas of study, or quoting them “*The nature of the linkages between academic cultures (the “tribes”) and disciplinary knowledge (their “territories”)*”. Academics organize themselves in distinct groups/tribes which identify specific value systems and cultures. This organization cannot be separated from the discipline to which it is connected, its territory. Becher and Trowler’s analysis, which also studies idols, spaces, language and underlying rules of tribes, proposed grouping similar disciplines into four domains according to the type of knowledge (Appendix 2.2.3.c.).

It is only possible to understand academic cultures by getting acquainted with their subjects, given that these territories have borderlines and knowledge that are always developing. The idea of specialization corresponds to the existence of subcultures within the original tribe. With the growing level of specialization, there can also be conflict situations: the fight for the territory will not be at a borderline level but within the territory. The conflict, in this analysis, is the result of the evolution of knowledge.

Territory: Institution

In a HES, the assertion of each institution became increasingly critical. Valimaa (1998) highlights the difference between the American tradition and the European tradition when studying the institutional culture centred on the distribution of the academic world into subject areas. Regardless of the model, the analysis of institutional culture requires an awareness of the sub-cultures of the institution’s agents: students, strategic vertex and faculties. According to Tierney (1988), it is necessary to bear in

mind the following key-dimensions: Environment; Mission; Socialization; Information; Strategy and Leadership. See detailed analysis in Appendix 2.2.3.d.

The increasing specialization, corresponding to a force of discipline disintegration, promotes the institution as an element of integration, as Henkel (2000:20) illustrates: *“In that case, the enterprise may be seen as a counter force to the discipline, with which academics may be deterred from identifying”*.

In this research, although the decision-makers belonged to different disciplines, the study will focus on the Institution. The Tierney key-dimensions will be useful in the model’s construction, helping to categorize what the organization must define to achieve successful governance.

Still in the scope of Universities organizational change, Clark’s collegial **entrepreneurialism** is a mandatory reference. According to Clark (2001), the entrepreneurial university corresponds to a collegiality reinforcement, autonomy and fulfilment of the University.

Clark’s (1998) *“pathways of transformation”* are based on five elements: a strengthened steering core; an expanded development periphery; a diversified funding base; a stimulated academic heartland; and an integrated entrepreneurial culture. This model has inspired deep thoughts about the university’s culture change [Davies(2001); McInnis(2001); Daumard(2001) and Salmi(2001)].

Only universities can make their own change towards an entrepreneurial culture, and collegiality is very important in order to achieve it: in the university, the different units must work as one. The reinforcement of collegiality and cooperative external networks gained importance in university performance. Collegial entrepreneurialism enables the reinvention of collegiality. In spite of the structural barriers of the system, change seems to be an “ecologic” inevitability for PPU, in the light of the environmental context.

Sub Section 2.2.4. - Governance Systems

The recent use of the **governance concept** represents a new language to describe the functioning of today's university and it acknowledges the changes that have taken place in HE over the last decades. *"The way organizations are managed, the directions they take and the values they hold send clear signals about their role and functions in society. For this reason, the governance structures of universities were unquestioned for most of the twentieth century."* [Kennedy (2003:55)].

The word "governance" has an underlying broad and dynamic perspective which is not internally restricted to government and organizational structures but rather to power allocation processes, DMP transparency and public resources accountability. Shattock (2003:97) underlines the suitability of the concept to the complexity of university governance: *"governance is regarded as synonymous with the activities of the governing body but for academics, governance at the level of faculty boards and departments is likely to have a more immediate impact"*.

Governance presupposes an external assessment of the social feedback in the university. Richardson and Smalling (2005:56)] define *"governance as encompassing relationships among academic divisions within the institution, as well as linkages between the internal community and the larger worlds of government, business and the community"*. In this perspective of "corporate governance", governance structures of universities should be regarded as broadened partnerships among academics, managers, governments and stakeholders.

In the scope of this study, the meaning of governance is identified in three elements, as presented below, and which will be developed next:

- The relationships between university and stakeholders, governments and other universities which interact with the universities' autonomy and accountability balance;
- DMP and democracy, self-regulation rules within an academic community;

- Strategic leadership structures: identity and future directions for the university.

▪ The framework of the HES and **stakeholders** which influence its institutions finds in “*Clark's coordination triangle*” [Clark (1983)] a clear representative model. State, market and academic oligarchy are the three vertices of the triangle of influences which have in different ways and proportions, coordinated and controlled the actors of institutional HE over the last decades. Each vertex corresponds to an ideal model of organization that Niklasson (1995:347) typifies as “*government agency; private company and self-ruling monastery*”, and which represent clearly distinct “*partnerships*” of governance patterns, respectively:

- Bureaucratic governance where the external rules are strongly determined and where planning arises from a very important *ex-ante* evaluation;
- Governance based on management practices where the main rules are established from the beginning and where the market is the main stage for institutional performance evaluation;
- Governance of collegial decision with very strong internal rules and where the evaluation is based upon principles of collegiality and knowledge (peer review).

Clark (1997) introduces a new category in the model- “organization”- which interacts with leadership, management and governance.

In today's university, the tensions between the interests of the agents are decisive at a strategic and planning level. Groot, Neave and Svec (1998:103) consider that the use of the designation “stakeholder” is a convention of Anglo-American literature, “*an amusing conceit which assimilates, unwittingly one hopes, higher education with horse-racing, greyhound and flash covers in loud check suits*”. Traditionally, the word “stakeholder” defined the person to whom we trusted the money of several gamblers until we defined which gambler or gamblers would receive it. This set of images underlies the idea of diversity and renders, with some trustworthiness, the complexity of the interests that should be associated with the evaluation and analysis of stakeholders.

The relationship between the university and the society is changing. The changes that happened in states and universities, in balance with the market tensions, legitimised

the institutionalisation of the representatives of different social interests, namely at the level of the real participation in university management. Magalhães and Amaral (2000:441), proclaiming the image of the imaginary towers, argue that: “*The Ivory Tower model was challenged by the “Babel Tower” model in which national interest is supposed to be protected and enhanced by representatives of the outside world acting within the academic institutions themselves*”.

In the case of PPU, university and the state, these are inseparable: the state makes the university’s existence possible and protects it as well as providing society’s intellectual conscience. Despite the general European tendency for change over the last two decades, this relationship which is based on the defence of a social order, where the state and the university represent normative concepts, is still very strong. As Henkel and Little (1999:11) refer, “*It remains the case that no higher education institution can survive wholly independently of the state. But the possibilities of university privatization have been put on the agenda in Europe*”.

In recent years, the change undertaken in many European states involved changing the existing control system, which was deeply centralized, into a system of state supervision based on the self-regulation of universities [Vught (1989); Neave and Vught (1991)]. The main instrument of support for this change was university autonomy and its rules for accountability.

The states simultaneously used their legislative power to frame and regulate the autonomy of public universities as well as to create mechanisms and competitive market conditions, or even the market itself, as it happened with the Portuguese private university in the 1980s. In 1988, the enactment of the LAU was prompted by the inevitability of transforming the HE model, which the state felt unable to maintain in an era of massification and growing complexity.

The supervision model of the state seeks a greater efficiency and efficacy of the system, reducing the relative participation of public financing and encouraging the competitive mechanisms of the market but, as Neave (1995:61) argues, it also seeks to maintain the “actual strategic supervision over national priorities”.

In the Portuguese case, the government supervision regarding universities seems to be more institutional than strategic. The financing model is an example: financing per

area results, in a reactive way, from the historic costs of each area and does not represent the state's strategic behaviour towards priority areas.

Although there is a need for a strategic supervision entity, it is arguable whether it should or not be directly taken on by state governance bodies. For example, Pedrosa and Queiró (2004:19-22) propose the development of an autonomous entity which could guide and regulate HE policies in Portugal.

In the scope of the research findings, the concept of the stakeholder also comprises students. Regarding the question which always goes unanswered, "To what extent should students be considered clients, stakeholders or members of the academic community?", the proposal puts a choice in evidence. The student/client should place his expectation at the service level. In this context the institution is essentially concerned with:

- understanding the students' needs through a prospective analysis;
- ensuring that the supply meets students' demands;
- assessing student-satisfaction as to what regards the service provision's quality;
- assessing, with the employers, market satisfaction regarding the performance of students who need the service.

Regarding this matter, Kaplan (2004) concludes that in 15 public and private universities studied, the market is the most responsible entity for institutional change as far as students' needs are concerned. From the preparatory research, it is clear that if students do not only see themselves as clients, showing citizenship while participating in the university activities, in return the university is concerned with students' integration and their participation in the university's performance as active members of the academic community and not as mere clients.

Crossing the analysis with the European imperative (in the Berlin Communiqué, 2003, regarding students' participation) leads to the idea that students should be viewed as stakeholders in the governance model. Firstly, this perspective ensures a timeless and broad concept of "students": those who use, who may come to use and alumni. Secondly, this vision allows the use of criteria of equal participation opportunities in governance between the different types of students, whether they are "undergraduates" or "postgraduates", whether they are full-time or part-time students and whether they are "home" or "international". Finally, their integration as stakeholders ensures a

strategic and long-term contribution which is more suitable for *corporate and public governance* objectives.

- In the last decades the institutional management was based on two fundamental principles: **autonomy and democratic participation**.

Autonomy, which encompasses pedagogic, scientific, administrative and financial decentralization powers, grants universities a greater self-governance capability and increases responsibilities in the leadership and management. On a theoretical level, university governance has the power to use internal resources.

In terms of the actors and the exercise of authority, HES have different models of governance which may be simplified in the following typology:

- Continental Model which characterises mainland Europe, with two strong sources of authority, exercised at the top and at the bottom of the system (state/ministry and faculty/unit of research/disciplinary nucleus);
- UK Model – the authority basically emerges from faculties as territories of disciplinary tribes (it is recognized that this model is now much reduced);
- American Model – the authority comes from the institution and has a strong integration of the administration's influence.

The Portuguese case closely follows the Continental Model with regard to the bipolarisation of authority between the state and universities. The base of the system is relatively heterogeneous. The dialectic relationship may be felt at the institutional level, or at the level of tribal territories which in terms of power relations superimpose themselves on the notion of institution.

Since LAU, the principle of democratic participation in the decision-process has been strongly assimilated by PPU. The process of university autonomy and its duty of self-governance along with the right to individual democratic participation, strengthened the integration of the main actors' individual choices (students, staff, teaching staff, and researchers) in the governance process.

The issue of representation in PPU is very complex and may imply diversified processes and electoral systems. In addition to representing the internal groups, there are often other systems of tribal representation in each faculty which in a decisive way

determine the final governance structure. The discussion on establishing an electoral college for the election of the Rector, or the electoral method itself, may represent a tribal conflict where the outcome can be linked to true revolutions as far as institutional cultures are concerned.

The principle of democratic participation is independent from the different governance models. The collegial model often presents a complex structure of bodies and committees whose composition comprise criteria for democratic representation. The managerial model often comprises the principle of democratic participation.

Participation may take on institutionally clear forms, as it is the case of the university Senate, or may take on informal and cloudier contours through pressure groups.

According to Santos (1996:123-124) “participation” and “democracy” are two different concepts. The concept of democracy is based on a “*basic element, the definition of citizenship*”, which is not always a voluntary act of choice in universities.

In a certain way the over-valorisation of this principle and some confusion between citizenship responsibility and management responsibility seem to determine some dogmatism in the democratic participation in management bodies. The analysis performed during the research of the assimilation of a governance dimension, based on management practices and on institutional evaluation principles, will be portrayed in the configuration of the final model.

- **Strategic leadership decision structures** are the third element of governance.

The governance university models can be typified, according Groot, Neave and Svec (1998:9-10) theoretical framework as:

- Collegial Model – characterized by a process of cooperative decision-making by peers, based on self-determination;
- Bureaucratic Model – distinguishes itself as a strong formal hierarchy and legal authority.
- Professional Model – authority and legitimacy which arise from the specificity of knowledge;
- Negotiation Model – decision-making involves a process of co-responsibility of the different intervenents.

The ambiguity and instability which may be found in universities, especially in the “*large public and multipurpose university*” [Enderud (1980:236)], suggest,

according to various authors [Cohen and March (1974); Baldridge, Curtis, Ecker and Riley (1978); Neave and Sveg (1998)], the existence of an “anarchy” model. In this model, ambiguity is a premise and there is a collective conscience of cohabitation with confusion, reflecting the wealth and conflict of cultural values. In “organized anarchy”, the objectives (and means) are frequently not clear; thus, individual autonomy is an essential factor of global equilibrium. It is not mandatory that organized anarchy means inefficiency, but it contains in itself the idea of an increased degree of difficulty in leadership and control, with inevitable implications at the level of the head figures of the organization. The task of leaders is often one of “herding cats”, rather than “herding sheep”.

The model rests essentially on the individual autonomy of decision-making which is, according to the power of vote and veto, exercised by the members of the collegial bodies. According to Cohen and March, in addition to the ambiguity of objectives, there are other facts which determine the existence of an organized anarchy, namely the lack of information transparency regarding the internal governance process, and the volatility of the students’ participation in the organization and in management. This often occurs due to the structural mechanisms of the rotary motion of the system or the internal selection criteria of the executive which are based on institutional principles that are not always concerned with effectiveness in an “entrepreneurial” sense.

Cohen, March and Olsen’s (1972) “*garbage can*” model of ambiguous behaviours is associated with the context of universities and has been applied in this way. In this model, problems, solutions and decision-makers may appear in an inconsistent and uncertain way.

The analysis of the PPU organizational structures result in the examination of different situations. The older universities are organized in faculties with an educational perspective based upon courses. In this case, the organic units are closer to the Napoleonic model, in their genesis. The scientific research is usually carried out in the sphere of faculties, in research units, which may have different designations (“centres”, “units” and “institutes”). The universities created after 1973 come closer to Humboldt’s model, with departments or schools with a more eminent logic of research based upon the area of specific knowledge while being an integrated structure of education and research. In this case, the courses came within the research and may be used for

different degrees. Costa (2001:157-159) presents the economic, flexibility and effectiveness advantages of a bigger coherence between research and education structures.

In PPU, the governance structures rest mainly on collective decision-making bodies like the Senate, the University Assembly and the Administrative Council.

The Senate represents the highest authority in PPU having deliberating power and responsibilities in senior management. This body is elected by direct ballot by the academic body, non-academic staff and students, and has the right and the duty to advise whenever issues are important to the university, such as changes in the curricula; and changes in the organic structures.

What is the true role of the Senate? How far-reaching is its efficiency? In Baldridge's well-known formulation: does the Senate represent "Tinkertoys" or "Powerful Influences"?

The Senate is a way of assuming participated university autonomy and is deeply rooted in a traditional academic culture. A wider discussion, reflection and debate are inseparable from the breakthrough of scientific knowledge and is structuralising in institutional terms. The virtues of collegiality may, however, become threats to the efficiency of the decision. The high number of members, along with a complex decision structure, may raise difficulties for the DMP, especially in executive decisions.

In the PPU decision structures, the only institutional decision-maker which is not a collective body is the Rector, who is appointed or elected. The Rector is elected, from among internal full-professors, in the sphere of the University Assembly. This extended constituency model is based on a process of direct election, greatly contested over the last years within some universities that defend the principle of direct election.

There are three paths to becoming a "Rector": the professional path (USA), the election and ministerial appointment. Green (1997) details the main potential characteristics of leadership for each of the systems. In the case of the UK and Ireland there are no previous formal qualifications and appointment depends on the appraisal of who nominates the rector. In some European countries (Denmark, Greece, France), the possibility is extended to those who do research or teaching jobs, associate professors or full professors.

Kerr (1982:29-41) defines the President of an American university as a “giant”, but most of all as a mediator whose main goal is peace and progress in an organization where conflicts are inherent. In UK, Henkel and Little's (1999:280-306) study presents the following profile: the English Vice-Chancellor is almost always an elected academic and from a different institution of HE with an average age of about 50 and who sees himself as a *managing director*. From this study, based on data which goes back to 1960, it is possible to identify, from advertised posts, some of the characteristics required for the position, namely specific competencies considered to be relevant and desired capabilities of leadership and management:

- “*successful experience of leadership and management of organizational change;*
- *capacity to innovate and to think imaginatively in strategic whilst;*
- *clear commitment to the ethos of the university;*
- *skills in financial management and in income generation;*
- *able to guide the organization in an uncertain environment”.*

Henkel and Little (1999:285-286)

In a “*monocephalic university model*” [Neave (1988:111)], the Rector is at the top of the academic and administrative hierarchies, as in Portugal, and has essential responsibilities. What role is the Rector expected to take on? Catalyzing agent? Facilitator? *Primus inter pares*? Mediator? Chief executive? Hero? Regardless of the framework of governance (organized anarchy, collegial, political or bureaucratic model) the Rector must have leadership profile, as a strategic manager who reinforces the university identity and leads future directions for the organization. This leadership style may be differentiated and will depend, as seen in the Gioia and Chittipeddi (1991) research, on an adequate balance between the personal characteristics, the institutional culture of the university and stakeholders satisfaction.

The Rector is head of the senior management team (Vice-Rectors and Pro-Rectors) which is formed by academics chosen by the Rector and to whom he delegates or sub-delegates powers in strategic areas.

Faculties are structured on knowledge areas; they have scientific and pedagogic autonomy and may or may not have administrative and financial autonomy. The management bodies of faculties are the assembly of representatives; executive board; pedagogic board and academic board (or pedagogic-academic board).

The study of Governance in PPU cannot rule out the concept of collegiality.

Collegiality is the process of decision shared by the members of the university and based upon a consensus that corresponds to the common objectives and strategies. It requires respect for different positions, but, most of all, needs discussion, negotiation, and the conviction that consensus will be achieved. This characteristic guarantees that the entire community participates in all important decisions. A collegial governance structure is based on committees and, although it works with various models of representation, it is strongly linked to the central role of the academic in the university.

There are many criticisms against the inefficiency of this type of decision-making process. Carrigan (1980:124) noted that the collegial decision process is often uninformed and motivated more by discipline considerations than by objective data-based judgements, and that there is a built-in dichotomy between “participation” and “efficiency”. In large colleges, the consulting process, being slow and of difficult decision, often appears as a persuasion mechanism rather than as a true process of listening before positions were taken up.

The principle of collegiality is inseparable from the institutional culture and from the management philosophy, especially in Latin universities. In Handy's (1994) analysis, the university belongs to an existential culture – or Dionysian – symbolized by a set of individual stars, who are non-dependent among themselves, simply united by a common space where they shine. In this culture, where talent and individual capabilities are decisive, the individual is subordinated to the organization.

In spite of some controversy about collegiality as an element which structures the governance and decision-making process [Bolton (2000:12) argues that the collegial bodies actually work when they act as a “talking shop”, and not when they are demanded of functions of decision-making “*which require a different mind-set*”; Clark (1998:148) argues, as seen before, that successful entrepreneurialism requires collegial attitudes and forms “*collegiality then looks to the future. It becomes biased in favour of change*”] collegiality has deep roots in PPU management and must be studied in the context of the DMP.

Section 2.3. - Total Quality Management and Excellence

“We are what we repeatedly do. Excellence then, is not an act but a habit”.

Aristotle

The concept of the “knowing organization”, analysed in the previous section – an organization that is prepared to understand and to adjust itself permanently to the pressures of the internal and external environment, and therefore is able to engage in continuous improvement – is inseparable from the management perspective chosen as a reference: **Total Quality Management (TQM)**.

The term “quality” has a Latin origin in *qualitas* which means quality, way of being, or property of things [“*what determines what the thing is*” (Aristotle)]. Over the last century, the conceptual frame for Quality grew in scope and complexity and had multiple meanings that reflect the economic and social context.

The **evolution of the concept of “Quality”** can be illustrated in 5 phases:

- Inspection – emphasises the product where the Quality is connected to measurement, comparison and checking of the activities which determine the classification of the product (1920s);
- Quality Control – emphasises the production process where the Quality is linked to the statistic control and process monitoring (1930s – 1950s);
- Quality Assurance – emphasises other organization processes beyond the productive process where Quality is linked to planning and to projects. (1960s);
- Quality Management – emphasises the client, their needs and satisfaction degree where the Quality is at the organization’s global management level (1970s and 1980s);

- Quality in Excellence – emphasises an organizational culture which ensures stakeholders satisfaction and outstanding levels of performance (since the 1990s).

Since the 1920s, Quality Management has attracted increasing attention among researchers and practitioners, although the theoretical debate based on different **approaches to quality management models** only became really meaningful since the 1970s:

- Juran (1974), values management as a vector that promotes processes of change which are responsible for the improvement of the organization and Quality as “fitness for use”;
- Crosby (1979), in considering key-factors for Quality, values the commitment of the entire organization and introduces the concept of “zero defect” and “prevention cost” (conformity), valuing Quality according to standards, specifications and requirements;
- Ishikawa (1982) develops a humanistic view of the production systems focused on human resources (team work). This matter is taken further by Cardoso’s comparative matrix cited in Alberton (1999:5);
- Deming (1986) identified fourteen topics for quality; the author values customer needs and expectation as a starting point for a continual improvement-based system;
- Feigenbaum (1987) with Total Quality Control values the systemic and structured perspective of quality in the organization and the concept of quality as a value.

It is possible to argue that each Quality definition reflects the context in which it is materialized. The evolution in the significance of quality demonstrates the change from mass-production to customisation and from error cause elimination to error prevention culture. From a taxonomy perspective, TQM appeared in the 1980s but its roots go back to the scientific management principles of the 1920s [McAdam (2000)]. Meanwhile, in the evolution of quality, the **TQM concept** evolved from a mechanics’ approach to a more subjective and social one. Nowadays, TQM is a comprehensive management philosophy which focuses the management of all aspects of the

organization, including its entire workforce as well as its customers and suppliers, on a continuous improvement dynamic.

From the several definitions of TQM available in the literature, Ghobadian et al. (1998:10) write about this management philosophy idea: "*TQM is a structured attempt to re-focus the organization's behaviour, planning and working practices towards a culture which is employee driven, problem solving, customer oriented, and open and fear-free*". This definition places TQM at the intersection of four combined perspectives:

- management of change, in a proactive philosophy where improvement and innovation become part of everyday work [Cameron and Barnett (2000)];
- a holistic view, seeking solutions for the organization as a whole with the absolute need of establishing coordination mechanisms [Deming (1986)];
- a systemic approach whose principles must be applied at all levels, in all stages, and in all departments of the organization [Dahlgaard et al. (1998)], and
- a comprehensive long term convergence of all stakeholders interests, based on a concept of organization like an arena where different perceptions of reality are continuously negotiated [Jackson (1991)].

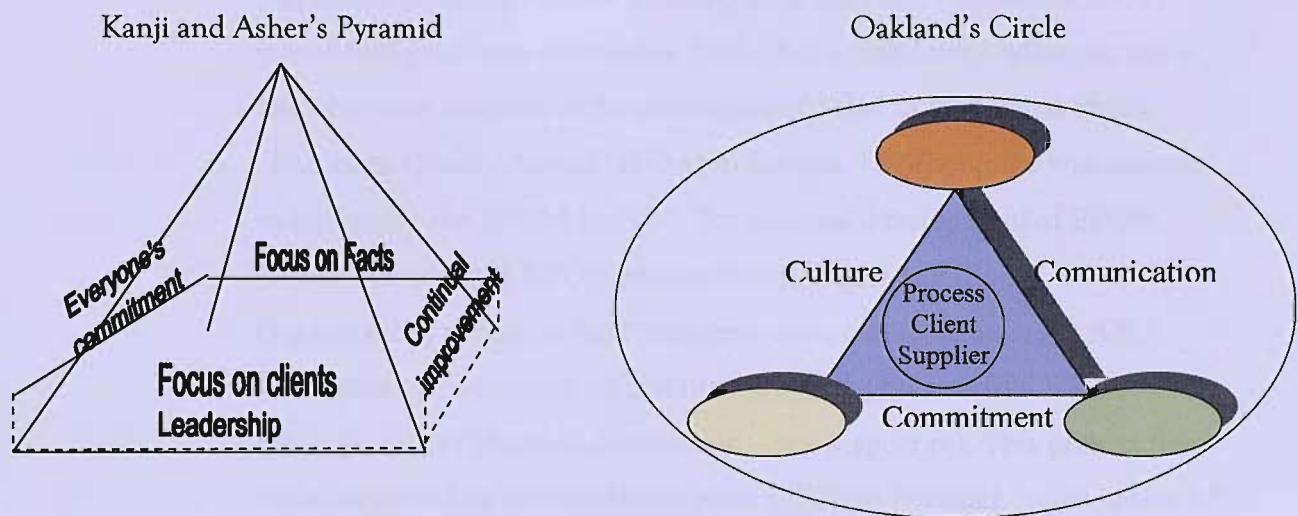
An important contribution, which gives the TQM approach added value as a conceptual model, comes from Kanji's (1998:50) five components' analysis. According to the author, the TQM is a systemic approach based on vision, mission, strategy, values and key issues. This perspective is carefully approached in the research, in the sense that it enables the integration of the mission and the strategic goals along with organizational values and the decision-making process, which is an essential relationship in the research problem.

This systemic perspective gives shape to Kanji's (1998b) **five TQM principles**:

- Leadership;
- Focus on Clients and Staff/ Interface with Suppliers;
- Focus on Facts / Processes;
- Continual Improvement, and
- People's participation/ Commitment,

denominated as a soft approach to management [Dale (1994)] and redesigned in Kanji and Asher's Pyramid [adapted from Dahlgaard et al. (1998:21)] and in Oakland's (2000) circle, as is presented in Figure 2.3.a. :

Figure 2.3.a. Kanji and Asher's Pyramid and Oakland's Circle



Although based on a simple system, the TQM could include successive loops whose complexity is not determined.

This concept of TQM is closely linked with organizational **Excellence**. Peters and Waterman (1982) introduced the concept of Excellence in the management context, in the sense of outstanding levels of performance. Despite the frequently undifferentiated use of TQM and Excellence, the fact is that the application of TQM philosophy guides the organizations to excellent performances: TQM is a way to achieve the goal of Excellence.

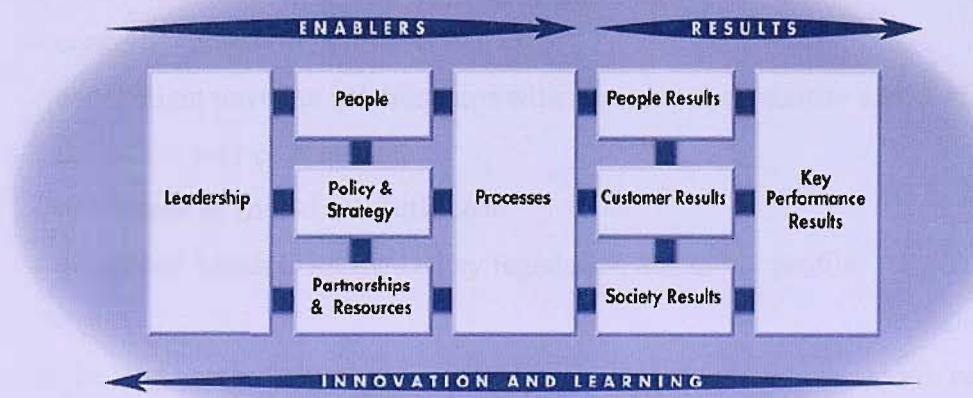
Tracking the development of quality in an organization, the first step is certification and the highest Excellence. According to ISO 9000:2001 Standard Quality certification, the organization “*knows the rules of the game, which allow the company to go into the field and play, but do not guarantee its selection nor the victory*”, Godfrey (1997:52). Certification is an essential step, but it merely starts a journey that does not end here.

In a mature phase, the Excellence prizes are quality management systems (QMS), from a TQM viewpoint; or, as commonly named in the areas of education and health in the United States, CQI – continual quality improvement.

The most referenced excellence prizes are:

- “Deming Prize” founded in Japan in 1951 by the JUSE (Japanese Union of Scientists and Engineers);
- “Malcolm Baldrige Award” (MBNQA) in the USA (Appendix 2.3.a.) whose first prize was awarded in 1988. It is a mandatory reference and it has been very decisive in the promotion of TQM in the United States;
- “European Quality Award” (EQA) in Europe. The first prize was awarded in Europe by the EFQM in 1992. The national development of EFQM Excellence prizes is NPO’s responsibility (National Partners Organization) which, in the Portuguese case, corresponds to the APQ (Portuguese Association for Quality - www.apq.pt) and APCER (Portuguese Certification Association – www.apcer.pt). This prize is the basis for awarding the excellence prize (PEX) in Portugal, in the sphere of action of the Portuguese quality system, where the UC was awarded, in 2004, an Honour Mention – Public Sector. The EFQM Excellence Model’s main criteria and interactions are detailed in Figure 2.3.b.
- “Canadian Awards for Business Excellence”;
- “Australian Quality Awards” since 1988.

Figure 2.3.b. EFQM Excellence Model



in <http://www.efqm.org/Default.aspx?tabid=35>

In spite of the benefits of Quality award frameworks in the diffusion of TQM and in the identification of best practice, it is not clear that they were developed using a scientific approach, based on systematic empirical evidence or theoretical inductive methodology. This way, these tools are restricted and of no importance or relevance (previously attached to each criteria or not explicitly suggested and subjectively defined by the juries).

A TQM model, which is able to promote organisational Excellence, must be based on critical success factors as well as a measurement approach which evaluates the real contribution of each factor, and suggests improvement strategies and tracks progress over time. This is the case of Kanji's Business Excellence Model, as defended by Moura and Sá (2002: 54-68), which incorporates the main TQM critical factor and the methodological support of the structural equation modelling approach. A TQM model must combine the "rationalist school" with principles of scientific management, like statistical process control and the "human relations school" and behavioural principles of psychological and social needs.

Quality in public service is a relatively recent, further development driven by the context of increasing marketisation and the strategy of state supervision conditioned by the lack of resources. This leads to the comparison of standards between the public and private sectors.

The idea of Quality in a public service is more complex and less common than in the private sector. Alberton (1999) points out some differences between public and private service as follow:

- concern – based on public service duty;
- equal client payment relationships with regard to the quantity and quality of the public service provided;
- excellence as an end at a little cost;
- autonomy which is influenced by legislation and client profile.

In the Portuguese Public Service Quality System (SQSP), Law Decree no.166-A/99 of 13/05 states that the "*public service quality is a management philosophy, which enables service efficacy and efficiency, de-formalization and simplification of processes*

and procedures, and satisfaction of explicit and implicit citizen needs". This is a concept that focuses public institutions on a certified QMS.

Although university assessment is a general practice among some European countries, the concepts of Quality and Excellence are **controversial concepts at the level of HE** up to now. Brennan [in Brennan, de Vries and Williams (eds) (1997)] refers to three sources of influence:

- language – as the visible face of a tendency resulting from the external atmosphere of the market which invades universities with concepts and practices;
- power – a process of quality which brings out the tensions between the forces of power (state/academics/market), attitudes and methods;
- change – the emergence of quality in the universities linked to the strong changes that have occurred: expansion, diversity, globalisation and cost cuts.

Contextual restrictions on public funds and increased competition amongst institutions, and the opening of HE to stakeholders and society resulted in numerous experiences in quality, which have been developed in terms of regulation and incentives, since the beginning of the 1990s. Nevertheless, developments in some HES in Europe, notably the evolutionary stages, the speeches and the approaches, are very different, pointing to some level of frailty.

More recently, the debate of HE quality has focused on “academic standards”. In the United Kingdom the HEFCE, the QAA, and the universities themselves (UUK) promoted the network discussion regarding methods for quality assurance and standards in Higher Education. Although some documents refer to the “quality standard of teaching and learning”, the truth is that the standards presented refer almost exclusively to graduate and post-graduate studies and not exactly to the learning process, methodology and pedagogy. In general, the methodology focuses on:

- integration of needs and interests of the public and the stakeholders including student feedback, regarding the patterns of quality of HEI;
- creation of an internal information system which is consistent, adequate and light in the HEI;
- creation of report and follow-up mechanisms which allow a continual improvement.

These general principles, which are very similar to a QMS of a service, are almost always based on another basic principle that is widely accepted: the keys to excellence are academic values and decisions. Becher (1997:164) writes regarding this matter: *“Academic standards, then, must in their very nature depend on a complex process of judgment which is sensitive to contextual as well as intrinsic considerations. Any attempt to standardise the standards – to impose uniformity on assessment procedures and the resulting ascriptions of merit across the whole range of academic enquiry – is doomed either to failure or to absurdity”*. The implicit idea is that the strength of academic autonomy and freedom must be translated into freedom of self-determination and definition of competency, excellence standards and criteria, without concessions imposed by central authorities or corporate lobbyists.

The tension between academic structural values and the condition of public universities prompts a strong resistance to the tendency of globalisation of Excellence or Quality models in HE, which could get support from state politics.

Controversy on Quality in HE is based on the dispute between those who advocate standard and universal concepts in quality programs and those that consider that the concept must be reconstructed for the university. According to Santiago (1998:366), this “crisscross” portrays the difficulty in finding a reasonable definition: the concept has different meanings for different subjects and social groups. Three different approaches can be considered when using quality in HE:

- the logic of reproduction of the corporate model of service provision .Lewis and Smith (1994:300-303) refer to the “Deployment Planning Matrix for Integration of ISO 9000 and Higher Education”;
- the logic of adaptation – combining corporate standardization with the specific context of the organization of the universities;
- the logic of local (re)construction through negotiation.

In 1999, Europe developed the European Network for Quality Assurance in Higher Education (ENQA) [www.enqa.net/publications] where the debate has been further considered regarding the new HE forms, good accreditation practices and institutional evolution.

The efforts that European systems and institutions have made in the last decade towards assessment in HE are remarkable. Evaluation mechanisms have been created regarding subjects, programs, institutions, audits (of quality systems) and accreditation.

The introduction of follow-up procedures as improvement opportunities in the evaluation process is highlighted in the most recent ENQA reports.

In Portugal, the concerns for HE quality improvement have been felt at the institutional level – see the example of the UA, which integrated “an interuniversity pilot group” of TQM in European Universities, ESMU (2000) – as well as at state level. The main mechanism for university empowerment has been the university assessment (Law no. 38/94 and DL no. 205/98). The responsibility for evaluation was, until 2006, held by the Foundation of Portuguese Universities (FUP); in addition, the Council of National Evaluation of Higher Education (CNAVES) was created. In these organizations, there is no representation of HE stakeholders. The assessment program is developed in two phases: self-assessment and external assessment.

The evaluations undertaken (two complete evaluation cycles in 10 years) have been programmatically and diagonally performed in all universities by the same evaluators, based on a program (degree), leaving out research and also omitting areas of organization and management areas which institutional evaluation would encompass.

Through the statute no. 1/2003, the Legal Regime for Development and Quality in Higher Education (RJDQES) was approved, and it established the basis for academic accreditation procedures to strengthen the politics of evaluation. CNAVES has expressed some criticisms (Report of Law 1/2003) and most recently (Report no. 2/2005) completed a “Self-Assessment Guide of a Functional Unit” “in anticipation” of a new “evaluation paradigm”: institutional evaluation. This process, besides giving consistency to the HE evaluation process in Portugal, represents the compliance of the Portuguese model within community references. Meanwhile, in 2006, the government published the Evaluation decree Law moving towards international institutional evaluation, according to European Standards (ENQA).

In Portugal, despite recent developments, there are still considerable discrepancies between TQM principles and the practice and political evaluation of Higher Education [Neves and Ramalho (2003)]. Regarding the evolution of quality, it may be considered that the PHES is still in a quality control and teaching process monitoring phase. The successive and recent financing laws are examples of this stage, guided by standard values criteria and using performance indicators only within teaching staff quality, pedagogic, scientific and management efficiency.

At this point, Becher's question arises once again: how is it possible to reconcile the pressure of external power forces, such as the state or European Union, towards standardization, with the academic freedom and autonomy of the university? The answer to this question must consider accountability. That is, it will be the responsibility of universities to obtain outstanding performance levels in order to prove to society the efficacy and efficiency when using their resources, with autonomy as to what regards strategies, organization and their enforcement.

In this way, decision support and performance systems are essential tools. The research model, a desirable helpful tool for governance, must adjust itself to the organizational network decision considering all Quality critical factors and integrating stakeholder expectations in order to allow steering governance towards success.



Section 2.4. – Decision Support Systems in Universities

“The amount of information that people receive on daily basis is virtually obscene”.

Todd Massa

Information plays a critical role in any organization shedding light on the decision-making process, enabling an understanding of changes in the external environment and supporting the assessment of strategic decision-making. The aim of this Section is to define, according to the literature reviewed, the desirable characteristics of the Information System and the Decision Support System in Universities, making an overview of the present position of PPU.

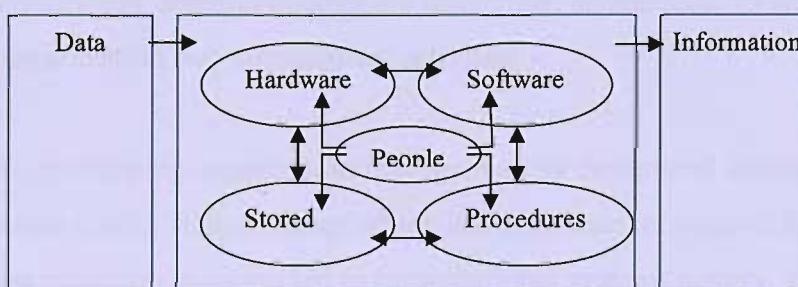
Taking into account the previous considerations - which are in the core of the research problem - about successful DMP and the employment of TQM principles in university management, particular attention is given to DSS performance tools in Higher Education. Through a brief literature review, the concept of “performance indicators” in HE is discussed and its main characteristics and typologies will be highlighted.

Sub Section 2.4.1. – Information Systems and DSS

Defining a system as a set of integrated components or entities which interact towards obtaining a perceived goal, the **Information System's** (IS) main goal is to convert data into information: processing information. The information will correspond to a meaning which results from data treatment after a set of classification, summarization and association activities. Information can only be an intermediate output which may be incorporated into new treatment processes, interpretations – as a knowledge source – or even as meaningful judgments in artificial intelligence systems – wisdom. The efficiency of information management can be considered as a knowledge creation and organizational innovation instrument.

Schultheis and Sumner (1995:35-36) state that “*information is data with meaning*” and present an IS model, reproduced in Figure 2.4.1.a., with that orientation.

Figure 2.4.1.a. – Schultheis and Sumner's IS Model



Source: Schultheis and Sumner (1995:36 – Figure 2-5)

The multi-variable essence of this model, which is based on technological, organizational and human factors, is focused on people (designers and programmers but also users and decision-makers) and on a decision which converts it into an important theoretical reference in the context of the research.

Research in IS has followed **multi-disciplinary** research lines evidencing the systemic complexity of a reality whose exclusively technological essence should be

questioned. Regarding the nature of IS research, Jones (2000) writes that over the period between 1979 and 1999, 57% of the citations in IFIPWG8.2 Conferences refer to social researchers which seems to show a social phenomenon, not solely technological issues. The multi-disciplinary character of “information science” becomes even more evident with the intersection of IS with management and with decision-makers.

Several authors characterize the IS concept from different perspectives:

- social

“Information systems are a multi-disciplinary discipline and a social science, and should not be analyzed in a purely technological perspective”.

Galliers (1992:3)

- organizational

“The information system is a system that creates, transforms, transmits and memorizes information, whose function is to provide the decision system with information regarding the organizational system”.

Le Moign (1978:40)

- human

“Regardless the technologies used in the informatization of organizations, it is the human component of the information systems that is normally responsible for its complexities and which makes its study interesting”.

Caldeira and Romão (2002:78)

In the research context, the IS is an organizational subsystem which plays a relevant role at an internal and external communication and decision process level. As far as responsibility and decision-making are concerned, an adequate IS enables efficiency in organization and management activities.

The IS, overlapping organization management, is designated as **Decision Support Systems (DSS)**. It is a concept which has only been recognised for a few decades, whose evolution is connected to computational systems history. The definition of a DSS is under discussion and involves a wide range of subjects with which to interact (psychology, operational research, decision and organization theory). The DSS are interactive systems whose goal is to help decision-makers to use data, information and models that allow them to identify, solve problems and make decisions.

Keen (1987) defines the triple perspective of the concept from its constituent words:

decision – centred on the modelling, analysis and decision-maker selection processes;

support – centred on its nature as a utility for man;

system – centred on technological characteristics.

The systems thinking, which is today associated with many decision processes, comes from:

- the growing complexity at different levels of reality (scope, depth of knowledge, etc.);
- the existence of uncertainty, even in planned processes;
- the multiplicity and simultaneity of rationalities (efficiency, efficacy and social responsibility), underlying the final goals.

This multidimensional perspective, which provides a reflection on the developments of DSS, is a complex and forcibly interdisciplinary issue. An example of this paradigm is the Project Management for Information Systems in Higher Education (PMFISHE) (2001), which presents a three-dimensional framework: 7 S/ 3 D/ 3 M

- scope: 7 S's (Structure, Systems, Strategy, Stakeholders, Style, Skills, Staff);
- life cycle: 3 D's – Designing, Doing and Developing (follow up improvements);
- scale: 3 M's – Macro, Meso and Micro dimension,

this allows an adequate development of the IS and a correct multi-directional interaction with the University's "life".

In this context, the interaction of the researcher/analyst/actor is subjective. This perspective is illustrated by Daellenbach (1994:25) which highlights the cultural, scientific and experience background of the individual who sees reality as a "*world view of the observer*". This "world view" functions like a filter which guides the look in a particular direction.

Using the historical perspective of Costa (2000), the DSS aims for less structured problem resolutions and can combine analytical models with databases which are naturally flexible, adaptable and easy to use. They are essentially decision support tools for top management: they support it but do not replace it. The **interaction between the DSS and the organization** should be strong and dialectic. The DSS adapts to the organization but, simultaneously, its use has several organizational implications. Hubber (1988) argues that the increase in information access and consequent

organizational changes are the necessary conditions to improve efficiency in decision processes and knowledge development.

In complex organizations, the DSS can be adapted to the resolution of unstructured problems where decision-makers are seen as a group (GDSS) and consensus or negotiation may be integrated in the decision process rationalization. The interactivity between many large groups is facilitated, nowadays, by the internet in systems of e-democracy [Niculae and French (2003)]. These GDSS enable stakeholders and community involvement in decisions taken by society. The transition from the traditional GDSS to an e-democracy system does not imply change in the analytical decision board, but definitely needs methodological research and development to explain the process to the agents with different perspectives, premises and levels of knowledge.

It is also common to have DSS development based on excellence models (TQM); organization self evaluation models for multi-criteria analysis [Xu and Yang (2003)]; or generator models for knowledge creation. Regarding these latter models, Choo (1998) developed an information model based on three perspectives (information needs => information seeking => information use) and on its adequacy to the knowledge creation process.

In decision-making, DSS should have **relevant and integrated information**. Information is considered relevant if it is available on time; if it is relevant; accurate; detailed; frequent; and understandable. The integration of information is, simultaneously, a competitive advantage in its transmission and sharing. Since decision-makers need both quantitative (countable) and qualitative (uncountable and based on subjective analysis) information, the integration is very relevant.

In classical organizational structures, the DSS should support the three levels of management (strategic, executive and operational). Nevertheless, the same designation is frequently used with specific and different meanings, such as identifying support systems for top management, with a fundamental concern for strategic planning; “information systems for executives” [ES (Executive Systems), Raggad (1997:148)] or “information systems for top management”.

In the context of the research, the DSS is based on:

- the organization and its management as a support for strategies, tactics and operations;

- a rational approach to the decision process.

A DSS should be integrated assuring a relationship between the different management levels in an adequate structure which shares relevant information. Lucey (1989) considers that the design of a DSS should include management levels, management functions, information required for the different levels, frequency of the necessary information, interface of information presentation and technology.

The **DMP and the IS** will make a balanced symbiosis with an adequate DSS. Table 2.4.1.a. summarises the cross referenced levels of decision and IS goals in an organization. IS objectives, relevance and other characteristics are linked with decision management levels, activities and aims.

Table 2.4.1.a. Decision Levels and Information System

Decision			Information System		
Management Levels	Activity	Work Structure	Objectives	Relevance (a)	Other Characteristics (b)
Top: Strategic Planning	Long Term Planning	Politics Program	Decision Support	1. ad-hoc basis 2. summaries of data 3. highly subjective data	a) results often contain suffuses b) predictive of the future c) mostly external d) highly unstructured e) top manager f) goal oriented
Middle: Tactical	Budget Plans	Procedures Processes	Demand Report	1. regular 2. summaries of data 3. some subjective data	a) some surprises may occur b) comparative nature c) internal and external d) some unstructured data e) middle manager f) oriented toward control and resource allocation
Base: Operational	Daily Transactions	Tasks Operations	Schedule Report	1. regular, repetitive 2. very detailed 3. highly accurate data	a) expected results b) the past c) internal d) highly structured e) first line supervisors f) task oriented

a) Relevance: 1 – frequency; 2 – detail level; 3 – accuracy.

b) Other Characteristics: a) results dependability; b) time period covered; c) data source; d) data nature; e) typical user; f) decision level.

adapted from Schultheis (1995)

With regards to this problem, one of the first questions to be asked at the time of DSS design is “Who is this information for?” In universities, just like in other organizations, decision-makers have different perspectives of the information usage, according to the kind of DMP for which they are responsible.

For top strategy, the information originated by external sources (social partners; local community; competitor HEI; national and international markets) is more important than the internal IS. The subjective and unstructured profile of data makes the articulation of the top subsystem, with the lower part of the triangle, less critical from the perspective of the decision support than that between two minor subsystems (tactical and operational). Strategic planning stands in a subsystem, that, although informed by its base, has a logical prospective of anticipating the future which determines its openness to external environments. In the same way that operational decision-makers have often a clear understanding of the local activity dynamics, top decision-makers should have a greater and more encompassing comprehension of the organization’s global activity and its strategic directions.

Sub Section 2.4.2. - The Concept of Performance Indicators

One of the main functions of the DSS is to facilitate the choices of decision-makers, providing indicators adequate to the different decision contexts. The theme of performance indicators (PI) is still, in HE management, a polemic issue. The expression “performance indicators” is often (but rather wrongly) automatically associated with other concepts, such as “management statistics”, “evaluation indicators”, “performance indicators” and “performance funding”.

Indicator - 1. One who or that which points out, or directs attention to something; 2. That which serves as an indication of something;

Performance - 1. Carrying out of a commanded duty, etc; 2. The accomplishment, carrying out, doing any action or work; working, action; 3. An action, act, deed; 4. action of performing a ceremony, a play, a piece of music, etc.

In *The Shorter Oxford English Dictionary on Historical Principles*. Prepared by Little, Fowler and Coulson. Revised and edited by C.T. Onions. 3rd Edition, Oxford at the Clarendon Press.

Of the two words in the expression, “performance” is probably the one which will cause the most discussion. The political, conceptual and operational discussion in universities will not appear disassociated from other debates in HE concerning its mission and *modus operandi*.

In Europe, since the beginning of the 1980s, the concept of the **performance indicator in HE** has had a strong impact, especially in the UK. The introduction of PI in HE is associated with the New Public Management and it is inseparable from the strong determination of political involvement, based on general financial concerns which determined the change in finance models. The higher motivations resulted mainly from what Johnes and Taylor (1990:1) refer to as “*government's determination to make the public sector more accountable to the taxpayer*”. The need for greater responsibility from the public sector towards the economy with the inevitable transparency and

selectivity of resource allocation mechanisms, are requirements for regular evaluation similar to what is described in various government reports [DES (1985) Green Paper; DES (1987) White Paper]. Another key stage was the famous Jarratt Report (1985) whose writings were crucial in the evolution of the HES in the UK, in the 1980s.

In this context, there was an explicit change of policy where the government was clearly worried about valuing efficiency and effectiveness principles, showing society a clear connection between financing and performance. A new concept of university management is also implicit. Johnes and Taylor (1990:4) designate this process as “*managerial metamorphosis*”, based on the assumption of an executive chief, responsible for the management of the university.

The internationalization of the PI concept and the globalization of its use rapidly emerged from the virtues of comparability (what is collected and measured, is comparable and can be evaluated) to a context of rapid global technological growth which allowed institutions and states to share information quickly. In the scope of the OECD/IMHE, a performance indicators working group was created in 1989 whose work contributed significantly to the discussion of this theme. This is discussed by Kells (1992), Spee and Bormans (1992) and Sizer (1992).

The internationalization and globalization process was greatly facilitated by the quality “revolution”. The development of quality control systems requires the development of PI. The Malcom Baldridge Model is an adequate example: PI become essential instruments for the evaluation model to function [Gaither, Nedwek and Neal (1994)] with the essential integration of different performance perspectives.

The **definitions of PI in HE** are many. A literature review quickly shows a list of differentiated HE perspectives of the concept:

“... a numerical value used to measure something which is difficult to quantify”. Cuemin (1986:6)... or ... “numerical values which provide a measurement for assessing the quantitative and qualitative performance of a system which can be derived in many ways” Cuenin, (1987:120).

“... ratios, percentages, or other quantitative values that allow an institution to compare its position in key strategic areas to peers, to past performance, or to previously set goals” Taylor, Mayerson, and Massy (1993:x).

“... a concrete piece of information about a condition or result of public action that is regularly produced, publicly reported, and systematically used for planning, monitoring, or resource allocation at the state or system level... [They are] intended to be used together, not singly or out of context” Ewell and Jones (1994:7).

“... a measure – usually in quantitative form – of an aspect of the activity of a higher education institution...” Cave, Hanney, Henkle and Kogan (1997:24).

The controversy is not restricted to the concept definition but it is indissociable from its possible **uses**. According to Kells (1992:131) *“to their many proponents (...) they are intended to be useful, simple, reliable and objective and they are to be used with care lest they be harmful to the institution’s programmes and system they are intended to serve. To others they are a less than welcome, reductionist mechanism that often disregards central matters in university life, invades university autonomy and may do serious harm to the academy if, or inevitable when, the “heald warnings” appended to the various formulation are ignored or if they are used for public inappropriate comparison or to steer in any significant way the funding for or within institutions”*.

The panoply of definitions and controversy regarding the concept show evidence that a PI system can be oriented according to various perspectives, namely:

- organizational - technical path based on efficiency and effectiveness concepts and/or
- policy - privileging the actors, their interests and their relationships.

The orientation of a PI system can be determined by external factors (an environment foreign to the teaching system, and relations with the state and the market), but also by cultural and organizational factors. PIs are not the objective themselves; rather, they are governmental or institutional instruments. McDaniel (1996:135), in his study about Western Europe, calls them “tools of government”; Barnetson and Cutright (2000:277) call them “conceptual technologies”, in the perspective that, not being objectives themselves, they are not neutral instruments either. The PI formalizes a group of concepts that underlines the actors who use or analyze them: “what issues we think about and how we think about those issues”; that is, they presuppose priorities in HE and the conceptual idea of function.

The different motivations of the agents strongly influence the building of a **PI Tableau de Bord**, as presented by:

- a governmental perspective [Johnes and Taylor (1990) and Jowett and Rothwell (1988)], taken as an example, initially for the English case, aiming to reduce the dependency upon public funds, allowing a more efficient reallocation of public resources and promoting a wider access to HE;
- an institutional perspective based on internal organization goals, such as reinforcing the institution's management capacity; obtaining accounting information systems organized for management and a greater value for money with financial restrictions [Cave, Hanney, Henkel and Kogan (1997: 42); Cave, Kogan and Smith (1990)] of which the case studies of the Spanish and Uruguayan [UC (2004)] institutions are examples.
- a market perspective according to the Australian case www.aucc.edu.au/australias_unis, based on the need to obtain ranking; to understand the needs of a competitive system through adequate focus and efficiency.
- or simply, in a more technical management scope, the perspective of the “five primary uses” [Cave, Kogan and Smith (1990: 45)] – monitor, evaluate, dialogue, rationalize and allocate resources – which fully or partially intercept any of the previous perspectives.

Considering the instrumental concept of the PI as a comparative measure between “*what happens, or happened, and what was expected to have happened*” [Cave, Hanney, Henkel and Kogan (1997: 21)], it is possible to establish some of its virtuous, and therefore desired, **characteristics**.

Literature is prodigious in describing the qualities of PI : Johnes and Taylor (1990:7); Cave, Kogan and Smith (1990); Gibbon (1990:81) and Robson (2000:45) In a synthesis of essays, PI should:

- be simple [“*often simple is the best (...) even if it initially seems less technically attractive in developing indicators*” Gaither, Nedwek and Neal (1994:21)];
- be reliable [Gaither, Nedwek and Neal (1994:8); Gibbon (1990:77); Spee and Bormans (1992:141)];

- have validity [Gibbon (1990:41-49); Gaither, Nedwek and Neal (1994:8); Spee and Bormans (1992:141-142)];
- and, fundamentally, they should be able to be validated internally and externally [Kells (1990)].

An adequate contextualization and a clear conceptualization of the qualities of PI are not always an easy task. For example, what is the meaning of relevance? Considering that the aims should be useful for decision-making, the relevance cannot be dissociated from the decision level. On the other hand, should the indicators be related with the objectives and proposals of ... the institution... or the government... or the market?

Cave, Hanney, Henkel and Kogan (1997:208-229), set out three perspectives (user, constructor and resource analyst) and develop a six items typology with desirable [(+) relevance; level of aggregation] and non-desirable [(-)ambiguity; ability to be manipulated; cost of withdrawal; relationship with other PI] effects, to analyze the indicators. This conceptual analysis allows them to characterize exhaustively fourteen selected teaching and research PI.

The base criteria used by ADEST (2001:24) seem to summarize the main concerns on this matter: relevance, reliability (data consistency); auditability (capable of being scrutinized); transparency (having a clear meaning); and timeliness (currently available information) are desirable PI characteristics.

The organization of a PI system is structured according to the main objectives, and its **typologies** reflect the perspectives intended. Considering a main objective as the need for evaluation - in a process, institutional or system's perspective - it is possible to present three structural typologies:

- Jarratt's typology (1985:33) which segments PI according to the institution's activities on which the analysis is focused:
 - internal – worried about the university internal performance (student success rate; student structure; teaching quality; private fund collection rate for research);

- external – when oriented towards the external performance evaluation of the university (degree of employment of graduates; professor and teaching reputation; number of patents/licenses);
- operational – more directly related to internal support activities and their performance (unit costs; student/teacher ratio, number of computers per student/teacher).

- The typology of the Working Group CVCP/UGC (1986) and (1987) centred on the university performance evaluation regarding its objectives. The basic idea consists of disaggregating the quality evaluation from any process through the input quality evaluation; critical points of the process and results [Gaither, Nedwek and Neal (1994:ix)]:

- input indicators – its focus are resources used while trying to achieve the goal;
- process indicators – centred on the way resources are combined throughout the “production process” to reach the objective;
- output indicators – evaluating the output.

Further refinement of this typology can introduce two new categories [Barnetson and Cutright (2000); Jager and Goedhart (1993)]:

- product indicators – which come before the output indicators and correspond to the results of system feedback which will provide new outputs.
- outcome indicators – final indicators with the effect of new outputs in society.

- The “3Es” managerial typology - The applicability of efficiency concepts - doing the right thing - and effectiveness - doing the thing right - should take into account HE main aims.

- Economy – in the perspective of money saving by the inputs (student cost financed by the government; percentage of cost reduction);
- Efficiency – based on the maximization of the relationship between inputs and outputs that are related to them (student cost; teacher/student ratio; percentage of teachers with flexible contracts).
- Effectiveness – while minimizing the variations between the output and the objectives (growth rate of the number of students; customer satisfaction).

In the research, the general survey of PI used in HE systems followed a methodology which comes close to that of OECD/IMHE. PIs were organized from a general to a specific focus according to the main activities; the analysis level; and the management fields in each activity. The aggregation of indicators is made according to its suitability to the level of analysis and according to the typologies described above (internal-external focus; input-output approach or managerial typology).

Performance models - regardless of the model's degree of complexity, it should be adapted to the organization taking in a set of choices adequate to the institution, such as:

- culture and organizational characteristics (public/private);
- strategic or operational dimension (short term/long term);
- concept of ownership performance (by activity);
- amplitude of evaluation in institutional terms (complexity, heterogeneity/uncertainty); or even
- key-actors election and respective roles, according to Carter, Klein and Day (1992:25-51).

The contextualization will ease the adaptation of the model to the institution and allows synchronization of the impact of the model with the desired effects. Grosjean and Grosjean (2000:Appendix) present a detailed study regarding the international impact of performance models.

From the conceptual base of the main performance models, the following stand out:

The input-process-output is part of a large number of models and can have different structures, as seen in Carter, Klein and Day (1992:36). Analyses such as those by Cave, Hanney, Henkel and Kogan (1997:25-37) see PI as control points, and may find consistency in this type of model.

Norris (1978) integrates the PI in an open system where HE is the centre. Johnes and Taylor (1990:50-64) are closer to the classic theory by presenting a model based on a traditional production function in which universities, regarded as multi-product institutions, integrate inputs (work factor, knowledge, capital, consumables, students) to produce some outputs (teaching, research, consulting, culture and social environment). The complexity of outputs and the multiplicity of inputs determine the complexity of

the model. The production model is also approached in Cave, Kogan and Smith (1990:21-38;60-64) and Beeton (1988).

The models of resource allocation are often used due to their conceptual clarity. Nevertheless, the use of a reduced number of inputs and outputs may hide the credibility of the results.

The modelling of cost analysis is an alternative approach, although it can also be based upon an input-output conceptualization with multiple perspectives:

- Layard and Glaister (1994) model the social return (return tax on investment made in HE for the general economy) with a basis on the cost-benefit analysis;
- the approach of the efficiency border (data envelopment analysis - DEA) is often applied [Cave, Kogan and Smith (1990:63,30)];
- portfolio analysis [Borna and Arndt (1993)].

Since the 1980s, the ABC System (Activity Based Costing) systematizes cost analysis for activity development processes. Activities, not products, give origin to consuming productive factors and this way it matches with the true accounting and management centres [Ness and Cucuzza (1995)]. The concept of Activity Based Management spreads from initial to continuous improvement.

The application of the ABC system, in educational institutions, goes back to the end of the 1980s. Diversification of university activities, between “business” and “social responsibility”, makes this methodology quite adequate from Hooper and Cook’s (2002) point of view. In Portugal, some studies [Carvalho et al. (1999)] support the complementary application of Activity Based Resource methodology, being that revenue projections are divided among activities, or facts, allowing comparisons between activity profit and expenses.

The growing complexity of organizations and the management of their performance invoked the evolution of parallel bi-dimensional instrumentation, such as indicator panels for pluri-dimensional and strategic management models. The Balanced Score Card (BSC) [Kaplan and Norton (1992)], is a concept that assumes measures of evaluation for essential dimensions and allows the monitoring of organizational performance. This tool transforms an indicator system into a management system, which considers itself simultaneously as:

- an instrument of strategy dissemination, initiative and objectives communication
- a tool of empowerment that provides autonomy to those responsible for operational management while controlling performance always measuring its

contribution to the global organizational objectives through metrics and indicators. Martinsons, Davison and Tse (1990) developed a study where the BSC is the focal point of IS's strategic management.

Olve-Roy and Wetter (2000:299-300) present a model, applied in public education in Sweden that might be adequate for universities. Its approach can be adapted to mission-driven organizations (not profit-driven) while maintaining the same perspective of the initial model, centred on enterprises, such as those presented by Niven (2003:32). Kaplan and Norton (2004:293-242) present an example of the BSC model's success at the University of California [“Berkley's Administrative Service” Group – BAS].

This systemic perspective is used in TQM models such as EFQM where performance is explicit regarding personal results, customers, partnerships and performance keys. Lamotte and Carter (2004) compare in detail the two systems, BSC and TQM, and conclude that, though their opinions are different, they may be applied in parallel. Both systems can be used to evaluate strategic performance, although the EFQM model is essentially based on a perspective of organization management activities. In this research context, the TQM approach establishes the relationship between the DMP and performance assessment; thus, it will be the favourite one.

In Barnett's (2000) era of super complexity, the universities, always changing, find distinct models of organization, government, institutional culture and management. Although it is possible to understand the globalizing tendency of an evolutional model (from state/university, to university/state and to university/market) which encompasses such concepts as PI, a performance evaluation is still a controversial element, not in principle but in its operation.

The controversy regarding PI is not merely technical; on the contrary, it is fundamentally ingrained into the basis of an open structural debate, relative to university management. What is a good performance? Who defines what a good performance by the university is? How to use PI? How to define standards? Who uses PI and with what purpose?

While running the risk of undue synthesis, it can be said that the great concern in the use of PI consists in their intrinsically virtue of comparability. The question of contextualization is complex and important. In fact, it takes in not only the scope of the

situation context - a subject with an in-depth approach by Kells (1992) - but also the contextualization of information itself. It is not possible to compare what can only be apparently comparable in shape and actually corresponds to different situations.

The concept of "equivalence" [Spee and Bormans (1992)] should be present so that an indicator comparison in different organizations can be made. It allows the establishment of equal opportunity for institutions and market. "Equivalent indicators" [Lucies (1992)] are those that are believed to have the same curriculum; the same skills in human resources; the same financial resources, in sum, diplomas and research of identical quality, and only these will be immediately comparable, in absolute terms. This abstract concept remains a standard in today's universities which have a "functional overload" [Stolte-Heiskanen (1992)] where the cognitive heterogeneity of structures, the complexity and extension of relationships and activities and the mission diversity create difficulties.

These questions have given rise to more literature, whether in the form of lesson *cartilha* for the government [as Sizer (1992) summarizes in 10 lessons]; or in a more technical and operational way [as the diagnostic by Carter, Klein and Day (1992)], through varied methodologies; through the analysis of series; or even, as McDaniel (1996:135) puts it, the possibility of using PI in non-traditional uses, in advanced auto-regulation models, or cybernetic models.

Above all, the success of any performance measurement attempt must be grounded upon an effective and sustained management compromise, without which any model runs the risk of becoming, at best, a trend or a costly exercise of underutilized worth.

1.2.87

Sub Section 2.4.3. - DSS in PPU

The changing environment of HE reinforces the need for universities to have flexible and adaptable DSS. More than ever, the efficient fulfilment of the universities' mission and the growing demands for management efficiency presuppose the existence of adequate DSS at different levels, with information and available facilities regarding:

- access – physical (buildings, parking, etc) and especially virtual (information bases, namely for libraries, curricular and other online information) for campus facilities;
- control – of activities developed in teaching, research and extension;
- monitoring – follow-ups of results and behaviour of variables which may be considered relevant.

According to this perspective, Marques (2005:173-179) states that the structure of a university's information database must establish a management control result panel; improve public management transparency; perform comparative analysis; and define material and human resources in order to determine a more effective and efficient public management.

Besides technical and technological issues and IS coherence, it seems to be particularly relevant that the technological revolution has not only introduced new instruments that allow decision-makers to better their activities, but also provided conceptual changes. *"They (data processing tools) have changed the very concepts of what a business is and what managing means. To manage in the future, executives will need an information system integrated with strategy, rather than individual tools that so far have been used largely to record the past"*, Drucker (1995:1).

Several studies regarding strategic informational needs in university management have been developed, particularly in UK and American universities. In a 1995 study in about 60 universities in the UK, Pellow and Wilson (1993) point out two main strategic aims

- improvement in research performance;
- high quality service provision.

In the European University Management Benchmarking, ESMU/CHEMS (2000), within which the University of Coimbra participated, one of the criteria was “Managing Information and Communications Technology (ICT)”, which intended to establish, in strategic terms, how the universities established a relationship between ICT and management. The needs for information identification are increasingly at a level which may be designated as *competitor intelligence*, and which can encompass needs for information regarding alternative financing for research; potential student needs; potential post-graduation employment; performance; and marketing costs.

In Portugal, since 2003, referring to Elkin and Law (2000:8), the Science and HE Observatory (OCES), a structure of the Ministry for Science (MCES), initiated the development of an IS (SIES), according to a coordinated strategy of integration of the information produced by the different establishments and entities of HE, allowing its storage and analysis in order to produce statistics and related information.

The expected typology includes six categories of information

Financial/Accounting
Investment and Resources in Sciences and Technology
Academic (courses, vacancies, number of students, marks)
Quality Assessment
Teaching Staff
Social Services

The SIES, organized in four models (operational, functional, logical and technological) was developed on scope principles, generalized access and focus on use, namely for institutions of education.

At the beginning of the project, the diagnostic of the situation included a set of opportunities for improvement:

- dispersal of the information between the different entities of the system;
- flow of information between the entities within a relatively limited enclosure, and with agility and flexibility enough to face the permanent evolution of the higher education reality;

- lack of human and technical resources for information management, although globally redundant due to the lack of articulation.

The IS and its respective processing were not based, generally, on a structured usage or adequate technologies, but rather on the high performance of the involved collaborators.

The SIES was associated with the e-U virtual campus initiative which involves services for HE students and teachers, and encourages and facilitates the production of accesses and the sharing of knowledge. Its main aims are:

- promoting the creation of “on-line” university services;
- producing and sharing academic content;
- creating HE communities with three components (availability of content and services at any time and place; massification of the use of laptops; access to intranet and internet at any location).

In this PPU context of disintegrated, partial or underdeveloped DSS, the construction of an IS in University of Porto is a notable success. It began in 1996 in the Engineering Faculty, and since then the system has had a large impact on the central activity of the faculty, directly affecting students and teachers, and indirectly affecting production management indicators and service improvement [David and Lopes (2005)]; [David and Ribeiro (2001)]. The project (SIGARRA-Academic Information System) used an approach centred on quality, and is now widespread to all UP faculties [www.up.pt].

The importance of systemic information management in universities has grown exponentially in these last decades, with the multi-dimensional, complex, and competitive growth of (and between) the HEI. The pressure for globalization and increasing competition makes the adaptation of DSS a critical factor to the performance of universities [see, regarding this matter the principles established in 2001, shared by the HEFCE/UUK/SCOP and the QAA, in HEFCE (2001)].

Despite the profuse literature on PI and DSS, most of what has been written comes from a list of political orientations without scientific supports, or from individual reports of successful stories, even if these “stories” are “systems’ stories”. It is widely recognised that there is a lack of a methodological theoretical basis which could balance the institutional and the society-related perspective of university excellence

performance. It seems difficult to develop this kind of study without strong institutional research and without experimental or theoretical models.

A model capable of effectively promoting strategic management excellence must be based on critical success factors and be able to achieve a commitment on what should be the university's activity between internal and external views. It must also comprise a measurement approach on quantitative and qualitative information; it must be able to evaluate the real contribution of each activity to organizational performance; and it must be able to suggest improvement strategies and track progress over time.

* * *

In the context of literature review, the critical factors such as the concept of mission, decision and governance, quality management and decision support systems have been highlighted. All these critical factors need to be understood in the development of a model for governance decision-making in a Portuguese university.

CHAPTER 2

LITERATURE REVIEW

Chapter 2 presented the relevant literature on the study topic, highlighting the lack of a methodological theoretical basis which could balance the institutional and the society-related perspective of university excellence performance.

Issues such as the concept of mission; organizational and decision-maker context; the need to define the concept of performance analysis in light of a corporate governance perspective; and the definition of decision and decentralization structures seem fundamental when defining the model.

The main vectors upon which the research question is based will be identified in Chapter 3 and its final formulation will also be presented.

CHAPTER 3

IDENTIFYING THE QUESTION

CHAPTER 3

IDENTIFYING THE QUESTION

Chapter 3 shows the importance of the research's exploratory phase, which establishes the boundaries and tunes the study's problem.

This chapter identifies the four main vectors upon which the question is based: Mission, Strategic Objectives and Performance Assessment; Organizational and Institutional Decision Structures and Processes; the Profile of Decision-Makers; and Decision Support Systems. It also systematizes the relationship between the literature review context and the research problem.

Finally, the chapter ends with the formulation of the problem, the analysis of which will be developed in the following chapters.

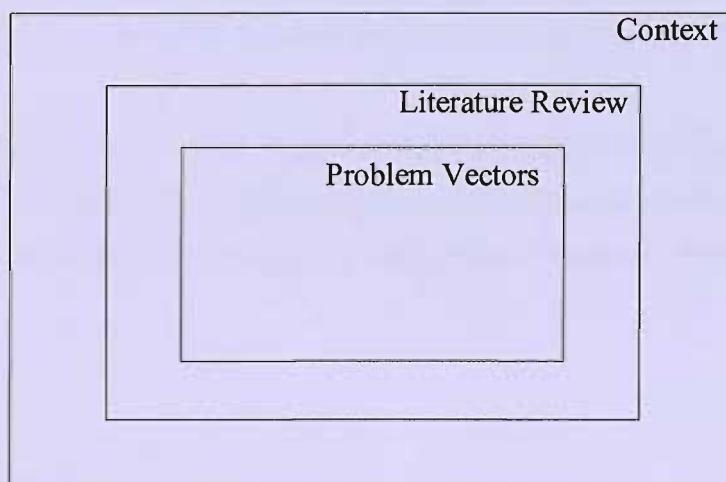
Defining the research question is one of the most important steps in the research process. However, it is not often an independent operation whose formula can be achieved easily from an exogenous inspiration. The central problem of the research arose from the prior development of intensive research work (document and interview analysis), which is decisive for an in-depth understanding and progressive clarification of the problem.

One of the first difficulties is to identify the question among the several questions that come up as the problem is contextualised and as the study goes further into the literature. What is the question? At the beginning, there were innumerable uncomfortable situations, doubts, uncertainties, unfamiliarities that became clearer along the way. The initial methodological questions lead, after the pre-investigative phase, to the research question.

In the present research, the problem was focused on analysing the Decision Support System as a critical factor for strategic decision performance efficacy in a PPU. First, the research guideline enclosed in itself a set of relevant questions that the investigative work was able to clarify and value. The initial problem evolved with the preliminary in-depth study of the complex DMP of universities and with the institutional context changes in the information support systems of PPU, especially with the "Virtual Campus". After the investigative phase, it was possible to define clearly the boundaries of the problem and to formulate the question **?**.

The context and the literature review that were carried out over the two previous chapters helped to identify the main vectors of the research problem (Figure 3.a.).

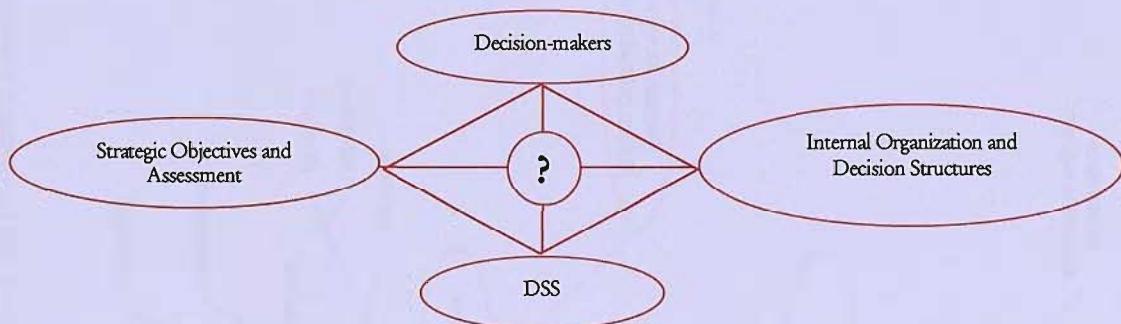
Figure 3.a. General Diagram of the Research Problem



In this study, the research problem is related to the need to understand how the DMP is developed, in the current context of change, in a PPU. Considering that there is a need to align the decision process – where the decision-maker and the decision structures interact – with the institutions' strategic guideline, and considering that it is also relevant to study how DSS integrate referential (*a priori*) and effective (*a posteriori*) performance analyses and to what extent the DMP is sensitive to this, the question is placed at the core of the dialectics among four structural vectors of university management in PPU:

- Mission, Strategic Objectives for Decision and Performance Assessment;
- Organizational and Institutional Decision Structures and Processes;
- Decision-Makers' Profile;
- Decision Support Systems.

Figure 3.b. Diagram of the Research Problem Vectors

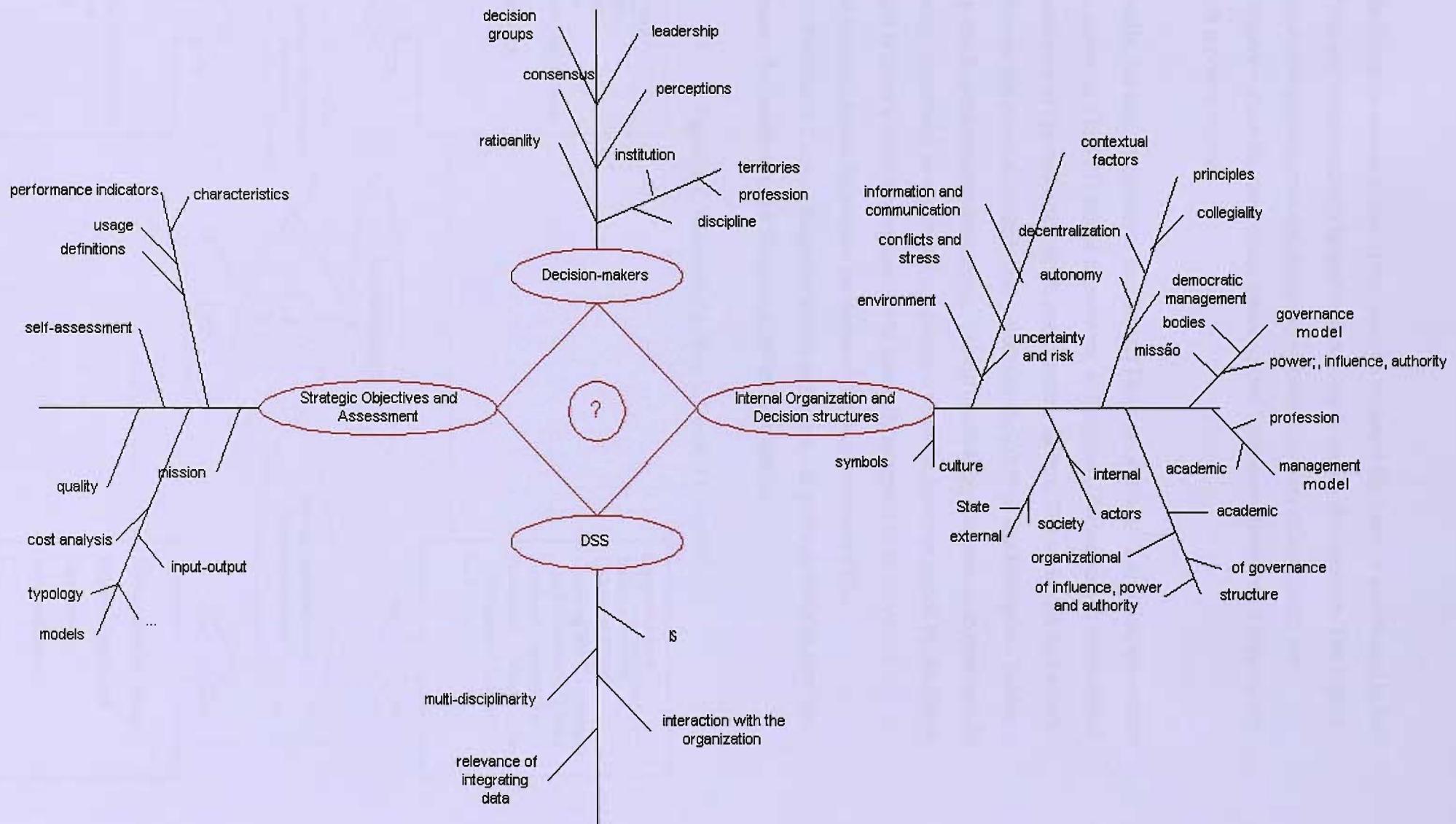


The question, which is shown in Figure 3.b., will focus on how the four vectors interact and what contradictions we may have from this interaction, but it will also focus on aspects that should change.

The decision-makers are, in the context of the study, the top managers. In fact, only the top managers directly intervene in the definition of the organization' strategic path, and interact with internal organization and decision structures in a comprehensive and effective way.

Bearing in mind that, in the current model, the top decision-maker is an academic (teacher, researcher and manager), their concerns and their actions are the core of the study: therefore, an in-depth and qualitative study of their thoughts will be required.

Figure 3.c. - Diagram of the Problem's Literature Review

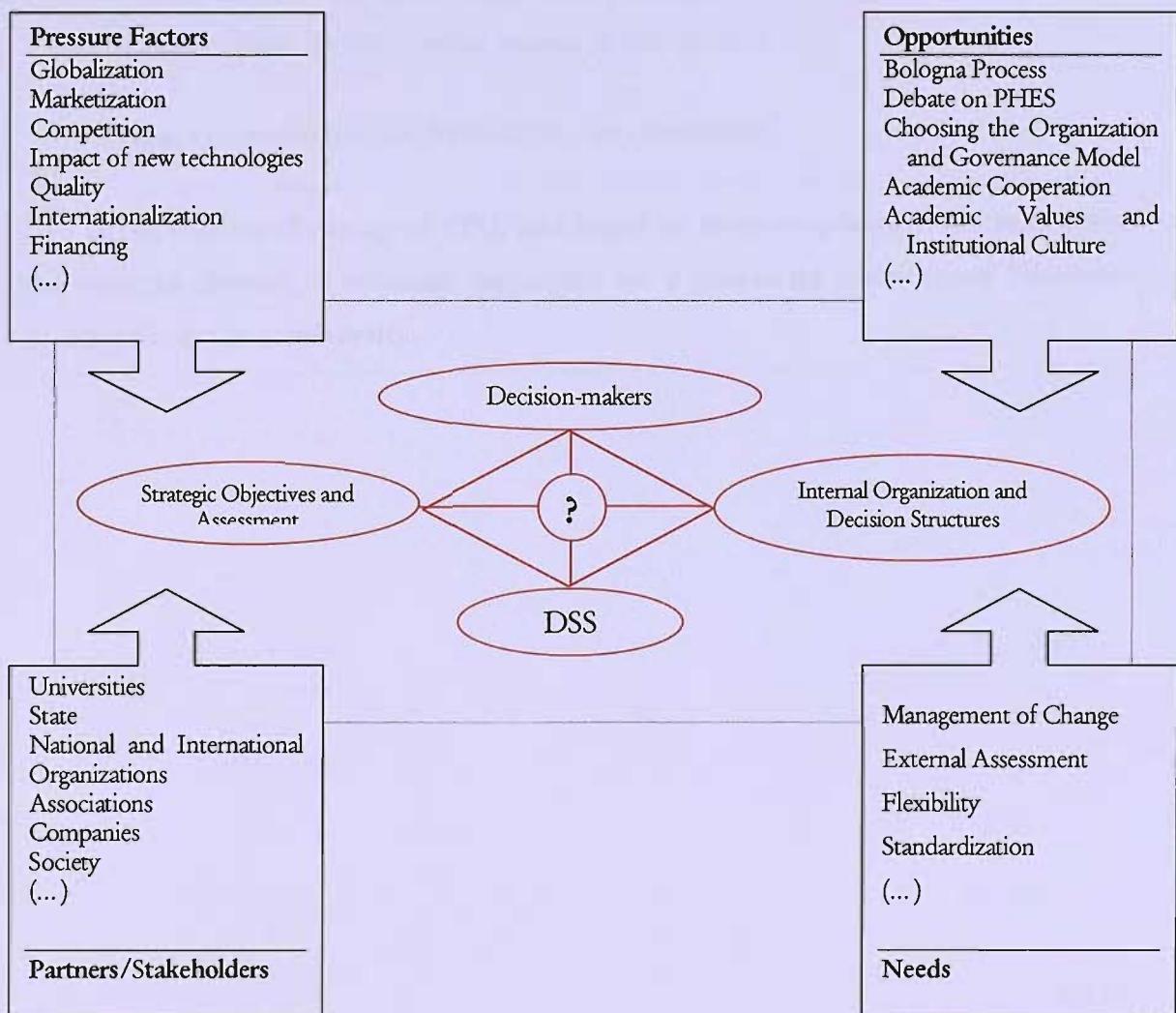


The literature review phase of the research widened the basis of knowledge in the research field and simultaneously helped to focus and to clarify the question. The Figure 3.c. – based on the tree diagram and using key-concepts, usually in bold, from the previous chapter – show the theoretical density of the Literature Review as a support for the research problem vectors.

Finally, the idea that sustains the General Diagram in Figure 3.a. is that the context frames the question. The PPU global framework, at European, Portuguese or institutional level, creates a set of opportunities, needs and pressure factors. The variables, and actors, which influence the external context, may determine the DMP of the Portuguese Public University and its performance assessment. Taking the Bologna process as an example, in spite of being considered an opportunity, a threat, a pressure factor or a need by decision-makers (and is it not a bit of everything?), it is generally accepted as an inevitable contextual variable, which influences the decision-making process in PPU.

The Problem's Context Diagram, shown in Figure 3.d. sums up the idea that the context frames the research and it always underlies the question.

Figure 3.d. Research Problem's Context Diagram



At this level, having explained the methodological path of the research, the shortened research central question is: What is the governance decision-making model for the case-university?

The answer to this question should simultaneously overview a set of supporting questions:

- From the strategic perspective of the University, what are the model's critical areas?
- What type of decision-makers should be involved? Which profile should they have?
- How should the decision-making process be improved to guarantee an assessment guided towards performance?
- What management principles should be established?
- What are the principles that should guide the internal organizational structures?
- To what extent is the model supported by the DSS?
- To what extent does the model answer to the context?

Thus, in a contextualized formulation, the question is:

(?) In the context of change of PPU, and based on the perceptions of top managers, the research intends to establish principles for a successful Governance Decision-Making Model in a university.

RESEARCH PROCESS

- 1.1 Defining the topic
 - 1.1.1 Standard Approach
 - 1.1.2 The problem
 - 1.1.3 The research question
 - 1.1.4 Generalized problem
 - 1.1.5 Modifying the tools
 - 1.1.6 The research

CHAPTER 4

RESEARCH PROCESS

- 1.2 The research process
 - 1.2.1 The problem
 - 1.2.2 The research question
 - 1.2.3 The research problem
 - 1.2.4 The research design
 - 1.2.5 The research methods
 - 1.2.6 The research results
 - 1.2.7 The research conclusions
 - 1.2.8 The research report

1.2.1 The problem: What is the problem that needs to be solved? The problem is the reason for the research. It is the question that the researcher wants to answer.

CHAPTER 4

RESEARCH PROCESS

4.1. Conceiving the Design

4.1.1. Research Approach

4.1.2. Ethical Concerns

4.1.3. Conceptualizing the Analysis

4.1.4. Organization and Planning

4.2. Choosing the Tools

4.3. Selecting the Sample

4.4. Analysing Data

4.4.1. Interviews – Pilot Faculty

4.4.2. Interviews – PPU/Faculties

4.5. Personal Thoughts

Chapter 4 presents the research design of a PPU case-study, which is an Institutional Research (IR), based on a qualitative approach with an emphasis on Grounded Theory (GT). Concerns with ethical issues, preparatory conceptualization and organization and planning are also highlighted.

After the potential collection methods, their applicability and their limitations are discussed, the data collection tools to be used are presented together with the various sampling techniques. Subsequently, the main methodological data analysis processes (prior, during and post data collection period) are reviewed critically, especially within the two research interview phases.

The chapter ends with some personal thoughts about the research process.

Section 4.1. - Conceiving the Design

“The Goal of Science is to make the wonderful and the complex understandable and simple but not less wonderful”.

Herbert Simon

Sub Section 4.1.1. - Research Approach

This section presents arguments to understand the Research Process Diagram shown in Figure 1.3.a.. It will also present the main phases of the research, and the reasons “why” and “how” the flowchart of the research process was designed.

Quivy and Campenhoudt (1988:13) compare the scientific research process to oil exploration: *“it is not by drilling at random that you will find what you are looking for”*. The researcher should be able to conceive, and put into practice, a method of work that is more than a simple sum of techniques and involves studying the problem, conceiving the design and coordinating the skills needed to develop the study. The **research method** is, in fact, a global course of the spirit, where procedures are mere formalities. *“The scientific fact is won, constructed and verified”*. Quivy and Campenhoudt (1988:23) quoting Bachelard.

Research requires a methodology which is simultaneously based on the rupture that sustains the problem; the subsequent theoretical construction of an analysis model; and, finally, factual verification. The conceptualization of a suitable methodology for the research project is an inventive exercise which will significantly help to reduce the difficulties at work.

For Cohen, Manion and Morrison (2000:13-15), the essential tools in science are

- concepts, generalizations in particular, which *“enables us to impose some sort of meaning on the world”*;
- hypotheses, that are scenarios of variables’ relations, which help to organize the theory: *“a speculative adventure, an imaginative preconception of what might be true”*. Medawar, quoted in Cohen, Manion and Morrison (2000:14).

From this point of view, the definition of the research method, as a pursuit for answers, is, for the researcher, a stimulating and challenging approach to concepts and productive hypothesis construction. Thus the formulation of the question(s) is fundamental because

- it is prior and original - the question (the doubt, the hypothesis or the unknown) is the origin of a study that only makes sense because it exists and goes unanswered, or at least has no unmistakable answer in the researcher's mind;
- it is determinant to the development of the study – the type of question will determine the research process, which may lead to credible answers or, why not, new questions;
- it can be in itself “conclusive” regarding the evaluation of the research - its timeliness and relevance may create conditions for an outstanding research evaluation.

If question formulation is an absolute magical moment in the research process, its underlying objectives are also relevant for a correct understanding of the study. In other words, the conscious, or unconscious, motivations of the researcher, while formulating the question, also condition the way they seek to answer them. In this case, underlying analysis concerns may be found at *loci* level (system; institution; sub-unit); at *foci* level (mission and strategy; DMP; DSS) and at methodological level as well. Therefore, it is necessary

- to seek to describe perceptions, values, or concepts internalised by the university decision-makers;
- to look for common points and divergent points towards the answers;
- to explore contributions, knowledge, random practices, which are the coherent whole.

Thus, the study may simultaneously be a process of **descriptive, correlational and exploratory research**, Kumar (1999:8-10). The research will be framed in a “needs assessment” and “base-line understanding”, and will be developed as a systemic survey and evaluation exercise seeking useful information feedback, which sustains the governance decision process assessment in an HEI. Trochim (2000) typifies the possible strategies in an evaluation process into four models: scientific-experimental models; models of management-oriented systems; qualitative-anthropological models; and models

guided towards participants. In this case, the evaluation will be centred mainly on the institution's organization and on the participants' perspectives. The model will facilitate a participative and management-oriented system.

As far as the research goals are concerned, the first aim was to evaluate the needs, then to understand the decision-makers' main concerns, and finally to describe a behaviour model regarding the way governance is monitored and assessed. Therefore, it is a process which is at the outset descriptive.

The problem raised and the questions associated to it determine the condition of an **applied research** process. It is the study of a specific organization, where the research methodology that was applied aims to gather information and to examine it internally in order to make it institutionally useful from a managerial perspective.

From the context of the problem, it is expected that decision-makers

- the academic/researcher – reflexive, critic; and
- the manager – pragmatic, objective.

have an often-ambiguous profile as to what regards motivation. The logic of the decision-makers, the information collected and processed, and the research analysis perspective extend, in a certain way, this structural imbalance.

A **research strategy**, as defined by Bryman (2001:20), is a general orientation towards the conduct of social research, which can be taken to form two distinctive clusters: a qualitative and a quantitative research. The distinction between both strategies can be seen as helpful, and a useful means of classifying different methods and practices of social research. On the other hand, it can also be seen as excessively reductionistic in the light of its combining potential in the scope of a research.

The qualitative research approach helps to introduce a holistic approach and/or diversified perspectives. Quantitative research helps to obtain objective reference points according to positive models. According to Dezin and Lincoln (1998:11), the two types of research may be regarded as two different styles to do one same thing: research; according to Howard and Boiland Jr. (2001:10-13), they are two strategies of mandatory co-existence in systemic scientific research. Bryman (2001:22) quotes this issue "*the distinction (between quantitative and qualitative research) is not a hard-and-fast one: studies that have the broad characteristics of one research strategy may have a characteristic of the other. Not only this but many writers argue that the two can be combined within an overall research project*". The same author [Bryman (1988:129)], as

an adequate answer in studies, presents the combination of the two approaches where the analysis of one or more “*fairly discrete social collectives*” is in question. This methodology is used by several authors in the same type of cases, namely in the study of families [Mason (1994)], universities [Howard and Borland (2001)] and religious groups.

Yin’s perspective (2003:15) is shared when he argues that, although the philosophical principles that support qualitative and quantitative research may be irreconcilable, they have “*a strong and essential common ground between the two*”. The combination of these two research methods may be regarded as a means of triangulation: when the result of the two paths is mutually confirmed, or easily harmonized in the scope of a global model, this may mean a higher degree of confidence for the researcher. The triangulation of perspectives is a combination of adequate research perspectives and methods in order to consider many and different aspects of the problem [Bryman (1988:131) and Flick (1998)].

In this context how can the research strategy of this study be classified?

In spite of using some quantitative data collection and analysis techniques throughout the study, the research strategy used is a **qualitative research**. This conclusion can be drawn based on an analysis frame, from a general to a particular perspective in three levels (metatheory; theory and methods):

➤ Metatheory – From an ontological perspective, concerning the nature of the social entity studied, the PPU is essentially viewed as a social construction that was accomplished by social actors, which sustains a constructionist ontological position, [Berger and Luckmann (1966)].

A quantitative research can come close to an ontological position that comes near objectivism, which embodies a view of social reality as an external, objective reality. By contrast, the constructionist qualitative approach assumes the social reality as an emergent constantly shifting based on individual’s creation.

The DSS, for example, is not only based on the information systems and management models and techniques, but also on the way in which the decision-makers involved in those systems see and understand them. The IS are essentially organizational systems that, to be correctly comprehended, require methods that adequately contemplate their social side. Caldeira and Romão (2002:78) state that “*Regardless of the new technologies that are used when computerizing organizations, is it usually the human component in information systems that is responsible for its complexity and which makes*

its study interesting”. Thus, a DSS will result from the balance between the objectivity of supports and techniques and subjectivity of the decision-makers and their perception of internal and external contexts.

➤ Theory – Regarding the syntax of a particular language, from an epistemological perspective, the reality is based on a set of a social world. What kind of social world? That which is explicable by the universal rules, which govern and determine social and individual behaviours (positivist orientation), or that which is based upon a set of phenomena with behavioural subjectivity (interpretivist approach)? The conscience of the researcher’s approach is not always clearly situated in one of the sides of the angle described. However, its acknowledgement is a precious assistance in research reading, analysis and evaluation. If normativism privileges the universal and predetermined, which the experimental method will test, comprehension privileges subjective understanding of the experience, retaining its integrity as a unit of research. To sum up, if behaviour and theory are considered to be distinctive comparative terms [Cohen, Marion and Morrison (2000:22)] between the two approaches, it can be said that, what in one is the end, in the other it is the beginning; what is the cause in one, is the consequence in the other.

The research is based on a realistic perspective of social sciences that somehow combine the positivist and interpretivist perspectives. Mingers (1997), Lee (1989); (1991) and Caldeira and Romão (2002:83) defend the use of this perspective in IS and DSS. The researcher analyses the events, which are empirically observable (domain of the empiric), but is also conscious that there are other events, which are observable or not (domain of the actual), with structures and mechanisms which determine them (domain of reality). Its intention is not to know reality, but, rather, to identify mechanisms and potential explanations of tendencies which can be defined, based on events observed. That is, one begins with the presupposed notion that there is an objective reality, but that the researcher can only, based on empirical evidence collected from observable events, propose explicative models of that reality, knowing however, that the models found do not constitute an absolute truth, but rather to an approximation to reality. Critical realism is illustrated in the quotation of Bhaskar’s interview, in Dobson (2002:5): “*...there is no conflict between seeing our scientific views as being about objectively given real worlds, and understanding our beliefs about them as subject to all kinds of historical and other determinations*”. Actually, the first level of analysis is to identify “the underlying objects

of research". Once the object of study has been understood, the approaches are a secondary matter, since they can be diverse.

In the context of *educational research*, a third paradigm, *critical theory* [Cohen et al. (2000:34)] is based upon the importance of the researcher's actions, in the sense of a change in reality regarding political and ideological references. In the present study, will the knowledge produced by the research be influenced by their action towards his ideological models? Although the knowledge acquired may be used towards institutional change, the research itself will not typically be framed as *action research*.

➤ Methods – The method chosen is based on a selection of methodological instruments that are used when collecting data and which condition the analysis. Further ahead in this chapter there will be a detailed approach of the data collection model which is based on a set of techniques, where the importance of the Interview stands out in the different phases of the research. As will be discussed in this chapter, the words from the interviews will be the main (qualitative) data used in the research model construction.

The idea of **Grounded Theory** (GT) arose with Glaser and Strauss (1967) and is based upon inductive development, from a set of data. It is an approach to research which aims to explain cases from the complex interaction relationships, which are established among the variables. According to Borgatti (2005), quality comes from the construction process of the theory: variables (categories, concepts and properties), and their interactions, are discovered or arise from an exhaustive reading of texts, information and data. The greater or lesser ability to understand the variables and their inter-relationship depends on the *theoretical sensitivity* of the researcher. The GT should explain as well as describe [Corbin and Strauss (1990:1)]: it is a qualitative approach, which allows the creation of knowledge, through the development of a theory or a model, "*where norms exist relative to the sample*" [Howard and Boiland (2001:7)].

This methodology, which underpins the theory of phenomena, is perfectly adequate to some key theories of the interpretivist paradigm, as it is the case of phenomenology. The GT is also referred to as a type of appropriated qualitative analysis in positivist paradigm tests. To assess variables and their relationships in situations where quantitative measurement and statistical controls are not possible, Post Positivists have increasingly used this theory. The GT, frequently used in interview analysis, creates perspective (positivist approach) in the orientation of its reading (by confirming and

validating the set off; highlighting and diminishing hypothesis or relationships between variables); or, in contrast, allows one (interpretative approach) to become aware of the most important distinctions or standards, in meanings given by different sources, as well as enabling the model's construction.

One of the principles of the work by Glaser and Strauss is that a constant comparison is important towards the development of a theory "*that is grouped in the data*". The Constant Comparative Method (CCM) can be an adequate form to sustain the internal validation of results. Boeije (2002) describes an approach for constant comparison in interviews, which will be taken into consideration in the present research, namely in interview comparisons according to the decision-makers' group and coding.

The research will be developed in the form of an institutional **case study**, aiming to understand fully the governance decision-making model of a PPU based on the collection of perceptions from decision-makers. Eisenhardt (1989) provides further argument about the process of inducing theory using case studies. The information will be gathered and organized with the following objectives:

- to understand management and DMP baselines in a PPU;
- to evaluate the decision-makers' needs;
- to design a decision model supported by performance DSS in a PPU;
- to obtain a quality performance analytical frame.

According to Yin's classification (2003), the case studies may be exploratory, descriptive or explanatory. The present research is basically **explanatory**: "How does one decide in excellence?"... The initial question induces an explanation of the phenomena. Therefore, it is believed that the two characteristics mentioned by the author are clear:

- the researcher does not have control over the events under examination;
- the events under examination are "contemporary/current".

For this study, it seems suitable to choose a research strategy which is based on the case-study:

- the answer to the research question will be based upon the study of "the way how" and the reasons "by which" the decision-makers, in a PPU, exercise their power and evaluate the deviations from what is considered to be desirable;
- the importance of context analysis, and the fluidity of the contours between context and the case under study suggest the single-case design.

There is an awareness that this design will not allow broad empirical generalizations – although the concept of “generalization” should be studied in detail in the scientific scope, namely as to what regards the conceptual differences that might exist between an analytical generalization (possibly applicable to some simple-cases) and a statistic generalization (not applicable in the context). However, it is expected to obtain information that is more detailed and to generate deeper theoretical understandings compared with other survey approaches. Whilst, aware of the generalization constraints of the case-study, it is not assumed that the model obtained has no relevance for other PPU. Because it is suspected that it could actually be useful, some tests will be carried out, which will aim to validate the general relevance possibility.

The research project is also framed in the context of **Institutional Research** (IR). IR, as an organized activity of HE research, is, in its genesis, not possible to separate from the American pioneers of the 1960s. The development of a wide range of studies in a university enabled greater understanding of the characteristics of the organization, management and institutional performance. The genesis and development of IR have been naturally integrated in the political context of HE over recent decades, in a perspective of a growing responsibility of institutions towards their partners. It is in a context of accountability, oriented towards the mission of the institution, and not in a restrictive legal-financial perspective, that Muffo and Tech (2003:1) refer to universities “*being held responsible for using their resources in an efficient and effective manner in order to produce the best education possible at the most reasonable cost*”.

The need for IR has come on two distinct levels: at a strategic level of political thinking and institutional planning, and at an operational level of problem solving studies and management practice support. In this sense, it is not strange to see the researcher in IR appear, frequently, with a hybrid profile of who, by nature of the activity, is a researcher and, simultaneously, a management professional for organizations or processes.

The dichotomy of qualitative vs. quantitative research may be presented in HE: “*Maximizing the effectiveness of decision support requires a balance of qualitative and quantitative approaches by the institutional researcher as well as frequent interaction with key decision-makers*”, Howard and Boiland Jr (2001:114). Terenzini’s perspective of IR (1993) comes as a form of “organizational intelligence” and highlights the origin and the final goal of this type of research: the need to increase the organizational knowledge in order to integrate it within the institution.

Regarding the introduction of an IR process into an institution, Bateson (2004:9-11) synthesizes the potential strong points (it is a process whose nature promotes information, knowledge organization and integration) and weaknesses (the existence of a bias by the researcher and the fact that the work can always be seen as an instrument for someone's agenda) of the process.

The development of the work led by the institutional researcher is subject to additional tensions that occur from the pre-existing professional relationship which naturally ties the researcher to the institution. The institutional researcher, often referred to as a “participant observer” or “inside researcher”, has to manage, throughout their research, the different ethical levels (with themselves, their research, their institution and the participants) which may eventually be conflicting. Using a parallelism defended by Teodorescu (2004:5), reciprocity, reputation and altruism can be the currencies used by the institutional researcher in their institutional market of knowledge; that is, the vehicles for impacting the circulation of knowledge within each institution. Based upon these motivations the institutional researcher can simultaneously be a buyer, a seller or a broker in the sense of facilitating knowledge in the institution.

The question: “Can an institutional researcher independently develop a research project in his institution?” A “yes” or a “no” answer is not enough. It is relevant to contextualize the role in which research is developed, and the paradigm used by the researcher as a reference. When the researcher develops a different role in the organization, his research will inevitably be under some level of bias, often difficult to determine. Talking about the role of the IR, Teichler (1996) distinguishes three possible profiles: that of the academic, the consultant, and the practical. A fourfold typology presented by Volkwein (1999:17), based on the institutional roles of the researcher (administrative/ institutional/academic/professional) and their goals (internal and external auditing), allows both research conceptualization in a wider academic community with potential generalization and the generation of new information whose feedback may be used in institutional functioning. In this context, it is important to identify the potential risks of bias, to be considered and addressed in all the phases of research design and implementation:

- data collection and analysis;
- influence of the organizational role of the researcher in the access to information;
- ethical issues related to the anonymity of the participants.

A relevant factor has to do with the double image which may be projected by the researcher to their research interlocutors. This image cannot become separated from the

current role of the researcher in the organization, leading to an eventual bias in behaviours (retraction or discussion) or of content (appreciations with biased sympathies or criticisms). Regardless of the mandatory concern with the presentation of the study's clear goals, it can be difficult to evaluate this type of deviation. There are, however, some procedures which can through interviews help to reduce any eventual bias, especially post text validations in different contexts and avoiding being inter-personal.

Another factor which may be particularly important is the data collection and analysis process. It can also be extremely important for the use of different and varied instruments as well as triangulating the information between the same source or different ones at different times. The researcher should have a special care with recording successive analysis especially the presence of the external interlocutor in order to identify and understand the bias by which they are responsible. *"The ability to conduct credible insider-research involves an explicit awareness of the possible effects of perceived bias on data collection and analysis as well as ethical issues related to the anonymity of the organization and individual participants"*, Smyth and Holian (1999:1).

The IR should be objective, systematic and comprehensive. The result should be as free as possible from the influence of personal perspectives, political considerations and desired results. The researcher should consider these questions and think about them throughout the whole research, but especially when planning how they will conduct the research; the choice of data collection and analysis methods; and the dissemination of the results.



Sub Section 4.1.2. - Ethical Concerns

The development of scientific research over the last decades, in particular since the 1970s, was followed by growing concern on defining the guidelines for an ethical framework, as it portrays the emergence of the Ethics Code of the American Association for Public Opinion Research (AAPOR) <http://www.aapor.org> in 1977, in the United States.

It is important to consider the definition of ethics set forth by Sieber (1993:14), *“Ethics has to do with application of a system of moral principles to prevent harming or wronging others, to promote the good, to be respectful, and to be fair”*.

The ethical issues are often expressed in the literature on qualitative research, preferably connected to social sciences. On the other hand, it is still common to omit these issues in some quantitative methods essays. This practice does not mean that the ethical questions are exclusive of social sciences or of qualitative research; on the contrary, they comprise areas ever wider and more diversified, such as:

- the professional practice and the ethical conduct of the researcher See the analysis “cost/benefit”, Cohen, Manion and Morrison (2000:49-50);
- the relationship between the researcher and the institution, Smyth and Holian (1999);
- the relationship between the researcher and the participants in the research, Robson (2000:29-36);
- the relationship between the researcher and other researchers cited See the conduct code of the Department of Health Education and Welfare presented by Sarantakos (1998:24);
- the relationship between the researcher and the topic, as is the case of the “sensitive topics”, Renzetti and Lee (1993).

In the present research (IR), the ethical concerns should be at the following levels:

- The role of the researcher in the institution.

The role of the researcher should be perfectly clear, in the light of the base relationship that exists between the researcher and the institution. The researcher/head of

administration and the topic have a dual relationship. The researcher should clarify whether the research is conducted on a personal level, or it is developed on an institutional level. In this case, the researcher should also clarify their role as head of administration or researcher. The Rector is the authority figure which must provide a formal opinion regarding the institution's position concerning the study.

- The relationship between the researcher and the participants.

The concerns of the previous points are determinant to the way ethical questions may be regarded in this relationship. Besides these concerns, at this level, the following ethical standards should naturally be ensured:

- Clarification in defining the sphere of research regarding the participants;
- voluntary and informed consent of the participants. This consent should be formalised both by the institution and the decision-makers that are interviewed or participate in other methods ;
- respect for the right to privacy, anonymity and confidentiality;
- validation of contents by participants.

- The role of the social researcher.

It is important for the researcher to be aware of any deviation that might occur:
- in the way they understand the social reality;
- vested interests that they might have due to the fact that they also can be the institution's head of administration.

Ethical consciousness in social research, regulated in some areas by ethic codes, has gained importance and goes beyond IR [Jackson (1995:304-306)]. Researching is to make a set of choices, and the process of choices is full of conflicts, dilemmas and trade-offs which can be translated into compromises. Miles and Huberman (1994:295-296) systematise an illustrative list: "*validity vs avoiding harm; anonymity vs visibility; scientific understanding vs individual rights; detached inquiry vs help; help-givings vs confidentiality; freedom of inquiry vs political advantage*".

More than applying rules, the management of ethical problems needs prior reflection, anticipation and preliminary discussion with those involved. The choices and agreements that are reached have implications on the analysis and quality of the research, and should therefore be regarded by the researcher as an integral part, and not as a marginal one. "*Morals in research are too important to be left to moralists*" Punch (1986:73).

Sub Section 4.1.3. - Conceptualizing the Analysis

In this research, **the scope of analysis** will be distributed on three separated levels (macro – PPU System; meso – UC and micro – UC's Organic Units) and subjected to different approaches, such as contextualization and description.

MACRO LEVEL

▪ PPU – At the beginning of the analysis, and in a contextual perspective, each of the main vectors of the research problem will be approached in the thirteen PPU which comprise the analysis unit for this level.

This broad starting point does not allow a generalization of the case study's conclusions; however, it does not set aside the possibility of the research results being of general interest to PPU. This topic will be revisited at the end of the research with a relevancy test.

At this level, the data sources are: strategic institutional documents; the deliberations of universities (Senates and Rectors); CRUP documents; and benchmarking between the heads of administration of PPU.

MESO LEVEL

▪ University - The study is deeply developed within the case-university - the University of Coimbra (UC) – in an institutional research context, where the main opportunities and occurring threats should be considered:

Advantages

- easier access to documented and reliable information and to governance decision-makers;
- general motivation of the governance decision-makers towards research involvement.

Concerns

- arising from an institutional research;
- impossibility of extrapolating results for other PPU even if they have similar characteristics

The aim of the study is to use a comprehensive methodology to build a decision model in a PPU. The easy access to information and the motivation of the participants to intervene in the IR are factors that enable and promote success within a qualitative research like this one which is based on decision-makers views.

This central analysis unit enables the collection of qualitative data from the governance decision-makers (Rector and governing bodies).

- UC Faculties – The use of all faculties in the research became a mandatory condition regarding the weight of collective bodies in the institutional governance decision model. Organic units are represented by their strategic vertex, in spite of obtaining some detail on specific operational aspects.

In this context, beyond documental analysis, the interviews collected from the presidents of the executive and academic boards of the eight faculties allowed an in-depth qualitative analysis of their roles and perceptions.

MICRO LEVEL

- UC's Faculties – At the level of these organic units, faculties are detailed information sources in specific organizational fields. Therefore, documentary analysis and the interviews will support the research especially the workflow design.
- Pilot Faculty – The decision-making model of faculties (collective bodies, elected for two-year terms) contains within itself a set of uncontrolled variables. The research, expected to occur over more than an election-cycle, should consider this with care crossing the transversal analysis (horizontal) between the faculties with a vertical analysis within faculties.

The use of a Pilot Faculty was important due to the limited resources available especially time. Regardless of the possibility to use this methodology in other institutions/faculties in future studies, it seemed to be possible to begin a valid study in a Faculty where a set of twenty contacts (interviews and meetings) could be undertaken. Thus, the collection of detailed information was undertaken, extending the universe of interlocutors in two directions:

- collective top governance bodies, interviewing all the elements which constitute them;
- dropping to the intermediate decision level, whenever adequate, namely at the level of the DSS survey.

The selected faculty was the Faculty of Economics (FEUC) due to the previously defined requirements:

- Medium dimension – the conduct of the individual interviews with all top decision-makers would have been excessively heavy in the faculties with a greater number of decision-makers.
- Diversity in T&L (undergraduate, postgraduate, structure of the teaching body);
- Respect, whenever possible, for the existence of interdisciplinarity;
- Motivation of the top decision-makers towards their involvement in the research;
- Easy information access and availability.

Appendix 4.1.3.a. presents the information that supported the selection of the Pilot Faculty.

In short, when designing research, there is a need to reflect upon and **conceptualize the analytical frame** and the way it will be integrated in a methodology that is suitable for valid, objective and strict research. In the present study the following principles, schematised in Figure 4.3.1.a., were established:

Analysis Level (*locus*) – considering that the governance decision-makers in PPU are simultaneously positioned at the level of CRUP, rectory and organic units, it is necessary to develop an adequate and detailed research model, which must comprise three levels:

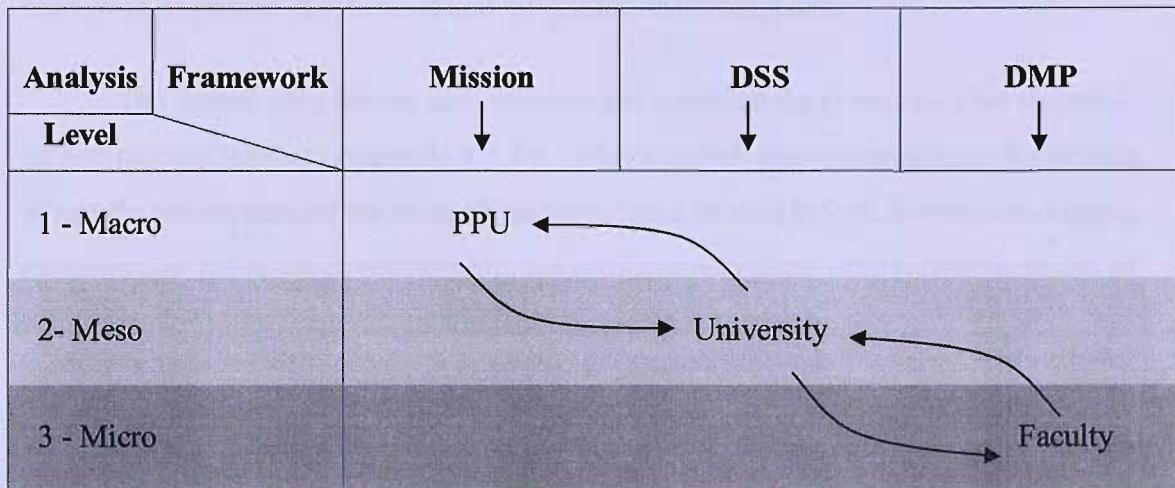
- Macro (national): PPU;
- Meso (organizational): University;
- Micro (sub-organizational): Faculty.

Analysis Level (*focus*) – considering the research problem and its context, the research planning must be conducted on three levels:

- Mission and Strategic Objectives;
- DSS;
- DMP.

Defining these guiding levels will not impair the fact that one same methodological step can cover simultaneously more than one level, whenever this proves to be suitable.

Figure 4.1.3.a. – Research Analysis Diagram



The downward phases are survey/collection and analytical framework study phases. The model is mostly constructed in a first upward phase and the last upward phase includes an evaluation of the possible relevance of the model.

Sub Section 4.1.4.- Organization and Planning

The **organization** of the research project consisted of developing a preparatory base work of project clarification and its institutional acceptance.

The Rector gave formal authorization and qualified the project to what regarded its institutional interest (Appendix 4.1.4.a.). This research phase is critical in this project, where the researcher and the research universe have, as seen before, diverse overlapping relationships: the research relationship; the professional relationship (researcher-head of administration); the academic relationship (researcher-teacher);

In the Pilot Faculty, as well as in the remaining seven faculties, the research project was presented in a clear way to the governance body which gave its formal consent. This consent was essential not only in view of the context described but also because of the project development where it will coexist with more than one team. Since the management cycle of the executive bodies in the faculties is a two-year cycle, it is essential for the research to be based on an unequivocal compromise which is easier to its evolution throughout the subsequent management cycles (Appendix 4.1.4.b.).

The preliminary interviews with the Rector and the president of the executive body of the Pilot Faculty allowed the researcher to become familiar with the general framework of institutional concerns. The set of information collected while reading the relevant documents that were available, and the preliminary interviews enabled the researcher to establish the decision-makers' full-population, for the UC and for the Pilot Faculty, including the functional organization chart.

Planning is also an essential activity in the development of this type of research project which stretches beyond the initial phase. To obtain a high degree of research efficiency and efficacy, it is necessary to allocate time to planning and monitoring activities throughout the process.

A detailed initial program facilitates the management of the research. Throughout the project, a close association of the expected and effective deviations should be made, as a control instrument.

The basic planning of the project is formalized in a summary document, the Project Control Plan presented in Appendix 4.1.4.c.. In this document the main phases of the work, the methodologies and the resource allocation were highlighted according to a predictable calendar which should always be present throughout the research and that will include all the necessary reviews (eight reviews, in this case) that may arise from regular control.

1. The first review is the one that is carried out at the beginning of the project, before the start of the work, to verify the feasibility of the project, the resources available and the methodology to be used. This review is also known as the pre-project review.

2. The second review is carried out during the execution of the project, at the beginning of the second phase, to verify the progress made, the resources available and the methodology to be used. This review is also known as the mid-project review.

3. The third review is carried out during the execution of the project, at the beginning of the third phase, to verify the progress made, the resources available and the methodology to be used. This review is also known as the mid-project review.

4. The fourth review is carried out during the execution of the project, at the beginning of the fourth phase, to verify the progress made, the resources available and the methodology to be used. This review is also known as the mid-project review.

5. The fifth review is carried out during the execution of the project, at the beginning of the fifth phase, to verify the progress made, the resources available and the methodology to be used. This review is also known as the mid-project review.

6. The sixth review is carried out during the execution of the project, at the beginning of the sixth phase, to verify the progress made, the resources available and the methodology to be used. This review is also known as the mid-project review.

7. The seventh review is carried out during the execution of the project, at the beginning of the seventh phase, to verify the progress made, the resources available and the methodology to be used. This review is also known as the mid-project review.

8. The eighth review is carried out during the execution of the project, at the beginning of the eighth phase, to verify the progress made, the resources available and the methodology to be used. This review is also known as the mid-project review.

Section 4.2. - Choosing the Tools

The data collection is a very important research phase that conditions the way observation is converted into data. Most of the time, the required information already exists and it only needs to be extracted from secondary sources (documents, statistics and previous research); occasionally, primary data has to be directly collected using different methods (observation, interviews and surveys).

The choice of data collection tools may depend on several factors: the purpose of the collection; the type of information collected; the means the researcher has for the purpose; and the researcher skills. Each instrument has specific features which make the research instrument choosing process an art, the control of which is necessary to ensure the quality of the information. The researcher has an essential role in minimizing the effects of methodological factors in the data collection process

In this study, as a first step, the researcher sought to foresee the usage of several **research qualitative data collection methods**, which will now be described.

Benchmarking

The use of benchmarking in university management is nowadays a commonly used practice in Europe. Since 2000, ESMU (www.esmu.be) promotes annual benchmarking of university management programmes.

The use of this technique in HE initially occurred in the United States in the 1990s [Alstete. (1995)] and was rapidly and smoothly extended to other universities. It is now a highly used technique and, according to Bolton (2000:127-133), a self-improvement tool for the organization. Although the orientations may be greatly differentiated, the fundamental principle of shared knowledge on which benchmarking relies is: "learning with each other".

In the initial phase of the research, the use of this technique could be appropriate, aligning the key variables of the model with other competitive universities.

Using the typology described by Jackson and Lund (2000:12), the following benchmarking techniques were used:

- explicit – deliberated upon with other institutions;
- horizontal – since the *focus* crosses different areas and sub-units of the organization;
- collaborative – because it implies a collaboration with other institutions.

The research will collect data from the following sources:

- 2000 Benchmarking Program promoted by ESMU, where two PPU were involved (UC and UA), in the areas of: human resources, ICT management, research management and commercialization management;
- PPU network of Heads of Administration, notably studies developed in IS and DSS.

Document Analysis

The institutional knowledge of the researcher and the easy access to active documents and archives make the use of this method extremely efficient in constructing the analytical frame, especially when defining:

- organizational structures – decrees, internal regulations, organization charts and publications;
- decision-makers – nomination dispatches, delegation of competencies, reports, plans and policy documents .

The use of the so-called unobtrusive methods, especially when previously validated, allows a quick collection of factual data which will be extremely useful, especially for the institutional and organizational characterization of the University and Faculties. In the research, image texts and the discourses of rectors will be used as data sources.

The collection of decision-makers' **perceptions** on how they decide and the information they use, as well as the desirable models, could be attained based on several approaches, of which the following are pointed out: Brainstorming, Focus Group, Interview.

Brainstorming

The use of “Creative Thinking Techniques” like brainstorming can prove to be extremely rewarding. This technique was developed in the 1930s by Alex F. Osborn, and became one of the best-known and most creative ways of obtaining from a group of people a great number of ideas in short time. This technique is based on the exhaustive registry of any and all ideas given by a group, where “*the only stupid idea is that of non-contribution*”. The researcher must resist any temptation of judging or evaluating the ideas that are presented. The less inhibited the participants are, the greater the number and the better quality of ideas are generated. Rawlinson (1981:38-40) defines four main guidelines, which should always be present in the group: eliminate criticism; give “free rein”; quantity; and cross-fertilization.

In the brainstorming session, the problem is briefly introduced, followed by a stage of restating it using the base question. All the ideas that arise are registered. The initial ideas are analyzed along with the new entries of all the contributions given whenever a new question is asked. The liveliness, creativity and noise of ideas and written words are fundamental to the process. This technique involves two distinct moments which may be repeated more than once:

- the search for ideas, as described above;
- the group analysis of all produced ideas, with the following consensual elimination of some and the selection of others.

In this research, it would be important for the group, beyond having the “internal” participants which are fully involved in the process, also to have participants which are “external” to the question from within the UC or even from outside the University. External participants will tend to be more creative and have less usual suggestions; internal participants will tend to have more predictable suggestions. Thus, in this scope, the inclusion of students and of an external stakeholder could prove to be extremely interesting and useful.

If the use of this technique can be a privileged research beginning and a way of stimulating the decision-makers’ participation, it is also true that its management can bring many research questions. Performing brainstorming sessions requires a rather demanding organization. In fact, in this particular case there were many topics to take into account:

- the complexity of institutional decision-makers’ network (UC and Faculties) and also the work sessions;

- the researcher's lack of experience in using the technique;
- the researcher's position as institutional researcher;
- the research schedule and scope;
- the fact that the outcome of this technique would not discharge the use of other intensive data collection techniques gathered from the main decision-makers of the units.

These facts lead one to consider that the use of this technique might not be efficient or suitable for the present research.

Focus Group

One of the alternative methods is the focus group [Gibbs (1997)]. This method foresees a selection of individuals to discuss, reflect and comment on a topic in-group. It is a method which guarantees conditions for an interactive collection of detailed information which is intensely debated amongst the participants.

In the scope of this research, it seems, however, that this approach might not be the most adequate for the following reasons:

- the difficulty of top management schedules;
- the possible conflict of interests in the main groups of decision-makers when faced with the dual institutional situation of the researcher;
- the power relations' archetypes (teachers/staff/students) that may bias the discussion or restrain motivation towards general participation.

The open debate between representatives of different academic areas or bodies and groups of strategic decision-makers might lead to rich debates, but it would be impossible to separate them from tribal, territorial and corporative battles. When comparing the use of this method and that of interviews, the latter is considered richer and more effective.

Interview

The "*most relevant basis for the choice of an interview exists when the nature of the question that is being researched demands a method of gathering data that is both personal and interactive*", Crano and Brewer (1942:229). The personalized and the interactive nature are really two decisive characteristics for choosing this instrument in this research.

The interview aims to frame and validate the analysis to obtain the basis for developing the model and triangulating, testing or validating the previous work phases. According to Witzel's typology, referred to in Flick (1998:88-91), it is expected to attain an "*interview that is centred on the problem*" of governance decision-making and of DSS. The concerns of the researcher will be to guide the interview towards the objective aspect and finally to the research process.

Although it is difficult to process the interview because it involves hard work, open interviews ("centred on the problem") will allow the researcher to attain a supply of data which will be rather relevant for the analytical framework of the question at university and faculty level.

It is considered that the interviews should be:

- a guided approach – providing some direction and framework but not withdrawing the colloquialism and informality of the meeting;
- a qualitative approach – valuing interpretations given by interviewees;

The following principles should also be observed:

- to ensure that the interviewees are informed in advance about the questions as well as how long the interview will take, and naturally its main goal.
- to prepare in detail the various sub-questions that may frame the interview, in a fluid way, in terms of time management and efficacy in order to avoid as much as possible abrupt cuts in discourse or sudden topic changes by the interviewee.
- to prepare a scheme for data registry which allows the interviewee to validate the data at the end of the interview.

Methodologically speaking, preparatory interviews may be considered useful as well as they may help to anticipate some problems which may be lessened before the interview itself:

- time consumption on interview processing (tape listening and transcription), which will be performed by the researcher for obvious confidentiality reasons;
- training in interview time and results management;

Difficulties may also arise with the different roles played by the interviewee and interviewer that may fluctuate throughout the interview. As a researcher, the interviewer

may feel the need to discipline the interview (this might not be adequate in view of a possible reading, on behalf of the interviewee, as regards the change of roles of the interviewer) (researcher → head of administration).

In view of the scope of the analysis, it was assumed that interviews would be used with different aims possibly with distinct guides in different phases of the research project.

With a minor importance, **some quantitative methods** were used in the research, which of the following are pointed out:

Questionnaire

Using Wilson and McLean's definition, cited in Cohen, Manion and Morrison (1996:245) "*the questionnaire is a widely used and useful instrument for collecting survey information, providing structured, often numerical data, being able to be administered without the presence of the researcher, and often being comparatively straightforward to analyse*".

In this research the questionnaire should ensure the following principles:

- structure on research problem vectors;
- closed questions, possibly dichotomy or multiple choice. Some flexibility towards the answers that may be introduced by means of scales which will allow the researcher to combine quantitative and qualitative aspects;
- open questions for suggestions/comments.
- electronic distribution, with significant cost reduction, gains in expected answer timing and with information processing advantages.

The researcher has to ensure that all data collected by the questionnaire respects the principles of:

- consistency, that is, they are reliable, they can be trusted to be true, regardless of the decision levels and topics;
- validity, that is, what was inquired was exactly what was intended to be inquired, and there are no inaccuracies in the process. This concept cannot be separated from the quality of the instrument.

To be certain that these principles are ensured, the researcher should give particular attention to:

- the design of the questions - the questions should be
 - clear, using simple language. Ambiguity that arises from formulations that can be easily answered without difficulty by any decision-maker should be avoided;
 - balanced, as regards their scope, that is, neither too general, nor insufficiently specific;
 - adequate within the goals, avoiding processing and use of means that may come to be unnecessary or inefficient;
- the pilot test (pre-test) to validate the questionnaire, sending it previously to a reduced group of people, which are external to the project, to test it in an independent way. The answers that are obtained will be used to evaluate the questionnaire's degree of consistency and validation.

The validity and reliability of the information, which results from the questionnaire, may be measured through statistical analysis. There are innumerable tests related to the concept of "variation" and stability measures, Back (1999:272-303), including the "test-re-test", equivalency measures and standardized deviate.

These principles must also be in the qualitative research with the use of specific neutralizing techniques, such as:

- triangulation – intersection of information coming from different information sources;
- critical reflection on the part of the researcher and external experts non-hostile to the process (critical friends), as an example: former Rectors and directors - from whom validation is requested.

At this stage, and based on what has been presented in this chapter, it is possible to present, in Table 4.2.a., the **Model for Research Data Collection Instruments**, which summarizes the selection of methodological instruments that will be used when collecting the data for the research.

Table 4.2.a. Model for Data Collection Instruments in Research

Focus	Locus	PPU	UC	Faculty
Strategic Mission and Objectives		Document Analysis	Document Analysis Discourse Analysis Interviews	Document Analysis Interviews
DMP		Document Analysis	Document Analysis	Document Analysis
		Survey (validation)	Interviews	Interviews
DSS		Benchmarking		
		Document Analysis	Document and Workflow Analysis	Document and Workflow Analysis
		Survey (validation)	Interviews	Interviews

The data collection instruments presented above allow to obtain rich qualitative data, which will be conceptualized from wide-ranging categories to key themes and constructs according to the Miles and Hubermann (1994) perspective.

Section 4.3. - Selecting the Sample

“The quality of a piece of research not only stands or falls by the appropriateness of methodology and instrumentation, but also by the suitability of the sampling strategy that has been adopted”.

Cohen, Manion and Morrison.

The **universe** or **population** can be defined as a total set of entities, which in social sciences are usually called "cases". In this research, the population will correspond to the universe of decision-makers (in collective or individual bodies) which act at governance decision-making level in the case-PPU.

In this context, the process of sample selection is always a diminishing process of trade-off, [Kumar (1999:148)], between losses and gains. The **sample** corresponds to a sub-set of the research's universe based on which an extrapolation of the set's situation will be made. The main characteristic demanded from this sub-set, in the sense of obtaining a correct extrapolation, is that it ensures the representation of the group. There are several techniques that help to neutralize possible deviations, namely the creation of sample distribution and calculating the standardised deviation. Two examples should be highlighted: stratified and cluster sampling. Stratified sampling allows the researcher to adjust the sample representation to a universe of a significantly greater size in a rather efficient way. Cluster sampling ensures that the sample includes the representation of the universe "cases". The definition of the stratus and of the clusters is inseparable from the research nature and goals which will determine the choice of the "focus" and "locus" regarding the universe.

The delimitation of the universe and scope of the sample are two important variables for quality research results. The use of a small population, although it may seem diminishing from the research's scope point of view, may be a premise for good research in view of possible resource restrictions.

It is often accepted that one of the principles of sampling is that “the greater the size of the sample, the less error in estimating the universe”. However, many aspects which are not necessarily technical may be relevant in choosing the sample size; for example, the cost of resources (time, financial resources and human resources) or the nature of the research. The tendency seems to be that qualitative research will most likely consist of a small sized sample whereas a research with statistical analysis will require a larger size sample. Actually, the research objective is what determines the definition of the universe’s nature and dimension. A reference for size may be achieved using several techniques: simple statistical techniques (correlations and tests) through power analysis; and multivariate statistical techniques through the “rules of thumb” which estimate the minimum size for sampling.

As the study develops, several techniques are applied and lead to an analysis, at each stage, of sample selection. When defining the initial analytical frame (benchmarking and document analysis), which is mostly theoretical and of broad boundaries, the sampling may be placed at the non-casual methods level, useful in the initial phase of the research because it allows testing of reference charts. These are sampling methods for convenience, which provide for availability, easy access, location and speed. Also, in qualitative research, when starting the interviews and the process of group techniques, a non probability sampling will be applied since the intention is to use specific sampling considered to be suitable, and not necessarily representative, according to probabilistic criteria. Later on, in the quantitative phase, which will be based on the questionnaire, the sampling methods will have to be probabilistic/casual, in order to allow analysing, with confidence, the results obtained from the sample.

See, as an **example**, the process of group techniques applied to the interviews carried out at PPU and the Pilot Faculty. Considering the activities (T&L, research and service provision); the management levels (strategic, executive and operational), and the decision bodies regulatory frame in PPU, whose findings will be presented in detail in Chapter 6, a starting scenario was established and is shown in Table 4.3.1.a.

Table 4.3.1.a General Example of Decision Structures, Management Levels and Activities in a PPU

		Activities			
		Global	Education/Research	Service Provision	Support Services
Levels of Management	Top	Senate	Executive Board Academic Board Pedagogic Board	Executive Board	Executive Board
		Assembly			
		Rector	Vice-Rector Pro-Rector Research Coordinator Establishment Director (ED)	Vice-Rector Pro-Rector ED of... (Theatre, Sports Stadium, etc)	Vice-Rector Pro-Rector Head of Adm. ED of... (Press, Library, etc)
	Middle		Responsible for: - Faculty Research - Research Projects - Nuclei of Graduate Degrees - Nuclei of Post-Graduations - Extension Centres - Institutes - Laboratories - Associations/Institutions	Directorate Assistant Coordinators Heads of Division	Director of Service Heads of Division Coordinators
	Base		Responsible for: - Chairs - Research	Heads of... Responsible for...	Heads of Sections Coordinators Responsible for...

When the researcher must select which decision-makers are interviewed, an important question arises - collegiality. The decision-makers may be collective bodies (senate, executive, academic or pedagogic board and board of directors of research centres) or individual ones (rector, vice-rector, pro-rector, head of administration, director, coordinator of research nucleus or group, secretary, responsible element, head of division, head of department). In some situations, the collective bodies may be analysed based on the central decision-maker of the body, as is the case of Presidents of the

Executive, Academic and Pedagogic Boards. It is, however, a simplifying process which should be evaluated and not generalised to all situations. Thus, it should be possible to establish some criteria as to the approach to collective bodies.

Considering the two levels of analysis which framed this example (meso and micro level), a non probability sampling will be applied, in the matrix, according suitable combination criteria, such as:

Meso level – the top level of management of all activities with representation of each main activity;

Micro level – all levels of management of all activities with/or without representation of each main activity.

In the next sub-section the criteria applied in the Pilot Faculty-FEUC and at the institutional level – UC will be explained in detail.

The sample selection must be carefully planned and analysed in a research. As described by Cohen, Manion and Morrison (2000:104) "*every element of the research should not be arbitrary but planned and deliberate, and that, as before, the criterion of planning must be fitness for purpose*". About the qualitative research sampling characteristics, the researcher tends to have parameters that are more flexible and to facilitate analytical generalisations to be more purposive rather than random; to have more suitability rather than representation. In any case, the choice of the researcher has greater centrality in the research results.

Section 4.4. - Analysing Data

“Specifically, information doesn’t have to be processed just because it is there. The telephone doesn’t have to be answered just because it is ringing, the newspaper doesn’t have to be read just because it has been tossed on our desktop”.

Herbert Simon

The research process will develop with the **qualitative analysis of data**

assembled. This stage, which, according to Miles and Hubberman’s approach (1994:10), has three components (data reduction, data display and conclusions drawing/verification), is undoubtedly facilitated if the process is planned correctly and some concerns are taken into consideration:

- Preparing the data – data should be presented in a disaggregated manner, but it should also be possible to read it when aggregated into categories. At this level, some aspects should be pointed out:
 - Information coding - the use of symbols, that help to identify classes of answers according to a fixed structure, is a very important aspect for data analysis. The numeric pre-coding of each category of variables is an extremely facilitating element of data processing and analysis. Pre-coding may be connected to attitude scales, as is the case of the “Likert Scale” (highly improbable - 1/.../5 – highly probable), Robson (2000:252-267). In closed answers, coding is simple. In the case of open answers, the data loss with coding is inevitable.
 - General knowledge of the computer programme for data processing – it is very important to have a detailed previous technical knowledge of the way the information will be collected and transformed into data files: this will avoid unpleasant surprises, which may arise when processing the data.

- Analysing the relationships between variables – it is important to acknowledge the independence, correlation or the logical connection that may exist between variables or combinations of variables.
- Correlation does not mean causality - there may be a strong correlation between variables and yet one may not be able to conclude that there is a sense of cause/effect, Matalon (1988:179-208). Therefore, the analysis must consider the different abstraction levels and should not mix up what is intended to be explained (empirical generalization) for the concepts (that is, the occurrences that determine occurrences), or for the explanation which is placed at a maximum level of theoretical abstraction.
- When comparing the results observed with the results expected and interpreting the differences.
- Validity and reliability.

Validity of results, in the sense of credibility, corresponds to an evaluation. Do the results make sense? The validity, credibility, trustworthiness or authenticity may be considered according to various perspectives: content (comprehensiveness of instrument); criterion (support from other sources/data); construct (conformity with theoretical expectations).

In the context of qualitative research, the results validity evaluation will not easily be remitted to the use of statistical techniques. Creswell and Dana (2000:126) propose different methods in function of the theoretical framing paradigms:

- diverse sources add different perspectives;
- use of multi-modal methods;
- triangulation – convergence into the same results from different sources, will enable counter checking;
- review by participants– taking data and interpretation back to participants in the study so that they can confirm the credibility;
- peer analysis – the use of critical friends when reading evidence in order to attain interpretations and impressions.

Reliability means consistency of results and can be statistically evaluated in terms of stability (across time), representation (across different groups), or internal

consistency (items being consistent with each other, working in the same direction).

The quality of empirical social research should be enhanced in testing from the beginning of the process (data collection, data analysis, research design) and not only in the final phase of results analysis. Yin (2003:33-39) identifies several tactics that can be applied in the four types of tests most commonly used (construct validity, internal validity, external validity and reliability) in case studies.

In this research, the **qualitative information processing** (data transcribed into text) collected with the interviews highlights the importance of the researcher's knowledge of the tools and particularly the importance of software solutions.

There are numerous software tools for qualitative analysis of data. Miles and Huberman (1994:311-317) developed a detailed study of the characteristics of twenty-two commercial software programs. Although it is an outdated work, it shows some of the characteristics which are still relevant in qualitative data treatment and analysis of nowadays. The following nine variables are highlighted: Coding; Search and Retrieval; Database Management; Memoing; Data Linking; Matrix Building; Network Display; Theory Building; User Friendliness. (Appendix 4.4.a.)

The program ATLAS.ti (v5.0), which will be used in this research, is one of the software solutions for qualitative data analysis (definition of codes/concepts; establishing patterns/relations to explain data; and finally, interpretation of data when faced with theory). In the referred study, this program was valued with the following strong points:

- adequate design for coding, memoing, data linking and theory building;
- strong network display;
- very friendly;
- OK! Search & Retrieval.

Another technique, also used in the research's pilot-faculty interviews, is the Repertory Grid. The Repertory Grid is a technique based on a set of rating scales, which enables the researcher to obtain, with objective criteria, an analysis model that allows interview comparisons. The repertory grid is very useful to identify the "constructions" of decision-makers, allowing the researcher to establish guiding principles in a disciplined

manner and with minimum bias. This technique gains increased value due to its possibility of quantifying the contents of the interviews without changing the qualitative analysis' essence.

Concept Mapping is a support method for collective formulation which was also used in this research. Trochim (2000) defines concept mapping as "*a structured process, focused on a topic or construct of interest, involving input from one or more participants, that produce an interpretable pictorial view (concept map) of their ideas and concepts and how these are interrelated*". This technique proved to be extremely helpful in the model's construction because it simultaneously uses a structured approach and facilitates common interpretations. Although it was not possible to submit the maps' analysis to all decision-makers interviewed, they were examined directly or indirectly, according to the research's most general level. A pure and guarded usage of concept mapping presents constraints which are similar to those that were identified for the Focus Group.

The research will be based on the framework of perceptions ascribed by the decision makers' members, so the model is constructed collecting data from their perspectives. The next sub-sections will present the circumstances under which and how the **qualitative analysis data** was developed in the present research. For the purpose, the following should be considered: the research project is based on two interview phases whose planning and organization deserve some attention from this methodological point of view.

Sub Section 4.4.1. - Interviews – Pilot Faculty

(Field work - October to December 2003)

The methodology chosen for collecting opinions about the governance model and the DSS was to interview a significant panel of relevant top decision-makers from all bodies: Assembly of Representatives (AR); Executive Board (CD); Academic Board (CC); Pedagogic Board (CP).

With regard to the Assembly of Representatives, it would only be relevant to interview its President. The impact of this body's action results exclusively from the power to elect and destitute the CD. This is a body of seventy-two members (thirty academics and researchers; thirty students and twelve members who are non-teaching staff), with a small range of activity, and which rarely meets and, thus releases a scarce number of documental outputs with little impact.

As far as the Executive Board is concerned, it was relevant to interview all ten members [the President and the Vice-President (academics); two academics; two members of the non-teaching staff; and four students] because it is the body that “administrates and manages” the faculty. The absence of two of the students from the CD when the interviews took place explains why only seven interviews were conducted (the President had already been interviewed during the initial phase). It was considered that the two absences would not compromise the results of the perception gathered from this body. The importance of the body in management terms, the regularity of meetings, and the fact that all bodies participate in its activity lead one to consider that it is adequate and necessary individually to approach the collective.

As regards the CP, the President and the member that represents the students were interviewed.

Concerning the CC, the only “non-democratic body” where academics who hold a doctorate degree have a seat *ex officio*, its President, was interviewed. It was also considered that it would be relevant to collect perspectives of former PCD, which led the researcher to schedule two additional interviews and to collect the opinions of top decision-makers from the main support services (Library and Pedagogic Board Support).

After scheduling the interviews, the information, which was considered to be relevant, was sent to each interviewee, namely the objectives and the questions that were going to be asked (Appendix 4.4.1.a.).

A total of sixteen interviews was carried out (Appendix 4.4.1.b.). The interviews were recorded. From the 16 interviews, only three were not recorded, for different reasons (in one case authorization was not granted and the other two for technical reasons), but two recordings are of very difficult listening and therefore their transcription was not possible. Written transcription of all recordings was useful for further reference. Although very time-consuming, this task is of great sensitivity and importance, and it was therefore performed by the researcher. The sensibility of the transcription derives from the relationship between the interviewer and the interviewee: ethical issues on confidentiality and trust take on particular attention. The transcriptions were validated by the interviewees.

Simultaneously, all the interviews were registered on the support grid (Appendix 4.4.1.c.) in the scope of strategic organizational objectives and critical management areas. The Repertory Grid was used [Kelly (1955), Fransella et al. (1977) and Jankowicz's (2004)], as a construction method, like in the examples provided by Stewart, Stewart and Fonda (1981:104-115) as regards the grids for the study on organizational culture of managerial effectiveness. The repertory grid allowed the researcher to have a precise rating of the interviewees' own "construct", in an "uncontaminated" way, using the term of Jankowicz (2004:14).

The basic elements of the grid applied are:

- the 2 "topics" referred: strategic organizational objectives and critical management areas;
- 4 "elements" in each topic corresponding to the activities (T&L; Research; Service Provision; Support Services), which can be seen in column;
- the "construct", which are the basic units of description and analysis, are presented in line (ex: to have importance; to require attention; to demand commitment, etc);
- the "rating", which allows each element to be rated in each "construct", within the topic to be exactly identified. The grid that was assembled foresees numbering all variables in a column from 1 to 5.

The use of repertory grids proves to be an adequate way of conducting the pilot study. This was a very useful integrating device between qualitative and quantitative research techniques, in this case between the interviews and the use of statistic tests.

Considering that this technique was applied in the Pilot study, and considering the characteristics of this research phase (limited set of interviews in a preliminary study), its full potential was not maximized. Although the constructions were not fully managed, this technique allowed the researcher to have a clearer picture of the decision-makers' perceptions, as regards the institution's mission and FEUC's strategic objectives. The Kruskal-Wallis test is used each time the variables are evaluated per body or category, and the Mann-Whitney test is used when the answers are evaluated per activity, because there were only two groups in the factor. As to the "manager's commitment in the activities" variable, the Wilcoxon test was used to compare the percentages and the position held by "what in fact happens" and "what should happen". All the tests were evaluated for a level of significance of 0.05, resorting to the usage of the SPSS (Statistical Package for Social Sciences), version 11.5. The statistic analysis proves that there is no relevance between the recorded and non-recorded interview.

There is a set of variables which result from the interviews and whose qualitative data was not registered in the repertory grid, as is the case of the "critical management variables", as well as the "collection of ideas" of the various comments regarding the four main activities and the identification of the characteristics given for the information system. In these cases, the analysis that was carried out was based on an evaluation by means of non-parametric methods given the size of the sample and the type of variables at hand. The wealth of the interviews allowed itself alone the development of various studies about areas such as the "tacit knowledge" and reflections about T&L, research and service provision, in general.

After processing the information all the interviewees received a general feedback of the results (Appendix 4.4.1.d.), and a detailed report of the information that was analysed and the conclusions were sent to the PCD.

The initial approach to the Pilot Faculty was not restricted to the interviews. In addition to the documental analysis, the DSS survey meetings with the Faculty's support services and structures assumed great meaning.

The work developed at FEUC proved to be crucial in several ways:

- broadening the detailed knowledge regarding the decision model and the DSS of a Faculty;
- clarifying some of the difficulties and opportunities of the interview, allowing practice and improvement in the following stage.

Sub Section 4.4.2. - Interviews – PPU/Faculties

(Field work - October to December 2004)

The objective of this second phase was to get to a system survey of the governance decision-making model of the University. Taking into consideration the organizational features of the University, governance decision-makers from different structures (Rectory, Faculties and others) and from all governance bodies (Rector, Senate, Administrative Council, University Assembly) were interviewed.

Bearing in mind the differentiated impact of top decision-makers on the governance and decision model, the large number of those who intervene in the bodies (approximately two hundred and fifty) and the resource restriction there is for research development, the following principles regarding the interviewees were defined:

- to interview at least three of the five members of the rectory;
- to interview the PCD of all organic units and at least half of the faculties' PCC;
- to interview at least one director from the extension structures (theatre, stadium, main library) who have no position in governance bodies and which are called other institutions in this context (OI)

The interview guides (Appendix 4.4.2.a. and 4.4.2.b.) were given in advance to the interviewees; interviews were taped on consent and then transcribed into the original language. A total of fifteen interviews was carried out (Appendix 4.4.2.c.), corresponding to 20 positions in the categories mentioned above. The transcriptions were sent to the source for correction and validation such as the results (Appendix 4.4.2.d.).

Choosing the **qualitative data analysis software** was a long and sensitive process. The research required an in-depth qualitative data treatment. After several comparisons, it was concluded that Atlas.ti gathered the important features to attain the desired product of research. It would contribute towards a speedier and livelier coding process, as it enabled a more intuitive approach to the data obtained during the interview and transcription process. This coding process would also provide a more complex way of looking at the relationships that arise from the data. Atlas.ti has proved to be more agreeable to the creative process, more flexible and dynamic, and has encouraged and enabled reflexive modes of thinking. This is achieved through its complex inter-connected hypertext structure.

In spite of considering that there may also be some pitfalls when using this type of tool, Seidel's concern (1991) - who considers that there is "*a dark side of the technological advance*" - is not shared by the researcher, nor is Weaver and Atkinson's (1994) view that the researcher may face the dangers of getting "*lost in hyperspace*".

Although this may be true when using certain earlier tools, recent research and comparison have turned this opinion around. The experience with Atlas.ti has also led the researcher to conclude that it is his responsibility not to distance himself from the data and to invest in a more qualitative analysis aiming towards qualitative relations rather than a quantitative output. However, this concern is not completely disregarded.

The complexity of the project also conditioned the choice of tool since qualitative projects differ substantially in their levels of complexity when approaching research models. Though they seem to form a homogeneous group of participants, in terms of position, they differ in terms of context, their framework in each faculty, their personal perspective of the issues at hand, and the cross-sectioned ideas that are under scope. Atlas.ti enables links between different aspects of the data and theoretical information that arose from previous reflection. Barry's opinion (1998) is that "*the (chaotic) social worlds that most qualitative researchers are investigating require striving to operate at both levels*". Although she was referring to the use of two different computer assisted qualitative data analysis software packages, it is believed that this idea may also be applied to the need of co-integrating both qualitative and quantitative analysis in research. It is also believed that the outcome of this analytic process has enriched the research project and has greatly influenced the comprehensive development of coherent theoretical ideas which will lead to the construction and development of the governance performance model previously proposed.

An exploration of the usage of Atlas.ti and the grounded theory applied in this analytic process will now be presented. The approach of this tool is based on the following concepts:

“Coding” refers to the procedure of associating code words/expressions with selections of data, in this case quotations selected from the Primary Documents (PD). The fifteen interviews were assigned as “Primary Documents”. One of the most attractive features of the coding process is that there are no limits on units of coding: you can code any amount of text as one unit and you can create infinite links to create networks.

In the present work, only the codification of ideas sustained by at least one sentence was considered. There are no codes with a set of words that does not build a sentence. The reference to quotations in the text is done using (#:#(PD:Quotation)). The quotations referenced in this way are always presented as an example, generally only one example, and not exhaustively relating to the support data. First-level coding would summarize data segments. From this level, the data is grouped in several forms (pattern coding). This aggregation corresponds, for qualitative researchers, by analogy with cluster-analysis and factor-analytic devices used in statistical analysis [Miles and Huberman (1994:69-72)]. With the tool used, these sets are created from:

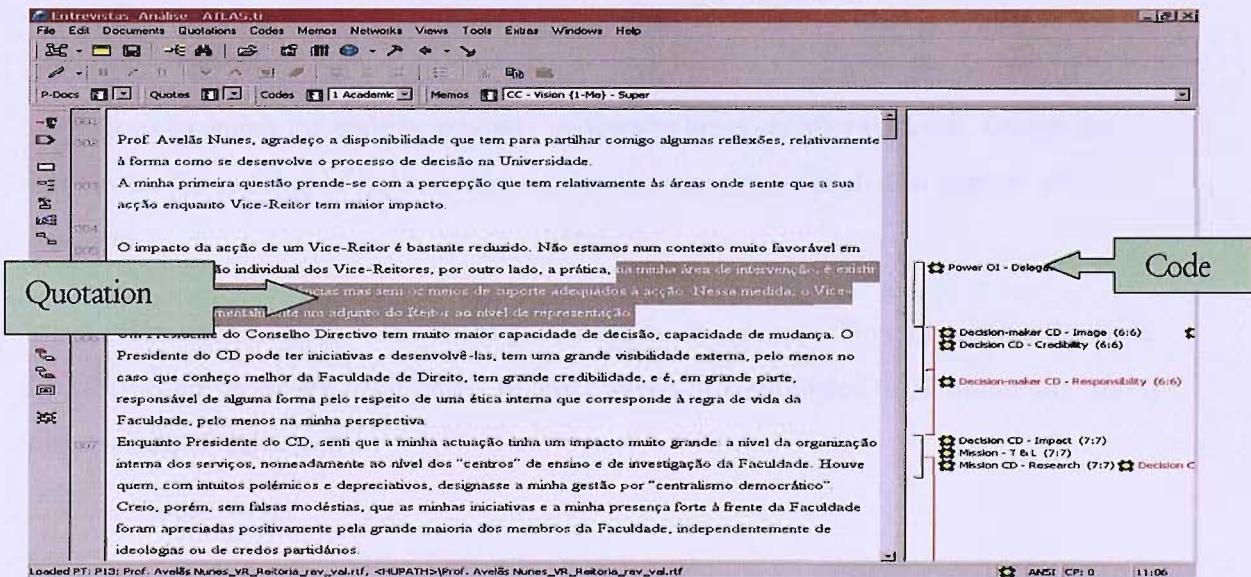
- Grounded Code and Code Levels;
- Families and Super Families;
- Networks (concept mapping).

The Primary Documents were kept in their original language. However, the structuring work that was developed (codes and linked concepts) was originally done in English. The relevant quotations, when describing the analysis, were translated into English and presented in the study.

“Grounded Codes and Code Levels” - In the scope of the coding process, and taking into account the needs that arose as the analysis progressed, the researcher has chosen two different modes for coding.

Firstly, there was a need to create codes, which were grounded to PD quotations, as exemplified in Figure 4.4.2.a.

Figure 4.4.2.a. PD - Code and Quotation Example



Secondly, codes that were not grounded to any quotations were created. This option results from the need to create networks using codes that are more general.

As regards these ungrounded codes, for the analysis, five levels were created in order to obtain a certain hierarchy between them when building networks. The following table (Table 4.4.2.a.) specifies when each level should be applied when creating networks.

Table 4.4.2.a. Modular Structure of Codes Created during the Research

	Code 4	Code 3	Code 2	Code 1	Code 0
Definition	Includes at least one level 3 code	Includes at least one level 2 code	Includes at least one level 1 code	Only include level 0 codes	Assigned to quotations
Format	All Caps	#3	#2	#1	Begin with Caps
Example	DECISION DMP	3 Stakeholders 3 University Mission	2 Activities 2 HR Involvement 2 Values	1 DMP_CC 1 Change 1 Bologna Process	Authority Change Context

This tool has proved to meet needs when developing a grounded theory-based research output due to its possibilities when coding. Each time a code is assigned to a quotation, it is “grounded”. The code frequency or “groundedness” - the number of quotations to which the code is applied - appears in brackets after the code. Codes also help to see the number of links to other codes, the ‘density’, which also appears in brackets.

The code Legality {18 -10} will be used as an example. This means that the code Legality is grounded eighteen times, in other words, it is grounded to 18 quotations and it has ten links to other codes.

“Families and Superfamilies” - PD, codes and memos (researcher’s analytical thoughts, which are similar to codes) may be compiled into grouped units, identified in Atlas.ti as “Families”. “Superfamilies” are also a grouping device, which enable family grouping.

During the analytical process, there was the need to establish two types of families, at two different levels, in accordance with different analytical approaches: **sample segmentation** (type A), based on PD and **analytical families** (type B), based on codes.

Families - Type A (PD based) - PD Families were established as a means of sample segmentation. This type of family code enabled the researcher to group PD subjects according to their position, territories, faculty autonomy and top manager/academic, as is presented in Table 4.4.2.b..

Table 4.4.2.b. Examples of Type A Families

Family	PD
Position	PCD / PCC / OI
Discipline	Territories: Sciences; Humanities; Medicine
Faculty Autonomy	Financial Autonomy/Without Financial Autonomy
Top Manager/Academic	Full-Professors/Not Full-Professors

Families - Type B (code based) - Code families were created to group certain codes that could be put together in more general groups (Figure 4.4.2.b.).

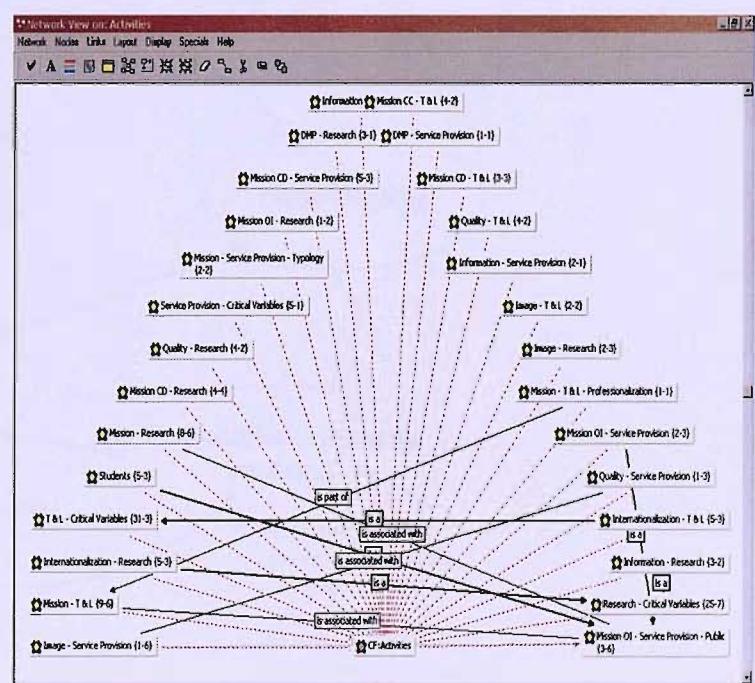
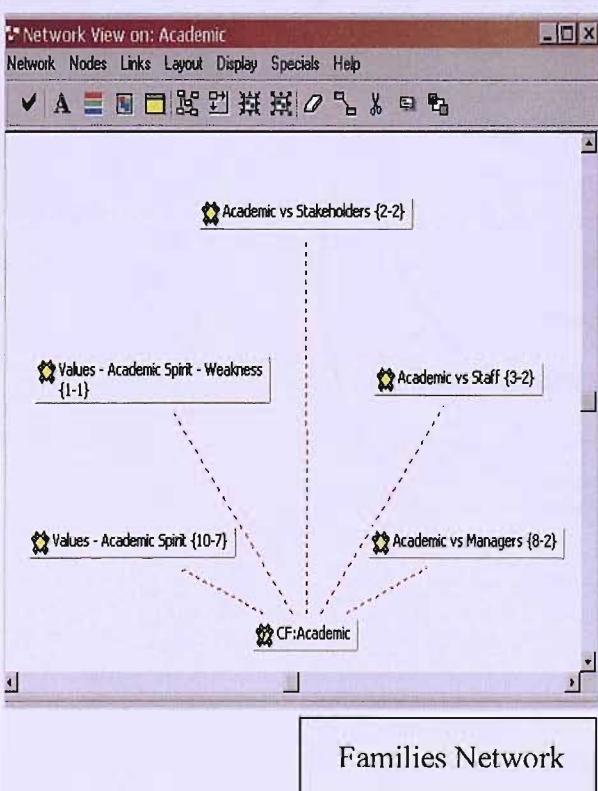
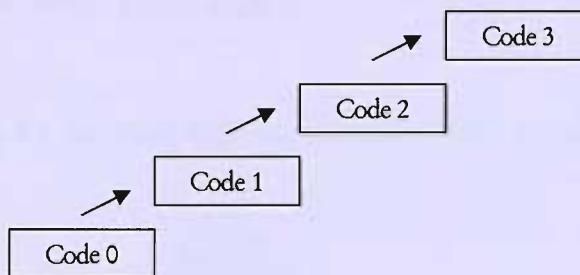
Figure 4.4.2.b. Examples of Type B Families

The screenshot shows the 'Code Family Manager' window in Atlas.ti. The menu bar includes 'File', 'Edit', 'Miscellaneous', and 'View'. The toolbar includes icons for 'New', 'Open', 'Save', 'Print', 'Find', 'Replace', 'Copy', 'Paste', 'Delete', and 'Help'. The main area displays a table of families with columns: Name, Size, Author, Created, and Modified. The table lists various families, many of which are collapsed. A detailed view of the 'Academic' family is shown in the bottom right, listing its sub-codes and their counts: Academic (5), Activities (28), Autonomy/Decentralization (14), Bologna Process (4), CC (31), CD (66), Change (3), Collegial (6), Consensus (8), Constraints (8), Context (6), Critical Variables (12), Decision (26), Decision-Maker CD (4), Decision - Majority (1), and Decision CC (7). The 'Modified' column for the 'Academic' family shows '15-06-05...'. The bottom left shows a list of collapsed families: Academic vs Managers (8-2), Academic vs Staff (3-2), Academic vs Stakeholders (2-2), Values - Academic Spirit (10-7), and Values - Academic Spirit - Weakness (...). The bottom right shows a list of collapsed families: Academic Tensions (0-3), Academic Values (0-3), Activities - Critical Variables (0-4), Bologna Process (0-1), Change (0-3), Decision - Conditions (0-6), and Decision - Credibility (0-2).

The code family option has, however, some limitations: they cannot be linked in networks in the way required for the purpose.

“Networks” - are another grouping device which was used in conceptual theory building. They are created by using a graphical editor where nodes (codes, quotations, PD, Memos) are called into the network. The above explained code levels were used to help create hierarchies and relationships that were not achieved solely by creating families, since these are limited. How codes were used in network building is illustrated in Figure 4.4.2.c.. Code 0 will always be the most central one and the other code levels will work outwards as explained in the table above.

Figure 4.4.2.c. Using Codes in Network Building

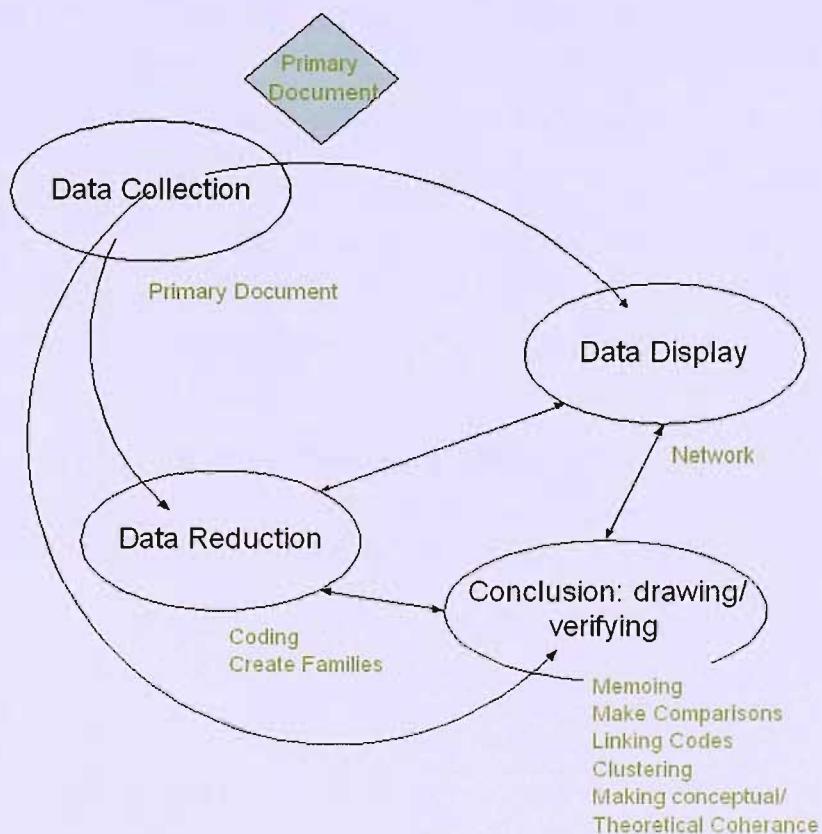


The networks were established according to a colour pattern in regard to the analytical frame and to the approach of the research:

- in Chapter 5,  when networks were obtained in survey and analysis;
- in Chapter 6,  when networks illustrate the current model;
- in Chapter 6,  when networks correspond to the desired model (*);
- in Chapter 6,  when networks correspond to a general and mixed approach;
- in Chapter 6,  when networks correspond to the research model.

Applying the Interactive Model of data analysis, Miles and Huberman (1994), with the process of Atlas.ti tools, it is possible to obtain the diagram in Figure 4.4.2.d.:

Figure 4.4.2.d. Data Analysis Process of Atlas.ti. tools



Adapted from “Components of Data Analysis”, in Miles and Huberman (1994:12)

In this process, the investigative work was based on the data summarised in Table 4.4.2.c. (Appendix 4.4.2.e. and 4.4.2.f.):

Table 4.4.2.c. General Research Data of Atlas.ti.tools

Quotations	1732
Codes	
Level 0	252
Level 1	70
Level 2	31
Level 3	14
Level 4	2
Families	62
Memos and Comments	100

Section 4.5. - Personal Thoughts

It is unquestionable that the research methodology conditions the findings of the overall work. In the research process, no matter how much preparation there is, no matter how much one can anticipate difficulties, the researcher can only comprehensively evaluate their choices at the end of the journey. Having reached this stage, and with further reflection as regards the methodology, some critical ideas can be synthesised:

- The use of a semi structured interview, as the main tool in this research, seems to be the correct choice. Generally, the openness of the questions allows the researcher to collect deeper information centred on the problem, which enables the construction of a rich final model. However, in some cases where diffuse information was collected, it was possible to understand that there was some inefficacy risk in this approach. Eventually it could have been possible to close slightly the interview guide without removing its essential character of idea and perception collection.
- In an IR process, it is essential to use systematically control mechanisms as regards the possible bias unconsciously caused by the researcher. A very important element in this scope was the interviewees' final review and validation of the transcribed texts. The interviewees' individual and conscious review of the data enabled the researcher to correct eventual bias and became an important control mechanism.
- The use of the repertory grid in the interviews performed at the Pilot Faculty was very useful towards the development of the research process, in the sense that it allowed, during a first phase, to assess and put into perspective the importance of coding and its analytical processing in the main phase of the research. Although the use of statistic tests on a sample of 16 interviews may be questioned, the truth is that for the researcher it seemed good practice, not as much for its relevance, but mainly as the added-value it represented in the methodological learning process of the research.
- The use of suitable software, such as Atlas.ti, in interview analysis, may critically assist the researcher in the process, especially in the light of the number and density of recordings. However, this conclusion should not overshadow two ideas which were verified while using it:

- the correct usage of the software is very time-consuming and, even so, the feeling that it might not have been used to its full potential still remained;
- even acknowledging that, this was definitely the most suitable software. It is essential to keep in mind that its functions are standard, satisfying the majority but not all research needs.

A final comment about is that, in the research methodology, the limitation of the occurrence of research bias must be highlighted, given the use of multiple sources, the combination of strongly triangulated data, whose consistency is confirmed by the coding scheme and the participants validation.

CHAPTER 4

RESEARCH METHODOLOGY

Chapter 4 approached general methodological concerns in terms of research model design: scope, ethics, conceptualization, organization and planning. It also presented the model for data collection instruments, and identified the main concerns in the sample selection and data analysis in research.

The chapter also describes aspects of the detailed research methodology, which arise from the research project development, based on the interviews conducted at meso (UC's top decision-makers), and micro (Organic Units' top decision-makers) levels.

The next chapter's main aim is to present, in detail, the results obtained during the research which will support and sustain the final governance decision-making model.

CHAPTER 5

RESEARCH FINDINGS

5.1. Comparing the Individual Model and Strategic
Algorithm

- 5.1.1. Individual Model
- 5.1.2. Individual Model
(including the Level 1 and Level 2)
- 5.1.3. Individual Summary

CHAPTER 5

RESEARCH FINDINGS

CHAPTER 5

RESEARCH FINDINGS

5.1. Conceiving the Institutional Mission and Strategic Objectives

- 5.1.1. PPU System
- 5.1.2. Institutional Level
- 5.1.3. Organic Unit Level
- 5.1.4. Final Summary

5.2. Survey of Decision and Performance Support Systems

- 5.2.1. PPU System
- 5.2.2. Institutional Level
- 5.2.3. Organic Unit Level
- 5.2.4. Final Summary

5.3. Decision Model Survey

- 5.3.1. PPU System
- 5.3.2. Institutional Level
- 5.3.3. Organic Unit Level
- 5.3.4. Example – Degree Creation
- 5.3.5. Final Summary

This chapter aims to present the main results attained throughout the research. The data is structured into sections, which correspond to structural vectors of PPU's university management: Institutional Mission and Strategic Objectives; Decision Support and Performance Systems; Organization and Institutional Decision Structures and Processes. This overall system will be entitled the Decision Model.

In each section, the analysis of the results will be presented in subsections, considering the three levels described in the previous chapter (PPU Context; UC Institutional Level and Organic Unit Level) with a final summary which aims to assist the integration of the results presented in the final model.

Section 5.1. - Conceiving the Institutional Mission and Strategic Objectives

Sub Section 5.1.1. - PPU System

The autonomy of PPU is provided in the LAU which defines the **mission of universities** in article 1, as follows:

Article 1

Mission of the University

1. *Universities are centres of creation, transmission and diffusion of culture, science and technology, which, through the articulation of education, teaching and research, are integrated in society's life.*
2. *The objectives of the university are:*
 - a) *human, cultural, scientific and technical education;*
 - b) *to carry out fundamental and applied research;*
 - c) *providing services to the community, in a perspective of reciprocal valorisation;*
 - d) *cultural, scientific and technical interchange with congener national and foreign institutions;*
 - e) *the contribution, in its sphere of action, toward international cooperation and bringing other peoples together, with a special distinction to Portuguese speaking countries and European countries.*
3. *It is of the Universities competence to grant academic and honorific titles and degrees, other certificates and diplomas as well as to grant equivalence and acknowledgement to academic degrees and qualifications.*

In Law no.108/88, of 24/9

The normative framework of the PPU mission simultaneously defines:

- the conceptual frame, in which the State places universities as society's *centres of culture, science, technology, teaching and research*. Note that the cultural dimension firstly highlights the idea of a university that is beyond science, a humanistic university.

- PPU objectives. The legislator, who clearly specifies objectives, puts into evidence some political orientations of the State regarding PPU: open to the community (line c), internationalisation [lines d) and e)] particularly the cooperation with Portuguese speaking countries. The legislator, getting down to this level of detail, in a culture system which is strongly regulatory, induces a normative perception of the mission concept which is transferred to PPU statutes.
- the generic academic competencies, granting academic degrees and academic qualifications.

From the analysis, based on the 13 PPU Statutes, the assimilation of concepts of the law and its statutory integration by universities, in most cases in a literal way, is visible. Due to the fact that the mission is not always clearly and unambiguously stated, notions which include expressions such as “mission”, “vision”, “objectives” and “attributions” will be considered as indicators of the mission statement of universities.

Universities seem to know how to internalise the law better than they understand autonomy. It could be said that the level of freedom of universities regarding this matter would not allow them to extend beyond the law. However, the law itself foresees statutory autonomy (art. 3, 5, 20 and 25) which universities do not fully use. The statutes are prepared by the universities and approved by the university senate. The Government is responsible for the approval of these statutes and it can only refuse to do so if the statutes are *not in observance with the law* (no.3, art.3 LAU). This inhibited application of autonomy may reveal the absence of an internal reflection on the part of the university senate about the institution’s reason for existence. Although this was understandable at the time the first statutes were created, there has not been much change regarding this matter in the statutes’ reviews that have been performed since then.

The Table 5.1.1.a. represents a comparative analysis of the statutes of PPU.

Table 5.1.1.a. Comparative Analysis of PPU Mission, Vision and Objectives

University Mission, Vision, and Objectives	Lei 108/88	UC	UL	UP	UTL	UNL	UA	UM	UE	UAc. Art. 2.	UAlg.	UTAD	UBI	UMa.
	Art. 1	Art. 1	Art. 15	Art. 1	Art. 3	Art. 1	Art. 4	Art. 1	Art. 2.	Art. 3	Art. 3	Art. 2.	Art. 2.	Art. 2.
1. Universities are centres of creation, transmission and diffusion of culture, science and technology	*	*		*		*	*	*	*	*	*			*
2. The objectives of the university are														
a) human, cultural, scientific and technical education;	*	*		*	*		*	*	*		*	*	*	*
b) to carry out fundamental and applied research;	*	*	*	*	*		*	*	*	*	*	*	*	*
on a regional level														
environment														
c) providing services to the community in a perspective of reciprocal valorisation;	*	*	*	*	*	*	*	*	*		*	*	*	*
on a regional level	*	*		*	*		*	*	*		*	*	*	*
d) cultural, scientific and technical interchange (national and foreign);	*	*	*	*	*	*	*	*	*		*	*		*
on a regional level														
valorisation of the patrimony														
e) international cooperation	*	*	*	*	*	*	*	*	*		*	*		*
on a regional level														

* The text in LAU coincides with the one in the Statutes

™ Statutory specificity in the scope of the LAU

In most cases, the *Mission Statements* come literally close to what the law establishes. Some universities, however, specify areas or use expressions that, even though they are explicitly present in the General Law, seem to evidence different concerns in particular contexts. It is so, for example:

- preservation, valorisation and divulgence of the scientific, cultural, artistic and natural patrimony, in older universities – UC (art. 1c) and UP (art.1d);
- participation in the preservation of the environment in UL (art.15e);
- respect for human rights, UMi (art. 2, 1);
- regional vocation, UAc (art. 3d) h) m)), UAlg (art. 3f) and UMa (art. 2c) d) e)).

The statutes make the “Mission” concept of PPU a single one. In many situations, there is a lack of other framing documents. The PPU Mission is clearly within the sphere of public interest, or the State, according to Pedrosa and Queiró (2004).

The results of the analysis present a mission that is common to all PPU. The scope of the mission, which is based on the five main strategic objectives established in the LAU, proves to be a wide ranging one, following in its complexity, the multitude of functions presented by Jasper's (1969:51) magic triangles and by Santos (1994:164). There are no relevant signs of competitive difference among PPU through their strategic mission identification. The Mission Statements, which are included in the Statutes, seem to be regarded as a law rather than an instrument of strategic management. Although the national normative framework of PPU is generally characterized as excessive and strict, in this scope it is seen with a more framing nature and it cannot be used by institutions as an obstacle to define their mission.

As far as the study of **social and behavioural context** in PPU as organizations is concerned, it is possible to identify an organizational culture strongly based on symbols, rituals and myths.

When including **symbols** in their statutes, PPU recognizes them as an important element of institutional culture, and clearly identifies the “official symbols”. Actually, the symbolic wealth of universities goes beyond “official symbols” given that at any time there can be a subjective creation of symbols whenever a specific meaning is attributed to a sign, an act, an event and it is shared by a group.

The main insignias presented in the statutes (Appendix 5.1.1.a.) are the flag, the logotype, and the attire, while sometimes there is the use of differentiated symbols with

the same meaning, such as “stamp”, “seal”, “logotype”, “emblem” or “academic attire”, “professorial attire”, “long habit” and “attire”. The academic attire, which appears in the statutes of some universities with a strong meaning, is an instrument for hierarchism among academic staff. This symbolism, and, in some cases, the detail and accuracy required, is curiously more evident in some of the newest universities. The universities created in the 1970s used it to assume values with medieval roots which are inherent to university hierarchism.

The historical roots of the university often highlight the official university symbols. For Araújo (1991), the symbols celebrate the “*appellative and festive moment of the collective memory* which is a *necessary act*” that begins with a process of identification and reconstruction of the past, “*a ritual of a society without rituals*”. The liturgic celebrations were statutorily consecrated and celebrated by medieval universities with parades, in a religious or festive manner. See Rodrigues (1993:147), regarding the celebration of Saint Nicholas’ Day and Saint Catherine (patroness of students).

Almost all universities look back to the origins of this University Day celebration:

- 1 March, 1299, date of the regal diploma which founded Universities in Portugal, is UC’s day;
- At UE it is 1 November, going back to a tradition which began in 1559; (art. 6)
- 22 March is the UTAD day, the day of its founding in Decree-Law 60/86; (art. 6)
- UMa celebrates its day on 6 May, when classes started in the College of Funchal in 1574. (art. 8)

Over its centuries of history, The university had its own ritualised calendar, according to the rhythm of the academic year, consecrating in the statutes the *magnus ordinaries*, academic time, and *parvus ordinarium*, party time, Rodrigues (1993:147).

The introduction of the clock into General Study dates from the late fifteenth century. The “clocks” reveal academic time in a different way from time at the city (“*the clock will always be half a quarter of an hour behind the City Clock*” – UCS, 1653, quoted by Araújo (1991:369). Nowadays, this idea is still present in the University Tower Bell (*a cabra*) and by the systematic use of the *academic quarter of an hour* in all the classes of all UC’s faculties.



The PPU culture differs from other organizational cultures due to its ritual system, which is highly specific. The **rite** can be understood as a set of acts practiced by groups in universities that celebrate the shared cultural values. The greater or lesser dramatic load of

a rite is often connected to the emotional force of its inherent myths. In PPU, the rites include a spectacular character of public ceremony and a traditional revival that establishes connections to secular events, such as the solemn “Doctorate Ceremony” and “Academic Praxis”.

According to Prata (1993), academic *praxis* has been subject to secular controversy between those who passionately defend it and those who condemn it. The art.1 of the Academic Praxis Code of Coimbra defines it as a set of traditional uses and customs among the students of the UC, and any other uses or customs decreed by the Council of Veterans. <http://www.aac.uc.pt/mev/usos.htm>

The notion of rites as symbolic actions, where it is imperative to have faith in the practiced act or self-conviction of that faith and not the knowledge of the meanings of the acts, is an idea developed by Torgal (1993:179). The rites have symbolic power whose contestation enclose an anti-power force. The academic *praxis* in Coimbra, even after many varied and disturbing periods during the twentieth century, goes on being generally practiced and contested as it was a century ago, when in 1902 Carvalho defined *praxis* as a “*tradition that is in open war with progress*”, quoted by Prata (1993:163).

In origin, university rites are profoundly connected to the Church’s rites. Torgal (1993) studies some of the similarities between the doctorate’s rite in the 1431 Coimbra Statutes and the episcopal ceremony consecration. Although the Republic Instauration in 1910 created a clear separation between religious aspect and layman (present in the *Oração de Sapiência* by Pais, professor at the Faculty of Mathematics, in 1908), the “sacred”, interiorized during centuries, was integrated into the university values in such a way that it is still present in the twenty-first century. Regarding this, it is relevant to emphasise the importance of the professorial attire and its ecclesiastic origins; the religious ceremony as part of the program at major university commemorations and the relevant place given to the chaplain when representing the church in academic ceremonies.

If the doctorate acquired exclusively scientific characteristics with the Republic, it maintains the spectacular character and tradition in the ceremonies of the solemn Doctorate (*honoris causa*) and Imposition of Insignias. Both acts began after 1910 and have a ceremonial character of consecration – the *Honoris Causa* Doctorate may co-substantiate a scientific, or political recognition, to an exterior person of renown reputation, by initiative of one or more faculties. The imposition of insignias, initially an

entry rite, or initiation for the newly-doctorate, is now a voluntary rite of valorisation and consecration.

The **myth** is a story with a strong emotional meaning, which is more important than the story itself, and connected to institutional values. The myth is “speech”, Barthes (1978), which is spoken to preserve the reality in images, and where intentions are frequently missing from its text. A myth can be a form of projection into the past.

In an organizational perspective, the myth can begin as an instrument to communicate a system of values. Lemaitre (1984) classifies organizational myths as:

- rationalisation – that rationalise the past as a lesson;
- valorisation – that communicate the values of the institution;
- identification / distance from others (in or out of the institution);
- duality – that express the existing tensions between the institution and the outside.

The crossroads of this categorization, with a reflection made by Torgal (1990) about the four myths that the traditional university involves and causes, enables an enriching analysis of the university knowledge. The first myth that constitutes the university itself can be illustrated with expressions like *Alma Mater*, or *Lusa Atenas* in the case of UC, which proudly appeal to the paternity of an historical institution of excellence. The university, besides being a myth itself, involves other strong myths with internal and social impact: the myth of the *Universitas* (Corporation of Professors and Students); the myth of the relationship between the university and the community; and the myth of distancing the “Haut Culture”, which is far from the problems of reality.

A strong density of symbols, rites and myths determine the organizational culture of the PPU. The symbolism has statutory relevancy in PPU and does not seem to be connected to the universities, ages: new PPU acquire and integrate university symbols in a similar way as classic universities. A correct understanding of this historical and behavioural context clearly helps to understand the academic tension (past versus future) and facilitates an accurate reading of decisions and behaviours which determine the decision-making process.

Sub Section 5.1.2. - Institutional Level

In 2003, the UC had a high moment of strategic debate based on the programmatic proposals made by the two candidates running for a four-year term as Rector. Besides the broad debate about the University, the campaign was open to the external community. The elected Rector's programme determined the main re-structuring actions that the Rector's team and the Senate have developed since 2003.

The first main idea is the concept of university. This was expressed in a context that underlines academic freedom as a fundamental principle, under the motto "*The university, a space of freedom to teach and to learn*". The university is considered as a quality public service provision, with high quality standards, exposed in an external environment of great change and high competition. The potential achieved by growing interdisciplinary and the critical mass that holds 700 years of knowledge and experience are important assets of the UC, which, in a privileged way, make it possible to have a wider mission.

This institutional context frames two key-ideas upon which, according to the programme, the development of the UC will be based:

- institutional cohesion;
- efficacy and democratic members' participation in the decision process.

An idea that is strongly embodied in the institutional culture is that of taking advantage of the synergies of the UC's acting forces; through the faculties that were developed according to the Napoleonic model; or the research centres and service provision based on the Humboldtian model; or the different bodies which throughout the organizational course of PPU, in the last 30 years, took on its management. Strategically, the diversity corresponds to an advantage which needs to be empowered and profitable in order to maintain the strength and the prestige of the institution.

The external relationship is referred to as a way to stimulate challenge:

- to defend university autonomy;
- to confirm the role of the public university;
- to impose the image of excellence of the university and of education;
- to create a new relationship with the city and society.

The international dimension and the prestige of an institution like the UC strongly contribute to strategic openness to the society.

From the twelve organizational aims set out in detail on the strategic programme, attention will be focused on those where the faculty decision-makers may be in more direct way proactive actors towards success:

1. Consolidating and innovating on training activities
 - the consolidation of the educational offer at (under)graduate level
 - broadening the educational offer at postgraduate level
 - continuous training and informal training
2. Guaranteeing training quality
 - teachers' support
 - pedagogic quality management
 - promotion of school success
3. Reinforcing the research activities
4. Reinforcing the specialized service provision activity
5. Reinforcing internationalization

The year of 2003 represents a turning point in the strategic path of the university. This idea comes from the analysis of speeches of the academic year *solemn opening* since 1984. The researcher resorted to this study due to the lack of synthesising strategic documents. From the comparative analysis of both periods (1984-2001)/(2003-2005), presented in Table 5.1.2.a., 2003 seems to represent a year of change in context.

Table 5.1.2.a. Comparative Discourse Analysis (1984-2001)/(2003-2005)

Quotations	1984 - 2001		2003 - 2005
	no. quotat.	average	ord
Stakeholders – Students	23	1.35	1st
Culture	19	1.12	2nd
Infrastructures	18	1.06	3rd
Financing	17	1.00	4th
Scientific Research	15	0.88	5th
PI	14	0.82	6th
Internationalization	10	0.59	7th
T&L Quality	9	0.53	8th
Stakeholders – Extension	8	0.47	9th
Symbols	8	0.47	9th
Organization and Management	7	0.41	11th
University Assessment	4	0.24	12th
Image	3	0.18	13th

Only five of the twelve organizational objectives are common: Cultural Action; Scientific Research; Internationalization; T&L Quality; Organization and Management. During the last period, there are categories which come up for the first time such as: “innovate”; “training”; “specialized service provision”; “environment”.

The information gathered within this topic is presented in detail:

- Appendix 5.1.2.a. sets out the frame of the main outlines of UC Policies, established for 2003-2005 and the main Senate deliberations and Rector's decisions that are identified as instruments and that operate the programme (February 2003 - May 2005);
- In Appendix 5.1.2.b., the programmatic points of the speeches in the Solemn Openings (1984-2001) were classified into thirteen categories.

The absence of an Institutional Strategic Plan determined the development of the research through the use of discourse analysis and the comparative analysis of strategic texts. The results are a strategic intention towards change since 2003, which define its main goals - the innovation in training activities; the quality of training; the research activities and the specialized service provision activity – and the main strategic objectives developed in the research model. This data is simultaneously input for the research as well as providing an adequate validation of the strategic chosen fields. Regarding the decision model, there are still some problems concerning the challenge of external partnerships: institutional cohesion and efficacy and the democratic participation of members in the decision process. These are concepts, which in one way or another, will be presented throughout the results of the entire research, and comprising the subsystems of the final model.

Sub Section 5.1.3. - Organic Unit Level

The absence of a strategic plan in the Pilot Unit determined the need to proceed, on location, and through interviews, with the objectives survey established by top management. 60% of the interviews were performed on members of the executive board, where the majority (53%), of the total of interviewees were academics.

Regarding the Faculty **Mission**, Table 5.1.3.a., the majority recognised a T&L dimension (60%). For 87% of the interviewees, Research is not an essential dimension; and for 73% neither is Service Provision. At the Research level alone, the number of individuals which recognises that FEUC may have a mission differs according to the management body to which they belong. Recording the interview does not interfere with the opinion about the mission of the institution.

Table 5.1.3.a. FEUC – Mission – Interviews’ Results

Mission - FEUC		n
T&L	No	6
	Yes	9
Research	No	13
	Yes	2
Service Provision	No	11
	Yes	4

Regarding the Faculty’s mission, a set of the main ideas have been put into the following box:

- Service to the community
- Excellence of T&L
- Provide competitive education
- The faculty exists to teach
- The mission of the Faculty is socialization

- Diffusion of current knowledge
- Teaching people to work
- To serve student population and general public by means of a service of excellence
- Quality education

Strategic Objectives (Table 5.1.3.b.) - In terms of T&L, 53% of the interviewees agree on one management strategic objective. The number of objectives pointed out does not depend on the type of body, category or activity of the respondent. The objectives differ from case to case, where a qualitative analysis will be necessary to complement the quantitative analysis. In terms of Research, 80% of the sample does not identify any strategic objective. At Service Provision level, the majority, 53%, only points out one strategic objective. Regarding this activity, one can confirm that the number of strategic objectives that were pointed out differs according to the body the individuals belong ($p = 0.047$), with particular emphasis on the Executive Board where 78% agree on one strategic objective. Recording the interviews did not influence the opinion regarding FEUC's strategic objectives.

Table 5.1.3.b. – FEUC – Strategic Objectives – Interviews' Results

Strategic Objectives - FEUC		n
T&L	0 Objectives	4
	1 Objective	8
	2 Objectives	3
Research	0 Objectives	12
	1 Objective	1
	2 Objectives	2
Service Provision	0 Objectives	6
	1 Objective	8
	2 Objectives	1

Regarding the strategic objectives associated to the Faculty's mission, a set of ideas collected from the data have been put into the following box:

- To structure the organization so it responds to the teaching activity
- Promoting the Faculty externally
- To create conditions for the future of the Faculty
- To improve the quality of 1st degree courses and master's degrees
- To connect research and service provision
- To connect research and teaching
- To increase quality in what is offered and the way it is offered
- To have graduates who are employed and who are the best
- To prepare students for the work environment
- To have teachers who are "Professors"
- To diversify education
- To enhance quality
- To improve productivity
- To create a school dynamics leading to external projection

The use of the Repertory Grid was very important and useful for the analysis of data collected with the question "What are the strategic organizational objectives of the Faculty?". With this technique, the objectives were graded on a 1 to 5 scale, and the results are presented in Table 5.1.3.c..

Table 5.1.3.c. FEUC – Strategic Organizational Objectives

Interviews' Results – Repertory Grid

Strategic Organizational Objectives - FEUC	Scale	n
T&L	5	15
Research	2	1
	3	1
	4	4
	5	2
	1	1
Service Provision	3	2
	4	5
	5	3

All interviewees give T&L a score of 5; in Research the most chosen option was 4, followed by 5, and lastly and in equal number 2 and 3, on a 3:2:1 ratio. Regarding

Service Provision, 46% of the individuals that answered considered option 4, and 27% indicate option 5. From all these, a meaningful statistical difference cannot be found in the scores conferred to T&L, Research and Service Provision, regarding the body, category or activity status.

The interviews carried out at **FEUC's Top Management** level allowed the researcher to identify the main organizational objectives and to collect perceptions regarding the needs of a governance decision support system. Although the Faculty does not have a defined formal strategic structure, the interviews lead to a perception that there is a very strong consensus at top decision-making level, regardless of the body they represent, regarding the mission and the Faculty's strategic objectives, most remarkably predominant in teaching. Equally apparent, few members of the senior management appear to attach high significance to research or service provision.

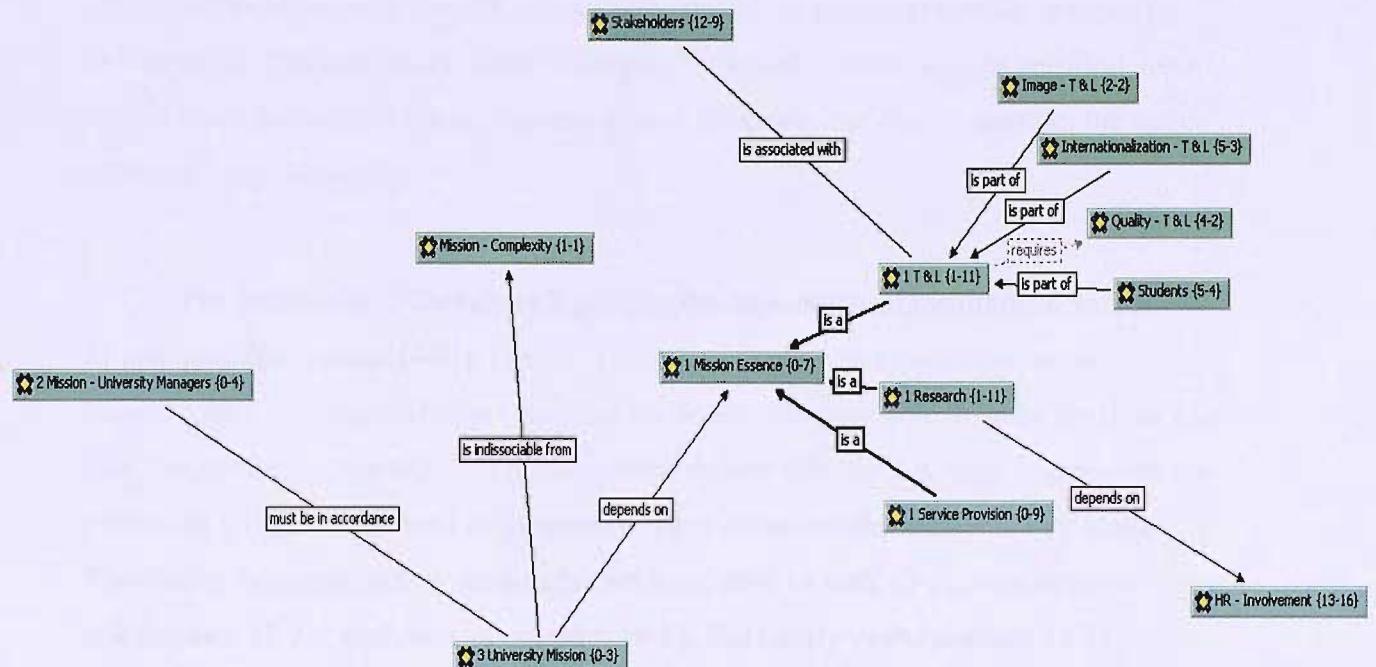
The mission and the Faculty's strategic objectives are greatly directed to knowledge process and, in particular, education, in a systematic perspective of openness towards society. This happens both with the community, by means of a social mission that derives from its public nature, and, the market, by means of competitive projects.

Sub Section 5.1.4 - Final Summary

The interviews that were carried out at UC's **strategic top level** allowed a general collection of the institutional mission's structural perceptions, and summarises the main ideas drawn so far about the mission (Figure 5.1.4.a.) and values (Figure 5.1.4.b.) of the University.

The following analysis was performed using Atlas.ti.

Figure 5.1.4.a. Network – University Mission



Top decision-makers see themselves in complex missions who underpin the three activities under analysis: T&L, Research and Service Provision.

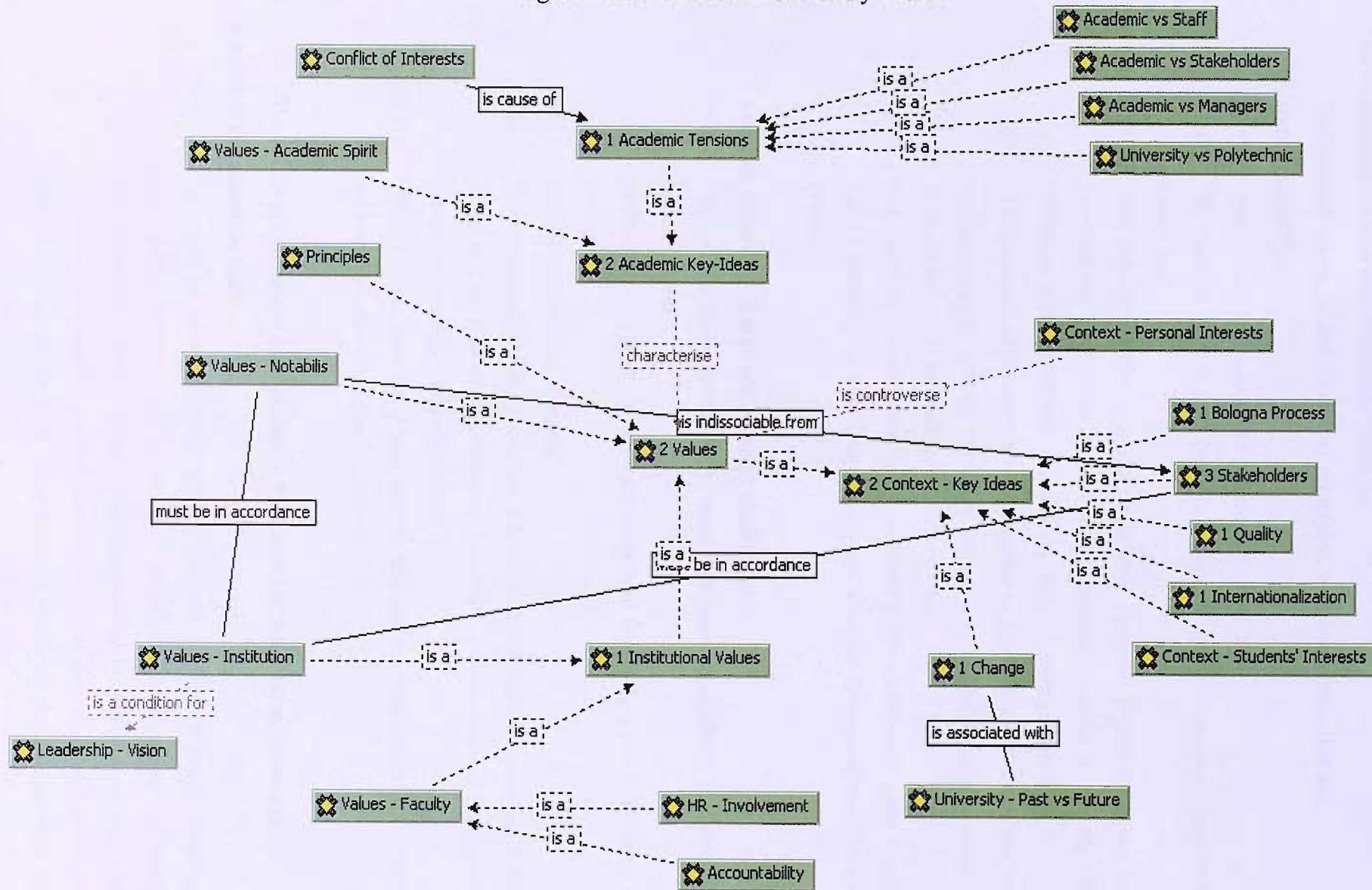
The concerns with research development arise from a service provision perspective rather than a teaching perspective [1 Research {1-11}/ (7:14) "...research is not instructing, research has to be productive. If there is something the Faculty "can sell" it is research quality, research quantity and obviously its students' success, but this latter

is much more difficult to measure”]. The success of productive research and its perceived value are often restricted by the researchers’ commitment to work teams [(7:15) “Research groups are very restricted. On the other hand, research is a field that only works with a real team. It is more and more noticeable that an isolated researcher, even an avant-gard researcher, has no visible impact in terms of influence, management, of making the management attitude be seen. The team concept works much better”. This quotation is grounded in the following codes HR - Involvement {13-16}; Mission – Research {8-6}; Research – Critical Variables {25-7}].

It is in teaching activity that the main challenges and reflection on the scope of UC’s university mission can be currently found. Many concerns are crossed with T&L (the previous network highlights the most *grounded* (g>4): Internationalization, Quality, Stakeholders) in a context of structural redesign that the Bologna process does not ignore. [(8:163) “The University has still not discovered itself in pedagogic terms, in terms of how to teach. The university, since its origin, privileged content, what is teaching, over how to teach and who to teach. It does not teach methods, nor does it consider the target audience’s psychology”].

The analysis of UC’s **values** highlights the importance of institutional values {27-8} and *notabilis*’ values {4-4}[(13:65) “These are people who represent a certain memory, let’s say they carry the culture of the house. They are able to make me think like this: this institution, through this memory accumulator tells me this, then I agree with the institution’s values”], as well as the context’s key-ideas and the academic key-ideas. These latter concepts portray tension factors [academic vs staff {3-2}; academic vs stakeholders {2-2}; academic vs manager {8-2}; University vs Polytechnic {1-3}; University – Past vs Future {4-4}] and instability [Change {10-5}; Bologna Process {9-3}; Stakeholders {12-9}].

Figure 5.1.4.b. Network – University Values



The conceptualization is simultaneously based on:

- Institutional values, related to secular principles, with boundaries that are sometimes diffuse,
 - (2:76) “great respect for the professors’ seniority”
 - (11:13) “By tradition there is great freedom as regards initiatives, research projects to tender, etc.”
 - (13:105) “And that was one of my Faculty’s traits when I entered. We had the feeling that everyone was accountable, and not only the assistant teachers, but also the full-profs. Everyone is under examination, under constant observation”.
 - (3:100) “The grandness of the university is not trying to standardize, not scrunching, not trying to do everything the same. The grandness of the University of Coimbra is in the difference, in the multiple differences it has”.
 - (11:111) “Of course the house is large and its difficult to have everyone’s commitment, but it’s necessary to have that commitment, even for the sake of tradition and culture”.
- a current context of change and strategic challenges.
 - (1:20) “the need for the institution to take positive steps in current affairs, in modernity, in development”
 - (8:105) “a Humanities’ Faculty is no longer a synonym for having a job, or for being a teacher”
 - (8:28) “people’s mentality is changing”
 - (3:6) “I have learned over the years that it is not with willingness that we serve this image that we have of the everlasting University. It’s by achieving change and making this changes a way of culture.”
 - (8:53) “What keeps us from doing what is in the best interest of the Institution (...) they are rooted practices, tradition, bureaucracy, etc.”

The synthesis, somehow exemplified in the quotation that follows, is always bonded to the academic spirit ...

- (1:72) “It has to be university spirit. And the university spirit corresponds to scaling some values that are currently inverted in the University. The values are: firstly, the Institution – and therefore, everything should be done to safeguard its institution in all aspects: political, economical, social; after the global institution there is the Faculty, the work place; and only then is the department within the

Faculty where one is and that we also have to defend; and the human being, the person, the individual interest always come last.”

... given that, the ability to synthesise is regarded as a necessary condition for leadership in the UC.

- (13:33) “In this value-related sense, the moral leadership of the behaviour according to university values is very important”
- (13:83) “the Rector acts in the name of moral values”

UC’s top managers articulate a complex mission, based on T&L, Research and Service Provision. The concern for managing, in a balanced way, traditional institutional values and the accelerated context of change is basically driven by the academic spirit. In this context, the T&L paradigm is the main challenge for top decision-makers within the Bologna process.

Section 5.2. - Survey of Decision and Performance Support Systems

Sub Section 5.2.1. - PPU System

In public management, there is basic information, which structures the Information System, as is the case of the **accounting system**. The Portuguese official accounting plan for education (POC-Education) has been compulsory since 2000. The system gathers three accounting coordinates: budget (cash approach); patrimony (entrepreneurial approach); and analysis (internal management approach).

As yet, PPU are far from applying POC-E: only two universities (UC and UA) use the system in a complete manner, namely regarding management accounting and consolidation of the group's accounts. This scenario does not differ much from the Spanish case, where in 2003 only three universities had Management Accounting Systems.

POC-E recommends the ABC system, on a general and incremental approach, using the Management Report, the *Tableau de Bord*, the BSC and management indicators. In Portugal, the predominance of cash accounting for many decades can justify the slow advance towards the new POC-E. Currently, in the light of the growing information needs, a significantly speedier development of new management models in the upcoming years is foreseen.

Besides the public accounting reform, which comprises POC-E implementation, PPU also underwent a national budget management reform, with decentralization of management from the central bodies to institutions, but centralizing financial resources on the Directorate-General for Treasury. A budget per program is established [Law no. 91/2000, of 20/8 – Law of the Budget Framework], as a basis for a new budget model

in accordance with an objective-based public management which is integrated from the government level all the way to the institutional level. An electronic communication process also began with RAFE (State's Financial Administration Reform) which is currently pleasingly generalized in public administration.

In this context, PPU are not functioning as a body: they are delayed and disorganized. Structures and models within PPU, with autonomous power and diverse organizational modes, have contributed to the system's current state-of-the-art:

- only two universities use POC-E, one of which the case-study university;
- PPU use miscellaneous computer applications which are partial and in some cases inappropriate;
- unstructured and partial use of decision support models.

Regarding the IS and accounting, the results show that there is no limit to the meso level as regards to the institutional development of the subsystems involved, namely in the scope of the DSS.

Performance indicators used in PHE are numerous, but, generally, non-standardized and non-systematic. Reliability, which is based on an interactive and iterative consensual process and characterizes PI in some HE systems, is far from being satisfactory in the Portuguese case. The lack of clarity in the State's strategic guidelines withdraws sequence and credibility from governmental policies and announcements, highlighting the ideological dimension of PI. The cloudy situation of the system "justifies" distrust. The proposal for performance factors for the PHES presented by Simão et al (2002:508-514) may be regarded as a fine example of system work, although the only one that has actually been worked on is CNAVES.

This research developed a general survey of PI used in national and international systems and institutions. Following the survey, an analysis was carried out and PIs were categorized into activities, levels and groups, with the objective of including them in the model. Therefore, the study developed:

1. a general survey of the PI used in HE systems, or in specific institutions, leading to an aggregated and wide-range *Tableau de Bord*. The survey, with a set of approximately 500 PI, was based on the following universe:

- Australian System
[Australian Department of Education, Science and Training (2001);
www.dest.gov.au/archive/highered/statistics/characteristics/contents.htm];

- Ibero-American Institutions (Spain and Uruguay);
 [Universidad Carlos III de Madrid (2004); Universidad Carlos III de Madrid (2002); Bucheli (coord) (2001); Abadie (2001); Grau (2001). www.univ.mecd.es; www.crue.org (observatorio universitario)]
- United Kingdom's System;
 [HEFCE Publications. www.hefce.ac.uk/pubs/hefce/2002; Evidence (2002).]
- Portuguese Institutions and Models.
 [Simão; Santos and Costa (2002); FEUC "Annual Report" (2002); Financing Model used by MCES in 2003]

2. an analysis of overlapping and crossing category levels.

The selection of a range of PI in an HE institution is, as seen before, a political and discretionary action, carried out, in this case, according to a theoretical conceptualization, which is based on literature review. The final panel used a methodology which comes close to that of OECD/IMHE. PIs were organized from a general to a specific focus, according to:

- the main activities (teaching and learning, research and service provision), as well as the management of these activities' support;
- the level (activity; financial);
- the management fields in each activity.

The Appendix 5.2.1.a. presents the frequency of the occurrences per activity, level and group in the survey .

3. a summary of categories' and indicators', which frames UC's model.

The aggregation of indicators is based on an input-output approach. The Appendix 5.2.1.b. shows the frequency of the occurrences per activity, group and kind of process (input/process/output).

The survey performed and its conceptual analysis will be used to determine the model's Decision Support System's sub-system, with a final impact on the following critical dimensions:

- structural dimensions : critical information centralisation ;
- change dimensions: information organization guided towards managing; improvement in survey and external information integration process and suitability of the DSS for performance monitoring and assessment activities

Sub Section 5.2.2. - Institutional Level

At the institutional level, the DSS's research was mainly focused on the IS and the top decision-makers' perceptions regarding the importance and effectiveness of the system. The IS analysis will be an added-value to the model, through the Assessment and Performance sub-system, especially if evidence is needed to strengthen quality assessment. The critical analysis of decision-makers' perceptions about information will be integrated in the model by the codification process, with particular impact on DSS and DMP research vectors.

The **IS analysis** was document-based and focused to flow and document surveys. Table 5.2.2.a. presents the main characteristics of the DSS in the UC.

Table 5.2.2.a. UC's DSS by SIES/OCES Fields

Fields SIES/OCES	DSS - UC					
	SI	Procedures	PI – Management System	I	C	Status
Finance/Accounting	SAP/FI	POC-E MOS	QMS Management Accounting	I	C	cruise
Science and Technology Research and Resources	SAP/FI	POC-E	QMS Management Accounting	I	C	cruise
Academic	SIGES Virtual Campus	Legislation MOS —	QMS Management Accounting —	NI	C	being developed
Quality Assessment	QMS	NI	—	to be developed
Teaching Staff	SAP/RH	Legislation MOS	QMS	I	C	cruise
Social Services		POC-E		NI		being developed

(...) not relevant

I – there is total integration in the field (line) and integration, in at least, one other field that is totally integrated

C – the DSS cover the field's scope

Although the DSS is not completely integrated, there are some instruments to support decision-making, which are integrated within the system and which allow management monitoring, or even, an integrated continuous improvement management process. The integration of quality assessment in the DSS is necessary to overcome the gap that currently exists.

A critical analysis of top decision-makers' perceptions, which was based on the interviews, processed with Atlas.ti, allows the researcher to draw the following key-ideas:

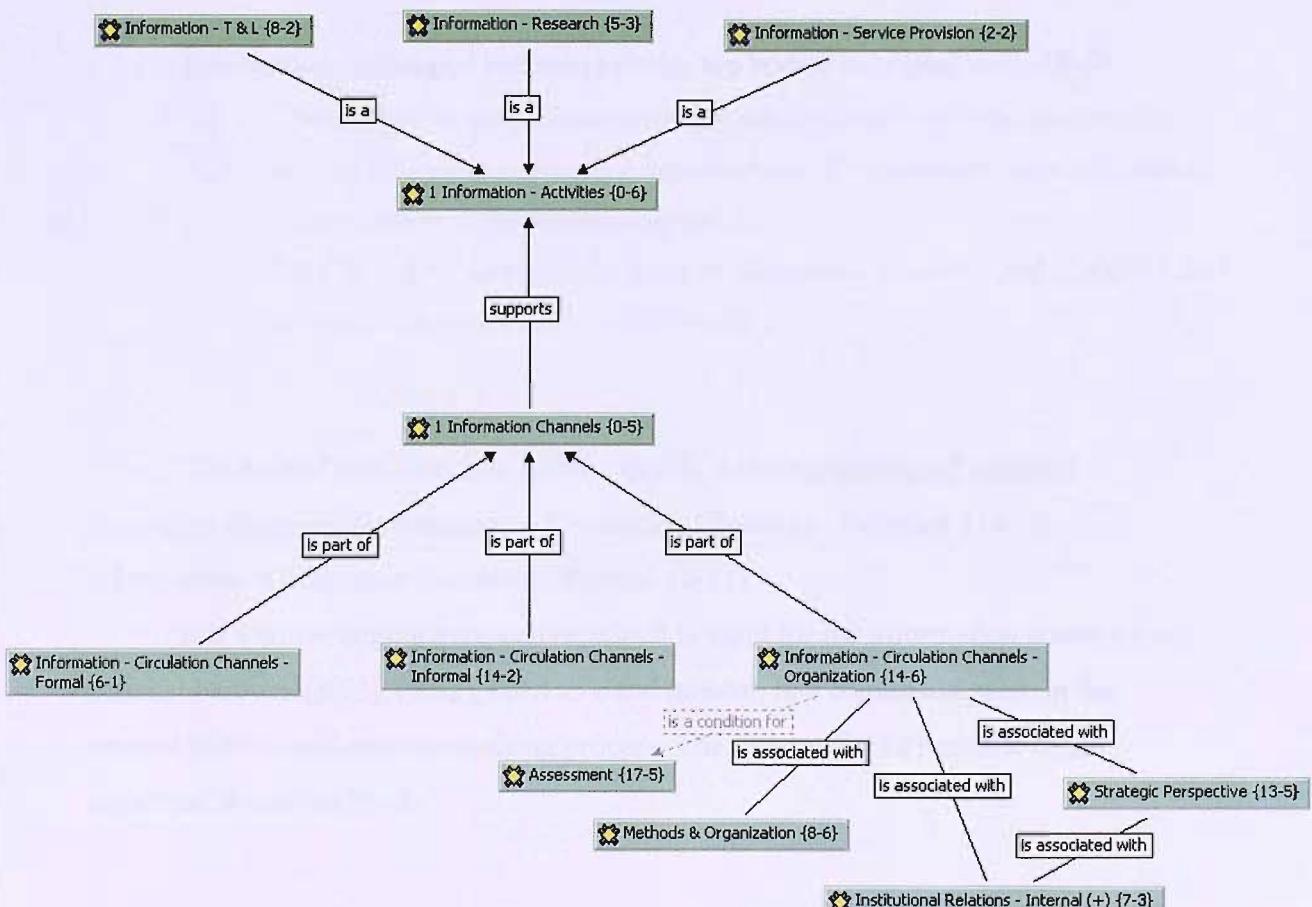
- **Information Circulation Channels (Figure 5.2.2.a.)**

There are two ideas widely shared in UC's top decision-makers' speech about the information circulation channels, (grounded=14):

- The information organization and its circulation represent improvement opportunities which are a permanent concern for decision-makers.

This variable is linked to Strategic Perspective and Institutional Relations – Internal codes, and considered in the critical path to Assessment.

Figure 5.2.2.a. Network – Information Channels



This concern, which is important {14-6} in the discourses of decision-makers, appears conceptually diffuse in terms of format:

- (1:143) "There should be an Office with receptive people, with knowledge, that understood and that passed the information on to the proper entities, when there is some kind of problem, so they can decide if yes, or no".
- (8:73) "It would be important to have formal partners' meeting forums. Unfortunately there are none. The proceedings are usually informal. The PCC is a decisive agent. A whole lot depends on his profile".
- (12:81) "There is yet the Information Service and the CP support, which is the YYY person (...)."

The following principles can be highlighted:

- the information organization is basically guided towards answering the tutorship's legal requirements and not towards management;

(12:55) "In this sense, I think we should strengthen the entire information system in here, because otherwise not knowing we cannot make good decisions. And it really is not known. It is not known because in fact there are no organizational modes that are guided towards registering what is important to know".

- Information exchanged between Faculty top bodies is critical in the DMP.

(4:80) "There should be general information, specific for each top body, and there has to be good information circulation between them. It's essential to have communion of the members of the management bodies.
The CD is the "door out" for most of the current decisions, and... also of the information that the Faculty send outward".

- The second idea, which is widely shared, is the importance of informal circulation channels. [Information – Circulation Channels - Informal {14-2}; Information – Circulation Channels – Formal {6-1}]

It is a wide-ranging perspective, which is valid for the information coming from external partners (8:72), (2:52), (10:123), and present, in a consensual way, in the internal institutional decision-making process. The reasons for its importance are registered at various levels:

- information essence

(2:74) “He [Rector] often tries to pass this information on, but there are always things he can NOT pass on, for example, a conversation with the minister, etc.”.

- leadership mode

(1:140) “Usually with Rector XXX I didn’t write anything, I took care of everything personally”.

- subjective character it may have

(5:55) “I consider the informal information very important. There is a certain intuition in everything”.

(8:137) “At this level of the relationship between people, the feelings, these informal contacts with people who very well know the interventionist people, are very important”.

- institutional culture

(5:91) “an important thing to do is to walk down the hallways and the ‘snack-bar’. It is important, because one talks and listens...”

(8:132) “I value information that arises from hallway conversations or from people who cooperate with me”.

- essential in the DMP.

(7:96) “Imagine something as simple as this: let’s keep the Faculty open all night, because there is a lot of people, etc... My first position on this issue is: I am thinking about that and I listen to people. Therefore, I talk with you, I talk with someone else. The Faculty opens at night: will it be good or bad? And people give their opinions and I take them in. I am merely placing myself in the situation.”

(10:108) “In the listening process, that is, in the becoming aware process, one of the things that sometimes fail was exactly this contact, why? (...) the difficulty resides in having time to talk...”

The informal circulation of information is a structural feature of the DMP in UC's top managers.

- Type of relevant information for the DMP (Figure 5.2.2.b.)

The strategic DMP is based on general information

(11:48) “The leadership aspect, in my point of view, does not demand very in-depth studies if we have this exact knowledge of the institution and the environment in which it moves”.

(10:108) “In the listening process, that is, in the becoming aware process, one of the things that sometimes fail was exactly this contact, why? (...) the difficulty is in having time to talk...”

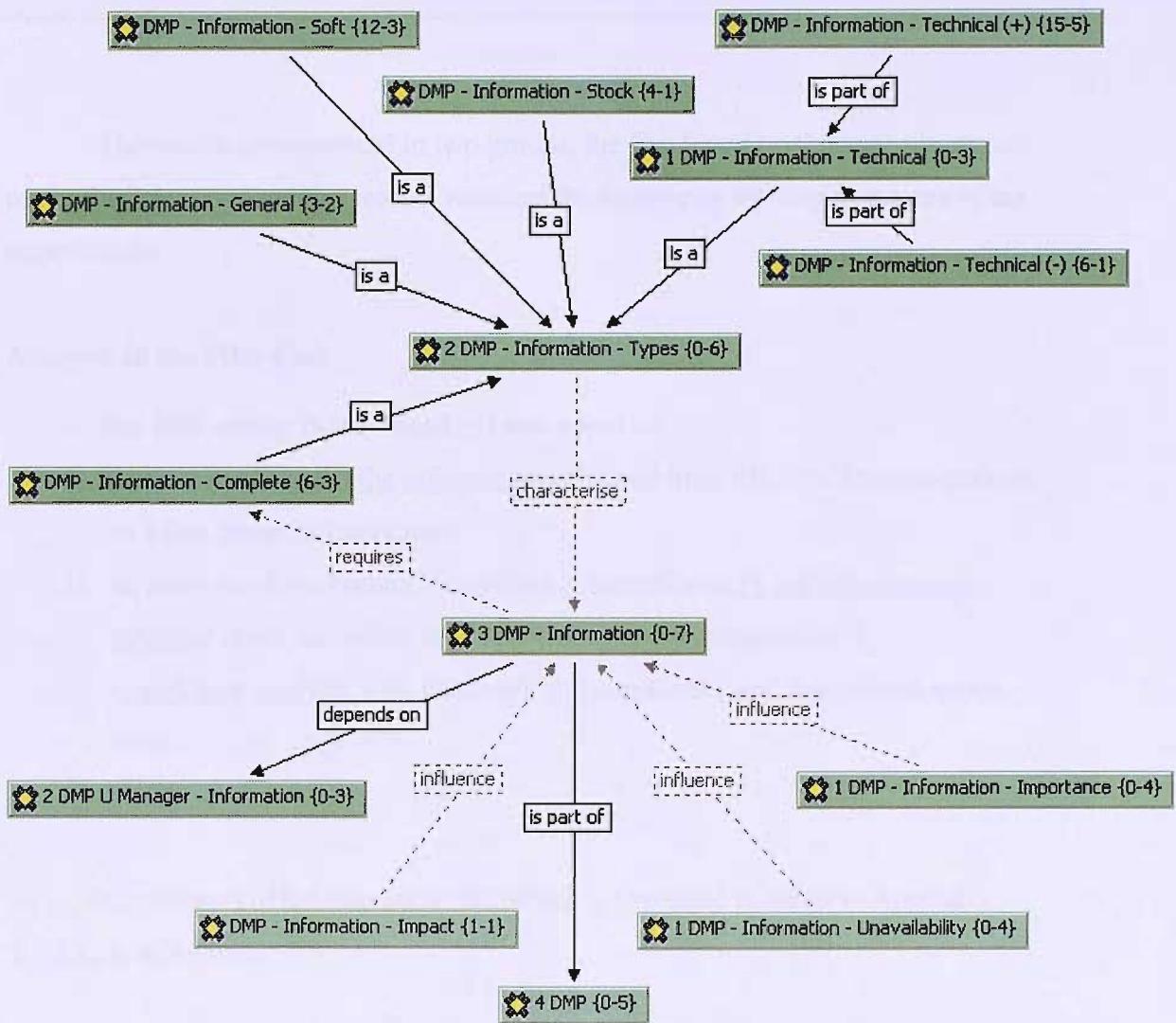
and complete information.

(11:93) “The qualitative information and quantitative information are important. In the CD, and the CC, to govern the faculty, or other, with all the financial and legal constraints, it is essential to know the issues very well”.

The dichotomy of *technical* versus *soft* information in the DMP deserves a more detailed analysis. The groundedness of DMP-Information-Soft {12-3} is related to the informality of the information channels and to some elements referred to UC's institutional culture. The registries related to the technical information that supports the DMP occur in 15 quotations, among 80% of the interviewees. This information is considered to be essential [(2:28); (4:54); (6:41); (10:95); (11:47), etc.], and its privileged source seems to be the technical staff, by means of formal opinions [(6:72), (7:79)] and reports [(9:40), (10:103), (11:92)]. There is also a large consciousness of its relativity.

(10:100) “Well, as we all know the analysis may be done in several ways. If I privilege, as criteria, the students over the number of courses I am privileging, for example, large institutes with few courses. If I privilege the number of courses over the number of students then I am privileging, for example, other types of institutes(...) reports are not fully unbiased ...”

Figure 5.2.2.b. Network – Information Types



In the UC's strategic DMP, although it is possible to separate decision-makers' profiles with a more soft-information or more technical tendency, it is obvious that decision-makers value and find both qualitative and quantitative information necessary to the process.

Sub Section 5.2.3. - Organic Unit Level

The results are presented in two groups: the first based on the analysis carried out in the Pilot-Unit and the second based on the interviews with top managers of the organic units.

Analysis in the Pilot-Unit

The DSS survey in the Pilot-Unit was based on:

- A. a critical analysis of the information collected from FEUC's decision-makers, in a first phase of interviews;
- B. an analysis of the Faculty's available information at PI and management systems' level, according to the previous survey categorization;
- C. a workflow analysis with fieldwork at the executive and operational survey level.

A. The synthesis of the data collected, which is presented in detail in Appendix 5.2.3.a., is as follows:

Type of Information

- The need for circulating, registering and organizing information, which is related with teaching and particularly with students, is frequently felt.
- What is also considered of great importance is the circulation of the information regarding the decisions of University and Faculty bodies as well as information regarding the internal activity of the Faculty/University.
- The need for management information is brought up as well.

Information Circulation Channels

The email/intranet and web page are frequently known as privileged channels. However, there are several references to particular precautions as regards its saturation and/or selection management. Expressions such as "*the delete routine*"; "*the need to have information bulletins on paper*"; "*don't tell me it's all in the net*" prove the need for attentive management and indicate:

- the need for improvement when selecting and organising information sent out by email;
- that it should not be the only institutional channel for information circulation.

In fact, the personal channel, namely the information circulation through the Nuclei (teaching and research) and students, seems to be a top management demand.

Key Agents/Structures

- The teaching and research nuclei and the student nuclei are often mentioned as key structures in any IS. Other structures which were referred to were structures which already existed (Extension Office; Extension Units) or whose creation was suggested (Information Service).

Monitoring

- Although monitoring does not appear to be the main concern of the information system, those who refer to it almost always underline the need for 'formal' monitoring, perhaps because the current monitoring mechanisms are basically informal and 'capillary'.

Characteristic of the Information System

From the innumerable contributions given during the interviews the following ideas often come up:

- the information should be selected, organized, consistent, accessible and transmissible;
- the information system should be guided towards the student; integrated into the management bodies; flexible; equipped with a continual collection mechanism; interactive; centralized and specialized.

In summary, the **development of a DSS** for management is considered important and the following aspects should be pointed out:

- the role of support services, as a network that should flexibly facilitate the managers' role, in a less time-consuming way;
- the importance of the integration of internal networks of scientific, academic and student nuclei based on a mixed structure of electronic channels with high degree of information selection, and oral and written personalised ones, where information is simultaneously broadcasted, discussed and validated.

B. In FEUC's PI and Management System Survey, institutional management assessment [based on Faculty statistical sources (Annual Reports and Self-Assessment Reports)], which was transversal and done per activity, was highlighted according to the following principles:

In **T&L**, Table 5.2.3.a., which is considered the main activity by all management bodies, two performance categories were chosen: success and student satisfaction. The success concept should be extended not only to the organization in an internal perspective through the analysis of graduation or completion rates, but also to society in a validation perspective highlighted by the graduate employment rate or social satisfaction rates. Considering criterion as well as the information available, the following summary panel is constructed:

Table 5.2.3.a. FEUC – T&L PI

Criteria	Indicator	Information (available /not-available /non-existent)
Success	<ul style="list-style-type: none"> • new student attraction rates • annual completion rates • annual graduation rates • after graduation employment rates • course degree evaluation results 	a. a. a. n.e. a.
Student Satisfaction	<ul style="list-style-type: none"> • satisfaction rate 	n.a.
Management	<ul style="list-style-type: none"> • resources/student rate • teaching staff skill improvement rates (training and scientific) • internal financing coverage rates • levels of the organization's suitability for teaching activity 	a. n.a. a. n.a.

The performance of university **Research** is assessed in a competitive way (Table 5.2.3.b.). One of the causes is the financing model for scientific research whose structure is evermore based upon private financing. The consequent competitiveness has determined not only a refined development of PI, but also the potential for scientific studies involving performance behaviors. In this context, and according to internal and external criteria, two categories can be considered: scientific success and competitiveness.

Table 5.2.3.b. FEUC – Research PI

Criteria	Indicator	Information (available /not-available /non-existent)
Scientific Success	<ul style="list-style-type: none"> • thesis/work completion rates • research output per capita: publications; conference presentations 	a. a.
Competitiveness	<ul style="list-style-type: none"> • satisfaction rate • employment rate after research • external financing/investment achieved per capita • number /value Scholarships/contracts for research, per capita 	n.e. a. a.
Management	<ul style="list-style-type: none"> • income provided by research per capita: industry, public sector • resources/research student ratios • researchers' structure ratios (internal/external; full-time) • innovation: created patents; technology-based companies 	n.e. a. a. n.e.

The **Service Provision**, Table 5.2.3.c., clearly being part of a social and cultural dimension, appears from an entrepreneurship perspective. In terms of PI, the main difficulties result from a traditionless and scarce database level. Three categories of indicators are presented: extension scope, relevancy, and competitiveness.

Table 5.2.3.c. FEUC – Service Provision PI

Criteria	Indicator	Information (available /not-available /non-existent)
Scope	• level of participation in activities of the community/society	n.a.
Relevance	• degree of professional insertion of the graduate in institutions, services • contribution to the region/ community's activity	n.e. n.a.
Competitiveness	• % of financing provided by the services to the community • main stakeholders' weight	a. n.a.

On a general approach the **institutional management process** analysis, is performed at two levels, and presented in Table 5.2.3.d.:

- internal (Faculty);
- external (Market – Society).

Table 5.2.3.d. FEUC – Management PI

Criteria	Indicator	Information (available /not-available /non-existent)
Internal	• quality levels • business and financial strategic objectives achievement level • activity Plan and Financial Budget achievement level • services' productiveness • satisfaction rates • support services' evaluation (satisfaction and efficacy)	a. n.e. n.a. a. n.e. n.a.
External	• financial performance • national and international ranking • equity/social investment	a n.e. n.a.

The FEUC's PI and Management System Survey based on institutional management assessment reports help to prove that a lot of indicators are available,

namely at the level of T&L and Research. Nevertheless, it is possible to see that in these activities there is an absence of information that is relevant for management and the level of success of T&L (employment) or the competitiveness of Research (income provided by research; innovation created). By the reports developed for the exterior, it is possible to see that sensitive key PIs in the management process (such as: activity plan and financial budget achievement level; student satisfaction rates; teaching staff skill improvement or level of research participation in activities of the community) are not included.

This analysis shows the importance of improving the relationship between the model's four sub-systems. The implications of these findings are integrated in the Governance Decision Model conceptualization, presented in the next chapter, in the components: gap/unavailability (dimension: information; concept: DSS); transparency (dimension: accountability; concept: Assessment and Performance) and efficient resources allocation (dimension: assessment; concept: Assessment and Performance). The final impact will be more directly focused on the model's critical dimension of change. "Improvement in survey and external information integration processes".

C. The documentary and functional survey of the workflow of the Faculty's main management processes (based on meetings with the responsible elements) was performed between April and September 2004. This task, which seemed relevant at the first phase of the research, as there was no intranet or documentary management, had no further development due to the launch of the Virtual Campus Project which had meanwhile occurred. The Faculty's diagnosis was based on context and flow processing of over a hundred documents on paper which led to the findings presented next in Table 5.2.3.e.:

Table 5.2.3.e. FEUC – Document Workflow Summary

Administrative Office	Docs.	Source		Destination			
		No.	Created within the Service	From another service/client	Service itself	Other internal services	External service
Accounting	35	32		3	19	2	14
Copy and Text Centre	7	7		-	6	1	-
Student Support	15	8		7	10	5	-
Staff and Bodies	24	9		15	7	5	12
External Relations	14	13		1	9	2	3

- high paper redundancy in the different departments;
- high document production in some departments;
- large number of documents produced in a department, which are for its own use;
- very reduced and hierachic internal documentary flow
- the information basically circulates upwards;
- informative contents, which are basically administrative (academic or with financial impact);
- information management is centred on a department and based on an annual routine – other services are not aware of its existence.

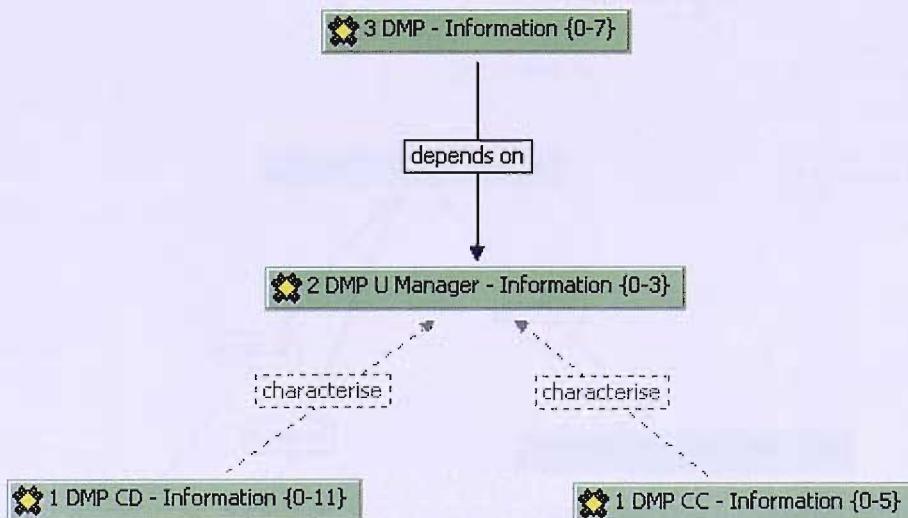
The Virtual Campus Project, which is foreseen to serve PPU, will enable the availability of a four phases set of services, which are already being implemented and will overcome the existing limitations.

Analysis based on the Organic Unit's decision-makers' interviews

Regarding the DSS's strategic decision-makers' critical view, the data is coded according to "DMP UManager-Information", with a specific insider analysis of the PCC and PCD's view of what is a critical factor in an Informed Decision. The analysis, presented in the next networks and quotations, helps to establish the relationship between the model two sub-systems: decision-making process structure and performance and assessment structure.

Apparently, there is a conceptual distinction between the opinions of PCD and PCC, illustrated in Figure 5.2.3.a..

Figure 5.2.3.a. Network – DMP UManager – Information



For the PCC, the informed character of the decision seems to have an essential role in the DMP (DMP CC – Informed Decision {9-4})

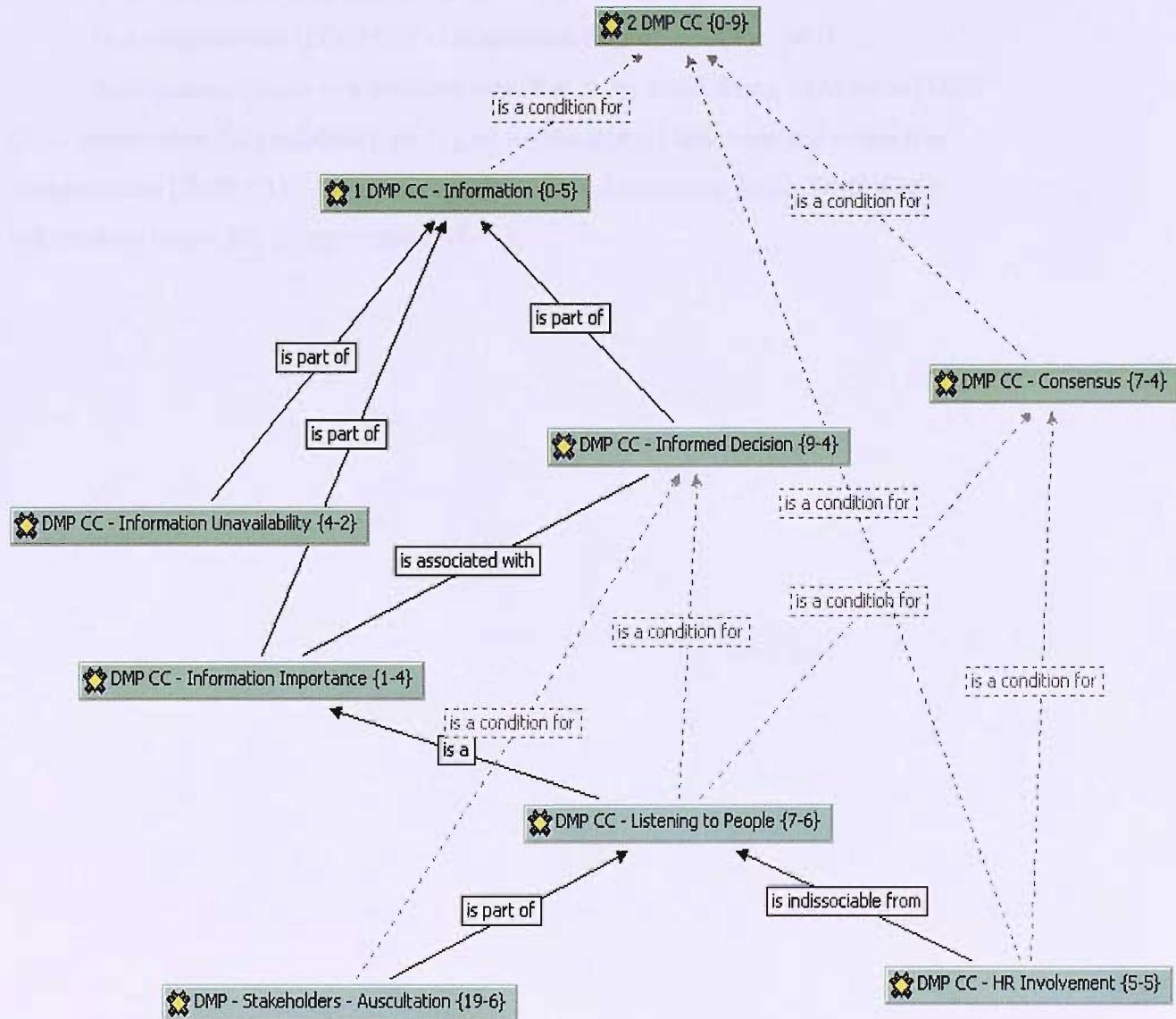
- (11:96) "I do not go forth with a proposal for a solution to a problem without studying it very well, and this study is based on various aspects, namely the context"...
- (11:82) "It is important to highlight that often with some issues, the conclusions that I draw are not clear enough for me to make a decision, and I withdraw them and go think about them"...
- (9:21) "When a decision is needed regarding a more general issue, usually the PCC studies the matter, carefully analyses it, and tries to present at the Council's meeting a proposal for discussion. In truth, after analysing it, a proposal is made

and taken to the Coordination Council. The proposal is widely discussed in the Coordination's meeting, it is not a final proposal, it is rather a work guideline to be presented and discussed (...)"

The informed decision may be based on different types of information, as seen in the above quotations, but it is always connected to listening to people [DMP - CC - Listening to People {7-6}]: "CC members" (9:23); "internal leaders" (4:66); "people who are not connected to the process... uninterested" (9:33); "colleagues" (8:120); stakeholders [DMP – Stakeholders – Auscultation {19-6}].

In the DMP CC model, the analytical network presented in Figure 5.2.3.b., can be assembled, based on the concept of information:

Figure 5.2.3.b. Network – DMP CC – Information



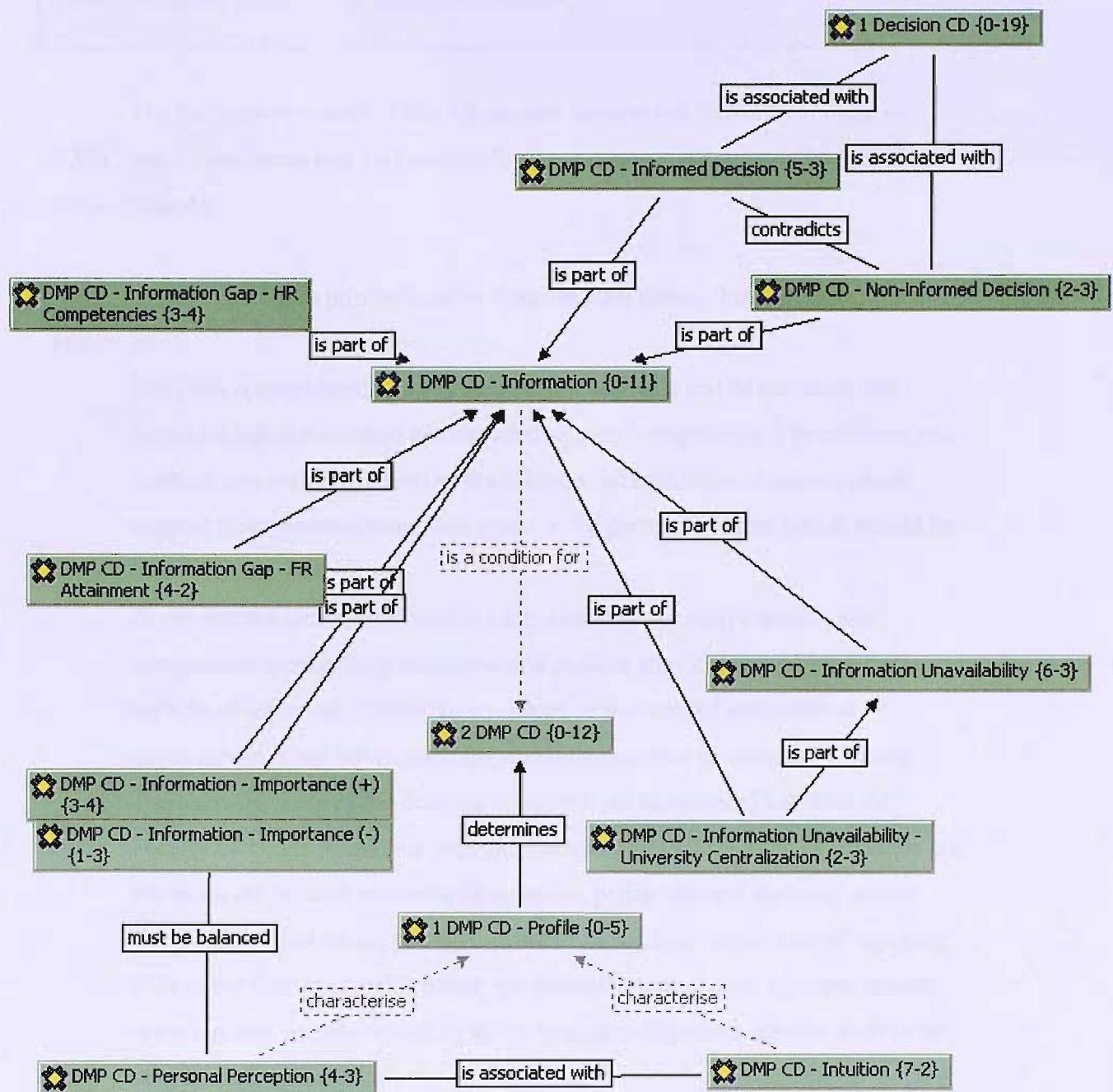
In the case of the **PCD**, Figure 5.2.3.c., the information analysis appears scattered in a wider, less concentrated network, which is of distinctive content.

The registries regarding the importance of the Informed Decision's DMP are less frequent and contradictory (5 – Informed; 2 - Non-Informed Decision). This may be influenced by the DMP of the CD, which seems to be more centred on the individual decision-maker [(DMP CD – Personal Perception {4-3}; DMP CD – Intuition {7-2}); [“Perception is... an ability to catch everything in the air and to make a quick decision” (5:63)] and less collegial.

The information is critical in the DMP CD:

- in a positive way [DMP CD – Information Importance (+) {3-4}]
- but apparently also in a negative way, that is, by underlining its absence [DMP CD – Information Unavailability {6-3}], or for the lack of resources and respective competencies [DMP CD – Information Gap – FR – Attainment {4-2}; DMP CD – Information Gap – HR Competencies {3-4}].

Figure 5.2.3.c. Network – DMP CD – Information



From the organizational and from the DMP point of view a relationship is established between the information unavailability, at faculty level, and the power centralization, at institutional level (1:139); (11:109). This spontaneous registry has low groundedness [DMP CD – Information Unavailability – University Centralization {2-3}].

Sub Section 5.2.4. - Final Summary

The findings presented in this sub-section support the model's concepts of "DSS" and "Assessment and Performance", whose conceptualization is presented on the next chapter.

Some common principles arise from the DSS survey, both at institutional and faculty level:

- The DSS is considered to be structured and systemic and its technical and technological sub-systems are regarded as mere components. The informal and political sub-systems as well as the information circulation channels which support them, serve intermediate goals in the decision process which should be taken into account.
- Given that the University/Faculties are organizations with complex and competitive management structures and models, the DSS should be flexible and capable of adjusting itself to the evolution of the internal and external environment. Thus information organization becomes an essential variable.
- The characteristics of the decision structures are an essential variable. At Faculty level, the bicefalos structure between the PCD and the PCC stands out, but so do the internal networks of scientific, pedagogic and students' nuclei.
- Top decision-makers are strongly aware of the critical importance of adjusting DSS to the University's/Faculties' performance, and of a set of improvement opportunities, namely regarding the information dispersion and the short range of information flow.
- Information integration is a critical success factor in the DMP. If the transmission and sharing process must be highlighted, so must the dynamic and interactive acculturation process. That is, its discussion, consensus and validation by all the different intervenents, which interact with the DSS, namely at the strategic level.
- The analysis shows that monitoring requires transversal/vertical (University/Faculties) improvement, although this does not result in a direct perception of the strategic decision-makers.

Furthermore it is possible to conclude that:

- although there may be a context of heterogeneous supports, procedures and systems in the DSS of the University and Faculties, it is perceivable that there is a gap between the performance assessment and DSS at institutional and Faculty level. The latter being less satisfactory to the corresponding top decision-makers;
- top decision-makers make dichotomised assessments regarding:
 - information circulation channels: as university strategic decision-makers they require informal circulation channels; as faculty decision-makers there is a need for more structured, but flexible channels;
 - two vectors of information preference, depending on the approach:
 - top down: soft → technical
 - bottom up: technical → soft

At the same time there is a clear need for complete, general and differentiated information.

Section 5.3. - Decision Model Survey

Sub Section 5.3.1. - PPU System

In organizational terms, PPU are structured into faculties, and these, depending on their size, into departments (UA, UE, UAç, UTAD, UMa) or schools (UM). The organic units are responsible for the development of T&L and research activities [detailed analysis in Santos (1996)]. There are three power decentralization models in PPU, regarding financial autonomy: all organic units could have administrative and financial autonomy (UL, UP, UTL, UNL); only the university has autonomy (UA, UMinho, UE, UAlg, UTAD, UBI, UMa); or hybrid models, as in the case of UC.

According to LAU's art.16, the decision power structures of PPU are very similar:

- at governance bodies' level (Appendix 5.3.1.a.) and their skills (Appendices 5.3.1.b. to 5.3.1.e.),
- at the level of democratic management principles which are applied in collective bodies and rectory team structures (Appendix 5.3.1.f.).

Faculties/departments/schools tend to reproduce universities' governance structures. At faculty level, only UNL adopted a rather innovative governance model, which does not respect the parity of bodies, with the figure of the Faculty Director, elected by the Assembly of Representatives to preside over the Executive Board.

The model for collective decision-making bodies, on which PPU strategic governance is based, determines a significant number of strategic "decision-makers".

The range of decision-makers in PPU rests between a minimum of 101 (64+1+36), in the University of Évora, and a maximum of 511 (331+1+179), in the UL (Appendix 5.3.1.g.).

Regarding the participation of stakeholders in PPU governance, the LAU foresees (art. 16, no.4) a consulting council, or equivalent, and (art. 24, no.3) the inclusion of members from outside the university in the Senate up to a maximum of 15%. However, according to the analysis of the statutes, not all universities have external interest represented (Appendix 5.3.1.h.). The representation is merely formal, only in advisory bodies of irregular functioning, and with indirect influence, if not irrelevant, regarding the DMP. In spite of this, PPU have developed an extension action, privileging the Associations/Private Institutes as instruments for private partnerships with specific goals.

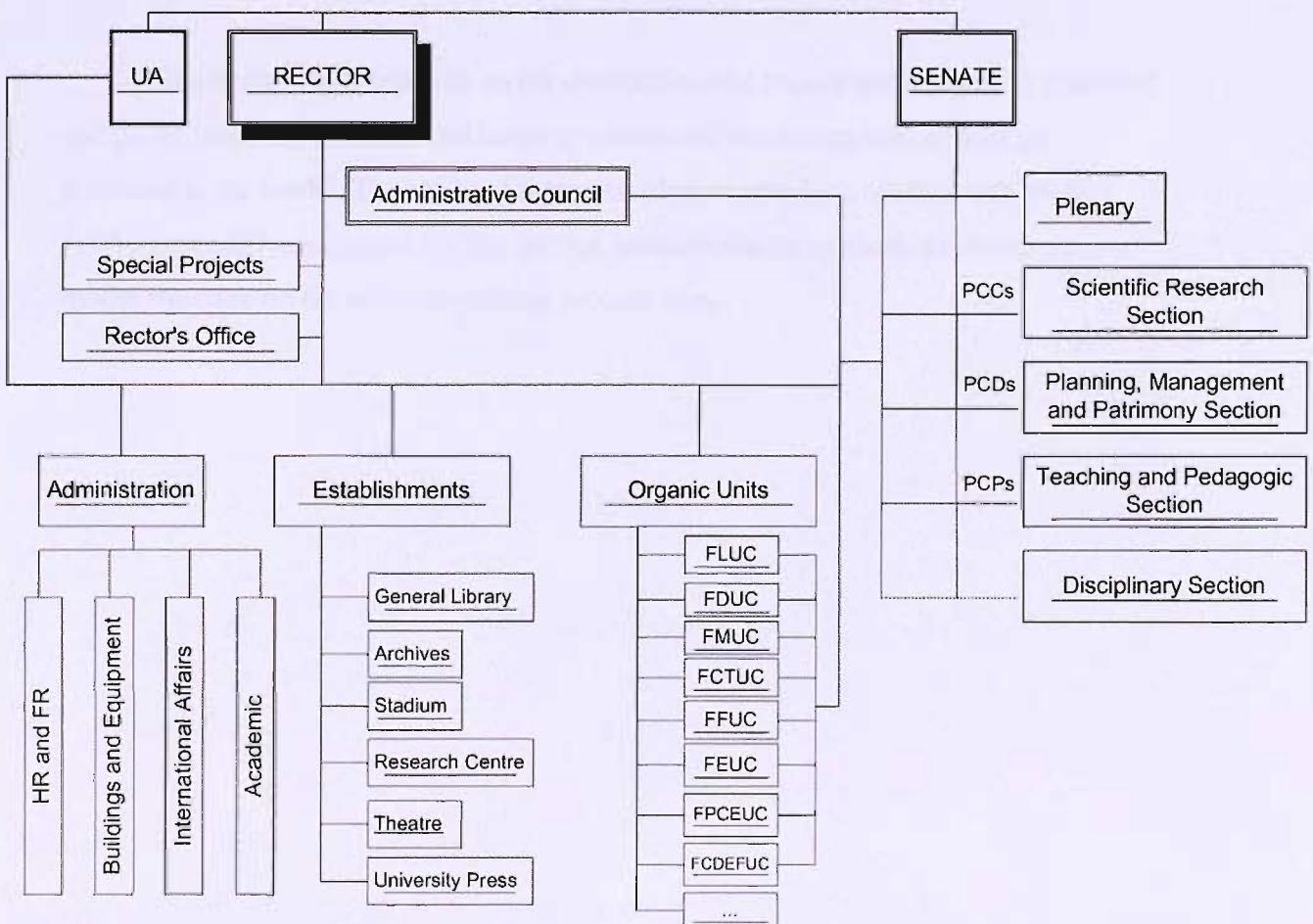
This governance model of PPU has a pronounced end, publicly admitted since the Public Survey performed by CIPES regarding “HE Law Assessment, Revision and Consolidation”, Amaral (2003). Although the legal framework of the new model is yet unknown, the national decision-makers’ speech foresees a change related to freedom in the governance model design of PPU.

Sub Section 5.3.2. - Institutional Level

At the institutional level, the research was developed in two ways: UC's organizational governance model design and the top decision-makers' perceptions of the DMP.

UC's organizational governance model, presented in Figure 5.3.2.a., does not differ from the pattern presented for PPU, in the previous sub-section. In this figure the lines correspond to the relationships of functional interaction between the different units and bodies.

Figure 5.3.2.a. UC's Structural and Governance Organization



The Rector and the Senate are essential for defining the University's strategic politics (Appendices 5.3.1.c. and 5.3.1.d.). The latter meets once a month in plenary sessions which are preceded by specialised sessions in the scope of each section, where the debate on the University's strategy and activity is undertaken. The University Assembly (Appendix 5.3.1.b.) meets exceptionally and its main competency is to elect the Rector. In Appendix 5.3.2.a. the Senate's and University Assembly's direct annual costs are presented.

The eight Faculties, whose dimension indicators are presented in Appendix 5.3.2.b., are the basis of the UC and are regulated by their own statutes, which define the composition of the respective management bodies. All governance bodies are collective and characterized as a representative college of the three bodies (students, teaching/researching and non-teaching staff). The PCD and PCC are *ex officio* members of the Senate representing the corresponding faculty.

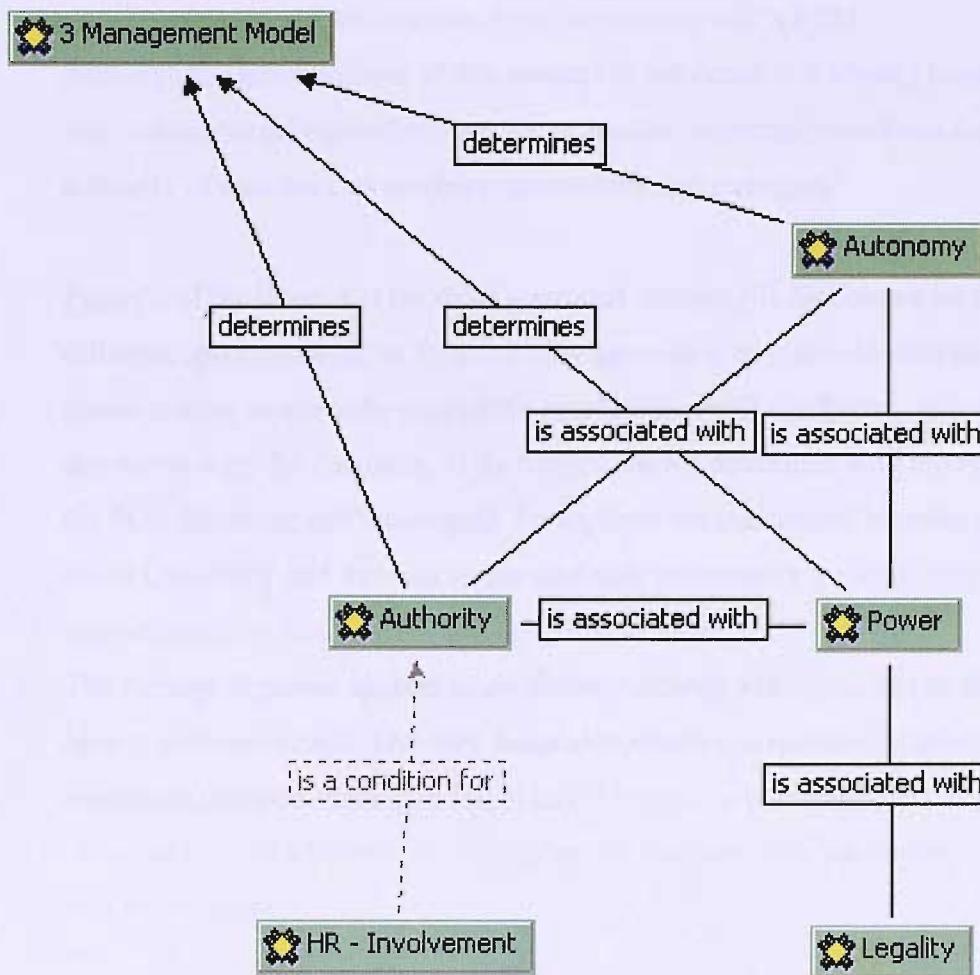
The teaching and research management structure is decentralized in faculties, although the main competencies are centralised in the governance bodies.

The institutional research on the decision model frames the analysis of structural and governance organization and helps to understand the dimensions of change proposed in the model. The study of a process (degree creation), made in sub-section 5.3.4., exemplifies the impact of the current institutional governance and management model structure on the decision-making process cost.

The analysis of **UC's strategic decision-makers perceptions**, regarding the DMP, help to characterize the following principles which will determine the model proposal:

- In the DMP there is a basic conceptual triangle, present in Figure 5.3.2.b., which determines the management model based on:

Figure 5.3.2.b. Network – UC Autonomy – Authority – Power



- Autonomy – autonomy is consensual among managers of financially autonomous and non-autonomous faculties. They show that the most relevant dimensions in this field are the pedagogic and the academic ones. In the managers' point of view, autonomy does not seem to mean intervention capability... or power.

(9:60) “At this time the faculty has financial autonomy, but in truth there is no flexibility, there is no agility”.

It is not clear whether this arises from the conceptual model in which managers move or from their (in) ability to perform autonomy, or both.

- Authority – this concept is presented as:

- being associated to the rector figure [“he who acts in the name of moral values” (13:82)];
- “an exercise which arises from democratic will” (3:52).

Although the groundedness of this concept is not dense, it is always connected with collective acknowledgement: the academic community validates the authority of members, as teachers, researchers and managers.

- Power – of the three, it is the most grounded concept (9). Decision-makers have different opinions about its roles but they agree on a common denominator: power always seems to be part of the interlocutor (with the Rector, in Faculties’ discourse; with the Faculties, in the rectory team’s discourse; with the PCD, in the PCC discourse and vice-versa). Perceptions are consensual regarding power in the University and its bond to the academic community “sociologically the teaching staff runs faculties. I believe it is so everywhere”. (12:22).

The concept of power appears as an abstract concept which one has or does not have at different levels. The only dimension where it is specified is when exercising decision-making in HR (11:82) “There is an aspect in which I am at times involved, which otherwise is not delegated, in a clear or veiled manner, that is the staff related issues”.

- In the DMP the following ideas are highlighted: the tension centralization vs decentralization; the analysis of the decision process phases (Figure 5.3.2.c.); its collegial essence (Figure 5.3.2.d.); and the (non) participation of stakeholders (Figure 5.3.2.e.).

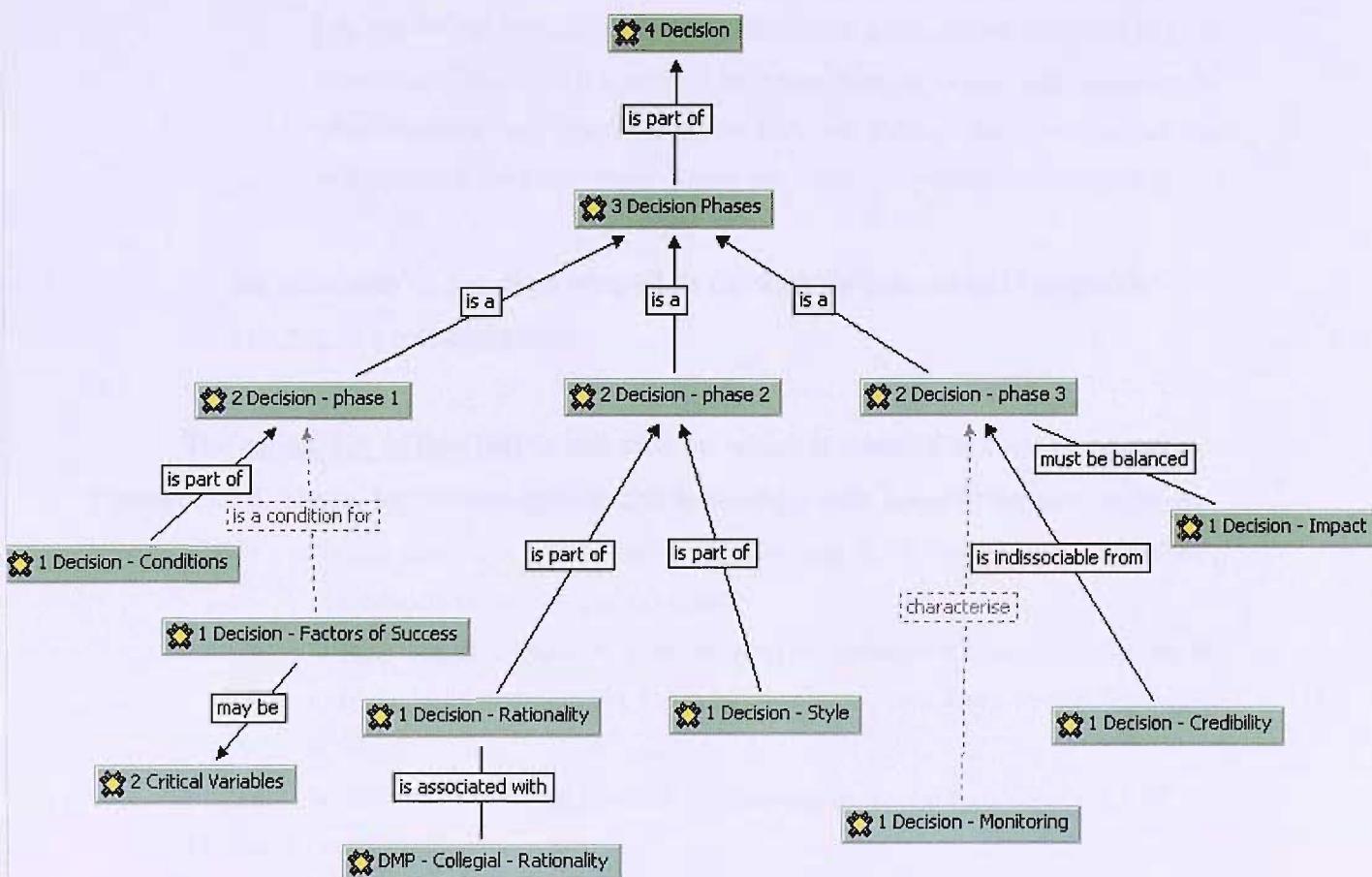
At institutional level, the DMP – centralization {10-3} vs DMP – decentralization {8-2} a dichotomy can be found.

The tendency to centralise management at the university is felt as a limitation to the decision-makers' action in faculties, at various levels [protocol (4:37); RH management (2:60); degree management (8:37); *numeris clausus* definition or car parking (10:78)], although the way it is exercised may be complimented:

“It has not been negative because people have used this prerogative in a diplomatic way and, seeking to convince more than to impose and therefore this is positive... It has not been, therefore, problematic but I consider that there is some difference in the policy as regards a recent past” (6:26).

The decision-making process is seen by managers according to three phases (Figure 5.3.2.c.): identifying the problem; conceiving the decision; the decision.

Figure 5.3.2.c. Network – UC Decision Phases



At this point, the following should be highlighted:

- the importance of explaining the decision;

(1:29) “The human being often has reactions that we need to understand. Decision should be well explained, the person should be brought in to support the decision and not to impose”.

- the different parties' commitment;

(10:55) “For example, to open a degree like European Studies, we really need teachers for the new fields, at a time when we can not employ anyone, we first have to defend the idea, understand how the degree will be good for the Faculty, for teachers. They have to understand they can win a great deal with the opening of these degrees because some of them work in these fields. This is a way to develop that knowledge's field. We have to “frighten” others saying “my friend, you are an invited assistant, by chance, in years to come if there are no vacancies, you will be the first one to go”, we ask him to get involved. We need to make people understand that it is good to have new degrees, to have other things to do, labour market, etc. The approaches may be diverse, but it's essential that everyone gets involved. When people don't arrive at a consensus things stop”.

- the rationality of decisions is based on the wish for balance (1:134); (6:60);

(10:22), in a collegial process.

The collegiality of the DMP is a dimension, which is essential to the entire process, Figure 5.3.2.d., shared by decision-makers and assuming a wide range of expression forms:

(3:42) “In this case I can alienate my own vision and try to incorporate other people's involvement in the collegial decision.”

(3:47) “I think like this: “we will work together, but naturally it is not my idea that has to prevail, the best solution found has to prevail, this when we are working in college”.

(4:22) “(...) I heard everyone; I made sure everyone, expressed their opinion. (...)”.

(8:60) “I agree with collective bodies”.

This doctrine and process is not, however, presented in an uncritical way. On the contrary, a diagnosis is simultaneously carried out aiming to collect the DMP's sensitive

points, which arise from this model regarding its functioning or more precisely a non-decision-making power may occur [Senior (2002)],

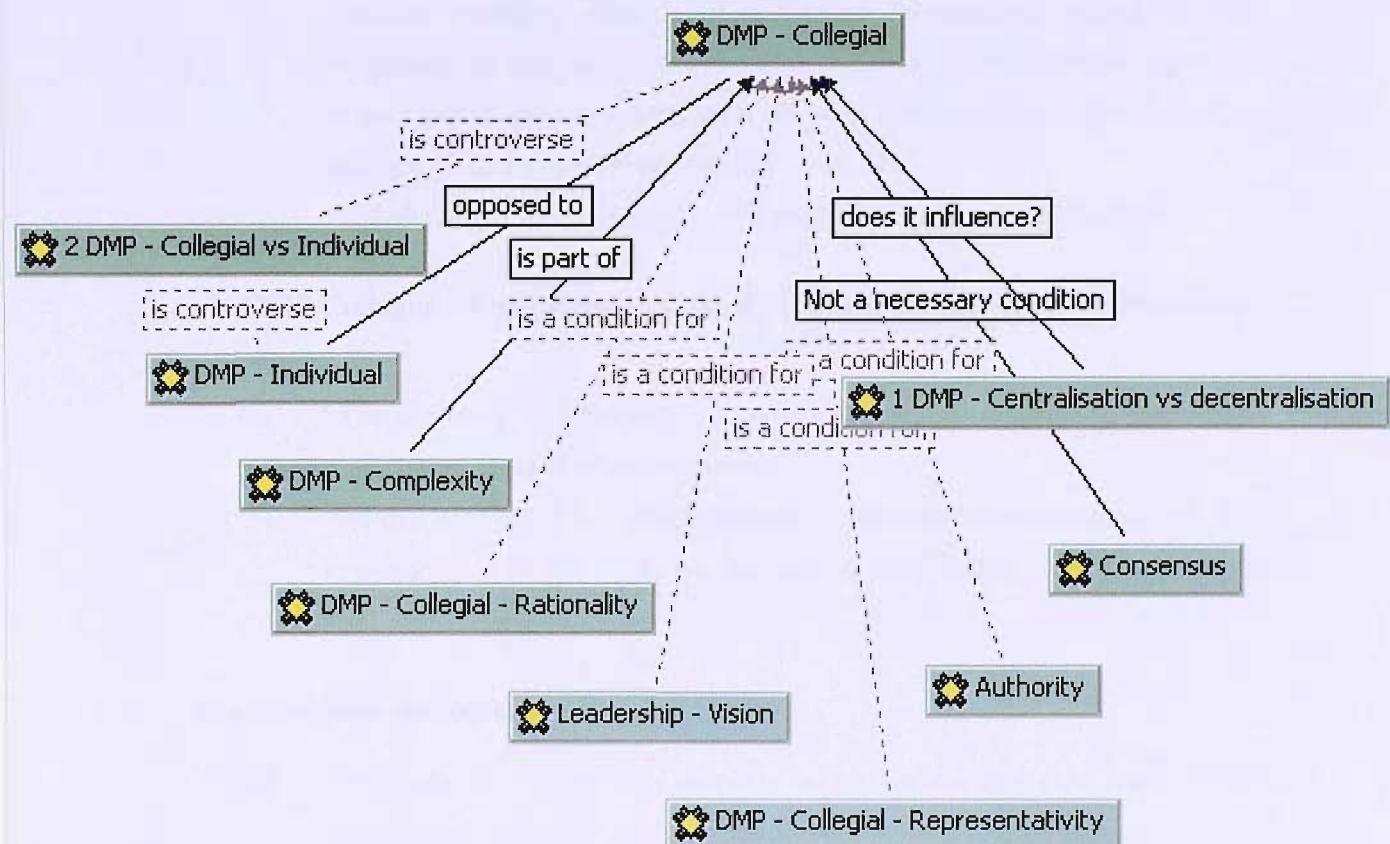
(8:41) "And I have lived some funny situations in certain management bodies where quorum no longer exists when we begin the voting process for a certain issue, where critical members, who are necessary to have quorum, leave the room".

(12:46) "I remember that during the previous mandate, I was part of the Assembly of Representatives, there was a complicated problem which was not having quorum, it was called to meet but then it would not because there was no quorum".

and regarding its command.

(8:62) "I think collective bodies are very much centred on collegiality and little on the head which should have more power".

Figure 5.3.2.d. Network – UC DMP Collegial



- DMP – Complexity {20-5}. The DMP complexity does not solely arise from collegiality but it often interacts with it

(3:62) “There is very strong sectorial interest, that is, the groups have very strong specific interests”.

(6:32) “Then there is another matter which is more singular and which has more to do with me, not as much as PCD *tout court* in faculties, in general, it has to do with me. It is also an important matter and it may help people to understand a perspective, in view of the models that are now under discussion. It is the fact of a certain individual being a teacher, belonging to a certain category and occupying a position with certain power, which gives him power. When he has a career ahead of him, that career may be harmed, no one is going to take responsibility for that, but it could actually be harmed, or it may be conditioned by the decisions he makes”.

(5:47) “Often decisions are made after bilateral conversations with people who are more involved. This happens as expected, naturally with the vice-PCD and with the assistants, therefore, where faced with things that are more serious for T&L, things they are more involved with. Also in most cases with the oldest professor of each department, or with the most senior of different departments: public law, civil law, or in the economical sciences' field, etc.”

(10:58) “This decision-making process is very complicated, it's very interactive”.

- DMP Collegial – Representativity {15-2} is a polemic concept, simultaneously wished for

(3:72) “The university is constituted by various bodies, and I think that they should really be represented in their structures”.

(10:51) “At this moment, I am still in favour of democratic management, I believe everyone should participate in the management bodies, etc.. however, this regulation is very basic”.

and considered inadequate.

(2:38) “The leader is he who drives people to believe that the Project he has conceived is theirs, and they will be fulfilled and happy because this is their project...”

(2:50) “At this moment assistants are not represented in the CC. I think this is a flaw. In large faculties this may not be important, but in small ones it is”.

(5:87) “I think the CD model works... there are those who do not agree with me, who think it's exaggerated, since students are here 5 or 6 years and that we are always here, all that is true, these are all good arguments. I may admit a different weight”.

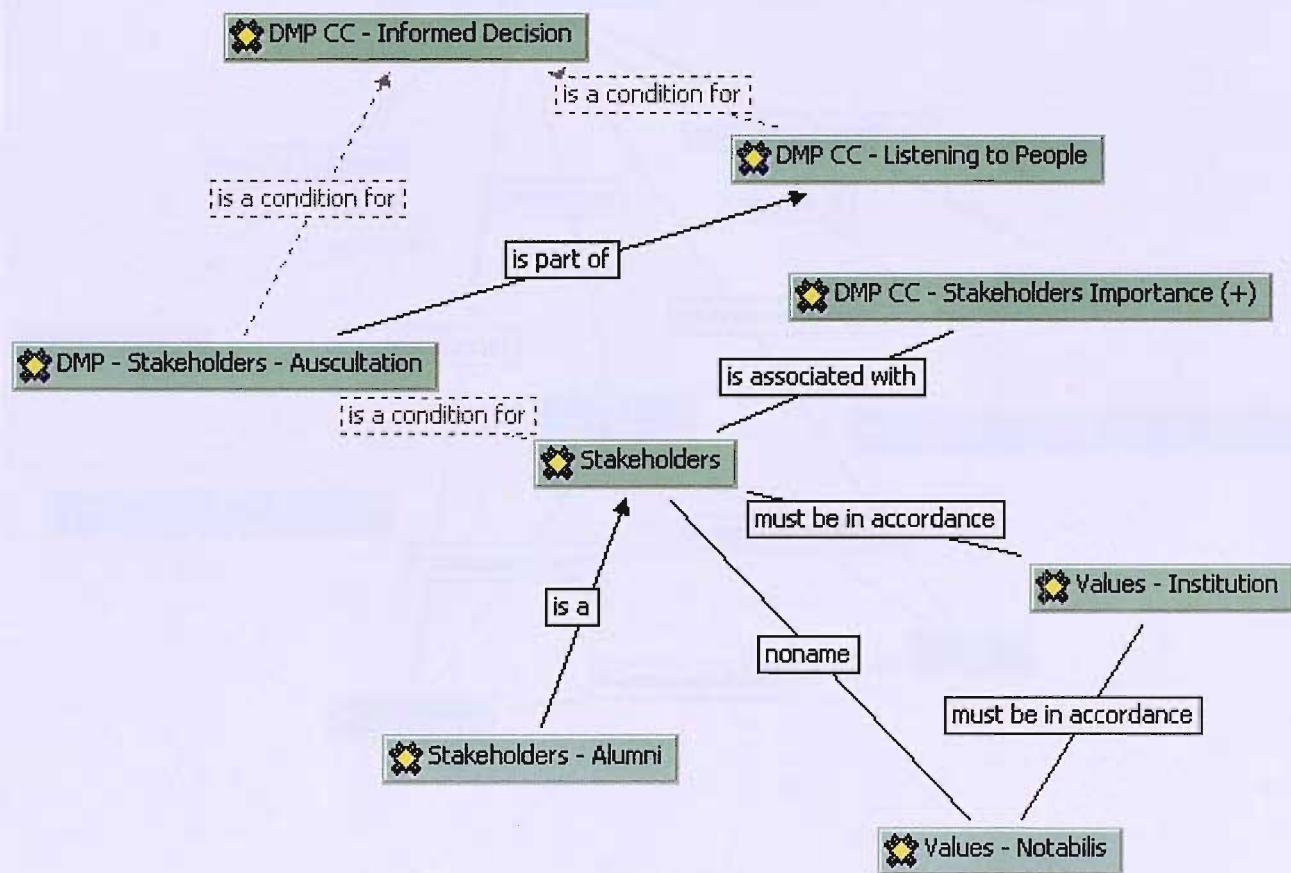
(7:50) “In a collegial body like this one, although I find it unfortunate, the truth is that when a Prof. talks it weighs more than when a member of the non-teaching staff does”.

Representation in some discourses seems to contradict collegiality in the sense that the groups represented have a very strong corporative spirit. Simultaneously, there is a power balance between groups in the bodies which does not enable “true freedom” of speech and discussion. In this context the only body truly collegial by nature would be the CC: where there is an exclusive college of peers.

(3:76) “Listening to the external sector allows us to put things into perspective, to adjust strategic decisions to what society expects the university to offer. I don't think the university should be managed directly in view of them, but it should meet society's expectations, otherwise it may become an ET”.

- Stakeholders are seen as a key element in the University's activity context but not as possible governance partners (Figure 5.3.2.e.).

Figure 5.3.2.e. Network – UC DMP – Stakeholders

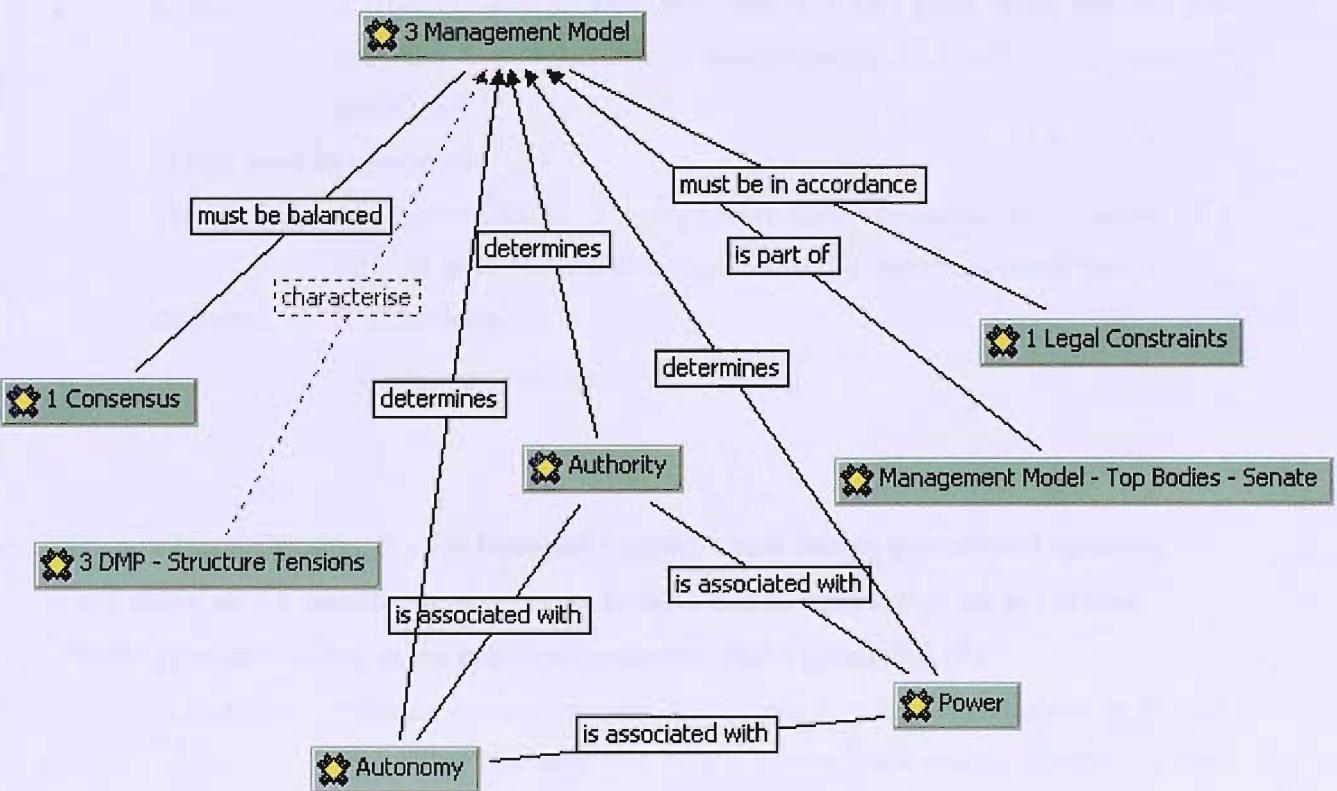


There is a general awareness of stakeholders' importance [Stakeholder (12:8); DMP – Stakeholders - Auscultation (19:6); Stakeholders – Alumni], which is also present in the Rectors' explicit references to stakeholders at the opening of the academic year (Appendix 5.3.2.c.).

Moreover, there is a need for improvement in survey mechanisms - which are currently mainly informal – according to the integration of stakeholders' perspectives, in the University's DMP.

- About the management model, it is worthwhile to detail additional information that was collected, structured in Figure 5.3.2.e..

Figure 5.3.2.f. Network – UC Management Model



- Management Model – Top Bodies – Senate

The Senate deserves particular attention from decision-makers as a forum for discussing university values - with the inherent collegial virtues which are essential to management - but it is also regarded as a body of undisguisable inefficiency.

(9:87) "Sometimes we feel that processes that should be managed in a certain time, take much longer".

- Consensus – it is one of the research's most grounded concepts.

Considering the advantages of collegiality, consensus is widely identified as a goal in the DMP (2:36); (4:58); (6:62 and 64); (8:68); (9:26); (10:46); (12:47); (13:50), a guiding principle (6:64); (10:46) and a method for making decisions viable (10:57).

However it may not be possible to attain this goal,

(3:50) “Consensus may be very good, and it is very good, when possible. But majorities exist, precisely to manage and to lead, and so do minorities sometimes”.

it may even be unwanted

(8:124) «the Rector told me “It's very hard to have a consensus, and sometimes it's not even good, because pleasing everyone is sometimes complicated”»

or even... ... ridiculous.

(7:101) “Consensus is ridiculous”.

- Legal Constraints – the legal architecture, which frames government agencies, and above all the executive and operational mechanisms, are pointed out as a critical factor of great meaning in the public management model (grounded 18).

(11:103) “Turning researchers into bureaucrats is pernicious. I think it is very pernicious. This thing that when a person is not making applications, then she's doing reports, and when she's not doing either, she is filling out some other paper...”

In this sense, “legality” and “bureaucracy” appear as inseparable concepts.

(11:100) “if in addition we have a panoply of regulations that are externally imposed, by Portuguese Foundation for Science, Brussels, etc.. we consider that the research financing model transformed researchers into “bureaucrats”, namely senior researchers, who are responsible for projects. These people almost stopped doing research to go on to managing invoices, reports, scholarship payments, etc”.

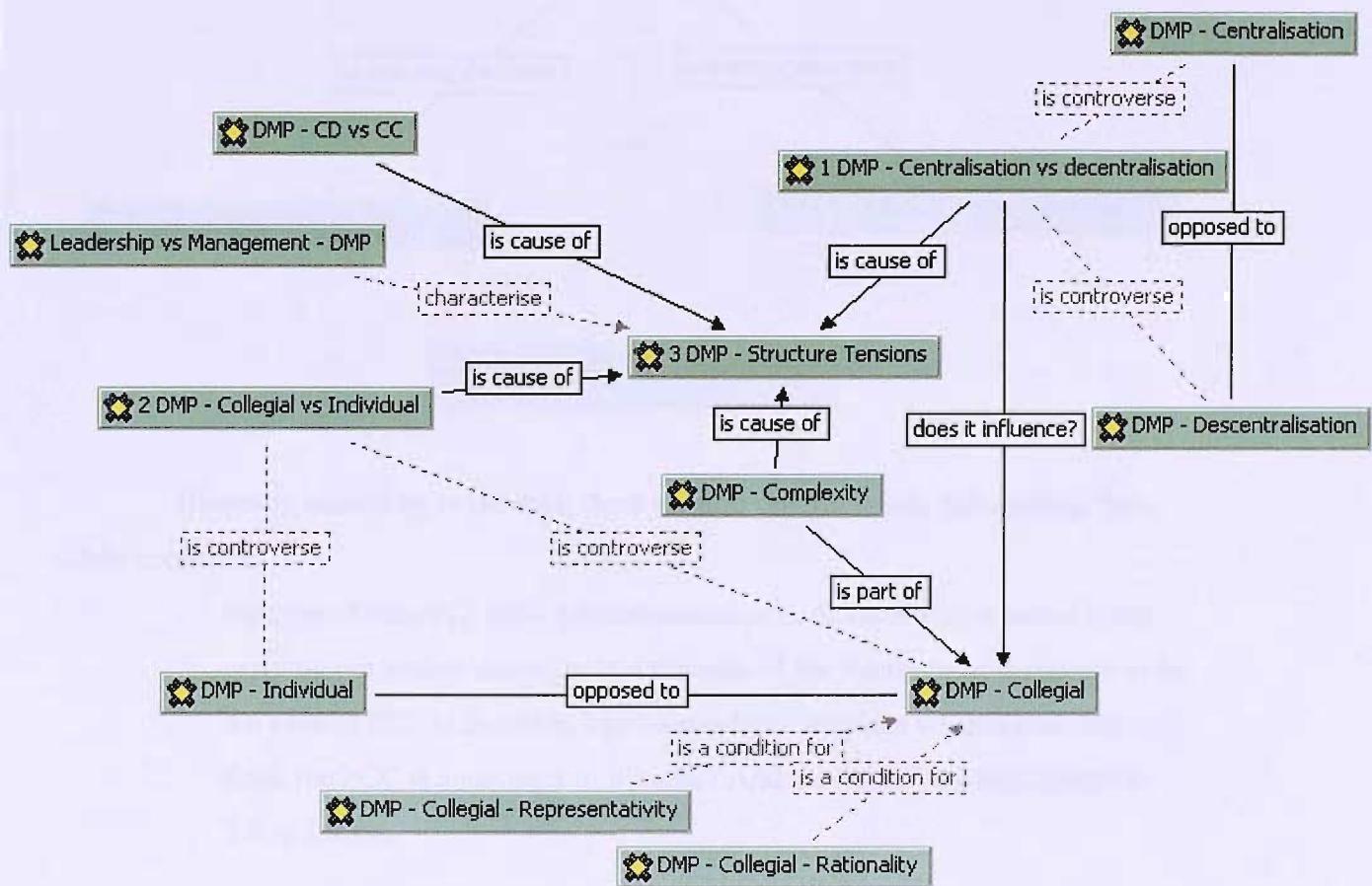
(9:62) “The University has to look after its visibility in scientific terms and the bureaucratic and administrative weight may condition some decisions, and lead us to seek alternative paths. It is not that they are less transparent, they are more flexible”.

It is not possible to establish a positive relationship between the concepts “legality” and “responsibility”; on the contrary:

(11:112) “A great fault in this institution is the lack of people’s accountability... (...) assisted by the legislation we have which allows us to make decisions, or to make wrong decisions”.

- Of all the tension factors in the DMP which underlie the management model, there was still no data regarding the dichotomise perspectives pointed on Figure 5.3.2.g.

Figure 5.3.2.g. Network – UC DMP Structure Tensions



- DMP Collegial vs Individual

Despite the institutional importance of the DMP’s collegiality, some defend that top decision-makers should individually accept the DMP.

(3:65) “When decisions are achievable, when they are short-termed, when they do not

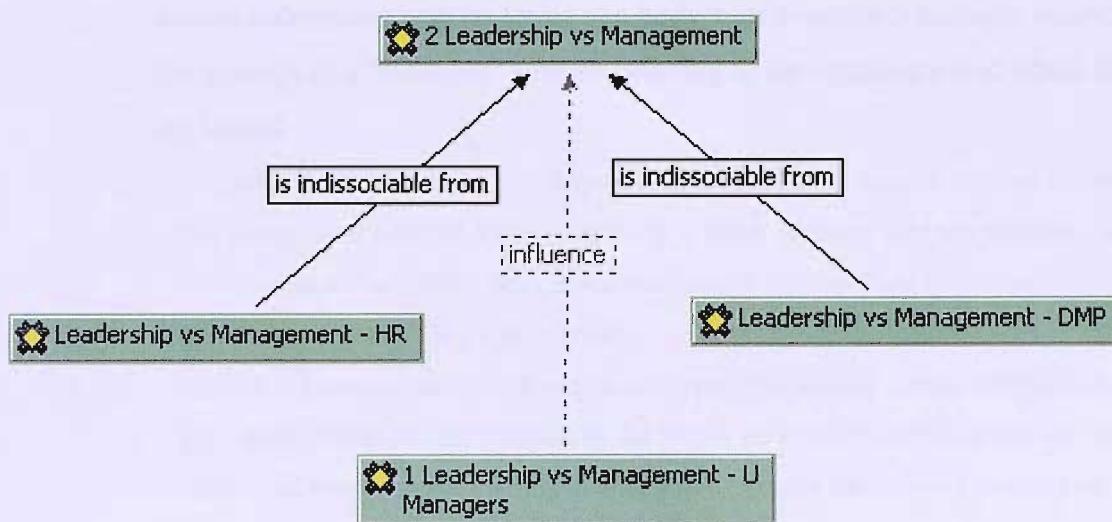
compromise the institution's future, there should be an executive board and a strong director”.

(8:62) “I think collective bodies are very much centred on collegiality and little on the head, which should have more power”.

- Leadership vs Management (Figure 5.3.2.h.)

Leaders and managers live side by side in risk, managing people and monitoring and assessing processes [see Leadership = Management {7-0}].

Figure 5.3.2.h. Network – UC Leadership vs Management



However, according to the data, there are four criteria which differentiate these two concepts:

- the type of duties (2:16) – a decision-maker is, or should be, a leader when carrying out certain duties, as it is the case of the Rector or as it appears to be the case of PCC in faculties. The respondents' answers when asked “Do you think the PCC is a manager or a leader? And the PCD?” are highlighted in Table 5.3.2.a..

Table 5.3.2.a. PCC/PCD Leader or Manager?

Respondents Position	PCC		PDC	
	Manager	Leader	Manager	Leader
PCC	-	100%	62%	38%
PCD	-	100%	25%	75%

A question may be relevant: Does this connection between leadership and the Rector / PCC arises from the type of function or from the power and academic authority that they are associated with?

- the personal profile (2:15); (4:38); (7:70) – the decision-maker who is a leader is considered to have charisma and to have the ability to be dynamic, innovate and influence others.
- the relationship of the leader with HR (10:62) (4:33) is essentially centred on his motivation and influence.
- the amplitude of the action field – the concept of “leader” generally appears in a more comprising way (in terms of a body’s, or a society’s strategic vision); the concept of a “manager” appears referring to the organization to which they are bound.

(8:88) “A leader is a wider concept: it may be a student leader, it may be a union leader, and it may be a political leader. Leader is a wider concept. The top manager, in this case, is an individual who is responsible for an important organization and who makes decisions at a higher level”.

(9:72) “I think a manager, in my opinion, is someone who follows certain standards for process organization and processing, for which he was previously structured. He follows all procedures according to a methodology that can not be adjusted to the projects characteristics.

A leader, in my opinion, is someone who has a strategic vision on how to act to achieve the proposed objectives, it’s a determining personality. I think these are two different postures”.

The perceptions presented in the second part of this subsection are, along with the perceptions collected at Organic Unit level presented next, the basis of the conceptualization of the research model (Chapter 6), and the Critical Dimension of Change of the DMP (Chapter 7).

Taking into account the conceptual typology that will be proposed in the Governance Decision Model Conceptualization, the direct impact of the present findings was felt at the level of the following concepts:

- ”Governance” – namely in these components:

Leadership vs management, of the Leadership dimension;

- The Model Expected*; and
- Stakeholders of the Strategic Perspective dimension, and
- “DMP” in a more comprising way in all four dimensions.

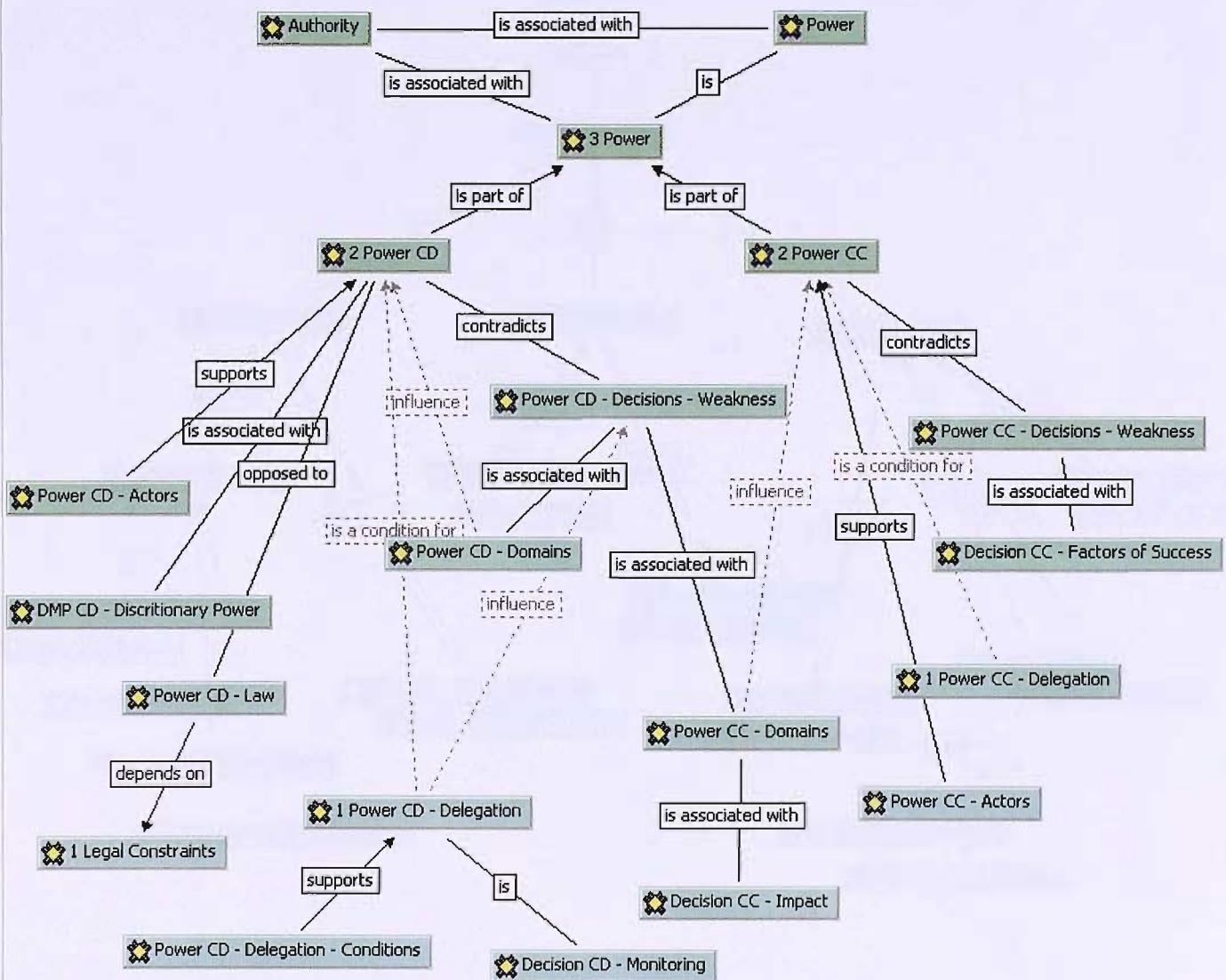


Sub Section 5.3.3. - Organic Unit Level

The DMP perspective, in **Organic Units**, presented by UC's strategic decision-makers, is centred on two areas:

- the power asymmetries, as illustrated in Figure 5.3.3.a., between the two main Faculty bodies (CC and CD), regarding: domains, actors and conditions for power exercise.

Figure 5.3.3.a. Network – FAC Power CD and CC

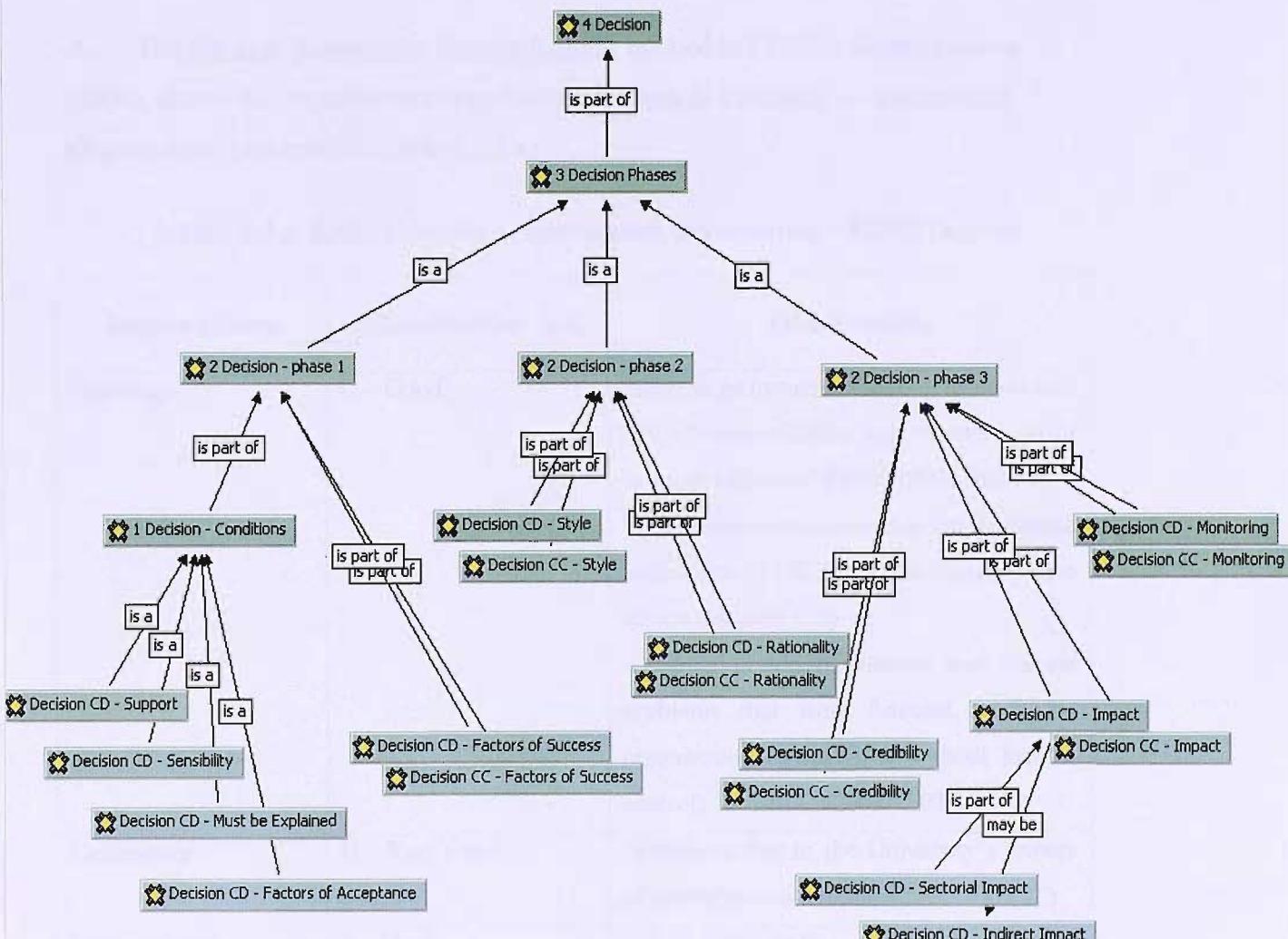


The information that was collected from the Faculty's PCD and PCC questions the centralization of power on the Senate (8:42), its effectiveness and efficiency (7:63), and the degree to which Faculties are representative (11:88).

- the characterization of the decision phases in the Faculty's two main bodies (CC and CD), Figure 5.3.3.b., namely in terms of:

- conditions and factors of success;
- rationality;
- credibility, impact and monitoring.

Figure 5.3.3.b. Network – FAC Decision Phases



The main findings of the DMP survey in the **Pilot Unit**, which result from the combination of three analysis approaches, will be presented after. This data - while not being admitted as common, or representative of the Organic Units in the sense that it is a result of the focus on the Pilot Unit - it is basically used for triangulating the remaining qualitative data at the Organic Units level, as an illustration of the main ideas or only as an additional detail.

- A. The analysis of the External Assessment Process (RAE) results - FEUC's Sociology, Economics and International Relations degree courses;
- B. Critical analysis of the information obtained from the strategic decision-makers during the first phase of interviews;
- C. Analysis of FEUC's decision-makers matrix

A. The External Assessment Process Results, applied to FEUC's degree courses (2004), shows the improvement opportunities as regards Criterion 1 – Institutional Organization, presented in Table 5.3.3.a.:

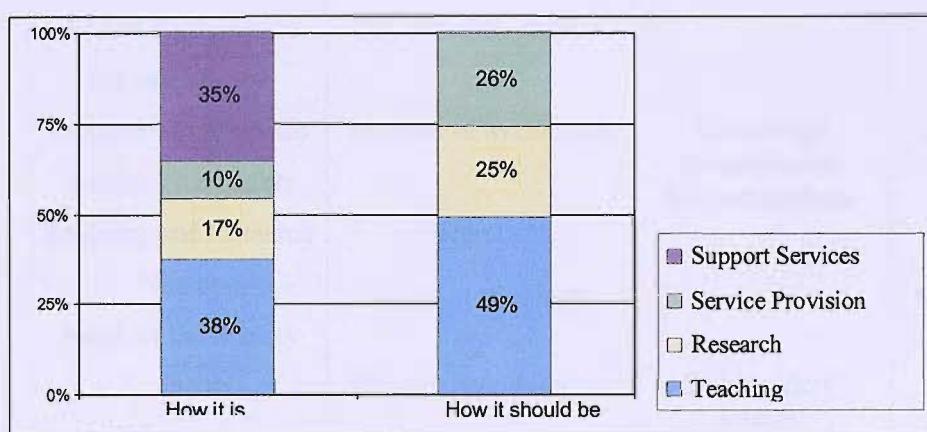
Table 5.3.3.a. RAE- Criterion 1, Institutional Organization – FEUC Degrees

Degree Course	Classification A-E	Observations
Sociology	C – Good	<p>“there is an awareness among teachers that FEUC's organization and structure could be more effective” FEUC (2002-2003:5)</p> <p>“Our recommendations that the academic authorities of UC and of its Faculty make efforts towards: (...)</p> <p>- the resolution of various and diverse problems that were detected, such as: organizational (flexibility without loss of control)...” FEUC (2002-2003:16-17)</p>
Economics	B – Very Good	“Problems due to the University's excess of centralization”. FEUC (2002-2003:27)
International Relations	C - Good	FEUC (2002-2003)

The observations presented during the external assessment reveal the wish for organizational improvements where the effectiveness, flexibility and decentralization concepts are considered to be critical.

B. When the decision-makers are asked about the order and proportion in which they divide **their time by the different activities** and how they consider that it should be divided, the following results, Table 5.3.3.b., were obtained:

Table 5.3.3.b. FEUC - Current and Desired Distribution of the CD's Members' Time



One can get to the conclusion that the respondents' body, category or activity do not determine or explain the percentage of management involvement neither in what actually happens nor in what should happen. The same occurs with the position held by management involvement in the aforementioned activities, in what happens and in what should happen. Thus there is no significant difference among these variables. The desirable structure is close to the structure for time allocation patterns for USA faculty at doctoral universities presented by Knight (2003:26).

The answers regarding **critical management variables**, in the various activities that are performed by the Faculty, are very different and therefore it was carried out a descriptive and qualitative analysis of the cases. Each case points to different critical variables regarding the four aspects that were taken into account. Some critical variables set out by activity are presented as an example in Table 5.3.3.c..

Table 5.3.3.c. FEUC - Interviews 1 – Management Critical Variables

Activities	Teaching	Research	Service Provision/ Extension	Support Service
Management critical areas and variables	Information Organization System Evaluation Student Participation Facilities/Space Computer Programme Teacher Availability Teaching and Research Nuclei Needs of the Society Contents Procedures Teacher's Quality	Information Organization No. Articles - criteria Absence of availability Theoretical vs Applied Research Bibliographical Support	Information Organization Knowledge dissemination beyond students Stakeholders' Interest	School Board Human Resources Management Model

At faculty level, there is a strong identification of top management with strategic guidance towards teaching and learning. This line of action is coherent with a set of measures taken at the executive management level, proved in internal regulations and communications, whose analysis lead to the conclusion that there is a need for effective improvements for students as what regards timetables, exams, service access and computer resources' availability.

In a cost analysis, at management accounting level (Appendix 5.3.3.a.), the investment on T&L, research and service provision represents 95% of the global investment. Approximately 59% of those 95% is invested on T&L, and 40% on research, [where current research (doctorate preparation, sabbatical leave or other current research) has a strong weight (74%)].

C. The detailed survey of

- organizational chart (Appendix 5.3.3.b.);
- decision bodies at management levels;
- decision-makers who are responsible for each of the three management levels (Appendices 5.3.3.c. to 5.3.3.e.).

helps to meet three objectives, regarding FEUC:

- quantifying the decision modules in the DMP;
- obtaining a complete functional framework of the general DMP;
- identifying (or not) significant deviations between the formal structure and the functional structure.

The universe of those responsible for the Faculty's management is presented in the Table 5.3.3.d.:

Table 5.3.3.d. FEUC – Number of individuals with Management Responsibility, per Activity and Management Level

Management Levels	Top	Activities					
		T&L		Research		Service Provision	
Management Levels	Top	Teachers	56	Teachers	52	Teachers	37
		Staff	18	Staff	18	Staff	18
		Students	38	Students	34	Students	34
Management Levels	Middle	Teachers	20	Teachers	13	Teachers	2
						Staff	1
Management Levels	First Line	Teachers	230	Teachers	4	Teachers	1
		Staff	1			Staff	19

Avoiding replication by aggregating each line it is obtained:

Top Management Level – 112

Middle Management Level – 38

First Line Management Level – 255

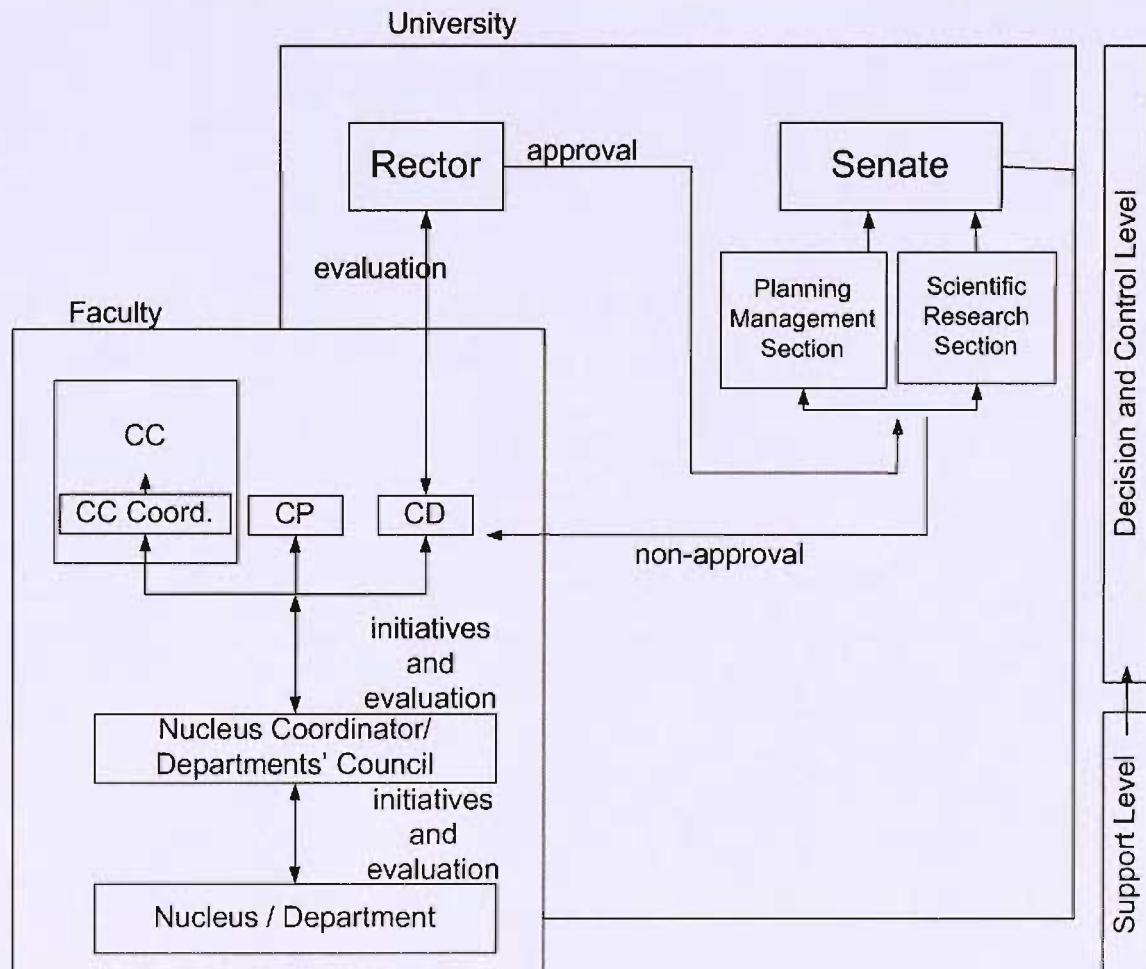
Total 402

Sub Section 5.3.4. - Example – Degree Creation

The research developed at the institutional level and at FEUC's level matches to the idea that there are long decision-making processes, with a high number of collective bodies.

The creation, suspension and extinction of courses is used in this sub-section as a DMP example whose proposal and management is faculties responsibility but whose approval depends on the Senate in all PPU. The flowchart in Figure 5.3.4.a. portrays the example:

Figure 5.3.4.a. Flowchart of UC's DMP Degrees Creation, Suspension and Extinction



In this scope, the data collected from UC's Senate Deliberations is presented by degrees in Appendix 5.3.4.a. Over the 5 years, the university took 204 decisions. The following table shows the research results.

Decision Type	Count	Percentage
Adopt	150	73.77%
Reconsider	20	9.76%
Reconsider and Adopt	10	4.89%
Reconsider and Reject	10	4.89%
Reject	14	6.84%

Table 5.3.4.a. UC's Senate Deliberations for Degrees' Creation, Suspension and Extinction (1998-2002)

		1998							1999							2000							2001							2002							Total			
		FLUC	FDUC	FFUC	FEUC	FPCEU	FCDEF	FMUC	FCTUC	T	FLUC	FDUC	FFUC	FEUC	FPCEU	FCDEF	FMUC	FCTUC	T	FLUC	FDUC	FFUC	FEUC	FPCEU	FCDEF	FMUC	FCTUC	T	FLUC	FDUC	FFUC	FEUC	FPCEU	FCDEF	FMUC	FCTUC	T			
Creation										2	1	6	3	1	7	20		3	1	2	1	2	22	31		4		1	2	7		21		5		8	8	11	48	106
Review		3								10	1	1	1	4	16		3	1	2	2	2	1	17	26	4		2	5	10	21	5		2	7				76		
Tuition Change		1								1	5	1			1	1	7	1	1		1	3	6		2	1	1	3	7		1	1				22				
Total		4								12	1	7	4	1	1	11	37	7	2	2	2	4	4	42	63	6	1	5	2	9	12	35	26		8	9	13	56	204	
Humanities		4								12	1							7	2							6	0										55			
Law		0								1	0							2	2							0	0										3			
Pharmacy		0								7	4							2	4							1	0										3			
Economics		0								4	1							4	0							5	2										9			
Psychology		0								1								0								2	0										13			
Sports		1								1								4								9	0										12			
Medicine		6								1								1								0	0										29			
Sciences & Tech.		2								11								42								12	13										80			
																																		204						

Table 5.3.4.a. illustrates the volume of DMP process of creation, suspension and extinction of courses performed. In the case of **degree creation** the annual average number of new degrees, in the five-year period, is 21.2.

Considering this decision process, in a flowchart free of feedbacks, the direct cost of decision-makers' participation in the creation of a new degree was calculated all the way to its approval by the Senate. This exercise was performed in two faculties: Economics (pilot unit) and Sciences and Technology (larger Faculty).

The results, detailed in Appendices 5.3.4.b. to 5.3.4.e., prove that in the case of an occurrence/year, the direct costs of decision-makers involved in the process all the way to decision itself (without implementation and assessment) are

- FEUC – 14,781.37 €
- FCTUC – 34,921.75 €

These figures, in relative terms, exceed accordingly:

- 2.5 months and 6.2 months of the Rector's direct cost;
- the annual revenue obtained, considering the current tuition fee of 901.23€, with the payment of

16.4 students from FEUC

38.7 students from FCTUC

- approximately 2.6% of FEUC's public financing and 1% of FCTUC's public financing.

Considering the average annual number of new degrees, in the five-year period studies, the reference figures should be multiplied by an order of magnitude of 20.

Appendix 5.3.4.f. presents a detailed analysis of the direct cost sensitiveness of new degrees - summarised in Table 5.3.4.b. - considering two different scenarios:

Hypothesis 1 – Change in the proposal's discussion time in the Senate's plenary: all senators intervene for, and just for, three minutes.

Hypothesis 2 – Revision of the course creation is suggested, immediately prior to the plenary, repeating the circuit once.

Table 5.3.4.b. Sensitiveness Analysis –Degree Creation

	Δ^+ Direct Costs		Impact %	
	FEUC	FCTUC	FEUC	FCTUC
H1	3,550.04 €		24%	10%
H2	5,365.14 €	14,752.73 €	36%	42%

The analysis shows how sensitive the direct cost of decision-making is to the time span for discussion and to the review mechanisms of the process.

In this sub-section there was an effort to show, through an example of a process strategically important for the institution, how the current DMP model can compromise – in terms of opportunity cost, time it takes to make a decision, and financial terms – the efficacy and/or efficiency of the decision. This analysis sustains the positive impact of the model proposed in the research.

Sub Section 5.3.5 - Final Summary

The findings presented throughout this chapter will be used as the basis to conceptualize the research's governance decision-making model which will be presented after. The research developed from the methodical combination of the three levels of *locus* (PPU/University/Faculty) and *focus* (mission and strategic objectives; DSS and DMP) analysis allowed the collection of a systemic set of data, conceptual input, which puts the models framework into perspective. In the next page, Table 5.3.5.a. summarises the different data collection methods and the main theoretical dimensions within which the findings were aggregated to support the model's analysis.

The model of the PPU is a shared governance model and it is based upon a principle of recognized virtue: collegiality. The association of a Dionysian culture to a high number of collegial bodies and members determines, in many instances, a long time-consuming and expensive DMP.

In the university's case-study, the analysis of the decision model shows that:

- resource allocation in the decision-making model is not always accounted;
- there is a complex management diagram in the decision-making model.

The absence of a governance decision and structural model that is oriented by management, efficiency and efficacy principles could end up in a less-effective DMP, at least in some decision processes such as the degree creation.

Leadership and power seem to become fragile in a long and broad process of decision-making which does not always enable the virtues of a collegial university culture even among its main governing bodies. Despite some constraints, the Rector seems to have a fundamental leadership role in university management where governance decision-makers interiorize a complex mission, in an accelerated context of change where the T&L paradigm seems to be the main challenge.

The integration of the qualitative and quantitative information is considered essential to the DMP, given the University's complex organizational structures. The informal and political sub-systems, as well as the information circulation channels which support them serve intermediate goals decisive to achieve good governance.

Table 5.3.5.a. Findings' Relevance Summary

Organic Units	University	PPU System	Focus Analysis
			Locus Analysis
Document Analysis Discourse analysis Interviews -Phase 2	Document Analysis Discourse Analysis Interviews - Phase 2	Document analysis	Strategic Objectives and Assessment
	<ul style="list-style-type: none"> • Social and Behaviour Context • Concept of Mission • Strategic Objectives 		Decision-Making Process
Interviews – Phase 1 Interviews – Phase 2	Interviews – Phase 2	Document analysis	Decision-Maker
	<ul style="list-style-type: none"> • Decision-maker • Concept of leadership • DMP tensions • Improvement Opportunities (DMP and Governance) 		Internal Organization and Decision Structure
Document analysis Interviews – Phase 1 Interviews – Phase 2	Document analysis Interviews – Phase 2	Document analysis	Decision Support System
	<ul style="list-style-type: none"> • Organizational Structures • Decision-Making process • Management Model • Structural Principles of Governance 		Benchmarking Document Analysis National Statistics
Document and Workflow analysis Interviews – Phase 1 Interviews – Phase 2	Document and Workflow analysis Interviews – Phase 2		
	<ul style="list-style-type: none"> • Accounting Context • Information Relevance (types; circulation channels) • Key decision-makers • DSS • Performance Indicators Analysis • Assessment and Evaluation Analysis 		

CHAPTER 5

RESEARCH FINDINGS

Chapter 5 presents the research findings, obtained with diversified document base and interviews with the top decision-makers of the UC and the organic units. Further analysis was carried out (documental, statistic and conceptual) and presented, and will be used in the construction of the final model.

The main objective of the next chapter is to present a proposal for a Governance Decision-Making Model for the case-study's University, based on the context and on the decision-makers' critical needs.

CHAPTER 6

GOVERNANCE DECISION-MAKING MODEL IN A PPU

CHAPTER 6

GOVERNANCE DECISION-MAKING MODEL IN A PPU

6.1. Governance Decision-Making Model in the PPU

6.1.1. Decision-Makers' Preferences

6.1.2. Governance Model Analysis

6.1.3. Decision-Making Model Analysis

6.1.4. Performance and DSS Analysis

6.2. The Governance Decision-Making Model

6.2.1. Model Conceptualization

6.2.2. Main Principles

6.2.3. Critical Factors

6.3. Verifying the Model

This Chapter presents the governance decision-making model which brings together and results from all the research in this project.

A comprehensive reading of the preferences of strategic decision-makers is performed as well as a critical analysis of the governance model, the DMP and the DSS and performance system.

Subsequently, the model, which is based on five sub-systems (Mission; Governance System; Decision-Making Process Structure; Decision Support System and Assessment and Performance Systems), is detailed and its main principles are analysed.

Finally, the model's external validity is exemplified through a suitable study in the light of the Baldridge Model and a survey of PPU is undertaken in order to assess its extension.

Section 6.1. – Governance Decision-Making Model in the PPU

“If men define situations as real, they are real in their consequences”.

Thomas and Thomas

Sub Section 6.1.1. - Decision-Makers' Preferences

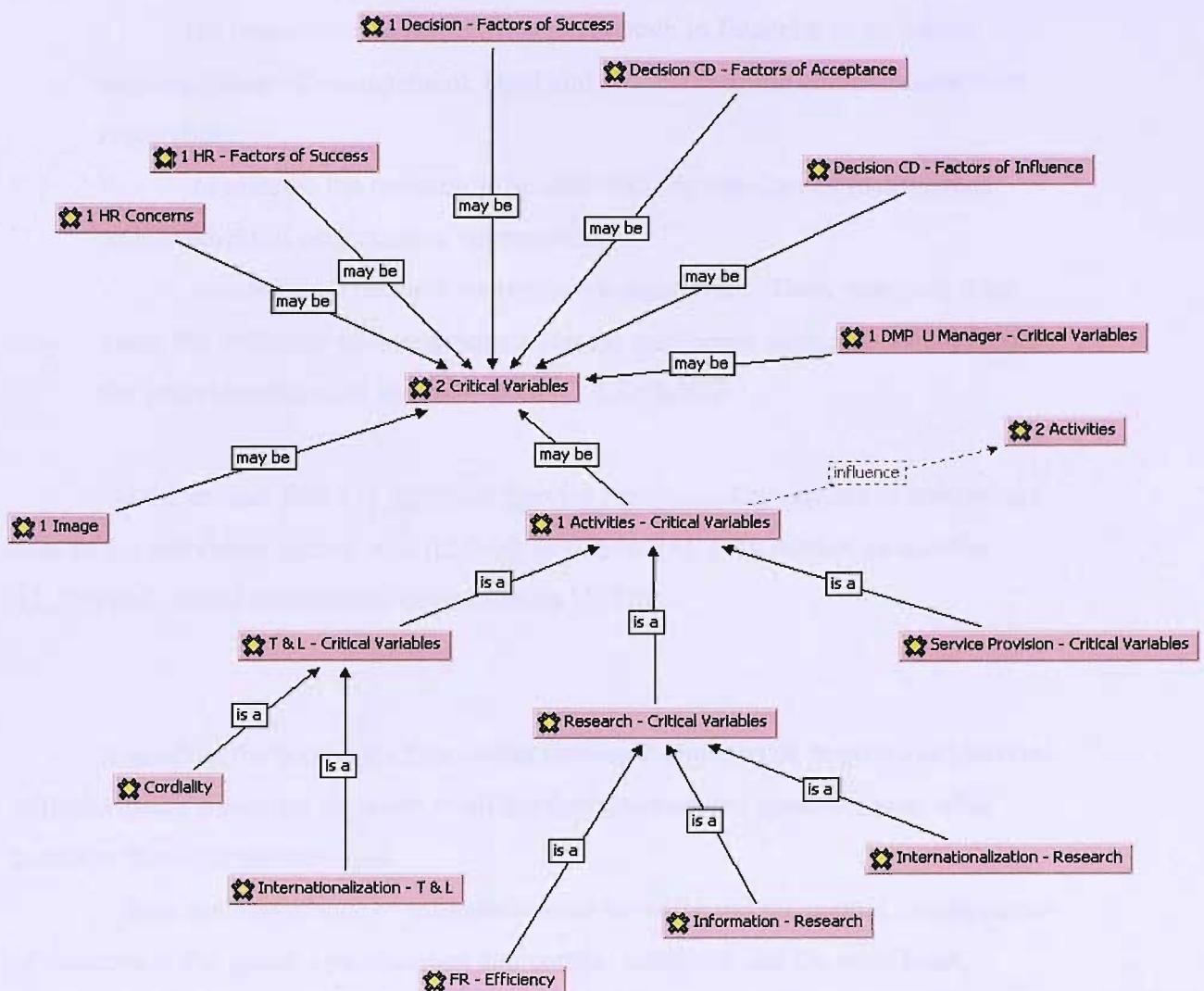
Considering preferences as rational wishes, the analysis of decision-makers preferences offers a conceptual chart of the reference rational model which is endogenous to the institution under study. The analysis of the decision-makers' preferences highlights a wide-ranging network of codes which is presented in Appendix 6.1.1.a.. In this chapter the analysis of decision-makers' preferences will be undertaken according to three specific approaches:

- the four research problem vectors;
- the most grounded codes;
- the research problem.

The four research problem vectors

- The data allows a detailed analysis of the top management **strategic objectives** perspective based on the influence of the critical variables of the decision model's activities. Figure 6.1.1.a presents a simplified code network - the extended network can be seen in Appendix 6.1.1.b. - and is supported by the following main ideas:

Figure 6.1.1.a. Network – Activities – Critical Variables



In T&L-Critical Variables, change in the teaching paradigm was previously centred on the teacher, but it is now oriented towards students' learning success. This can be seen in the discourse [(2:59);(8:6);(12:42)]. This new paradigm highlights pedagogical concerns [(8:175);(9:13);(13:89)] in the Bologna context [(8:170);(12:74)]; and a competitive rivalry between the HEI [(5:11);(8:8)] in a context of demographic reduction [(8:7)]. The work paths are many and varied, although there is a strong tendency towards internationalization [(13:126); (Internationalization T&L)] and towards enhancing the relational dimension of this activity [(9:8);(Cordiality)].

Regarding Research – Critical Variables, the three basic ideas presented in the network are:

- the importance of self-sufficient research in financial terms which requires financial management, legal and process framing competencies from researchers;
- to manage the research in an efficient way requires an institutional improvement in performance information;
- international research networks are successful. Thus, one must think about the difficulty of internationalising the traditional doctorates when facing the criteria established in some fields [(5:13);(8:30)].

On the critical path of University Service Provision, key aspects of success are seen as the individual agents' will [(5:94)]; initiative [(11:14)]; market necessities [(2:58)] and critical information centralisation [(7:28)].

Regarding the problem's first vertex (strategic objectives), there are at least two critical aspects which are common to all the decision-makers' speeches as to what concerns the different activities:

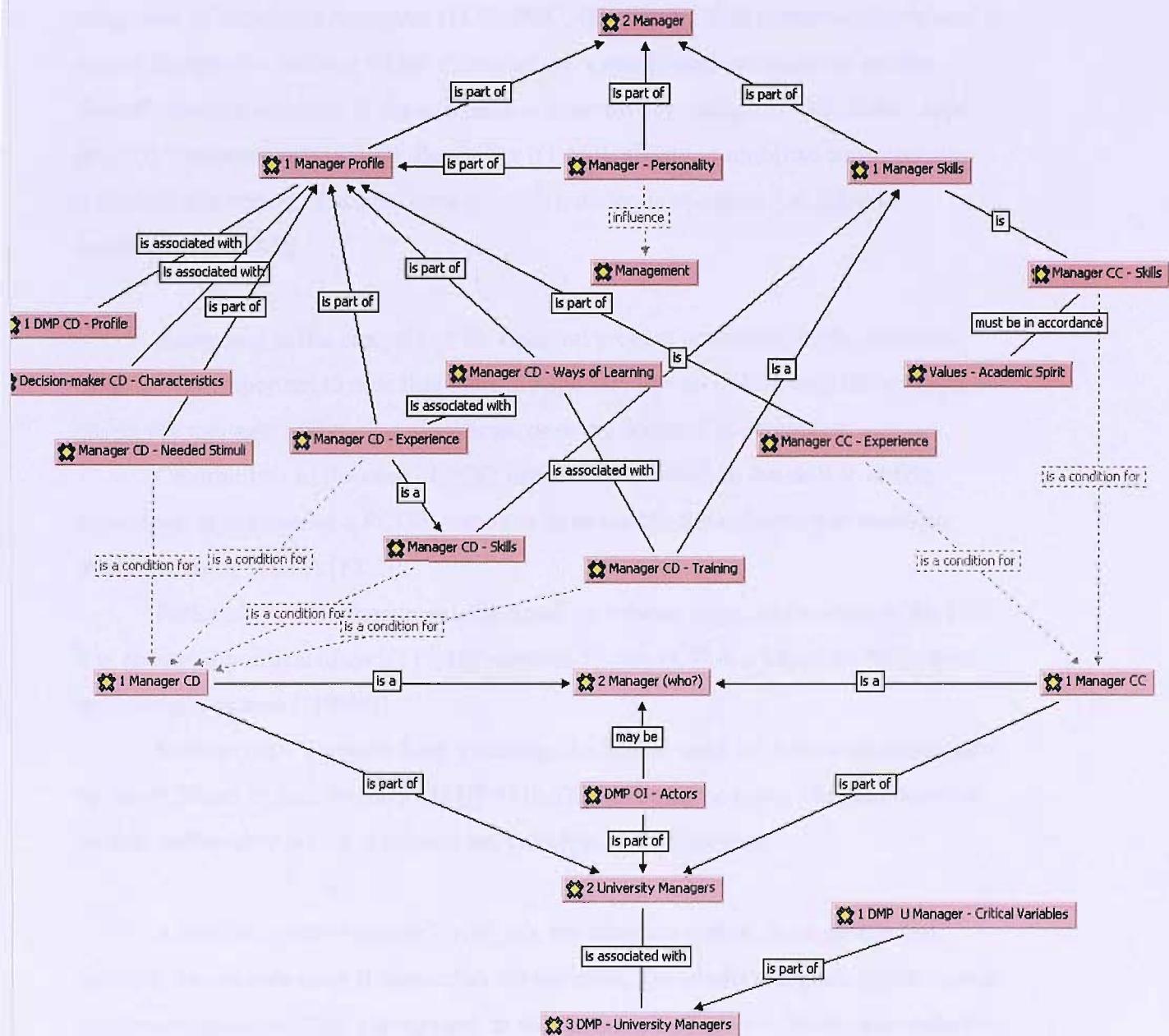
- first, the importance of information: on the one hand the careful interpretation of the market, the global opportunities and context evolution; on the other hand, management information towards resources and process monitoring;
- second, the awareness of the importance of success in the light of current competitiveness in any of the activities.

These two issues show how important it is to have a final model which links the strategic component to the DSS and to Assessment and Performance (these latter should also be structurally related).

- UC's top decision-makers define **the Decision-Maker** as a manager based on personality, profile and abilities as shown in Figure 6.1.1.b.. We can see in the upper part of the network that there are adequate profiles for decision-makers. Their profiles are different according to the bodies to which they belong. There are also skills which

are necessary for good performance. The lower part of the image represents the discussion on who is the university manager in a PPU.

Figure 6.1.1.b. Network – University Manager



The President's personality is repeatedly considered a determining factor in management and achievement. An accurate profile cannot be obtained from the data. Nevertheless, it provides a strong correlation between the decision-maker's personality

and the decision itself, which can be felt in the decision's timing [(4:18)], quality [(9:2)] and degree of acceptance (7:48)].

As far as profile is concerned there is a common idea that a previous experience in university management positions is advisable [(11:80)] due to the lack of (public) management training [(1:17)].

As far as skills are concerned, the perceptions are identified in the light of the categories of university managers (PCD, PCC, OI). The PCD is unmistakably related to a need for specific training which characterizes a specialized professional profile. Overall, there is variation in the desirable characteristics: adequate disciplinary area [(4:19)]; competence [(11:14)]; flexibility [(1:16)]; ability to mobilise competencies [(13:95)]; perception of sensibilities [(8:135)]; dialogue openness [(6:2)]; and moderation [(13:45)].

According to the analysis of the decision process performed in the previous chapter, it is important to note that there are specificities according to different types of university managers. The most significant ones are selected as examples:

Credibility – in the case of PCC, credibility is based on the skill to obtain consensus; in the case of a PCD it seems to be related to the efficiency of decision implementation [(1:11);(13:3)];

Rationality – it is fundamentally based on balance logic. In the case of the PCC, it is above all political ideas [(11:74)], whereas for the PCD it is based on “objective” technocratic criteria [(10:40)];

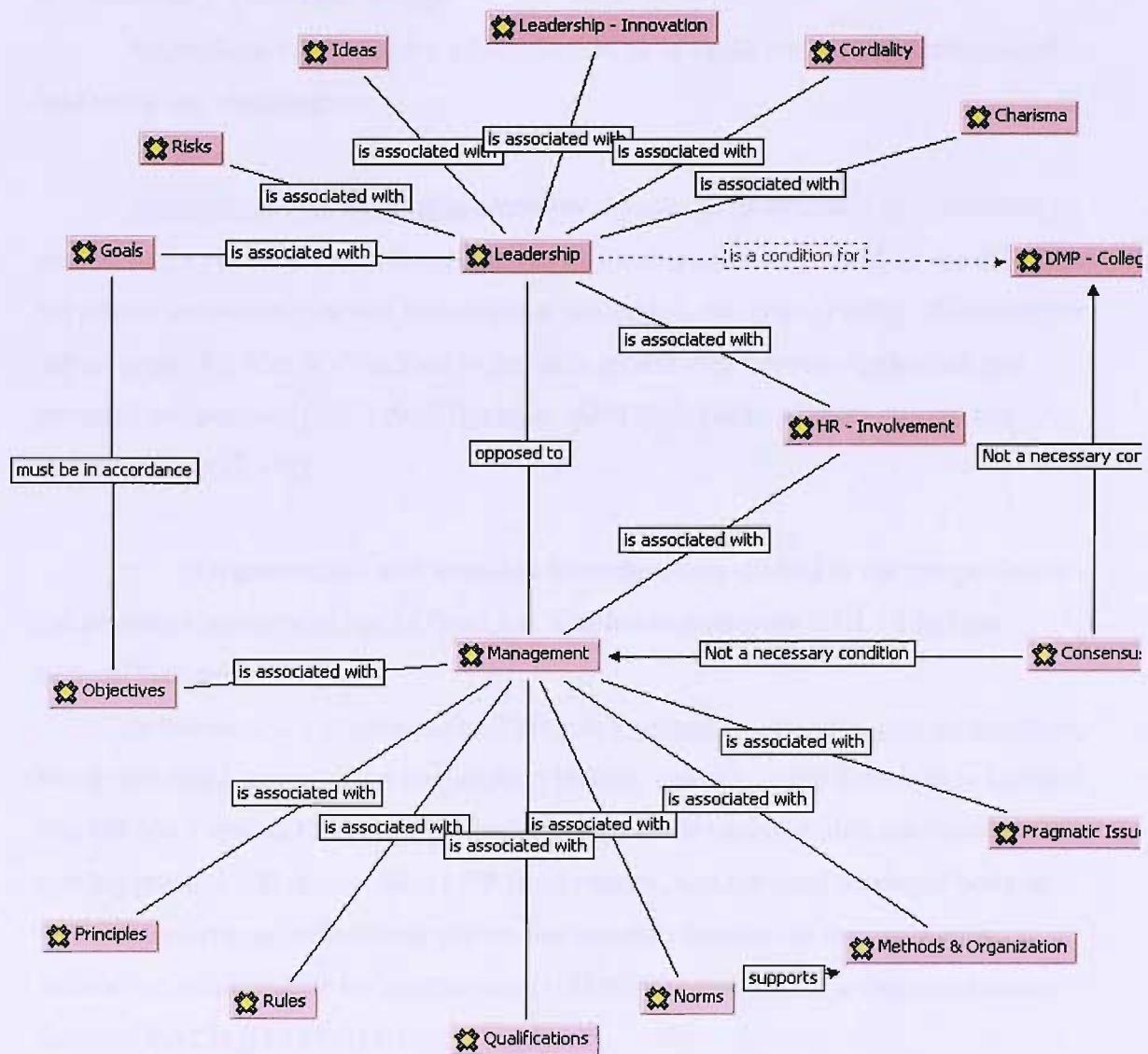
Monitoring – it results from a feeling of a higher need for follow-up and control by the PCD rather than by the PCC [(9:88)]. This fact may be related to the degree of bodies’ collegiality which is significantly smaller in the first case.

According to the network’s analysis, the decision-maker, their profile and abilities, has an enormous influence on the decision. The model’s impact can be seen in the Governance and DMP sub-system, at the “Leadership” (profile/skills and leadership vs management) and “University Decision-Maker” (actors, skills, rationality and style) levels, respectively.

University decision-makers clearly distinguish leadership from management. Senior’s synthesis (2002:223), regarding the distinction between the two concepts,

states that “*Both Mintzberg’s and Kotter’s distinctions between leadership and management agree within Mullin’s conclusion that management is concerned with activities within the formal structure and goals of the organisation, while leadership focuses more on interpersonal behaviour in a broader context*”. The research findings match this idea (Figure 6.1.1.c.).

Figure 6.1.1.c. Network – Leadership vs Management



Leadership is in fact understood in a wider perspective [(8:89)] where interpersonal relations are essential [(3:18)] and management is structure-and-organization oriented [Methods & Organization; Rules; Norms; Pragmatic Issues]. The management concept is involved with an organisational dimension, in terms of

responsibilities [(8:90); (11:114)], methods [(7:69);(9:66)], structures [(10:129); (13:7)] and resource allocation [(1:102);(6:55)].

The PCC is often associated with the leader and the PCD with the manager, although it is clear that management underlies both. For top strategy, leadership should unquestionably be related to the figure of the Rector. On him or her falls the responsibility of establishing the direction of the university and the organization of human resources (especially the academic body), motivating those, inspiring aspirations and, ultimately, producing change.

Appendices 6.1.1.c. and 6.1.1.d., present an in depth conceptual definition of leadership and management.

Transformational leadership promotes changes in its structure and resources as well as in the political and cultural systems of the organisation [regarding the difference between transformational and transactional leadership, see Bass (1990)]. According to the analysis, this idea is visualised in the links established between leadership and strategic perspective [(3:27);(9:68)]; vision [(4:47);(7:104)]; change- culture and context [(3:6);(13:43)].

▪ **Organization and Decision Structures** are studied in the perspective of the existing management model (which is detailed in Appendix 6.1.1.e.) and the desired(*) changes.

In the survey, it is possible to distinguish general and specific change variables, which should be integrated in the decision-making model*. In the former, it is assumed that HR has a special relevance, particularly their involvement within the decision-making process. There is a call for HR involvement, namely from academic body in order to preserve an institutional culture but specially because of the decision's rationality: as an enabler for acceptance [(1:38);(6:6);(10:81)] and a decisive success factor of the CD [(1:157);(11:10)].

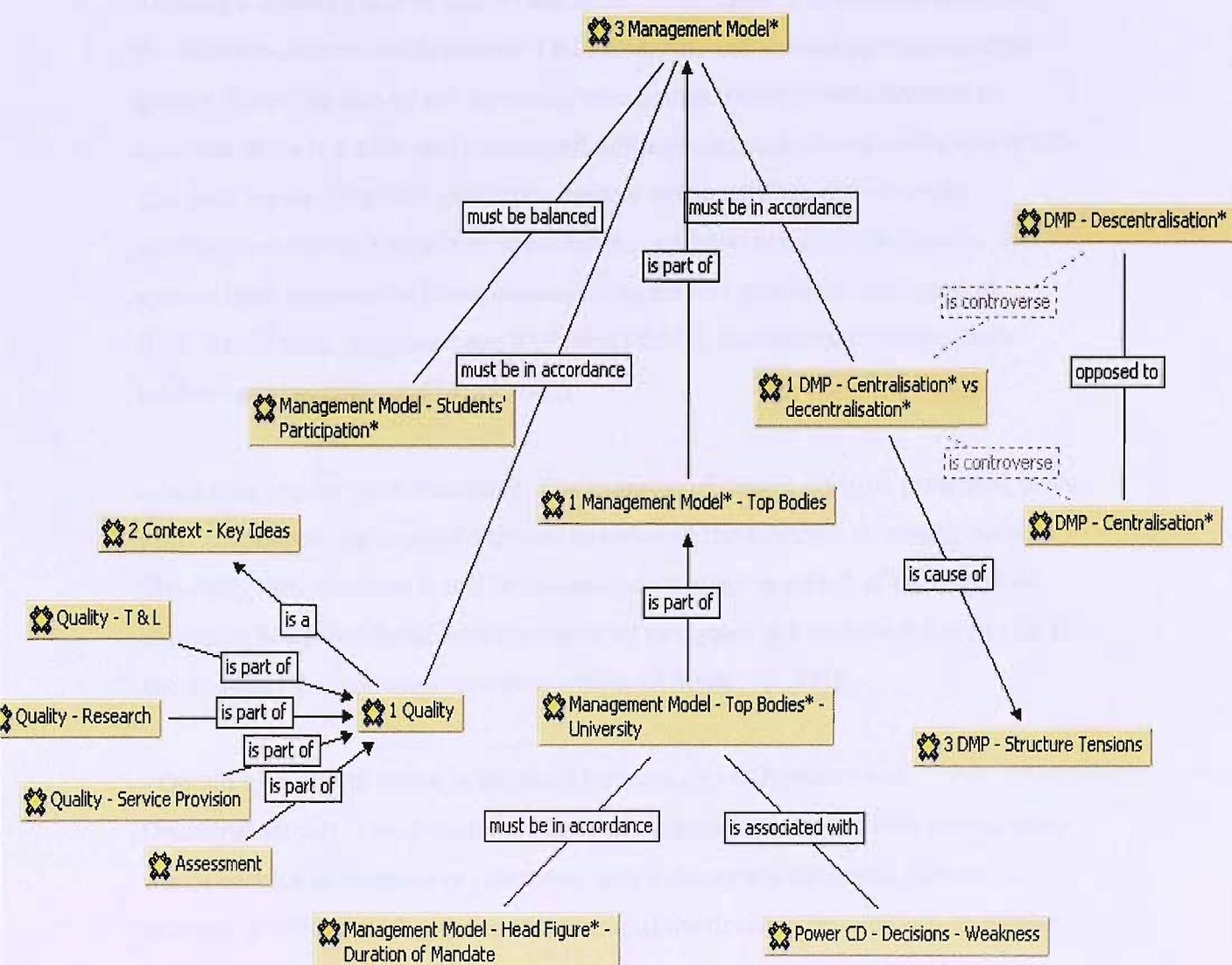
The DMP's specific critical variables are many:

- institution: relationship among units inside and outside the institution [(4:72);(7:140)]; image [(3:95)]; reaction to change [(12:15)];
- decision process: credibility [(3:92)]; decision timing [(8:14)];
- governance model: A large number of bodies [(7:57)]; short duration of mandates [(12:11)]; leading politics frailty [(13:9)]; complex relations

between academics/decision-makers [(13:92)] and efficiency increase [(7:42)].

The desired (*) management model, illustrated in Figure 6.1.1.d., does not imply a rupture regarding the current model, but it proves to be an “improved model”. The design is not a coherent systematisation of the new model: its network should be read as a set of code relationships that deserve special attention in order to attain the desired model (*).

Figure 6.1.1.d. Network – UC – DMP – Management Model*



The concerns for the desired scenario are basically placed at four levels:

- Rethinking the participation of students in management bodies. Nowadays the students' participation in these bodies is contested, and sometimes illustrated by analogies.

(8:65) “(...) makes me think of a hospital, where, to perform a complex surgical procedure, the patient, who is going to be operated, would decide how the surgeon should operate. (...)”.

Students' participation should mainly be based on opinions [(1:92);(10:50)], which would arise from systematic surveys.

- Giving a leading place to quality and assessment. Quality is strongly present in the decision-makers mind, namely T&L, research, and service provision output quality. Knowing that this is a practice which until recently was restricted to students, there is a wide and meaningful collective consciousness of the importance and need for an integrated evaluation system in the DMP as well as in the management model. Given that assessment goes hand in hand with quality, the system must consider different evaluation forms and processes: pedagogical [(8:174);(12:66)], programmatic [(12:69);(11:54)], institutional [(9:91)], both internal and external [(8:158);(11:52)].

- Adapting top decision structures. The example of degree creation presented in the previous chapter highlighted the need to redesign the strategic university bodies. The study also confirms that it is necessary to widen the period of individual or collective body mandates, which are now of two years in Faculties [(7:45);(12:11)], and to adjust the mandates' duration within all bodies [(1:89)].

- Obtaining a model which is balanced between Centralisation* and Decentralisation*. The dichotomy between a centralised model, with critical mass which enables an increase in efficiency, and a decentralised model, with an increase in efficiency due to the shortening of the decision process and its greater adaptation, is its way to the desired model (*).

All these principles will have impact on the model's sub-systems and will be directly involved with Governance (Model Expectable*) and in the DMP (Monitoring and Assessment Decision-Phases and Centralisation/Decentralisation).

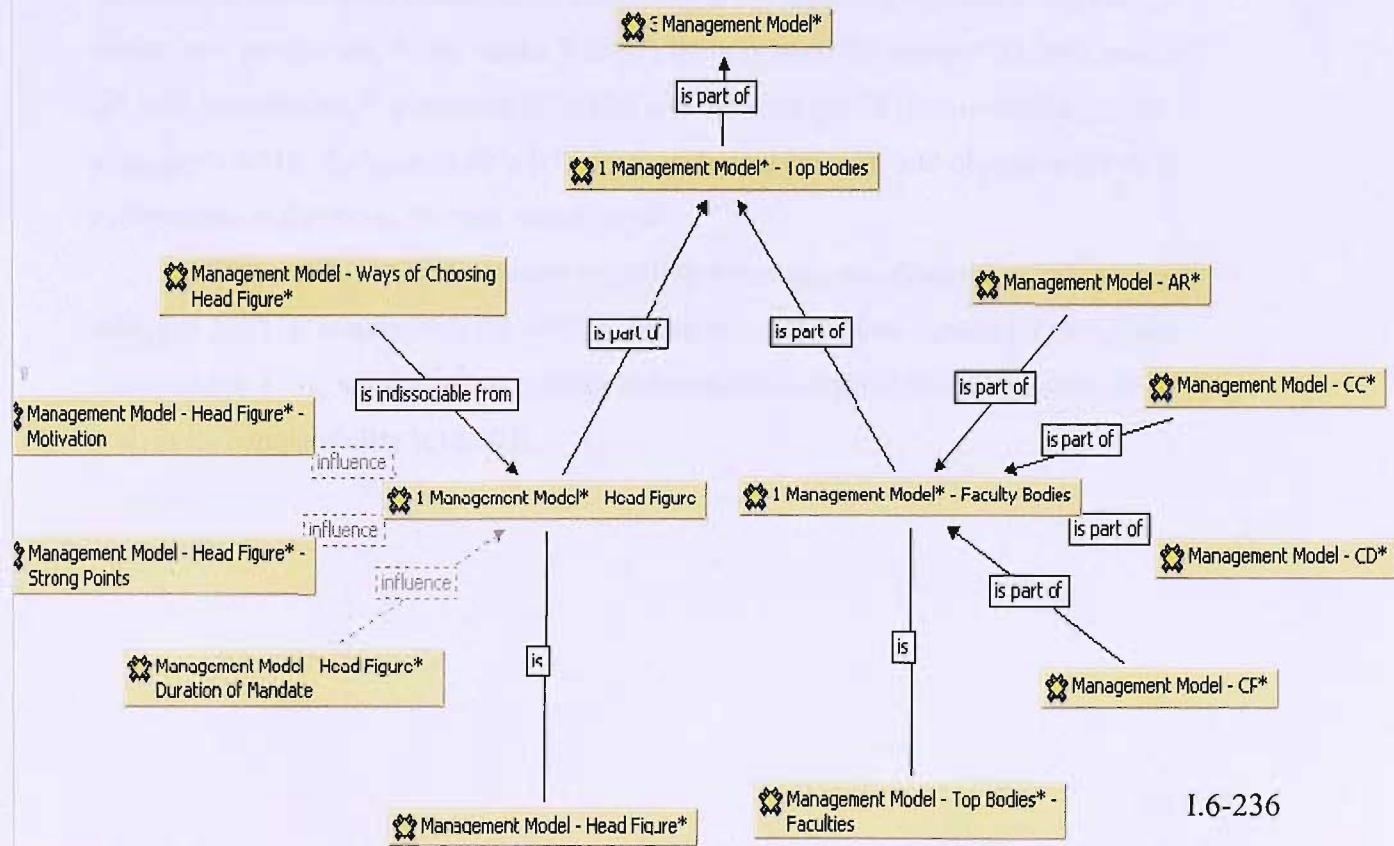
The institutional contribution of the UC in the CIPES Questionnaire (3.3. School/Faculty/Department Management) is obtained according to the university's following concerns:

- The creation of a single-model management system: one director elected by an electoral college with representation of academics, non-academic staff and students;
- The maintenance of the collegial bodies (presided by the Director).

However the institutional position seems to be more defensive than the survey's results: who is the Rector (a full professor from within the university elected by a representative system of bodies and organic units); the participation of stakeholders (maintained only in advisory bodies) and the possibility of the Board of Trusts ("when not framed in the "institutional culture" of the PPU, the "Board of Trusts" should not be considered").

A downward analysis of the Faculties' top bodies, illustrated in Figure 6.1.1.e., identifies a set of desired* principles, at micro level:

Figure 6.1.1.e. Network – FAC – DMP – Management Model*



- cohesion mechanisms on top bodies (in this case, CD, CC, CP) by creating a single figure [(1:79);(5:86);(7:40);(8:67)(11:119)(13:11)], or not [(4:30)];
- professional management [(5:16); (7:36); (10:125)];
- strengthening executive powers on competent bodies [(4:31);(6:88);(7:1);(12:29);(13:99)].

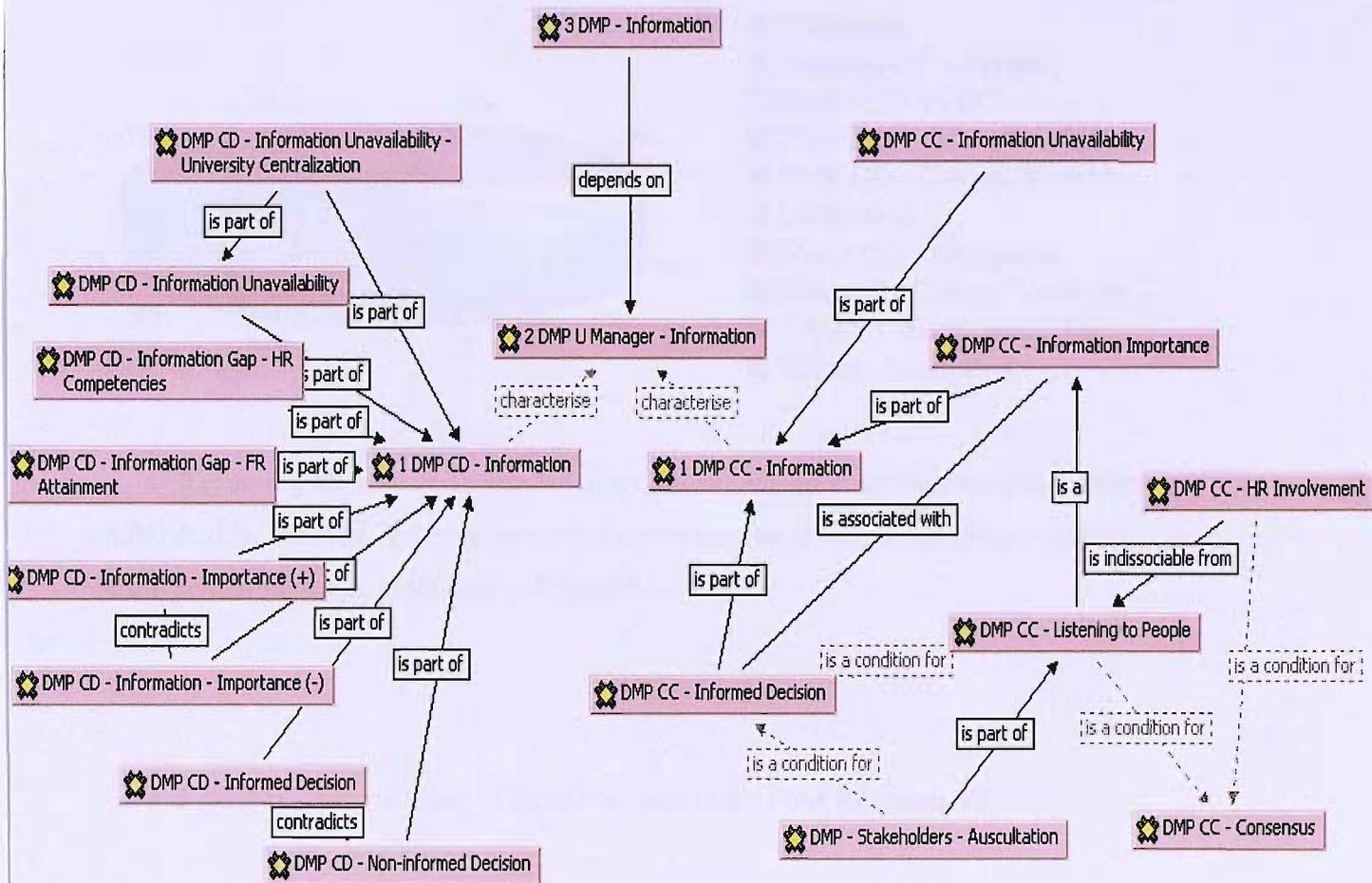
These principles match the institutional level analysis and specify the adjustment of top decision structures to the model.

■ The development of a **DSS** should consider the system's main goal: it should allow the decision-makers to monitor closely the activities which sustain the mission of the University. The information relevant to each monitored area and its circulation channels deserve particular attention. Despite the wide source of information, there are some issues which are common to all activities in the DMP, such as obtaining information from the outside during the initial phase [(4:73)]; its prospective nature [(9:43)]; decision monitoring [(8:179)] and assessment [(4:74)].

The profile of the decision-maker is a relevant variable when defining the hierarchy of the information filters as can be seen in Figure 6.1.1.f.. Resuming the dichotomies already studied (leader vs manager, PCC vs PCD), one can see that there are distinct information associations according to the different profiles in the survey which was carried out. In the leader's DMP, there is need for general [(3:86)] and soft [(5:91)] information, for internal [(7:147)] and external [(8:78)] competition; in the manager's DMP, the quantitative [(11:92)], technical [(6:72)] and objective [(9:40)] information is the most relevant requirement.

If, for a PCC, the information regarding international affairs [(8:138)] and peer thoughts [(9:21)] is essential, for a PCD, concerns are based on human [(1:136)] and financial [(6:113)] resources, on making information available to the structure [(5:51)] and on its comparability [(12:53)].

Figure 6.1.1.f. Network – FAC – DSS – DMP – UManager – Information



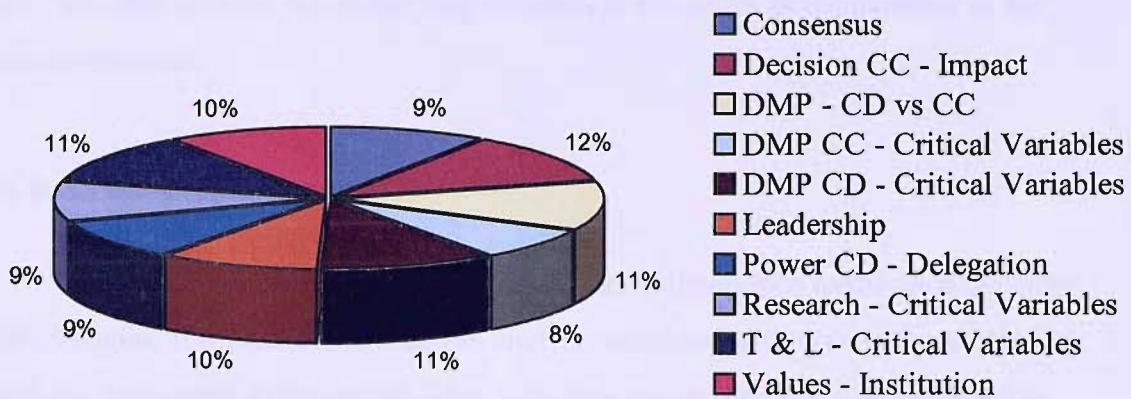
The interface of the DSS with the external environment, defined in the model, as well as the internal relationships established with the other sub-systems, take into consideration the information specifications defined at this stage.

The most Grounded Codes

Considering the 1732 quotations from the data, the contribution of the fifteen PDs is placed between a minimum relative weight of 4.73% and a maximum of 12.00%. The main statistical results are presented in Appendices 6.1.1.f. to 6.1.1.h..

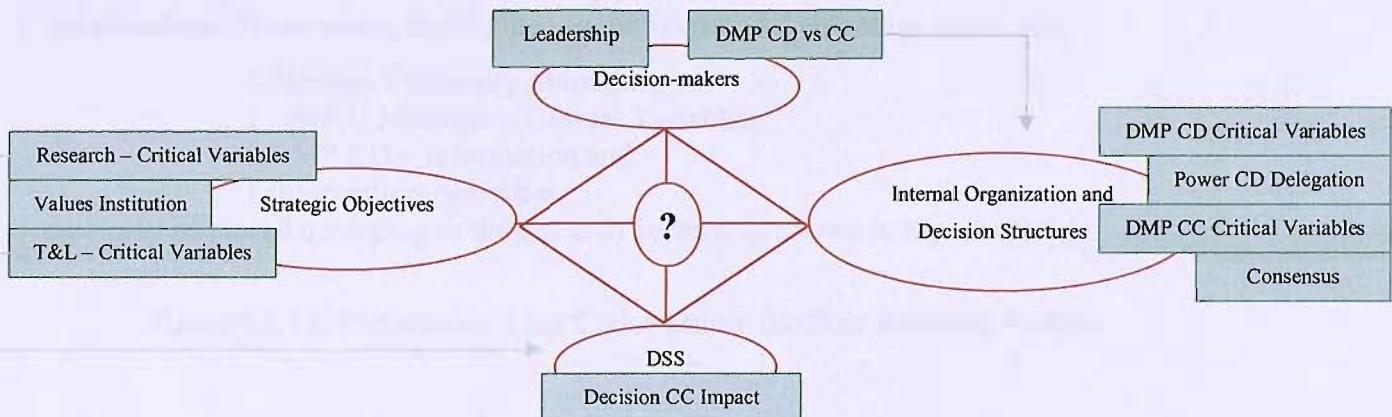
From a total of 252 “code 0”, in 1732 grounds, the frequency of the 10 most grounded is respectively, in absolute terms, between 25 and 32 and, in relative terms between 1.44% and 1.85%. Figure 6.1.1.g. shows the frequency percentages for the 10 most grounded codes.

Figure 6.1.1.g. Relative Frequency of the 10 Most Grounded Codes



Resuming the research's central diagram and considering the conceptual links established by the data, the most grounded codes may be grouped and placed close to each research vector as presented in Figure 6.1.1.h.

Figure 6.1.1.h. Position of the 10+ Codes in the Four Research Vectors



Considering the code density (links with the code vector), each 10+ Code is related to a research vector. In the cases where, besides the strong relationship with one of the problem's vector, there are also links to another, this relationship is signalled with an arrow pointing to the second (as is the case of the DMP CD versus CC and Research/T&L - Critical Variables).

Although this analysis is not systematically integrated – 10 codes are studied separately only because they are the most grounded – it is interesting to see that the final model will bear in mind the underlying concepts of the codes as components of the main sub-systems.

The Research Problem

The general data perceptions' synthesis can be developed based upon different methodologies. It is possible to make an analysis considering the relevant variables which are transversal to the model. This study was undertaken and it is presented in Appendix 6.1.1.i. Nevertheless, the methodology chosen according to the perspective which has been used aims to obtain a general picture of the data through the aggregation of the four essential areas.

The network presented in Figure 6.1.1.i. (next page) is obtained by the links between the respective top level codes (Code level 3; 2 or 1), signalled with a red circle and close to the four vectors of the research problem: 1 Mission Essence; 2 University Managers; 3 Management Model and 2 DSS information.

In this network, it is possible to show an internal coherence among research vectors that is based on some concepts (Level 1 and 2 Codes) that centralised the main relationships. These codes, highlighted in the diagram by an orange cloud, are:

- 2 Mission University Managers;
- 1 DMP U Manager – Critical Variables;
- 1 DMP CD – Information and
- 1 Information Activities.

and may be placed according to the research vectors, as shown in Figure 6.1.1.j.:

Figure 6.1.1.j. Preferences' Link Codes among the Four Research Vectors

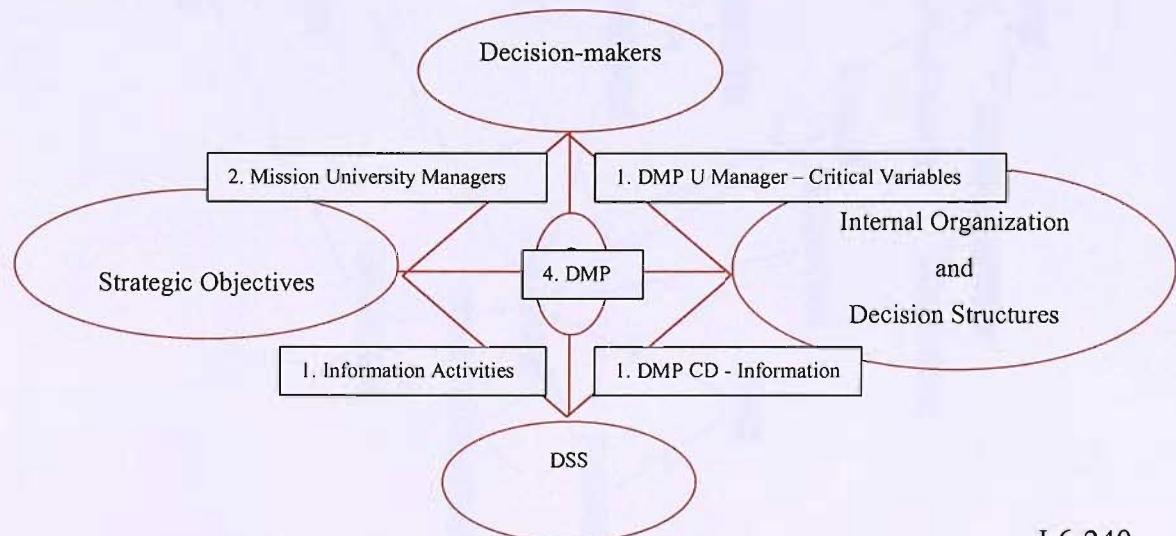
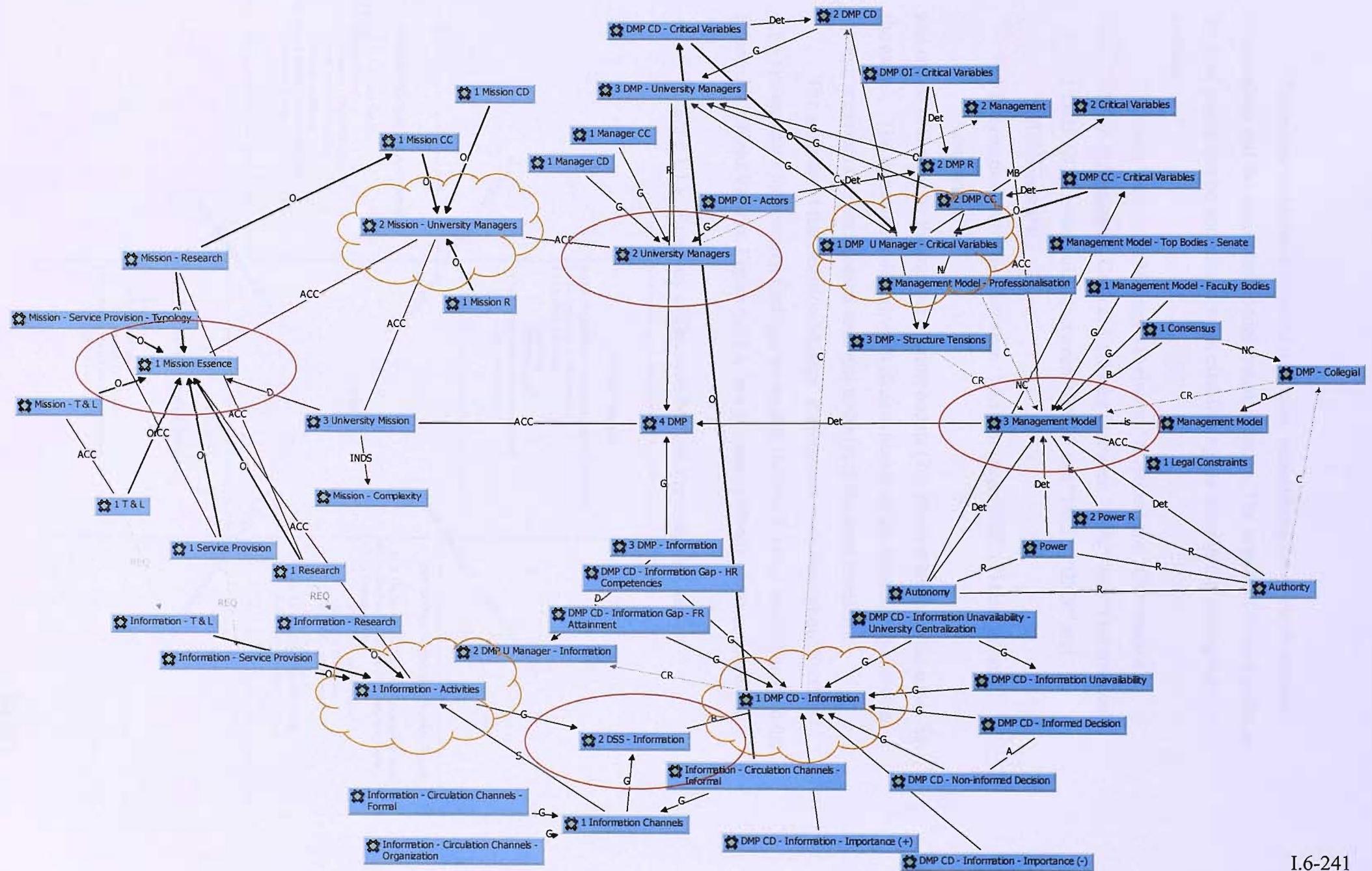


Figure 6.1.1.i. Network - UC - Research Model



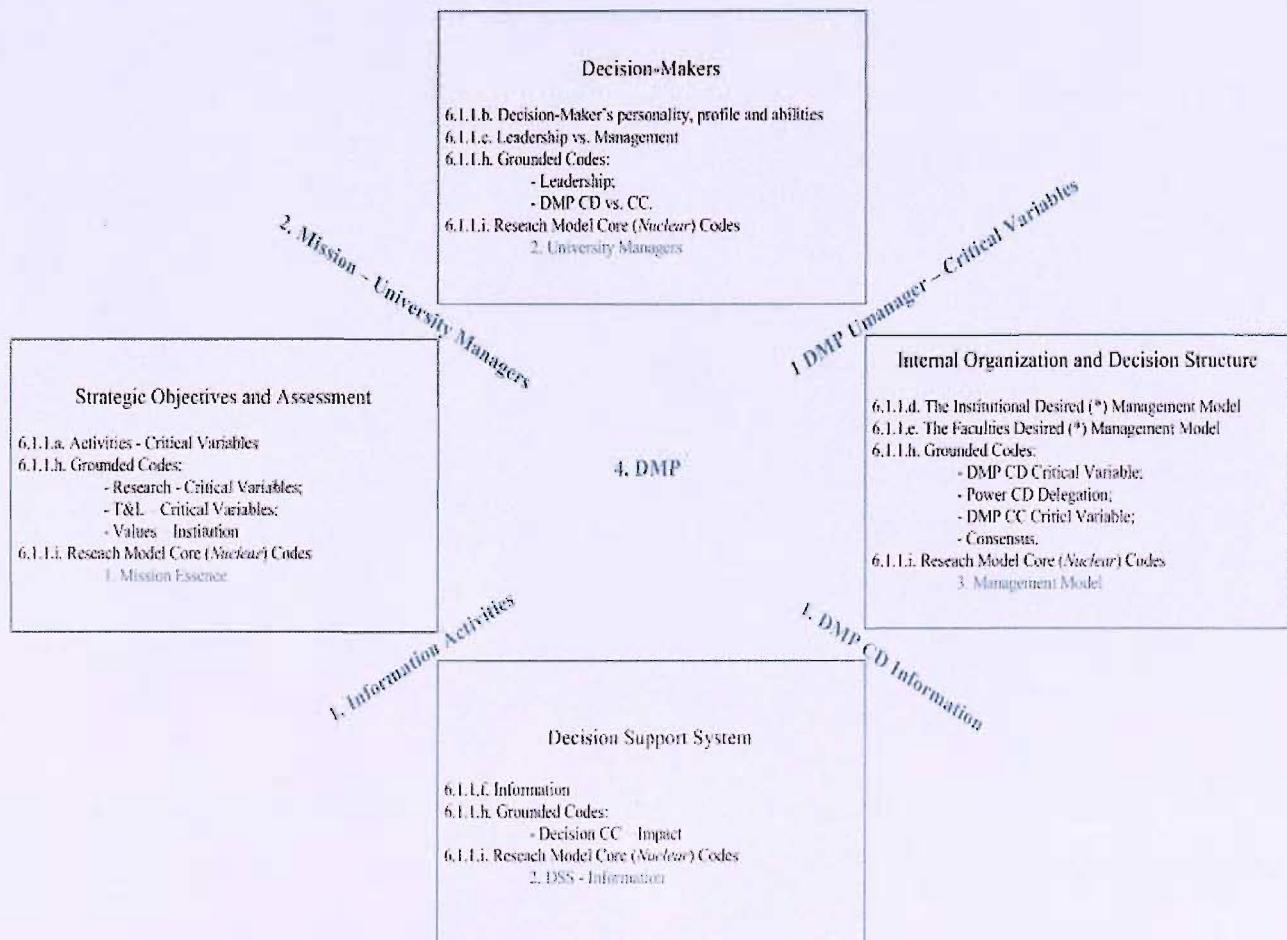
These four codes have a central role when establishing the research vectors relationships and the conceptual model systematization. The impact of these 4 codes in the final model can be understood when establishing the relationship among subsystems:

- 2 Mission University Managers (between “Mission” and “Governance”);
- 1 DMP U Manager – Critical Variables (between “DMP” and “Governance”);
- 1 DMP CD – Information (between “DMP” and “DSS”; “DMP” and “Assessment”);
- 1 Information Activities (between “Mission” and “DSS”; “Mission” and “Assessment”);

and can be evaluated by the number of components (20) which arise from the codes, in the model. The research model provides clear evidence of the relationships between the four areas and the fundamental concepts underlying those relationships.

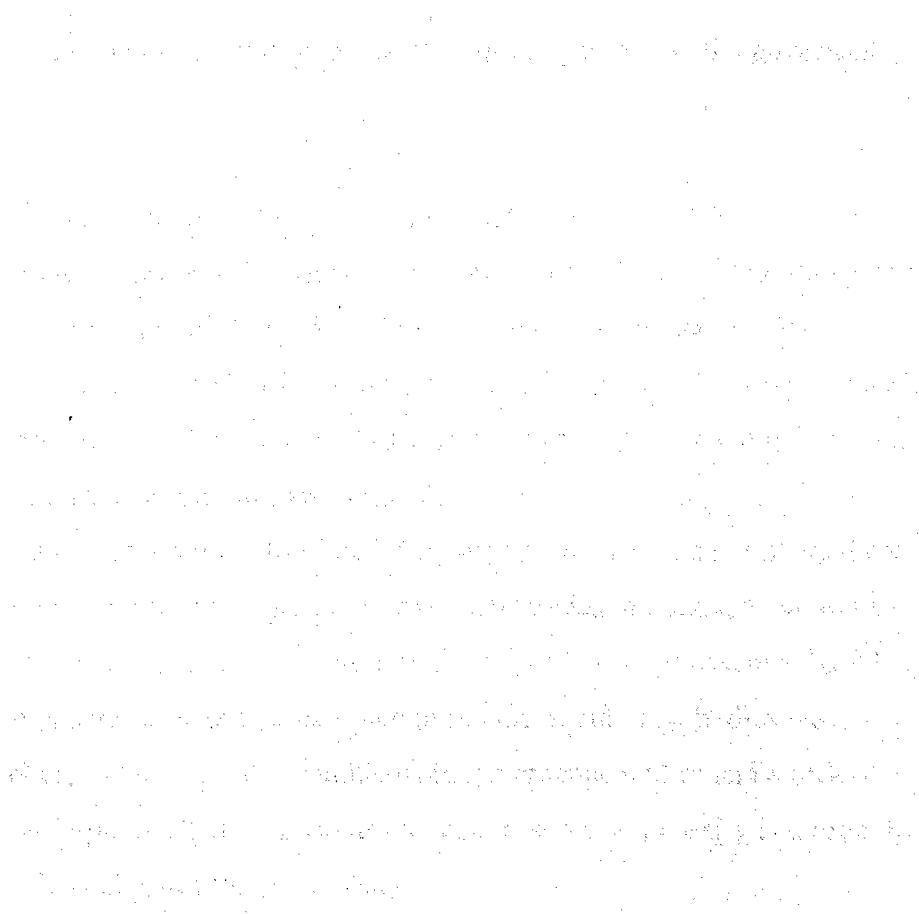
The analysis of the Decision-Makers’ Preferences made throughout Section 6.1.1 systematizes the research findings, as regards the preferences’ model based on the Research Problem Vectors. Figure 6.1.1.k. is a graphic synthesis of the conclusions.

Figure 6.1.1.k. Summary of Decision-Makers Preferences Analysis



The summary presented in Figure 6.1.1.k. systematises, for each of the Research Problem's Vectors, the conclusions drawn according to the Decision-Makers Preferences, previously detailed in the respective networks. In this figure, the codes are presented in blue. The Preferences' Link Codes define the imaginary lines which sustain, on a tri-dimensional perspective, the pyramid on whose vertex lie the solutions of the decision-making process.

This chapter's next sub-sections present in detail the principles of the Desired Decision-Making Model (*), which they are part of as well as the general research model.



Sub Section 6.1.2. - Governance Model Analysis

The study of HE governance faces many difficulties, many of which are hard to specify, as Kaplan advises, in Ehrenberg (ed.) (2004:169). A systemic analysis of governance may be difficult, given that the DMP does not appear as a systematized process [Cohen and March (1974)]:

- even when the rules are clearly defined, they may differ according to the context and exercise of power;
- often there are decision-makers with different behaviour patterns exercising power in different bodies (Senate/faculty bodies/research centres);
- there is also the fact of power recognition sometimes obeying to distinct conceptual frames within the organization.

It is within this context that the research is developed and that a governance model is proposed.

The **governance model of PPU** is framed (LAU art. 16 to 27) by principles of representative parity as regards the composition of collective bodies. The state barely defines generic social principles, but does determine the management model of universities (public and private). It is required that detailed principles of representation for all bodies (professors, other teachers, researchers, staff and students) be fulfilled, as well as a parity between academics and students.

Besides this legal context, the PPU statutory options also did not make these constraints tenuous. The study of the statutory competencies of the decision bodies (Appendices 5.3.1.b. to 5.3.1.e.) confirms a model for PPU self-governance based on a representative democratic system with a predominance of collegial bodies with numerous members; relative parity of students in governance bodies and a lack of stakeholders' participation. This contributes to an excessive complexity and leads to operational inefficiencies in PPU governance.

The present discussion about a governance model in the PPU is open and lively.

The White Book about PHE [Amaral (2003)], includes more than one hundred individual and institutional contributions collected in the scope of this debate. Defining which governance model should be used in HEI is still a polemic issue that results in a high divergence of opinions, although there is a consensus regarding the need for greater institutional autonomy in its organization and governance model.

In this context, three alternative proposals for a PPU governance model reform deserve special reference:

- Professional Model – Costa (2001:153-190) comes close to the Anglo-Saxon model. There is a governance council [Board of Trustees (USA); Board of Governance (UK)] and executive direction is based fundamentally on “single-member” bodies. The relationship between the governance council and the executive board is the *“logic of the relationship between the administrative councils and the chief executive officers”* with no more than three dozen members, mostly external to the institution, all chosen by competency criteria and not by corporate or representative criteria;
- Hybrid Model - Simão et al. (2002:106-116) – *“the models... should have large flexibility and fluctuate between... the Anglo-Saxon and the Napoleonic-Latin model”*. The model is based on the current existing bodies with some proposals for changes such as assuring absolute representation majority of doctorate professors in collegial bodies and the limitation of the Senate’s composition to 60 members.

This model’s distinctive factor is the involvement of external participation in university governance with a Strategic Council. It is a strategic body with the power to set tuition fees, constituted by a president, five senate members and five external community members.

- Self-Governance model with external responsibility [Moreira in AGUNP (2003)]. This is a proposal based on two principles:
 - self-governance “corrected” with direct election of the Rector and Executive Board; with the abolition of some collective bodies (AU;AR); with a reduction of members in other bodies (senate); and with the guarantee that academics hold an absolute electoral majority;
 - creation of an external responsibility body fully independent from governance, an exclusively exogenous composition with consulting,

auditing, debating, and recommendation powers.

The research's desired governance model (*) based on the case study's decision-makers' perceptions corresponds to a change model without rupture. Although it does not fully correspond to any of the models presented, it comes close to Simão et al (2002)'s Model due to the balance it establishes between the current model and the proposed changes. The model principles are grouped into two types (structural and change) in a sense that they match with the preservation of the existing principles, or that they mean there are changes to the current model. Table 6.1.2.a. indicates the conceptualization of the desired main goals:

Table 6.1.2.a. Principles of the Desired Governance Model (*)

Principles of Change (c)	Structural Principles (s)
<p>a. adequacy of governance structures, aiming for better <u>efficiency</u>:</p> <ul style="list-style-type: none"> - composition (always with an internal perspective towards the institution) - length of mandate - systemic cohesion <p>b. reflection regarding members <u>representation</u></p> <p>c. <u>student participation</u></p> <p>d. <u>stakeholder's</u> perspective integrated into governance</p> <p>e. systemic integration of <u>assessment</u> models in the governance process</p> <p>f. <u>adequacy of information</u> to governance assessment</p>	<p>a. adequacy of model towards <u>mission</u> complexity</p> <p>b. <u>transformational leadership</u></p> <p>c. governance <u>collegiality</u> principles</p> <p>d. collegial <u>representation</u> as a pillar for shared governance</p> <p>e. means of <u>student participation</u></p>

The synthesis of the principles of the desired* model justifies the main concepts of the model's governance sub-system as well as its mandatory interaction with the other sub-system:

DECISION-MAKING PROCESS STRUCTURE – the desired model* is based on the principle of collegiality and on the virtues of its intrinsic rationality (s-c.), as well as on the suitable representation of the bodies which should underlie it (s-d).

ASSESSMENT AND PERFORMANCE SYSTEM – decision-makers consider (c-e.) that the university governance model has to be supported by accountability and assessment mechanisms, which enable the analysis of internal efficiency deviation, deviation towards stakeholders expectations, flexibility in degree assessment and the ability to answer to the context of change.

DECISION SUPPORT SYSTEM - the principle of information adequate for governance and assessment (c-f.) is linked with the comprehensive Information dimension of the model's DSS sub-system. The desired model of governance will be based on a dynamic DSS infrastructure which allows decision-makers continuously to integrate external information and monitor institutional performance.

GOVERNANCE SYSTEM

Concerning the governance system, the model foresees three dimensions which are related to the principles presented: Leadership (s-b. transformational leadership); Structure of the Model (s-c.collegiality; s-d. collegial representation; s-e.participation and c- a.efficiency; c-b.changing representation; c-d.stakeholders and c-e.assessment) and Strategic Perspective (s-a.mission and c-d.stakeholders).

In the governance PPU system, the democratic logic of power balance tends to neutralize **Leadership**. The Senate tends to have an essentially reactive role while the top management team tends to be proactive. This is also common in other European systems [see the case-study in “old” and “new” universities, by Bargh, Scott and Smith (1996:113-136)]. The high number of collective bodies disperses the core of decision-making and, consequently, power and leadership. The Rector and his team are expected to maintain the role of catalyst which the system does not easily assure in other ways.

“Successful universities... develop strong corporate leadership” [Shattock (2003:108)].

The importance of the Rector's leadership conducting change is enhanced in the interviews. The leader is frequently viewed as a “god” [Memo: Leader as a God; (1:53)], not subjected to restrictions [Memo: Leadership – Limitations; (10:54)], and who preciously surveys the community which he leads [Memo: Leadership – Auscultation; (3:75)] (Appendices 6.1.2.a. and 6.1.2.b.). Leadership can be approached

differently: as an ability (Simon), as a competency Heller (1992), and as a factor of change. The case study's results are coherent with the paradigm analysis of Quinn's organizations (1996:122): the leader, in accordance with the transformational paradigm, takes a role of visionary and motivator - compared with the manager, centred on efficiency and results – and assumes transactional roles of analyser and supervisor.

Costa (2001:132) also states that the lack of structure in leadership mechanisms leads rectors to fill that gap: "*the presidential role of the rector works against the parliamentary of democratic management*". However, the presidential role is not really "presidential" since the PPU rectors, who are always elected from the University's tenured professors, besides being "hostage" of their own voters, are also hostages of their own tribe and institution.

Should leaders in a university be academics or non-academics? The answer to this question differs according to literature and world-wide universities models. In the UK, the Jarrett Report's recommendations in 1985 are clear on this matter: University/Faculty/Department heads should simultaneously be managers and academics, and it is essential that they have management skills. Middlehurst (1993:67-86) sees leadership as change and embracing values; both aspects are central in the agendas of universities and academics. In Portugal, this is an almost forbidden issue within PPU.

It is not obvious that the leader, as change-driver, should be a non-academic manager, as it is not obvious that it should be an academic manager...and it is, above all, not obvious that it should be an academic from the institution itself. Not intending to argue that openness is itself a condition for success, we cannot then argue that the institution's limits correspond to the answers' limits on this matter. A peer who takes on the destinies of his University/Faculty/Department during a certain period, at the end of which he goes back to being a peer among peers, will not always be able to separate spontaneously his two conditions during the directing period: that of leader and that of peer. However, this is a free variable in the model; that means, it is not decisive to assume that the leader is an academic (from within the institution) or not.

Looking at the **governance structure of the model dimension**, which is the core-dimension of the governance system and the more grounded according to the mapping perceptions, it seems clear that changes are required:

- Self-centred characteristics, which Moreira [AGUNP (2003)] designates as “*governing endogamy and closing to the exterior*”. The excess of endogamy is a characteristic of the Portuguese and Spanish HES. In these systems, over 90% of graduates and doctors who have graduated from the University itself. In the UK, the same rate is 17%, according to Conceição et al. [Amaral (2003:184)]. Universities control themselves. The current external control is focused on management processes and thus there is no real governance control.

The current model does not provide external interface mechanisms as far as governance evaluation is concerned, neither from an external responsibility perspective nor in the form of social auditing and controls. The lack of feedback mechanisms does not mean lack of governance concerns or the inability of evidencing good practices at this level. However, in this type of model, direct governance evaluation is absent and the effort of social responsibility is left to the discretion of the decision-makers without stimuli and without structured instruments for measurement and comparison.

The main change at this level should be to provide external accountability. Self-governance can be maximised but responsibility must grow with it. Once again the link between governance, DMP and assessment is enhanced.

- The “democratic superavit” of the current management model which corresponds to a management efficiency deficit. Costa (2001:131-132) considers that this problem is due to the following factors:

- *“the certified net of collective bodies of inadequate size, with great representation of the various university bodies and lacking compulsory competency;*
- *collegiality of the bodies, which should be “single-member” due to its nature; (...)*
- *and the complexity and lack of function of decision-making participation mechanisms”.*

Considering NCIHE’s (2000) [<http://www.leeds.ac.uk/educol/ncihe>]

recommendations, it is clear that the current governance structure in PPU does not follow some basic ideas of the Code of Good Practices for Institutional Governance, namely:

- Adequate number of members and a suitable size of governance body - Senates, with a variable number of 36 to 179

members, and University Assemblies, with 64 to 331 members, although offering important fora of reflection, do not guarantee the efficiency and efficacy of the management process in strategic decisions. In literature, a maximum number of 25 members is often referred to as the ideal [*"We think there are good reasons for governing bodies not to be over-large, specifically, above the range of 12 to 25 members 'prescribed"*], in *National Committee of Inquiry into Higher Education*, 1992, Recommendation 55, pt. 15.4, pg. 7/8], which ensures the proper functioning of executive bodies such as the Senate.

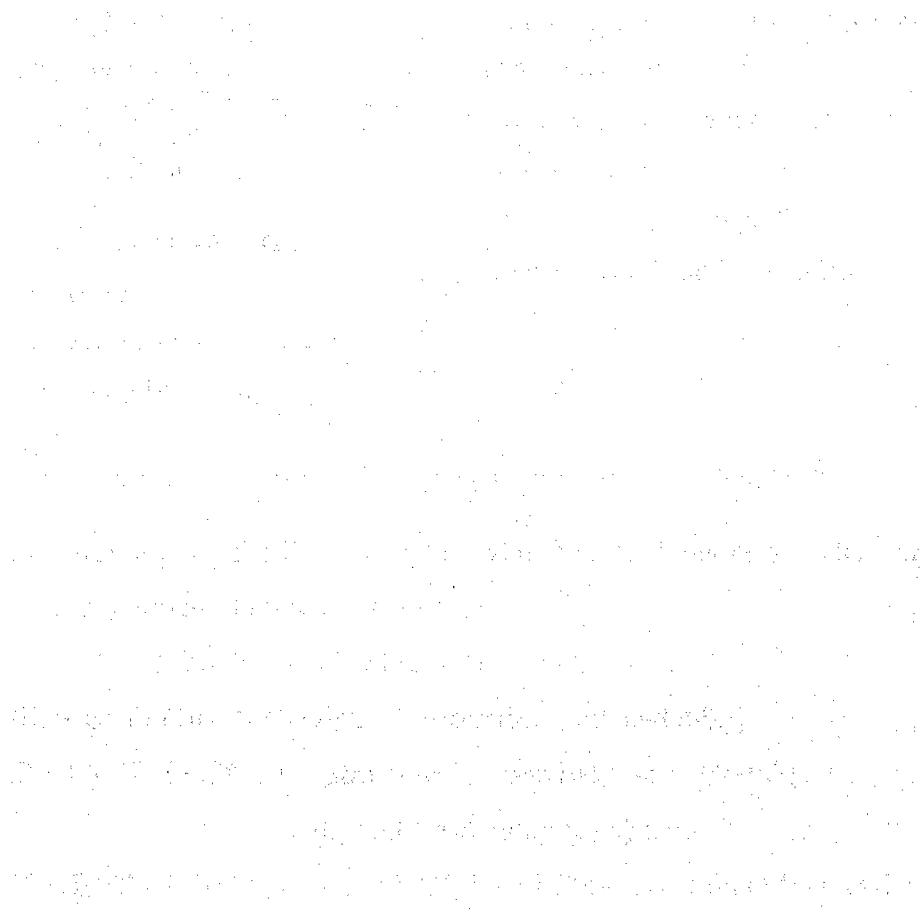
- Governance body and institution efficiency - the current model, granting the principle of the bodies' participation, does not provide simultaneously evidence of the rationality concerns, which match with the principles of efficient public management. The model's implicit idea that the academic, who is compulsorily present in the management bodies (Rector, Rector's Team, Faculties' Executive Boards), has competencies and leadership profile suited to exercise these functions, is not a gospel truth. In addition, factors like availability or political ability to encourage and manage supports, are theoretical competencies implicitly present in elected members. Actually, there are regular quorum absences and participation which is merely formal in many situations: a complex and inefficient decision net is created. The large number of members in each body promotes the fading of governance responsibility.

According to the research results and considering the theory of institutional governance in universities [Barret (2003)], some good practice principles should be incorporated in the governance model. These principles presuppose personal qualities of decision-makers as well as structural qualities and organizational processes:

- Leadership – presupposes the identification and articulation of responsibility; understanding and taking into account the stakeholders' interests; knowing about agents and internal resources; logical and clear internal and external communication.
- Commitment – more than making the structures work, it is essential to align internal and external parts; emphasis on institutional worth and ethical codes; clear and effective communication.
- Integrity – Personal and professional patterns relationships are dependent on the

efficacy of the established control and implies decisions and performance credibility.

- Accountability – presupposes the clear identification and articulation of internal responsibilities; recognition of the existing relationships with stakeholders; clear and appreciative understanding of roles and all sides' responsibility.
- Transparency – ensures the confidence in the DMP and governance process. It is essential as a responsibility factor.
- Integration – internal warranty of a holistic view of the organization, towards its involved parts, relative to the performance patterns, but also the external valorisation of networks and partnerships.



Sub Section 6.1.3. - Decision-Making Model Analysis

From the analysis of the case study, the desired decision-making model(*) is derived which matches with a change model. As in the previous sub-section, double categorization of the structural and change principles will be used. Table 6.1.3.a. presents a summary of the main preferences of decision-makers:

Table 6.1.3.a. Principles of the Desired Decision-Making Model (*)

Change Principles (c)	Structural Principles (s)
<p>a. progression of <u>strategic objectives</u>: T&L: Bologna, globalization; Research, financial self-sufficiency, support for network development; Service Provision: instigate initiatives, market co-production;</p> <p>b. improvement of <u>DMP efficiency</u> and <u>leadership conditions</u>,</p> <p>c. <u>bureaucratic</u> decision-making context;</p> <p>d. balance between <u>centralizing*</u> and <u>decentralizing*</u>.</p>	<p>a. <u>institutional values</u> of academic freedom and autonomy;</p> <p>b. decision-making process based on <u>collegiality</u>;</p> <p>c. <u>centralized decision-making</u>;</p> <p>d. <u>centralized critical information</u>.</p>

The interaction among the DMP variables and the remaining sub-models can be seen in the synthesis that was obtained, especially:

STRATEGIC DEFINITION OF MISSION – Context (c-c.);

DECISION SUPPORT SYSTEM – Information (s-d. and c-b.);

GOVERNANCE SYSTEM – Strategic Perspective (c-a.); Model (c-c.; c-b. and c-d.) and Leadership (c-b.) and

ASSESSMENT AND PERFORMANCE SYSTEM - Assessment (c-a. and c-b.).

DECISION-MAKING PROCESS STRUCTURE

The principles presented sustain the research model's three sub-system dimensions: Collegial (s-b. collegiality); University Decision-Maker (c-b. DMP conditions; c-d.bureaucratic context) and Centralisation/Decentralisation (s-c. centralized decision-making; s-d. centralized critical information and c- d. centralizing* and decentralizing*). An analysis of the model's change principles will be performed later.

It is usual among decision-makers to say that the existence of a **bureaucratic context** will restrain a fluent and efficient decision process. As previously stated, this is largely due to factors which are independent from the institution, namely the existence of strong and detailed regulations, but also due to internal factors related to the institution's culture and organization. The model will focus on these last factors as to what regards change, especially informal flexibility mechanisms.

Despite the weight of the process and formal decision structures, the DMP contains an important informal component which substantiates information collection and consultation allowing the agility of the DMP. This informality has stronger results in a context of complexity and constant external pressure in the light of requests and deadlines. Informal processes, almost always performed on an individualized character, or in the context of the "informal Rector's team", are in this case, such as Stephenson suggests in Warner and Palfreyman (2001:83), important ways of "*helping to obtain widespread "ownership" of difficult or controversial decisions*".

The informality of the process can show itself throughout the development of explicit knowledge, but hardly formalized, un-monitored or tacit (in some interviews, it is clear that priorities are established implicitly and shared among peers). The tacit knowledge expressed by many of those heard is in the project:

(12:22) "Sociologically, who commands the faculty is the teaching body (...) the body of teachers is who truly, in factual terms, has power in the school".

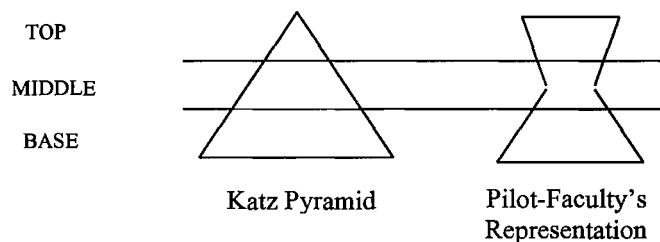
The decision model as pictured in the 1970s Group [Amaral (2003:221-231)] cannot be specific to all institutions and it must be based on the attribution of authority to decide who has the best information to make the best decision, in a context where the results are evaluated and those responsible for decisions are rewarded according to the evaluation results.

In the PPU, the combination of the organizational structure and the governance model promotes a perverse decision model of doubtful **organizational efficiency**. Without intending to go too much into the controversy that may appear in the concept of “organizational efficacy” [Quinn and Rohrbaugh (1983), and Cameron (1985)], the concept will be approached in some aspects like suitability, productiveness and flexibility.

- The decision structure proves to be inadequate according to the functions’ and responsibilities’ system complexity on horizontal (hierarchies) and vertical level (specialization).

Figure 6.1.3.a. illustrates the comparison between the traditional organizational pyramid (left) and the structure of the Pilot-Faculty.

Figure 6.1.3.a. University Management Levels’ Atypical Diagram



It takes on the form of a “pseudo-pyramid”, hardly orthodox regarding the traditional hierarchic decision models. The structure shows atypical characteristics, not only in view of Mintzberg’s (1979) five pure configurations (Simple Structure, Mechanizing Bureaucracy, Professionalized Bureaucracy, Divisional Structure and Adhocracy), or Katz’ 3 horizontal compartments used as a reference in the Figure, but also in view of the network models [Ghoshal and Bartlett (1998)].

Decision structure dysfunctions result from an exaggerated number of decision-makers in the DMP (402 in the Pilot-Faculty case), but mainly because there is redundancy in the structure. The system allows function segregation, in organizational terms, not ensuring the decision process’ specialization. Thus, it is not always possible to identify clearly individual and/or coordination responsibilities. The number of managers that are involved in strategy definition may come close to the number of managers in line with the possible overlap in all levels of each structure (the PCD are

simultaneously members of the AU, Senate, CD and CC, and often still responsible for a course or a research project).

- The trajectory of **the decision process is long and expensive** One of the most significant factors in universities' DMP is the number of people whose agreement is necessary to take an action forward. The greater the number of decision-makers involved, the greater the cost of the decision. [Conn (1971:188-190) studies the marginal cost of the decision- maker].

The course creation cost example, presented in the previous chapter, showed that, in a loopless flow, the decision cost represents the equivalent to the Rectors direct cost of 2.5 months, in the Economics case, and 6.2 months in the Science and Technology case. In the case of two course creations in a year by FCTUC, the cost of the process represents the allocation of the Rector at 100%. These scenarios were detailed in terms of sensibility analysis in view of the time for discussion in the Senate and the introduction of revisions to the proposal (Appendix 6.1.3.a.).

The cost analysis allows quantification but will not allow comparisons. Aiming to refer to the costs that were obtained, a comparative analysis of the Senate's cost/hour with two other public governance top structures (Coimbra's City Council and Ministers' Council) was carried out in Table 6.1.3.b..

Table 6.1.3.b. Direct Cost Comparison (decision-makers/hour) – UC/CMC/CM

Body	Cost Hour (Euros)	Relative weight
Senate	1,394.55	100
City Council Assembly	513.64	37
Council of Ministers	900.18	65

(2005)

The results show that the cost of the Senate per hour is significantly greater than either of the two other bodies, with the Minister's Council accounting for 65%.

The premises used for the analysis considered continuity, without hiatus, which does not assure accounting for the real time of the process. The composition and complexity of top bodies, in particular the Senate, determine its functioning in monthly cycles of one day, which means that the discussion of a proposal in two sessions has a minimum of one month long.

- There are **structural mechanisms of instability**, of which successive and disarticulated electoral acts for management positions are examples. The system seems oriented towards decision-making instability since performance is evaluated in the short term and established by electoral cycles. This perspective, together with inadequate, short and non-coincident CD cycles amongst members and/or Faculties and/or University, determines the need for a continuous strategic framework for those recently mandated.

Structural instability, a system characteristic assumed by decision-makers, determines performance.

(12:10) “There’s an apprenticeship time, of problem socialization, which can be more or less lengthy and therefore there are norms, guiding principles. One year is for people to get involved in discussions, the second year is for goodbyes. Therefore, the production of the majority of things is not finished; it is not possible to produce.”

Overall, uncertainty as an exogenous factor is internalized in the second phase of the DMP. This internalization occurs from the DMP design based on an extremely complex structure with a wide range of freedom degrees, from the number of participants to the absence of decision-making framework rules.

Simultaneously, there is an **absence of regulatory mechanisms** that ascertain systemic institutional cohesion. This reality is visible in the relationship of decision-making members towards the process of decision-making. The member of a collective body contains, in its essence, an ambiguous arbitrary power, in conceptual terms. In a “participative” system, where individual participation in the bodies’ sessions is voluntary, decision-making members have the power, with their absence, of becoming irrelevant in DMP facing a high number of members, or of veto, when they obstruct reaching quorum in the session. The proper functioning of the collective bodies depends upon its members’ voluntary participation, without *stimuli* mechanisms or system regulation. This unsystematic character is also evident in the collective bodies. Direction is elected based on formed lists, from customary rules such as tenure or knowledge of internal opinion-makers, or any other motives, including a strong institutional motivation. There are no safe mechanisms to warrant that elected members are willingly prepared for such or motivated for the position.

- One of the critical elements of the model is to synchronize the balance between **centralization and decentralization** [Ehrenberg (2004)]. There is a dialectic which conditions the configuration of the decision structure on the strategic vertex for which centralization allows easy coordination and direct supervision and the members of the hierarchy for whom “*balcanization*” enables autonomous management of units.

The degree of internal decentralization is a relevant factor for the structural ability adaptation. Apparently, the structure will have a greater capacity of adaptation to external change if more decentralized. Henkel (1997:137) talks about this concept when she considers that it is important to have a “*centralized decentralization*”. She clearly makes a reference to the necessity of the institution not to go astray in the decentralizing process. In the PPU, the layout of the most classic universities is an apparent Faculty decentralization, with pedagogical, scientific, administrative and, in many cases, financial autonomy. However, the power of decision is not delegated. Thus, decision processes, such as the creation of courses, do not suffer significant changes when requiring the agreement of 10 to 20 collective bodies of the Faculties and University.

Power decentralization should not become the reproduction of structures. On the contrary, in the context of efficacy and cost control, the equilibrium can determine that decentralization of power be accompanied by administrative strengthening and central management. Regarding this matter, see Braun and Merrien (1999:26).

In this case, effective autonomy implies a revision of competencies attributed to bodies and people involved in the decision process. Decentralization gives individual units an incentive to act in their best interest and removes stimuli to work towards a common good, Heller (2001).

Following Costa’s (2001) thinking, as to what regards the inefficiencies of the PPU management model, the model research highlights the need for change in the agility increase of DMP. The improvement of organizational efficiency and efficacy must be done by changing the way the governance model combines with organization structures, and also by valuing the informal DMP component. In fact, the proposed decision model must respect the universities’ organizational complexity, assure the specialization of responsibilities, avoid the redundancy of decisions, make bodies and procedures swifter, and assure the existence of regulatory and assessment mechanisms.

Sub Section 6.1.4. - Performance and DSS Analysis

The **DSS diagnostic** previously performed in **PPU** showed a range of improvement opportunities at the information and sharing-among- bodies' level. Despite the high personal involvement of human resources, the unstructured use of IS leads to widespread inefficiencies and redundancy.

The PPU decision and performance support systems are, however, changing. Several governmental and operational changes have occurred at the same time, especially the development of strategy of integration (by OCES, through SIES); incentives for information availability (Virtual Campus Project); the improvements in the framing of HE quality regarding academic accreditation; and the reinforcement of an institutional assessment policy.

Despite the favourable position of UC in the survey, where the integration of several instruments within IS is significant from a centralized standpoint, except for quality assessment, the interviews analysis confirms the absence of an organizational culture in the use of information. The use of decision-making support models is, in general, unstructured and partial. Each team leader must spend some of his time understanding, discussing and organizing the DSS' parts with which they interact: management of the harmonized integration of institutional information is not ensured.

According to decision-makers 'preferences, the development of a **DSS(*)** must ensure the principles presented in Table 6.1.4.a.:

Table 6.1.4.a. Principles of the Desired DSS Model (*)

Change Principles (c)	Structural Principles (s)
<p>a. <u>information organization guided towards managing activities;</u></p> <p>b. improvement of <u>internal information circulation</u> (between bodies; decision and results feed-back, etc);</p> <p>c. improvement in survey and <u>external information integration</u> processes;</p> <p>d. suitability of the <u>DSS for performance monitoring and assessment.</u></p>	<p>a. valuing <u>different types of information</u> (technical, soft, etc);</p> <p>b. importance of informal <u>information circulation channels</u>;</p> <p>c. critical <u>information centralization</u>;</p> <p>d. suitability of the <u>DSS information levels</u> for decision levels in governance models.</p>

The interaction among the DMP variables and the remaining sub-models can be seen in the synthesis that was obtained, especially:

STRATEGIC DEFINITION OF MISSION – Activities (c-a.) and Stakeholders (c-c.);

GOVERNANCE SYSTEM – Model (s-d.);

ASSESSMENT AND PERFORMANCE SYSTEM – Accountability (c-b.) and Assessment (c-d.) and

DECISION-MAKING

PROCESS

STRUCTURE

–

Centralisation/Decentralisation (s-c.)

DECISION SUPPORT SYSTEM

Concerning the DSS subsystem, the Information is supported by different components, as is the case of: Types of Information (s-a.); Channels (s-b.); Organization (c-a.; c-d.) and Gaps (c-c.)

The DSS **organizational alignment** must occur at four levels: business, information, application and technology. This study did not cover applications (IS which allow process automation and organization information management) or technology (technology application to each system). However, the decision-makers'

model is concerned with the first two DSS items alignment(c-a. and c-b.):

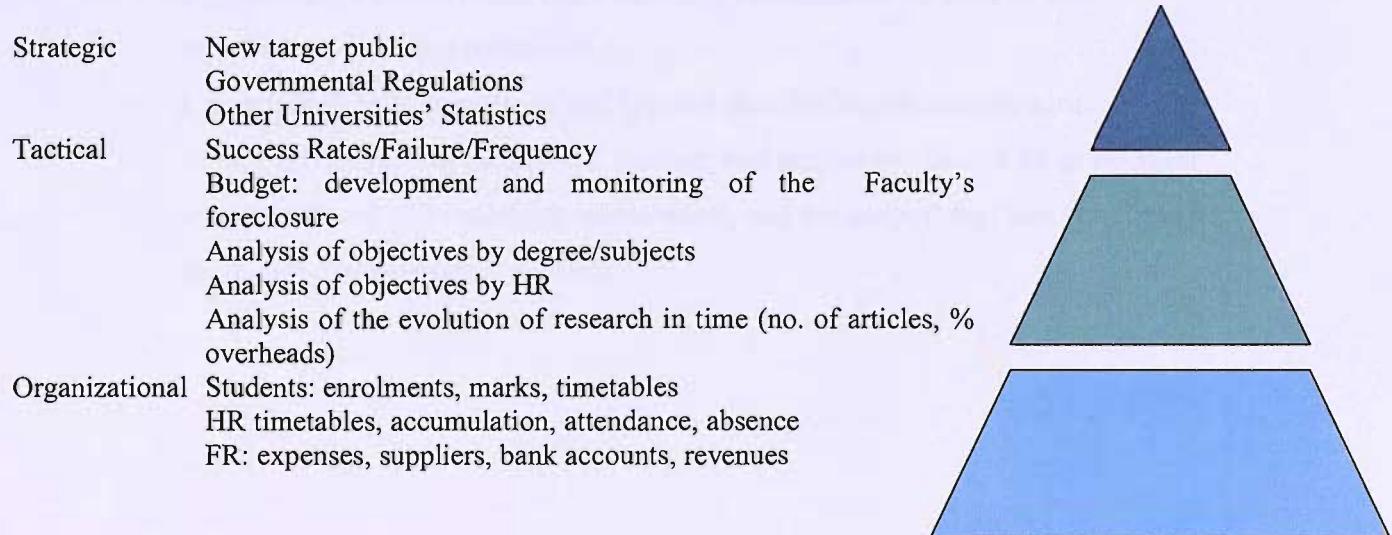
- business organization: activities, processes, members, units;
- the necessary information for organizational activities and processes.

The governance model must be supported by the DSS, their follow-up and assessment, which should include:

- a knowledge-driven holistic approach at information level (qualitative and quantitative; tacit; structured and non-structured; formal and informal);
- an adequate information structure [surveys (internal and external); decision levels (in accordance with the DMP specialization) and multidimensional perspectives], which enables it to maintain the flexibility and adaptability degree that will allow it to resist to constant tensions between the organization and management;
- integrated and continuous survey, monitoring and assessment mechanisms.

The proposed DSS model considers the three **levels of decision** in an organization, Schultheis (1995), which can be illustrated in Figure 6.1.4.a., resorting to a set of applications to process information that is relevant at the various operational, tactical and strategic levels of decision.

Figure 6.1.4.a. Example of Information Structure of a DSS in the PPU



In the DSS, the effective communication flows depend on a strong integration of the three management levels which means that the lower levels - more internally

focused and task-oriented - must be linked to strategic planning by a clear internal and external communication strategy and must share a common information and communication culture.

The DSS should have some mandatory systemic elements:

v. objectives	Institution's Mission – strategic perspective of T&L Research and Service Provision;
v. action	Management Variables and Key Performance and Success Factors regarding the Mission;
v. monitoring	Assessment and Performance Systems which help to monitor and assess the course.

While referring to the information structure model, the balance between centralization and decentralization is essential, particularly in large universities, as is the case of UC, or universities with geographically dispersed services.

Regarding this aspect, the DSS principle has developed in the model and supports David and Ribeiro's IS guiding principles (2004) which tend to be a common denominator in successful case-studies, namely:

- a unity of DSS institutional leadership which should match with the vision of its leaders and answer to the institution's mission;
- a guarantee of a centralized infra-structure coordination as well as an information diffusion technology;
- a maximization of operations and support distribution/decentralization. At the limit, each individual (academic, student, and employee) should be an operator who introduces and visualizes information, and the support services should be as close to the individual as possible.

Section 6.2. - The Governance Decision-Making Model

“The art of progress is to preserve order amid change and to preserve change amid order”.

Alfred North Whitehead

Sub Section 6.2.1. - Model Conceptualization

“I like a view, but I like to sit with my back turned to it”.

Alice B. Toklas

The model conceptualization is the result of the road travelled by the research, starting off with the research design. The mix of theory, data, methods and analysis builds consecutive theories and relies on a few general constructions that subsume a mountain of particulars. The journey of conceptual framework has been presented throughout the study and has explained the main goals (or conclusions) and the apparent relationships between them.

In this study, based on Grounded Theory, the model emerges from the findings. The synthesis obtained from data and systematised according to the four research problem vectors, as was graphically presented in Table 6.1.1.k., is the basis of the research model. The model is thought and built from the contribution of the general findings (presented in Chapter 5), the synthesis of decision-makers' preferences (presented in Sub-section 6.1) and the methodological and theoretical approach (presented in Chapters 2 and 4).

In the changing environment of PHES, the aim is to establish a summary of the governance decision-making model's principles in a PPU. In this context, the strategic decision model proposed for a PPU is a set of structural principles developed from the evidence of internal strategic decision-makers and based on the theoretical framing already described.

The model conceptualization and its terminological convention is an abstract construction which is developed from a set of structured and coherent concepts, dimensions, components and characteristics or indicators towards the desired reality.

In this research, the conceptualization's most important tool was the codification process. The model's construction was built from the four abstraction levels whose correspondence is presented in detail in Appendices 6.2.1.a. – 6.2.1.c.. The levels are established from the general to the particular:

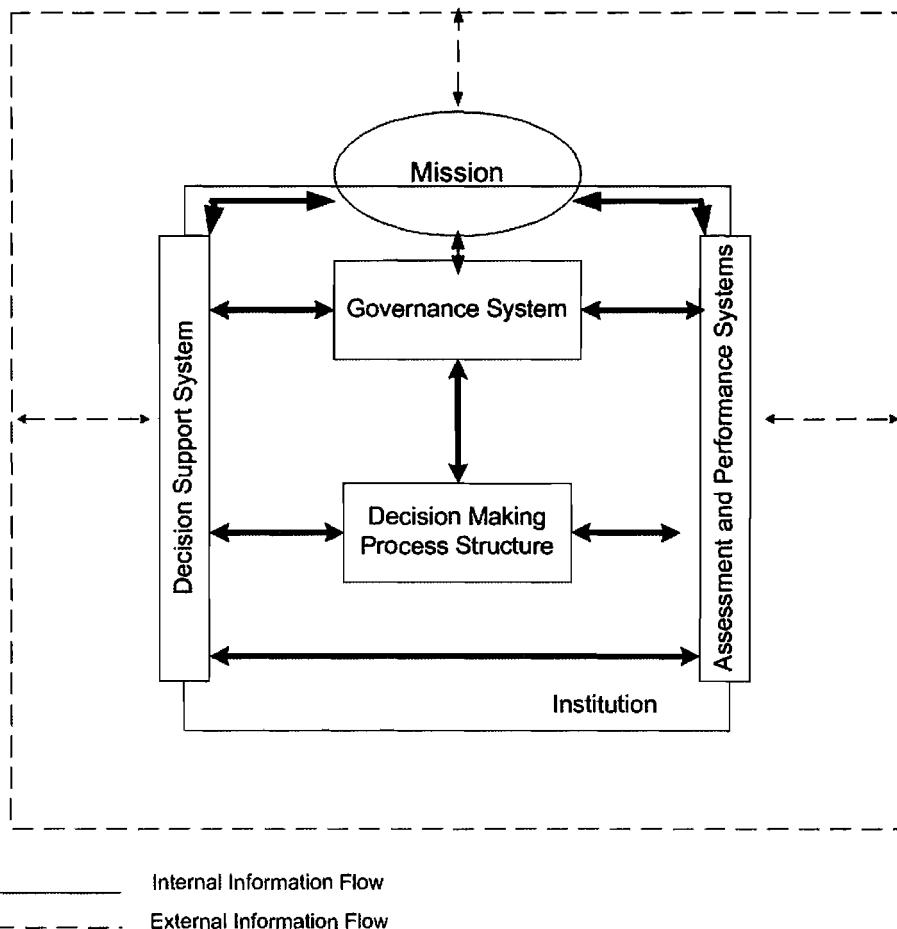
- concepts – corresponds to the model's sub-systems;
- dimensions – perspectives that should be respected in each sub-system in order to function in a way that guarantees the model's balance;
- components – angles of analysis according to which the dimensions will be studied;
- characteristics/indicators - list of a few examples of some of the components' characteristics and indicators.

The five main concepts (articulated sub-systems), which make up the governance decision-making model are:

- Strategic definition of the Mission
- Governance System
- Decision-Making Process Structure
- Decision Support System
- Performance and Assessment System

Each subsystem is directly or indirectly influenced by the “outsider ambience” and by the other internal subsystems. Figure 6.2.1.a. illustrates the model's five subsystems and the relationships they establish among them.

Figure 6.2.1.a. Diagram of the Governance Decision-Making Model – An Overview



The mission concept is understood as a strategic compromise between the organization and society. In this sense, its definition, and the institutional alignment to it (the mission), corresponds to a dynamic and complex process upon which the governance decision-making model must be structured. The mission is the beginning and the end of the strategic decision-making process. In the UC and from the strategic decision-makers' point of view, the main dimensions are the following: activities; stakeholders; university focus (academic values and tensions and knowledge) and context.

The governance model is a mixed model [Groot et al (1998)] based on some characteristics:

- a professional model - aligned with the institutional mission, with a knowledge based authority as a specific competence. Leadership, the stakeholders' integration in

governance and a responsibility and accountability culture are some of the dimensions enhanced in the model;

- a collegial model - a more adequate model for a successful management in the core business of T&L and research [Shattock (2003:176)] applied in the decision process among peers in academic governance at faculty and institutional level.

The structure of the DMP must be aligned with governance and have a successful interface with the DSS; the evaluation process and the institutional assessment. It ensures the description of the bodies involved, the decision-making phases and levels, and the process configuration through the competencies and decision-making flows' design.

This model's sub-system consolidates principles of balance between centralization and decentralization; representation and collegiality.

Information is the *alter ego* of everything in the organization. The organizational representation is inseparable from the Decision Support Systems, which exists in order to answer questions. On a first level, the question, is essentially: "What does what?". Or, in other words, "*What*" resources "*do*" activities develop with "*what*" aims? On a second level, other types of questions require answers: "Who does what?", "How, Were, When, Why?" In the model, the DSS directly interacts with all the other sub-systems. The dimensions of information organization, impact and gaps are rather relevant.

"Accountability" is a grounded link code between the governance and DMP concepts. This presupposes information and performance measurement detailed throughout the entire decision process (pre, during and post). The Assessment and Performance System is a comprehensive concept which includes assessment of objectives, activities and deviation analysis in view of the mission of the PPU, according to quality international standards.

The holistic and global architecture of the governance decision-making model conceptualization, based on the various subsystems, is presented in Table 6.2.1.a, according to the four abstract levels of analysis aggregation (concepts; dimensions; components and characteristics/indicators).

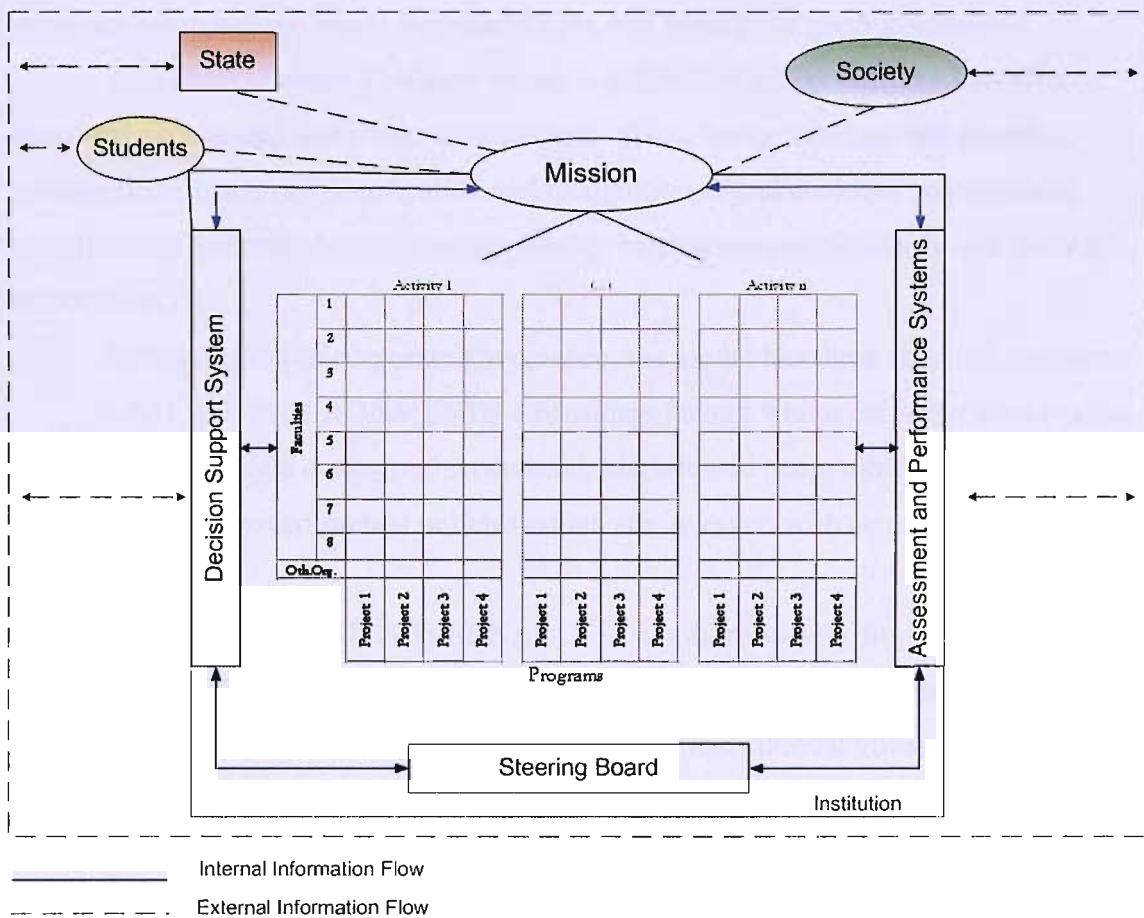
Table 6.2.1.a. Governance Decision-Making Model Conceptualization

Concepts	Dimensions	Components	Characteristics/Indicators (Examples)	
Mission	Activities (T&L; Research; Service Provision)	Critical variables	Success in Learning Financial Resources Self-Sufficiency Developing International Networks	
		Image		
		Information		
		Internationalization		
	Stakeholders	Quality		
		Typology (alumni; students; <i>notabilis</i> ; etc)		
		Interests		
	University Focus	Auscultation		
		Academic Values	Autonomy Academic Freedom	
		Academic Tensions	Past vs Future Individual vs Institutional Academic vs Managers	
	Context	Knowledge	Ideas	
		Bologna Process	Constraints Cycle Duration Opportunities	
		Change	Resistance Culture	
		Competitiveness	University vs Polytechnic	
		Public Model	Legality Norms Bureaucracy	
Governance	Leadership	Profile/Skills	Vision Achievement Charisma Cordiality Building Teams Credibility Intuition	
			Leadership vs Management	
	Model		Existents	
	Expectable*	Efficiency Stakeholders Head Figure* Top Bodies* Representation Balance: cent/decentralisation Quality Assessment		
		Stakeholders		
		Strategic Perspective		International Benchmarking
				Leadership

Concepts	Dimensions	Components	Characteristics/Indicators (Examples)
DMP	Phases	Conditions	Stability of the Process Also Informal
		Monitoring	Duration of the Process Cost of the Process
		Assessment	Regulation
	Collegial	Rationality	HR Involvement Informed Decision Listening to People
		Representation	Students Staff Stakeholders
		Consensus	
	University Decision-Maker	Actors Skills (R; Senate; CC; CD; OI)	Experience Qualifications Training-PCD Motivation Flexibility
		Rationality	Methods Structures Decision Efficacy and Efficiency Balance Politics vs Technocrat
		Style	Decision Swiftness Decision acceptability Openness for discussion
	Centralisation/Decentralisation	Delegation	
		Domains	
DSS	Information	Types	General/Specific Soft/Technical Implicit/Explicit
		Channels	Formal/Informal Number Adequacy
		Organization	Oriented to Activities All Integrated Adequacy to Assessment
		Impact	
		Gaps/Unavailability	External auscultation Prospective Information
Assessment and Performance	Quality	Auscultation	
		Rules and Procedures	
		Innovation	
	Accountability	Responsibility	
		Transparency	
		Communication	
	Assessment	Objectives	
		Motivation	
		Profitability	
		Efficient Resources Allocation	

The model, which has been presented in an institutional locus, can be developed in a disaggregated way according to Faculties, Activities or Projects. Figure 6.2.1.b. is an example of the model's DMP desegregation.

Figure 6.2.1.b. Diagram of the Governance Decision-Making Model – A Focused Perspective



Sub Section 6.2.2. - Main Principles

The **Principles of the Governance Decision-Making Model** are based on:

- **Corporate Governance** and **Public Governance**. The model should guarantee a set of values, structures, processes and agents that determine the university's act of strategic control while taking into consideration the internal and external parties involved, awareness of social responsibilities, and aiming for good governance.

This concept needs a balance which is difficult to achieve among the different elements: change and risk context; values and ethical codes; strategy and planning; management structure; identification and recognition of stakeholders' expressions; identification and articulation of responsibility expressions; performance and control information.

In this context of corporate governance, the model has three essential elements:

- **POLICY ENVIRONMENTS** – considers factors which are rather stable in the short run, for example demographic, cultural, historic and geographic aspects, but also budget and other governmental policies which are involved with economic and political unstable cycles.

- **INSTITUTIONAL GOVERNANCE** – should reflect the impact of structures and the rules of the game in institutional leadership giving priority to communication, cooperation and accountability; that is, governance. Institutional governance is based on a balance of choices which may be more centred on institutional goals or on public priorities.

- **ACCOUNTABILITY** – Reflects the evidence and assessment result of institutional governance, considering the public and social environment. Institutions are faced with the need to align their mission with state priorities and pressured to improve their performance in a competitive context that is guided by the market and society. Good university governance presupposes autonomy and development of internal forces, in harmony with its social responsibilities. Establishing networks between universities, state and society (industries, non-profit organisations, etc.) sustains innovation and competitiveness.

- The Governance Model presented is also based on **shared governance** where power, governance and decisions are considered to be responsibilities and shared tasks. Shared Governance presupposes the involvement of internal partners as well as external ones. This governance model vision presupposes survey and participation mechanisms in planning and development, and control of activities according to quality systems.

Shared governance must resist criticism from those who associate it with slow decision processes and implementation difficulties in reorganizing and strategic changes. It must also take into account those who defend it, and express uncertainties about centralized tendencies and means of bureaucratic and corporative organization. Thus a clear definition of competencies and responsibilities and the adequate corresponding composition and size of the governing bodies are fundamental for the model's balance.

The decision-making bodies must, at each level, be oriented towards the definition, monitoring and analysis of the performance of programs/activities/processes/procedures or tasks in harmony with the university's mission. In the external context, stakeholders and accountability principles ensure that social responsibility is taken into account by governance.

- The DMP must be **harmonized with the university mission**. The university mission reveals itself more complex, with amplitude in a context of changing from the teaching paradigm to the learning paradigm, with the development of research and service provision, highlighted in networks, in an environment of progressive competitiveness. Decision-making is focused on activities rather than on organic units. A decision process well focused on the mission as well as on institutional values will allow the university to get the necessary balance between continuity and changing. In this context, institutional research plays a very important role. Watson and Maddison (2005:129-141) detail the importance of self-study in risk reduction, in a process where, the good of the decision will be based on judgment as much as on empirical results.

- The DMP must be **informed and specialized**. Information accessibility and organization adequacy [Huber (1988)] as well as information circulation, are effective

conditions in the DMP. As observed before, a DSS should be put in an adequate structure and share relevant information. DMP specialization implies changes in the governance model in order to reflect member competency and the number of university governance units; a balance between decision adequacy and cost; and the specialization of powers.

- The model should be based on a **decision structure, which assures efficiency and efficacy** of governance bodies. The depiction of the decision structure in the observed organization is different among strategic decision-makers. For the Rector's team, it is a question of a disconnected structure with inefficient consequences; for PCD and PCC, there is a centralized process of decision-making, consequently long and inflexible. One of the great organizational questions in Simon's work (1976:37;234-240) is how to determine the balance between centralization and decentralization in decision-making, and, consequently, at the level of IS and DSS. Power delegation is not only a question of power, but also management exercise and decision efficiency.

- The model must be **assessment oriented**. Nowadays, organizations are based on more than the Cartesian premise of "*I think therefore I am*", premises such as "*I act therefore I am*", or Damasio's (1994) line of thought "*I communicate, therefore I am*" are also present. In this context, the evolution of "knowledge" production can be understood by the one offered by Gibbons et. al. (1994): an evolution from "Mode 1", pure, offer driven, hierarchical and exclusively university related, to "Mode 2", applied, quest driven, enterprise and network based. In the university, good strategic decisions are those that allow a good performance assessment from the institutional and stakeholders' point of view.

Effective information management, with an **approach based on knowledge**, will allow universities to manage a context of change, competitiveness and growth. The information is like a window of opportunities: its broadened access benefits the massification of higher education and tends to promote equal opportunities.

- A systemic, **holistic conception approach** to the DSS model will ensure that the researcher has the possibility to consider, from the beginning, a concept of wide scope information, rather than objective or explicit, but eventually also qualitative and tacit. Since it is hoped that the model will be adequate for the needs of the decision-makers, a focused approach (technological or organizational) may lead to a loss of relevant information. Moreover, when privileging strategic management, there is also a need for

a greater adaptation to the unstructured, external and ambiguous information.

- A DSS should collect data from **internal and external audiences** and inform them. From the point of view of internal users, it should anticipate internal mechanisms in order to create, to maintain and to review the information regarding the activities' results, including comparative advantages, quality and the use of standards. Necessarily, the system needs to contain a large database, which should be comprehensive, accessible and flexibly used according to levels of decision and activities.

Articulation with the stakeholders and the environment, particularly with its top decision-makers [Choo (1998)], is a mandatory strategic matter which also guarantees its survival. If the decision-makers cannot understand external partners (students, state and society public potential, local community, companies, etc) or create the capacity to inform about the judgements they have, they will remain in a significantly frail position to fulfil their institutional responsibilities.

- The IS tends to remain under tension, in the dynamic inter relationship with the organizational and management governance system. In this sense, the **DSS should be contextualized** with the organizational and management premises in order to maintain a degree of flexibility or adaptability which ensures balance. In this context a DSS model in universities should ensure:

- Orientation towards the goals of the organization;
- Analytical planning and follow-up of the factors which determine the success of the institution;
- Mechanisms for performance evaluation and its integration in the management and decision process;
- Its own planning, monitoring and evaluation just like any other vital resource of the organization.

Sub Section 6.2.3. - Critical Factors

The governance decision model must consider critical factors for the model.

There will be reference to an internal critical factor (Assessment Subsystem) and to an external one (the Regulation of the System).

▪ Model Assessment System

The core business of the assessment sub-system in the DMP is clear throughout all the study. Also clear is the difficulty inherent to the design and implementation of a quality cycle in the university [*“a mélange of differential power and purposes and...resulting multitude of forms of quality evaluation” constituting “a new language of higher education”*, Barnett (1994:168)]. This applies, in particular in a PPU, where the mechanisms of pedagogic and institutional evaluation are taking their first steps.

The new Guide of Institutional Assessment of PPU presents the virtue of structuring assessment into areas, including internal organization; material resources; HR; FR; students success; training efficiency; conceptualization methodologies; teaching and learning practices; research, scientific and cultural extension; cooperation at national level; internationalization; quality environment; and student support. However, its use will certainly make evident some fragile areas, such as:

- absence of reference points (What is good? Is it one of the best? Is best good enough?);
- integration into the assessment of different perspectives (inputs, outputs, organization, processes) which will have a model of aggregation that must be complex and arguable in the light of the apparent lack of visible results on social responsibility.

How to assess institutional success in a university? How to measure proficiency? Answers, at times given by the conjugation of several instruments (in the English example RAE, TQA, league tables, etc.) will show evidence that *“there are no absolutes in making a university successful”* [Shattock (2003:23)]. However, today, it is widely accepted that assessments must be oriented towards results and sustainability.

Watson and Maddison (2005:80-83) analyse the use of BNQP and EFQM models in HE. Implicitly having an effective cycle of quality, they are mechanisms that support self-assessment practices and continuous growth. See an example of EFQM application, in 47 Portuguese schools, in Saraiva, Rosa and Orey (2003).

As previously analysed, Baldridge's model has a specific educational application, with 7 criteria items, with the following key characteristics, BNQP (2005:7):

- focus on organizational performance results (organizational performance areas; student learning results; student-and stakeholder-focused results; budgetary, financial and market results; faculty and staff results; organizational effectiveness results, including key internal operational performance measures; leadership and social responsibility results);
- non-prescriptive and adaptable;
- integration of key education themes;
- support a systems perspective to maintain organization-wide goal alignment.

The use of an excellence-referenced model, based on self-evaluation and continuous growth, is essential to develop the innovation and sustainability of a credible governance and decision-making model.

▪ **Steering System**

The State Supervision Model, depicted by Teixeira, Jongbloed, Dill and Amaral (eds.) (2004) with a roundabout, presumes clear rules and simple regulation, more than extensive information systems. In the case of HE, the role of regulation is being redefined: the question is not how much government, but rather what can government do and how can it do the best? As per Dunning (1997:60) “*... government should eschew such negative or emotive sounding words such as 'command', 'intervention', 'regulation' and replace them by words such as 'empower', 'steer', 'co-operative', 'co-ordination' and 'systematic'*”.

The steering system, as a group of rules that influence organizations, can, in the state's case, be justified in two ways: traditional market imperfections and the

prosecution of public politics strategy (social, environmental). In the case of the PPU, the relationships between the state and the universities are complex and on various levels.

Regulation must be viewed as a potential instrument of efficacy and equity in the HE market, which in the case of the PPU is associated with two control forms:

- regulatory control from the state through laws and tutelage regulations which have the tendency to privilege public efficacy;
- self-regulation of the governing model, which tends to promote equity among bodies.

The fallouts already identified in the model cannot question the fundamental essence of these two regulation forms: the first, at the level of strategic public goals, such as quality assurance, the investment in HE or the social support to students; the second, at the level of consensual rules such as Codes of behaviour.

The more often public universities are asked to become hybrid organizations, the more important becomes the regulation system. In this line of thought, Jongbloed (2001) develops the idea that public universities should, simultaneously, be accountable regarding their public tasks as well as their commercial activities.

Accountability and responsible leadership are, once again, key concepts connected to shared regulation, essential to the governance and performance model. In this context, whether there are regulating mechanisms in the PHES, or not, the model should foresee internal regulating institutional mechanisms.

Section 6.3. - Verifying the Model

Bearing in mind the methodology and the constructive approach used, the quality of the conclusions respect the following standards:

- Objectivity/Confirmation: methods and procedures are explicitly described allowing the re-analysis or replication by another analyst;
- Reliability/Dependability/Auditability: the researcher's role is explicitly assumed and clarified; codification, at the beginning of the research in abstract, is verified and shows resolution adequacy when faced with a problem;
- Internal Validity/Reliability/Authenticity: conclusions, when contextualized in a wider way are convergent with the triangulation of different methods and sources and validated by the initial interviewees;
- External Validity/Transfer/Fittingness: the studied universe was sufficiently detailed, with defined objectives as well as the contours of the study;
- Utilization/Application/Orientation towards Action: the solution is accessible to potential users and geared towards the resolution of local problems.

Throughout the study, diverse techniques were used, both to generate meaning from data and to test and check results, assuring that the emerging findings are good. In the final phase of the study it was also important to verify explicitly the following relevant queries:

- In what way does the model respond to the criteria demanded by an excellence model? In what way does it coherently integrate quality management principles in a TQM perspective?
- Does the report suggest settings where the findings could fruitfully be further tested? To what extent may there be interest in testing the model in other PPU?

When answering these two questions, the response tests the model's relevance. It supports the idea that the conclusions are adjusted to excellence models' criteria and might also be of interest in extending it to other cases.

Analysis of the adequacy of the Model to the Baldridge Education Criteria for Performance Excellence.

The BNQP provides a systemic perspective of an excellent performance [Baldridge (2005:5)]. The Education Criteria for Performance Excellence Framework for 2005 are:

1. Leadership
2. Strategic Planning
3. Students, Stakeholders and Market Focus
4. Measurement, Analysis and Knowledge Management
5. Faculty and Staff Focus
6. Process Management
7. Organizational Performance Results

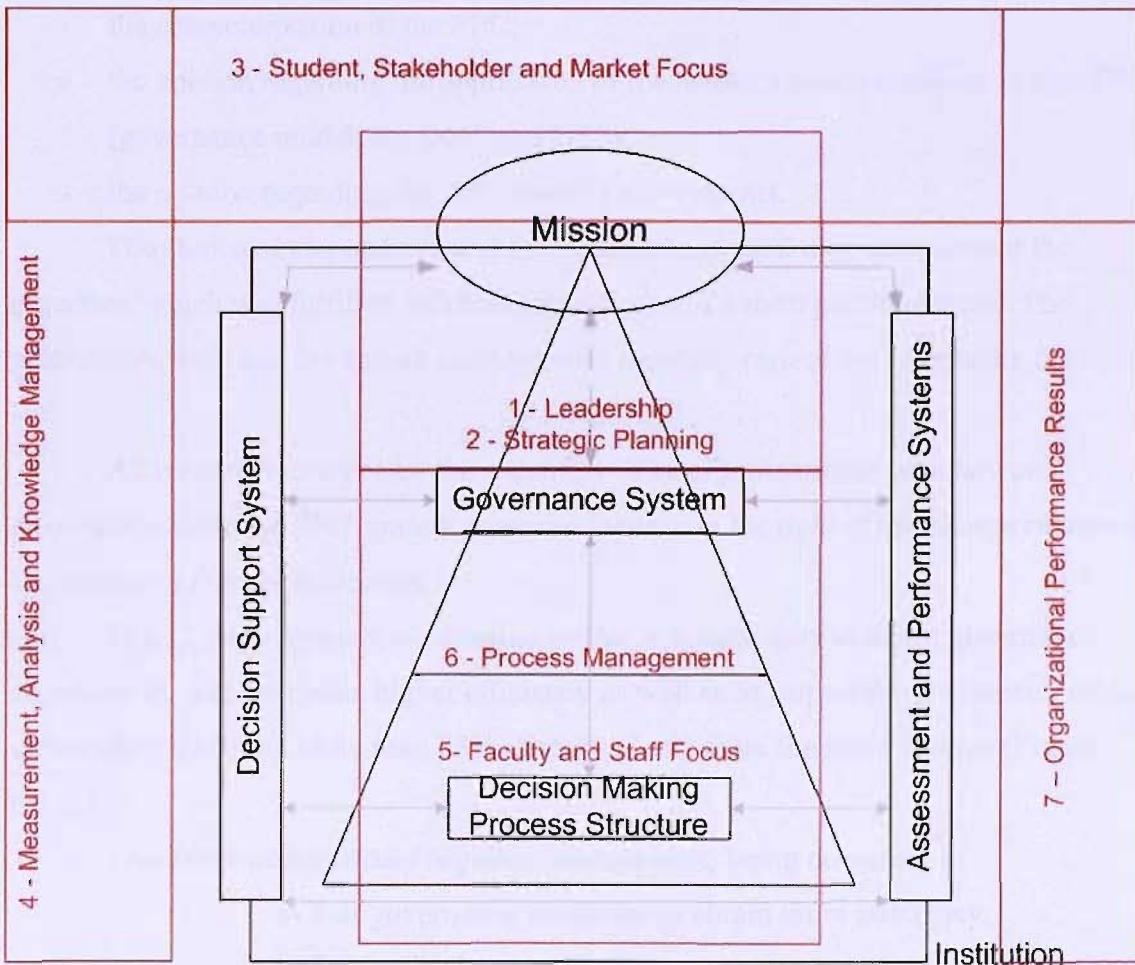
Based upon this archetype, a detailed analysis of each of the 7 categories and its key-areas, took place, as well as its comparison with the model's 5 sub-systems. The correspondence between the Model's Sub-Systems and the Baldridge Education Criteria is presented next in Table 6.3.a..

Table 6.3.a. Summary Matrix of Model/BEC Correspondence

Model's Sub-systems	Baldridge Education Criteria
Mission's Strategic Definition	2. Strategic Planning (2.1) 3. Students, Stakeholders and Market Focus (3.1, 3.2)
Governance System	1. Leadership (1.1; 1.2) 2. Strategic Planning (2.2) 6. Management Process (6.1)
Decision-making Process Structure	5. Faculty and Staff Focus (5.1; 5.2; 5.3) 6. Management Process (6.2)
Decision Support System	4. Knowledge Measurement, Analysis and Management (4.2)
Performance Assessment System	4. Knowledge Measurement, Analysis and Management (4.1) 7. Organizational Performance Results (7.1; 7.2; 7.3; 7.4; 7.5; 7.6)

Based on this correspondence it was possible to analyse the areas where there may be overlapping of the dimension of the Governance and Decision Making Model proposed, bearing in mind the relationship between the dimensions presented in advance (Figure 6.2.1.b.) and the Education Criteria of the Baldridge Model. This analysis is shown in Figure 6.3.a., presented next.

Figure 6.3.a. The Model's Dimensions and the Baldridge Education Criteria



From the analysis of the correspondences and interaction among the dimensions/criteria of the model results an adequacy on criteria structure and the systemic dimension of the model proposed.

Result Analysis of PPU Administrators inquiry.

The model's conclusions, as a PPU case-study, cannot be generalized. However, there is a possibility that its results might be of interest to other PPU. To evaluate whether or not this would be of interest, an electronic survey was provided to the heads of administration from the remaining 12 PPU. The survey (Appendix 6.3.a.) was structured into three parts and comprised the following:

- the characterization of the PPU;
- the opinion regarding the application of the model's main principles to that PPU (governance model; the DMP and DSS);
- the opinion regarding the PPU model's sub-systems.

The choice of respondents and the methodology used took into account the objective, which was fulfilled, of obtaining efficacy in a short period of time. The preparatory work and the survey analysis were carefully carried out (Appendix 6.3.b.).

All respondents agree on the statement "*The organizational structure and governance model of PPU contain some inadequacy in the light of the change rhythm in the context of Higher Education*".

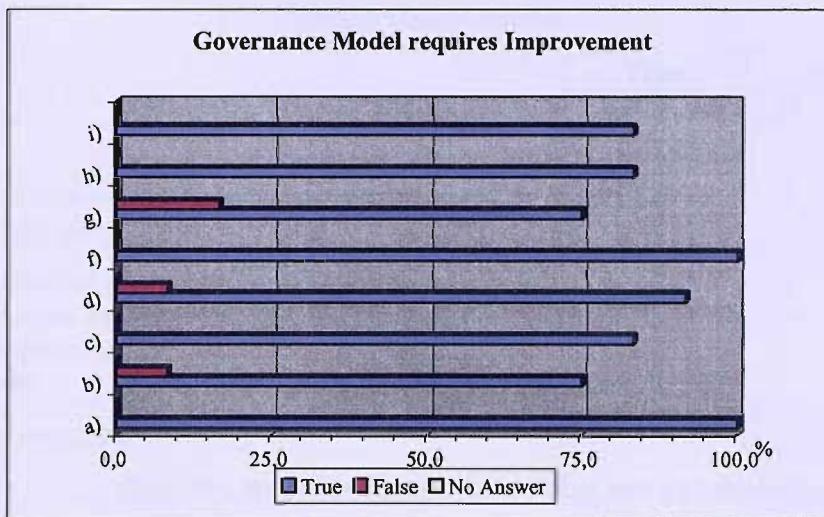
The 12 respondents were unanimous that it is necessary to adjust governance structures in order to obtain higher efficiency as well as to respect the complexity of the university's mission. More than 75% of respondents share the same opinion (Figure 6.3.b.):

- *the Governance Model requires improvement*, being necessary to
 - a) Suit governance structures to obtain more efficiency;
 - b) Suit bodies' representation;
 - c) Integrate external stakeholders' perspective;
 - d) Integrate assessment models into the governance process.

However, there is a need to respect

- f) The universities' mission complexity;
- g) The collegiality principle of governance;
- h) Faculties' representation;
- i) Students' participation in governance bodies.

Figure 6.3.b. Statistic Analysis - *Governance Model requires Improvement*



All respondents stress that the decision-making process needs improvement due to progress of strategic goals, although 75% of respondents also considered other reasons .:

- *the Decision Process needs improvement* because:

- a) The decision's structure is complex;
- b) The decision process is long;
- d) There are limitations to leadership;
- e) There is a bureaucratic context for decision-making;
- f) The strategic objectives have evolved.

However, the following should be considered

- h) The informal component makes decision swifter;
- i) Leadership is effective;
- j) Institutional values of freedom and autonomy are respected;
- k) Collegiality is respected.

It was possible to apply the adjustment test to a), b), d), e), h), i), j), k), although the majority of respondents considers that the decision-making process requires improvement due to instability mechanisms (58%).

Regarding *the decision-making support system and the improvement of performance*, the results are presented in Table 6.3.b.:

Table 6.3.b. Statistic Analysis – The Decision Support and Performance Improvement System should evolve

	True		False		No Answer	
	N	%	N	%	n	%
Because						
a) The organization of information is not guided towards management activities	10	83	1	8	-	-
b) The circulation of internal information is difficult	8	67	2	17	1	8
c) The information survey and integration processes should improve with governance performance assessment	12	100	-	-	-	-
d) Other improvements	2*	17				
However, the following should be taken into consideration						
e) If all types of information are valued	8	67	3	25	1	8
f) The information channels are very important	12	100	-	-	-	-
g) The balance between centralization and decentralization	11	92	-	-	-	-
h) The information levels are adequate for the decision levels	10	83	2	17	-	-
i) Other	2**	17				

* - Staff and attitudes must be professionalized.

** - If worth is given to all types of relevant information or from relevant sources.

- Not all information is valuable and it must be selected and directed towards supporting decision-making.

Survey respondents consider that, as far as PPU is concerned, the decision-making and strategic governance model must encompass an *explicit mission definition* and a *shared governance system*, given that only 33% of the sample considers that the universities already encompass it. As to what characterizes regards these approaches, there was no statistically significant difference between the cases that do and do not encompass it.

The majority of respondents, in a significantly superior proportion, consider that PPUs must include *decision-making feedback mechanisms* (92%; p=0.006) and *performance evaluation systems* (83%; p=0.039), although not in the near future. No one considers that the PPU include adequate *information systems to support decision-making and monitoring*, but think that they really should.

The results provide clear evidence of a high agreement level regarding the model principles among the 12 PPU heads of administration.

CHAPTER 6

GOVERNANCE DECISION-MAKING MODEL IN A UNIVERSITY

Chapter 6 details the results of this research. The five governance decision-making model's sub-systems are presented, as well as the principles which sustain them. A successful model should be based on constant and improvement-driven assessment integration. It requires organizational and personal qualities from decision-makers, namely: leadership; commitment; integrity; accountability; transparency and integration.

The model proves to be conceptually adjusted to the BNQP Excellence Model, and obtains a high agreement level from the 12 PPU heads of administration, according to the results presented in the last section.

CHAPTER 7

SUMMARY AND CONCLUSIONS

CHAPTER 7

SUMMARY AND CONCLUSIONS

7.1. Research overview

7.2. Major Research Findings

7.3. Research Contributions and Implications

7.4. Leads for Future Research

The previous Chapter presents a summary of the main aspects of the study.

The research question is reviewed to recall the methodological standpoint, the research design, samples and participants. Subsequently, the main results are presented, both according to the decision-makers' critical needs as well as in terms of the final governance model's basic principles.

The Chapter ends with the identification of the study's key contributions and implications, especially the use of the model and its impact on the strategic management of the University. It also identifies a set of leads for future research.

“The only justification for our concepts is that they serve to represent the complex of our experiences; beyond this, they have no legitimacy”.

Albert Einstein

The United Nations declared 2005 to be the “International Year of Physics”, thus commemorating the hundredth anniversary since the first and main works of Einstein (<http://www.nautilus.fis.uc.pt/aif>). The common citizen will still be unable to be indifferent to the remarkable man, who revolutionized the certainties, desacralizing “the absolute truths” of the existing models. In this context, the use of Einstein’s sentence serves as a reference to what is meant to be the approach of this research, and consequently, the contextualization of the model.

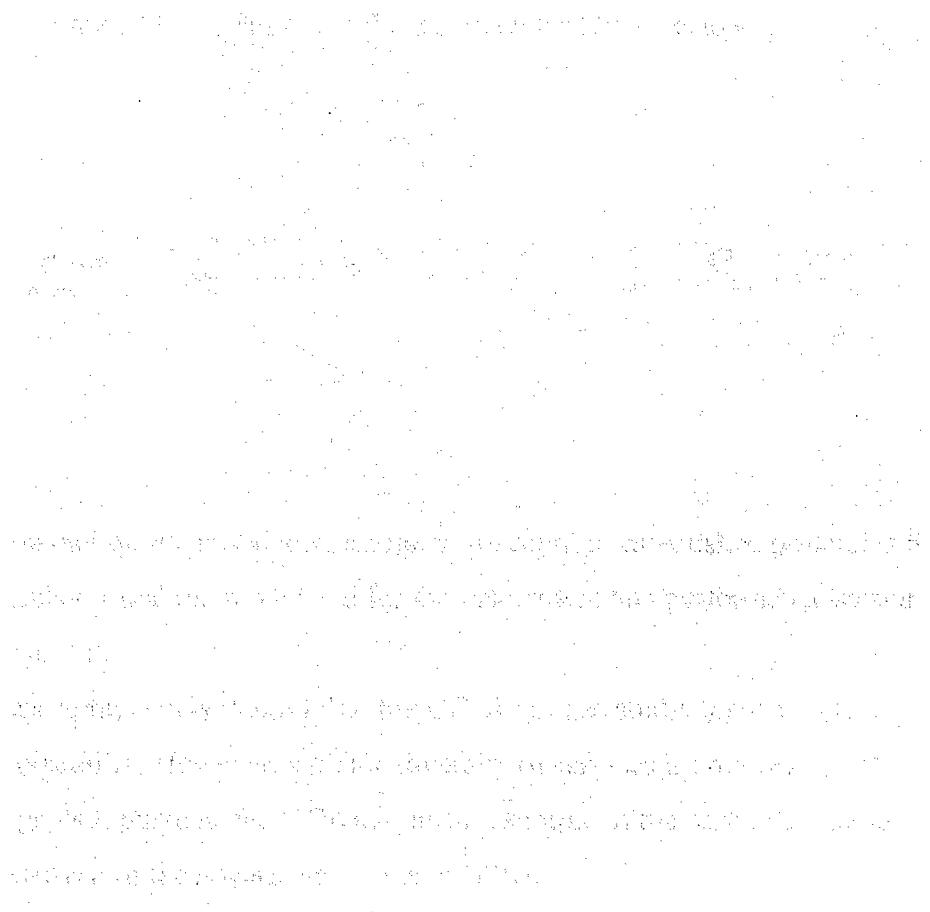
The approach to the decision theory, according to a constructive perspective, is not characterised by exogenous or endogenous rationality, or by typologies of ideal or empirical economic behaviours, nor through the reference to decision systems. It is an approach characterised by a learning process, coherent with the decision process, where rationality must be complemented by coherence, consistency, focus and pragmatism. If on a normative approach, postulation is intended, and observation is privileged on a descriptive approach; on a prescriptive approach, as the one used, the most that the researcher can hope for is to obtain a “consensus” (using a code that is often quoted by the decision-makers in the research). If, in reaching a decision, the key word should be “responsibility”, in the design of the decision model the word “consensus” can portray the essence of “shared cognitive artefacts” to which the constructive approach is adjusted. In the case study, this idea has been presented since the first preparation interview, when the top decision-maker assumed that: “it is fundamental to create consensus, if change is wanted”.

In the study, although there were many common traits amongst the interviewees, and despite the common conceptual frame, different perceptions of the “ideal system” became clear. It is a predictable output, valid and correct, when considering that it represents different “world views”, which allow a comprehensive understanding of the problem and therefore help to find more adequate solutions. The research model attained for the PPU was developed based on this shared knowledge approach, supported by the “world views” of strategic decision-makers and results from the subsequent synthesis.

This research intends to establish principles for a successful Governance Decision-Making Model in a PPU, in the current context of change, and based on the perceptions of internal decision-makers. With this purpose, throughout the various chapters of the thesis, relevant literature was critically reviewed, methodological choices were justified, models developed, tested and validated, and results presented and discussed. This final Chapter gives an overview of the research, summarises the key findings, evaluates its main contributions and limitations, and suggests areas for future research.

“In times of crisis, innovation is more important than knowledge”.

Albert Einstein



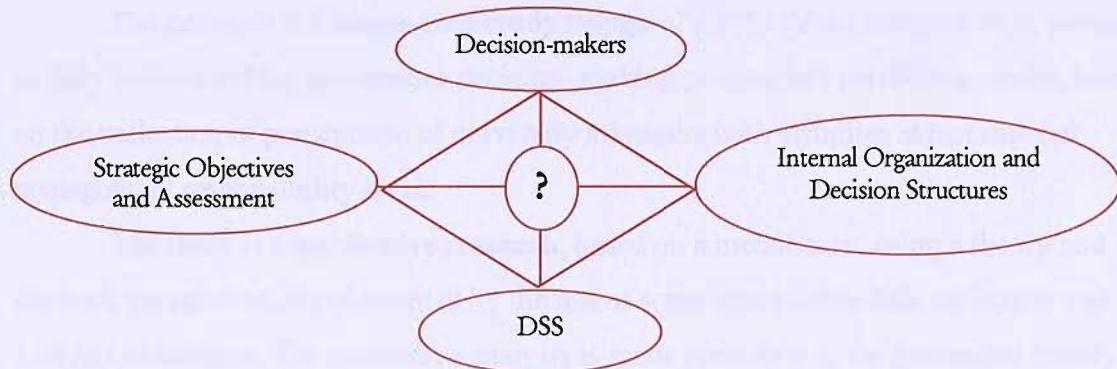
Section 7.1. - Research overview

A research overview requires a look back into the following aspects:

- **Research Problem and Focus**

In the context of change of Portuguese university management, and considering the dialectics among the four main structural vectors,

Figure 3.b. – Diagram of the Research Problem Vectors



the research problem, based on the top managers' perception, established principles for a governance decision-making model and for the assessment and performance system which must support it.

The focus of this study was a PPU: the UC. As a case study, there are clear limits to generalisability. However, with the diversity of services it provides and the multiplicity of goals it pursues, the UC could be an example of the particularities and complexities involved in the governance model of PPU.

Considering that the strategic decision actors are collective bodies or individual managers, which are essentially positioned at the CRUP, Rectory and Organic Units' level, to obtain some degree of detail and adequacy for the structures, the study was

developed on three levels: macro (national): PPU; meso (organizational): University; and micro (sub-organizational): Faculties.

In spite of the importance of the case and the results of the final electronic survey, the conclusions of the model cannot be generalized to the PPU. This is a limitation of the case-study approach. However, despite these methodological truths, the researchers' opinion is that many of the findings can usefully be applied in the Portuguese universities and, indeed, within HEI further ahead.

■ **Methodological Standpoint**

The research is developed from a “needs assessment”, in a systemic exercise of survey and evaluation, which enables to identify the key factors of a strategic management decision process in a HEI. In this case, the evaluation model, centred on the participants' perspective of the institutional organization, adopts **a participative and management-oriented system** [Trochim (2002)].

The rationale is a **single-case study design** of a PPU [Yin (2003: 39-46)], aiming to fully understand the governance decision-making process and establish a model, based on the collection of perceptions of university managers with affinities at institutional management responsibility level.

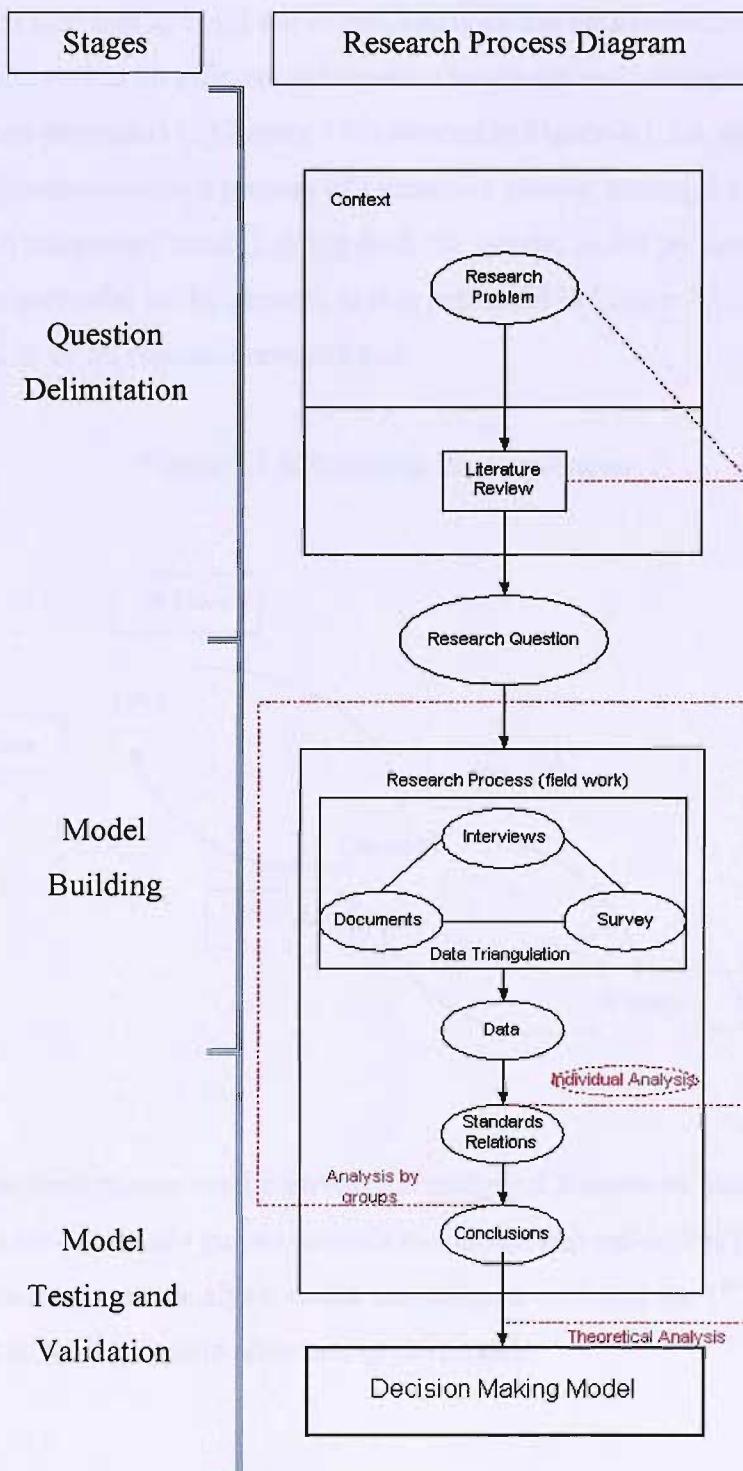
The study is a **qualitative research**, based on a metatheory, using a theory and methods perspective, supplemented by the use of some quantitative data collection and analysis techniques. The qualitative analysis is made according to the **grounded theory** perspective [Glaser and Strauss (1967)], based upon inductive development, where a constant comparison, from a set of data, contributes towards the development of a theory “that is grouped in the data”.

The research project is framed in the context of **institutional research**, and it faces potential tensions or biases, which could result from the pre-existing professional relationships between the researcher and the institution. Consequently, there is a permanent concern for a triangulation between diverse instruments for collection, different sources, at different times, and especially for successive analysis. These concerns are extremely important, in order to identify, understand and avoid the potential bias for which the researcher could be responsible.

Research Design

In what concerns the methodological standpoint, a research plan, which encompasses three major stages – question delimitation, model building and model validation - was established. Figure 7.1.a. shows the three research stages combined with the Research Process Diagram (Figure 1.3.a) presented in Chapter 1.

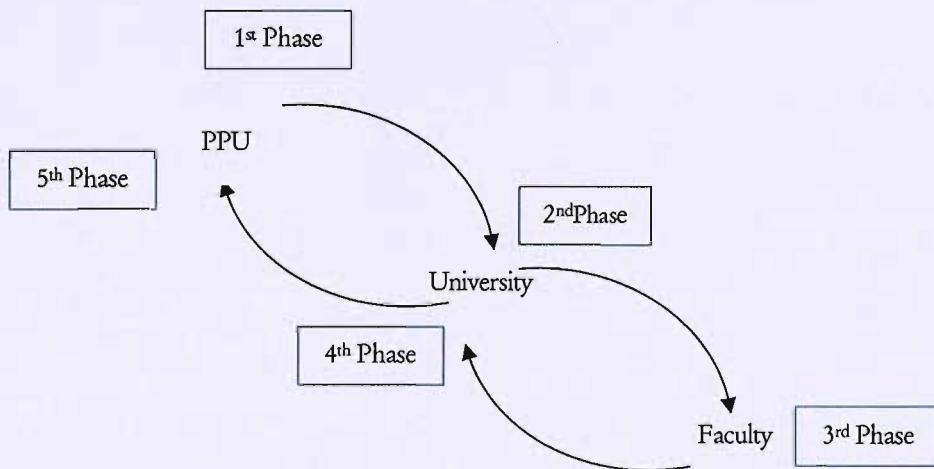
Figure 7.1.a. Research Process Stages Diagram



According to the research plan, in the first place it was necessary to fine-tune the limits and the research scope. Thus, it was necessary to understand the context of the analysis and to clearly define the research problem vectors. This framework was identified and pre-validated based on the literature review and on the results from the exploratory survey carried out in the UC.

The next step was to build the model, based on the data collection instruments and the tools adjusted to an efficient information treatment and adequate analysis. The choices taken are presented in Chapter 4 (illustrated in Figure 4.1.3.a. and Table 4.2.a.). The research process became a process of interactive phases, among the three levels of analysis (PPU/University/Faculty), going from the general to the particular and then re-going from the particular to the general, as it is presented in Figure 7.1.b. In this process Atlas.ti proved to be an essential research tool.

Figure 7.1.b. Research Process Phases



The first three phases are the survey and analytical framework study phases. The last two phases are essentially guided towards evaluation and validation, being that the 4th comprised some survey and analysis model construction work and the 5th stage was basically a test as to the possible relevance of the model.

■ **Samples and Participants**

The formulation of the model in this research was based on an extensive literature review and on extensive institutional qualitative data, and it was theoretically and empirically tested. Table 7.1.a. summarises the data collection phases, purposes, analysis units, data collection instruments and samples involved.

Table 7.1.a. Data Collection Summary

Phases - Level	aims regarding the Governance Model	Analysis Units	Data Collection Instruments	Participants	
				Actors	Samples
1 - Macro	Model Survey	PPU	- Document Analysis - Benchmarking	Rectors Senate	All 13 PPU
2 – Meso	Model Survey Collection of decision-makers' perceptions	UC UC - Faculties	- Document Analysis - Discourse Analysis - Interviews	Rectors, Senate VR, PR, OI PCD, PCC	3 Rectors 15 Interviews (20 Positions)
3 – Micro	Model Survey Collection of decision-makers' perceptions	UC - Faculties Pilot-Faculty	- Document Analysis - Interviews - Repertory Grid Interviews - Workflow Analysis	PCD, PCC AR, CD, CP Support Services Responsible	Interviews: 9 PCD; 7PCC; 1AR (1+2) PCD + 7CD 1 PCC 1 PCP + 1 CP 2 SS Resp
4 – Meso	Development and Validation	UC UC - Faculties	- Document Analysis - Feed-Back Validation	Rector VR, PR PCD, PCC	(...)
5 - Macro	Testing and Validation	PPU	- Survey (validation)	Heads of Administration of PPU	12 Heads of Administration

Section 7.2. - Major Research Findings

The results of the research were presented in the previous chapter, both in terms of the decision-makers' critical needs (Section 6.1) and in terms of the final governance model's basic principles (Section 6.2). In Section 7.2 the main research findings will be summarised.

- **Decision-Makers' Critical Needs in the PPU**

Considering the four structural vectors (decision-makers; organization and decision structures; DSS; strategic objectives and assessment) upon which the governance model was built, the decision-makers' preferences presented an internally coherent conceptual rationality, guided towards the resolution of the problem, where some critical concepts had a central systematizing role.

The relationship between the key variables and the change principles desired by decision-makers, at DMP and DSS level, was an essential basis for the research model. However, the importance of these results surpasses the model and could be a reflection point about UC's current management model.

The following table, Table 7.2.a., presents a synthesis of the main conclusions at this level.

Table 7.2.a. Summary of PPU's Decision-Makers' Critical Change Principles

Critical Variables	Critical Dimensions Of Change
University Managers Mission	
	<p>adequacy of model towards complexity of mission</p> <p>progression of strategic objectives: T&L: Bologna, globalization Research, financial self-sufficiency, support for network development Service Provision: instigate initiatives, market co-production</p>
	<p>institutional values of academic freedom and autonomy</p> <p>Transformational leadership</p>
	Improvement of leadership DMP conditions
DMP	
	systematic integration of assessment models
	<p>decision-making process based on collegiality principles</p> <p>adequacy of governing structures, with the aim of better efficiency</p> <p>bureaucratic decision-making context</p>
	<p>use College representation as pillar of shared governance</p> <p>reflecting regarding members representation</p> <p>changing students participation</p>
	centralized decision-making
	balance between centralizing* and decentralizing*
Information	
	<p>suitability of the DSS information levels for decision levels in governance models;</p> <p>critical information centralization;</p> <p>valuing different types of information (technical, soft, etc)</p> <p>importance of informal information circulation channels;</p>
	<p>improvement of internal information circulation (between bodies; decision and results feed-back, etc);</p> <p>improvement in survey and external information integration processes;</p>
<p>Activities</p>	<p>information organization guided towards managing activities (T&L; Research and Service Provision);</p> <p>suitability of the DSS for performance monitoring and assessment.</p>
DMP CD	improvement of DMP leadership conditions;

The model proposed is structured around a set of principles constructed from a wide-ranging survey of interviews with internal strategic decision-makers, and framed within the theoretic literature review.

The decision-makers are simultaneously:

- aware of the need of an institutional change in the governance structure and in the DMP, which they believe to be desired, and on the other hand
 - they become aware of the sensitivity of some dimension's change, such as students' representation in the university top bodies or centralization/decentralization of the internal DMP.

The proposed governance model balances, in an integrated and effective way, this dialectic tension between the change dimensions and the structural inertia dimensions. Some successful examples are the concept of mission as a strategic compromise between the organization (and the core institutional values as academic freedom and collegial DMP) and the society (supported by a clear, and broad definition of stakeholders); or the adequacy of new governance structures, more efficient (changed in their composition), with the most grounded concepts (consensus, institutional culture).

The good functioning of a governance system is based on constant and improvement-driven assessment integration. It requires organizational and personal qualities from decision-makers, namely: leadership; commitment; integrity; accountability; transparency and integration.

These results are a reflection point about UC's management of change.

■ **The PPU Governance Model**

The university's "DNA (Deoxyribonucleic Acid) code" matches the three business processes upon which the mission is based:

- people production (knowledge download);
- knowledge production;
- specialized service provision.

The governance decision-making process must be based upon the management of processes and results and not upon the management of organic bodies. Being aware that a management change may require a transitory period, it is important to keep in

mind that what is not done via process results management is, in fact, supporting bureaucracy.

The essence of the model is not based on a detailed organizational structure definition, but rather on five functional sub-systems, which ensure its coherence:

- Strategic Definition of the Mission;
- Governance System;
- Decision-Making Process Structure;
- Decision Support System and
- Performance and Assessment System.

The active and articulated interaction of these sub-systems guarantee an effective governance model in the case study. Some essential research findings may be highlighted:

- decision model's structuring principles – the DMP must be in harmony with the university mission; it must be specialized by decision competencies; and it must be guided in assessment;
- DSS structuring principles – the system must have a holistic approach, articulated with the environment; knowledge and organization guided goals, in order to maintain a high degree of flexibility and adaptability; and it must allow an analytical and sustained follow-up, to assure institutional success;

The main critical factors were integrated into the model. The standard use of an excellence referenced model, which highlights accountability, social responsibility and conscientious leadership, is a conclusion obtained by a comprehensive basis.

The model proves to be conceptually adequate to the BNQP Excellence Model, and it obtains a high agreement level from the 12 PPU heads of administration, according to the results presented in Chapter 6.

Section 7.3. - Research Contributions and Implications

The PPU study is over seven centuries old and, as other PPU, is at the crossroads of needing to manage wisely and efficiently the adequate balance between the profitability of a remarkable institutional capital, comprising knowledge and patrimony, and maximizing opportunities, which arise from the inevitable choices that it has to face in the future. The roots of the past, which a strong institutional culture may represent, and the hope within the Bologna process (a current challenge for any PPU) are important framing aspects of a PPU which, as a HEI, manages its current history in a context of hard tensions.

The DMP analysis of the institution was developed due to the need to understand better how the university thinks and decides its future. In this context, the main question was based on the study of how it determines, interacts and balances the institution's mission, strategic decision-makers, internal decision-making and organizational structures and DSS, in a context of constant assessment, where success is the main goal to attain.

The governance model is presented as a synthesis of this balance, on an institutional research approach, framed by the theories reviewed in literature and built within coherent perceptions of top management, according to the analysis brought about throughout the research.

In the researcher's opinion, the study will bring relevant conceptual contributions:

- as a reflection process about the PPU's top vertex governance;
- as a methodological archetype of internal guidance towards action;
- as a response to PPU environmental pressures;
- as an instrument for governance change.

The greater implication of the grounded view generated by the research arises essentially from the revised conceptualization of Governance as the centre of a four-pointed star. In other words, Governance is linked, in a two-way relationship with: strategic mission; DMP; DSS and Assessment. The model gives a broad understanding of governance in the university: this is a real added value for the university. In an internal change process, if leaders want to take better decisions, it will not be enough to change the DMP; there has to be a strategic plan in order to care about decision support systems and to look at performance and institutional assessment. In a change process, in order to achieve effective improvements, all five sub-systems must be considered simultaneously.

In the model, the assessment is a strong component which is collected from decision-makers perceptions and is useful to inform and structure the governance process. The model emphasizes the relationship between assessment, DMP and governance.

The check tests also enabled the researcher to put into perspective the model's potential contributions towards university management (adequacy of the model to the BNQP Model) and the PHES. By the results analysis of the PPU Administrators' inquiry, the case of UC is thought to provide useful insights to the governance decision-making model in other PPUs.

There is a lack of empirical studies on institutional research in PPU. The contributions to the understanding of the decision-making process in PPU are small in number; no previous research has been conducted on analysing the integration of TQM models in the decision-making process. The model has an original view of DMP that could help the institution to perform better.

From the research process point of view, it is also the first time that the conceptualization of the DMP has been made in a PPU, in a deep and comprehensive way, based on data collected from different decision-makers, making this research relevant and original. This approach required a strong research process with deep knowledge. The complexity of the research's analytic process, namely codification and triangulation, is supported by data analysis software (Atlas.ti), which has not been used in the study of PHE and which proved vital in encouraging and enabling the creative process.

The research, in the light of the question it answers and the way it answers it, has unquestionable impact at a wide range of levels, such as

- in the organization studied:
 - as a diagnostic study about the organization, the decision processes and the improvement opportunities with (as presented in the example of course creation) or without financial impact;
 - based on the model with the integration of expectations and stakeholders' information and ensuring the regulating and structural self-assessment mechanisms. The model contributes to an adequacy between governance and a permanent and self-sustained strategy. As a self-sustained continuous improvement model, the organizational impact is broad and permanent;
- in the University's Faculties:
 - ensuring activity integration among units, guided towards strategic goals;
 - ensuring that the IS will comprise the need to balance centralization and decentralization at information and decision level;
 - integrating its participation in governance;
- externally, the use of the model will have impact at the level of:
 - Stakeholders – the model ensures a direct interaction among stakeholders from the beginning of the strategic planning process, until the final institutional evaluation
 - Government – The model could be an important input for the government, in the discussion about the PPU governance model.

Thus, the governance model represents more than a result of a research project. It is an important contribution for the case study's governance. Its use has a significant impact both at internal and stakeholder level, regardless of the possibility of extending it to other PPU.

Section 7.4. - Leads for Future Research

In several aspects, this is a pioneering research and therefore findings and extrapolations must be regarded carefully. A limitation arises from the single case used in this research. It is known that sample sizes strongly influence the quality of estimations. Although minimal requirements were known, it is thought that increasing the number of cases would improve the robustness of some parameters and enable the specification of some model characteristics.

The fact is that, by definition, a model is a simplified representation of reality and, consequently, never considers all the potential influential variables. In this case, the reality studied is the institution. The level of detail in the institutional research and the methodology for collecting potential data at a single moment, in spite of their profound and comprising character, did not enable, with the available resources, the broadening of the scope. The final survey to all PPU contributed in a significant way to offset this constraint.

The heads of administration's survey shows a potential interest in studying the possibility of applying this model to all PPU. The results prove to be of general interest, despite the different characteristics of some universities, namely their cultures; and their governance and decision structures. An interesting development of this model would be a study enlarged to all PPUs.

The present institutional research could also be extended, as a case study, in several ways. It would be interesting to develop a longitudinal design, which would allow the institution to understand in what way the rotation of top bodies does or does not compromise the model's conclusions. Another interesting development would be to look in detail into some institutional model dimensions. The development of specific

sub-models, such as Mission, in an in-depth analysis could contribute to a better understanding of governance drivers.

The “governance” study, which has been replaced in recent literature by the “government” topic, corresponds to a very strong growth in challenge complexity to which decision structures are subject.

In universities, “complex organizations” with structural goals ambiguity, it makes sense to speak of “governance”. And it makes even more sense when, as in the case of PPUs, there is an ambiguous relationship between the state and the university, influenced by the state’s mutations in a globalization context and its difficulty to define the “public service” concept in the scope of the university.

In Portugal, this ambiguity is visible in PPUs at power and governance structure levels. Stakeholders’ participation often proves to be very formal and almost always with little effect. The truth is that there is a university – state – society search for balance in a new context.

In the light of an external context even more demanding and challenging, it seems to be of great interest to develop the strategic decision model(s) of PPU, in the future, trying to understand in what way the five sub-systems are critical in the adaptation of the power and governance structures in PPU to the necessary changes.

“Thus the University in its labyrinth”.

João Vasconcelos Costa (2001)

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