A (Nobel-prizewinning) wag once said that you can see the computer age everywhere except the productivity statistics. If that’s true of the private sector, how much sharper a barb is it against governments, who strive to do so much, and do it so terribly badly?

When we look at the sort of cutting-edge stuff reported in journals such as this, it seems a no-brainer to apply semantic technologies and linked data to public administration. After all, government is massive, unwieldy, distributed, and siloed. Its giant troves of data are rendered in myriad representational formats and standards. It struggles to coordinate its various departments and layers — health, social services, policing, local, state, and national bodies, and quasi-independent agencies bash their heads together more often than provide “joined up government.” Organizations that provide services, using information from heterogeneous sources, expressed via diverse ontologies — the classic Semantic Web use case.

The great sociologist Max Weber conceived government as a sort of giant information processor, while Herbert Simon, doyen of information scientists, argued as early as 1973 that “If we examine the kind of information that executives use, we find that a large proportion of it is simply natural language text. …[Computers could be] initial filters for most of the information that enters the organisation from outside.”

Yet despite great strides and many successes in this area, semantically enabled public administration is still something of a minority sport; it would be 30 years before anyone acted on Simon’s insight. Is this something to depress us pointy-headed techies?

I would argue not, because semantic technologies could revolutionize not just governments’ information processing practices, but the purpose and scope of government itself. We have to come to terms with not only the machinery of administration, but also the wider question of the relationship between citizens and Leviathan. This will take some wrestling with, and is obviously not merely a technical question.

Liberation has been a theme in modern politics, from the Prague Spring to the Arab Spring. We are seeing the emergence of an Information Spring, which could set data and information free to serve the people — if we understand its implications in the right way.

Semantic e-Government: Challenges and Slow Progress

Given the problems of coordinating government, it’s unsurprising that governments around the globe fell upon technology with delight. Given the challenges of implementing digital versions of legacy analogue systems, it’s equally unsurprising how little has happened beyond rhetoric.

E-government involves digitizing governments’ interactions, spawning phrases such as G2C, G2B, G2G, B2G, and C2G — indicative for their implication of a one-way information transfer. However, some tried to push further, via what became known as “transformational government,” the use of IT plus business process reengineering (BPRE) to improve delivery of public services.

In this spirit, essays in semantic e-government began to appear. The challenges were many. Government has many drivers — unions, taxpayers, party members, big donors, and interest groups need to be kept happy, and efficiency isn’t always the main aim. The perception of the Semantic Web as a complex and difficult technology combined with the enormous difficulties
of change management in the giant
government machine present a
daunting prospect.

The science still pushed for-
ward. The EU sponsored interesting projects with names such as Access
e-Gov, OntoGov, and SemanticGov
to develop and roll out the tech-
nology. Practical ideas such as life
event ontologies, which created a
unified set of terms relating to sig-
nificant events in citizens’ lives –
moving house, registering to vote,
registering a death – raised the
hope that citizen-centric services
might appear irrespective of the
combination of agencies collaborat-
ring behind the interface. Complex
architectures were designed, such
as that of SemanticGov, where five
layers connected stakeholders, appli-
cations, and service providers via a
semantically enabled middleware
environment.4

Pragmatics, Natch

Such ambitious programs could
potentially implement a whole-
hearted transformation of govern-
ment processes, but, as so often with
the Semantic Web, pragmatics is the
Achilles heel. A lot of BPRE would
seem to be on the cards – should this
be managed as a risky big bang, or
should the focus be on incremental
change instead, with the potential for
loss of momentum, complexity, and
compromises with legacy systems?
Tech suppliers, which benefit from
current arrangements, lack expertise
in semantic technologies and incen-
tives to change, while the trend of
outsourcing IT provision has devas-
tated government’s in-house ability to
manage major upgrades.5 One peren-
nial problem is first-mover disadvan-
tage – the corollary of Metcalfe’s law
is that the later users benefit most, so
how will early adopters find partners
and build networks?

Furthermore, although semantic
e-government is more citizen-centric,
it’s still prescriptive. Standards are
determined and services are specified
by governments, whether produced
in-house by government agencies,
outsourced (provided by the private
sector and paid for by government) or
privatized (private sector services paid
for by users). Life events might make it
easier for me to find the services I
need at a particular juncture, but I
still have to tailor my life to a life-
event ontology designed by someone
else. James Scott’s brilliant Seeing
Like a State details the state’s need to
render us, its citizens, legible to it.6

Our choices and expressions are nar-
rowed whenever they are rendered in
standardized forms as pieces of data.
Is this the right solution for a plural-
istic society?

However, the e-government con-
text has been changing; transparency
is becoming a major driver of politi-
cal change. The idea that “sunlight is
the best disinfectant,” in the words of
Louis Brandeis — that citizens’ access
to information would facilitate under-
standing of democracy and deci-
ision-making, hold governments to
account, and reduce opportunities for
corruption — had been honored more
in the breach than the observance.
Yet as the ICT revolution and the Web
flourished, the spread of information
helped foster good governance. As
more information-sharing technology
moved into place — not only the Web
to link documents, but linked data,
big data, massive number-crunching
capabilities, and the democratization
of analytic tools — it combined with
the ideology of serendipitous reuse
to turn the perception of govern-
ment transparency from medicine to
opportunity.

Open Data

Enter open data. A few early pio-
neering exercises (including AKTive
PSI, in which your columnist had a
small involvement)7 demonstrated
the value of reusing data in new
contexts, and the need for pragmatic
development methods.8 The need for
legitimacy for the economic stimulus
following the financial crisis meant
that each cent from the US taxpayer
needed to be accounted for, lead-
ing to the development of data.gov
(launched May 2009), now the open
repository for nonsensitive US gov-
ernment information.

I won’t go into enormous detail
on open data, which Nigel Shadbolt
and I have discussed in the Linked
Data department in this journal.9

Suffice it to say that data is open if
it is machine-readable, and online
under an open license, so its use and
reuse aren’t constrained by terms
and conditions, or access control
mechanisms. Ideally, the data would
be represented in nonproprietorial
formats, such as CSV or RDF. Open
data are best expressed using open
standards — doubly exploiting the
power of open.

Utilitarian arguments for open
data will eventually be shown to be
good or bad by sophisticated econo-
metrics. But more powerful, in the
Digital Citizen’s humble opinion, is
the argument for a right to govern-
ment data that is nonpersonal and
nonsensitive. Government is empow-
ered (or empowers itself) to col-
clect data (as we know from Edward
Snowden’s revelations, quite large
quantities of it). It can do this morally
because of the legitimacy that citi-
zens provide via the ballot box, and
economically because of the taxes we
pay. Citizens are central to the data-
gathering model, so why shouldn’t
citizens reap some of the benefits,
rather than being passive recipients
of government-defined services?

Democratic governments have
been generally, if sclerotically, mov-
ing toward freedom of information
(FoI) for some time. The US Freedom
of Information Act became law under
President Lyndon Johnson on Inde-
pendence Day 1966, while data pro-
tection — a complex hybrid balancing
data sharing with personal privacy
protection — emerged in the 1970s
and was codified in principle by the Organization for Economic Cooperation and Development in 1980 (www.oecd.org/internet/ieconomy/oecd-guidelinesontheprotectionofprivacy-andtransborderflowsofpersonaldatalinks). More recent innovations include the provision of data in a form suitable for the user’s purposes, rather than the provider’s. Some governments were swept along by a wave of transparency they hadn’t asked to surf — the UK’s Tony Blair, a man not hitherto noted for self-criticism, berated himself in remarkable terms for introducing FoI: “You idiot. You naïve, foolish, irresponsible nincompoop. There is really no description of stupidity, no matter how vivid, that is adequate. I quake at the imbecility of it.”

Blair’s regrets notwithstanding, the major step forward was the realization that governments could provide information routinely, rather than insisting that people ask for it (assuming they knew it existed in the first place). By 2003, the EU Re-Use of Public Sector Information Directive stated that “Member States shall ensure that, where the re-use of documents held by public sector bodies is allowed, these documents shall be re-usable for commercial or non-commercial purposes ... Where possible, documents shall be made available through electronic means” (http://ec.europa.eu/digital-agenda/en/european-legislation-reuse-public-sector-information).

This is a win-win situation. Governments have more information than they can handle; openness lets others use it. Indeed, government agencies actually find it easier to consume their own heterogenous databases. Quality can be crowdsourced as more people see the data produced; it’s hard for governments to know everything, but everyone knows something: knowledge is distributed.

Furthermore, initiatives are emerging to give citizens some access to personal data about them. In the UK, midata coordinates routes for private-sector data back to the consumer in a safe environment, with data owners’ cooperation. Such initiatives let citizens/consumers combine their own personal data with rich data sources from governments to increase their understanding of their own environments. This vision — the Information Spring — has a degree of contrast with the application of more traditional Semantic Web methods to government information processing, in that it’s bottom-up rather than top-down, and lightweight rather than demanding complex architectures. Yet it opens the door to the application of semantic technology via open standards for linked data.

Making Things Better in the Information Spring

In an interesting analysis of government, Patrick Dunleavy and his colleagues show how changes in government have unintended consequences for social problem-solving (Figure 1). In the diagram, blue arrows signal a positive influence (that is, an increase), whereas magenta arrows indicate a negative influence (decrease). The point of a change in public management is to solve some perceived social problem (for example, Medicare in the US guarantees access to healthcare for older people, while Bolsa Família in Brazil helps relieve poverty and increase access to education); the change in management tends to increase the level of social problem-solving (shown by the central diagonal arrow). However, other factors influence social problem-solving. Citizen competence, conceived autonomously from government — self-help — is also
important for addressing social problems. But citizen competence is highly context-dependent, so the change in public management decreases competence, thereby decreasing its positive influence on problem-solving.

Furthermore, changes in management increase institutions’ complexity, which makes them less effective in problem-solving (another magenta arrow). Finally, the complexity of institutions makes them more difficult to work with, which nullifies citizens’ competence, rendering them less able problem-solvers. The change in management could have a positive, direct effect on social problem-solving, but it also produces three negative indirect effects, which in the worst cases will offset all the gains and deliver worse outcomes.

The Information Spring, liberating information from the drudgery of serving only the task for which it was gathered, could transform not only the use of personal data, but government’s purpose as a whole. It is truly transformative.

This isn’t simply a technocratic choice about delivery systems. Ultimately, it harks back to a deep dispute in political philosophy between Baron Montesquieu (1689–1755), who understood politics as an ongoing process of triangulation between competing interests, and Jean-Jacques Rousseau (1712–1778), who theorized the “general will” — the idea that a mass of people share a common set of interests to promote their well-being. Montesquieu’s politics were designed to shackle powerful groups by separating powers; Rousseau’s aimed to clear the obstacles hindering governments’ pursuit of the general will. Were they around today, Montesquieu would be all for giving data back to the people, whereas Rousseau would surely prefer a more top-down approach, because “when particular interests begin to make themselves felt and sectional societies begin to exert an influence over the greater society, the common interest then becomes corrupted and meets opposition.”

In politics generally, Rousseau currently has the upper hand. For instance, FoI-hating Tony Blair is on Rousseau’s side — he once called his party “the political wing of the British people,” an expression of a generalized national will if ever there was one. Such universalizing sentiments are common: for example, the stellar group of authors who constitute the Oxford Martin Commission for Future Generations recently argued that “The ability to address today’s global challenges is undermined by the absence of a collective vision for society. To remedy this, the Commission urges renewed dialogue on an updated set of shared global values around which a unified and enduring pathway for society can be built.” Against this, the still small voice of Montesquieu protests that individuals are the best judges of their own interests, and sometimes their values will not coincide — and that’s okay.

Under the Information Spring, the general will evaporates, and individual interest reasserts itself. Services can be defined and provided by governments, the private sector, or nonprofits (this isn’t an anti-government initiative that says free markets are best). They all have the same data to work with — no monopolies, no rent-seeking. Citizens have at least some access to the data that describes them and their behavior, allowing increased personalization. The possibility of varied services depending on the same data enables leveraging the citizen competence to improve social problem-solving, as we can see if we adapt the Dunleavy diagram for the Information Spring (Figure 2).

In such a world, public management doesn’t change to respond to social problems, but is rather decentralized, flattened, and maybe even shrunk. Let’s assume, for the sake of argument, that this tends directly to reduce the level of social problem-solving (a big assumption, actually), so the central blue arrow turns magenta. However, the indirect effects are different. Decentralization will tend to increase citizen competence, which will boost its positive influence on problem-solving.

Figure 2. Decentralizing public management. Blue arrows signal a positive influence (increase), whereas the magenta arrows indicate a negative influence (decrease). Decentralization will tend to increase citizen competence, which will boost its positive influence on problem-solving.
negative effects on social problem-solving and citizen competence.

Is the Information Spring with us? Not quite — this is the political economy of a world that does not yet exist. Under such a regime, new injustices, inefficiencies, and inequalities will no doubt be uncovered. Yet a new landscape is gradually emerging, and institutional structures are beginning to create frameworks for open data.

Montesquieu and Rousseau each inspired a revolution. The Founding Fathers in the US read Montesquieu, and created a lasting settlement with a bicameral system and separation of powers. Robespierre in France was a devotee of Rousseau, who streamlined government and removed the restraints on it; the result was a bloodbath that turned the republic into a predatory empire within 15 years.

Of course, the current gridlock in Washington doesn’t put the separation of powers in a very good light. But what if government saw its job as making sure interested groups got access to the right data? Could that be a more realistic model for social problem-solving at a time when the role of the state itself is in bitter dispute?

Just a thought.

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References

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