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If Digitalization is the Solution, What is the Problem?

Leif Sundberg
Mid Sweden University, Sundsvall, Sweden
leif.sundberg@miun.se

Abstract: A range of policies on different levels of government (including EU, national, regional and local) concerns the use of digital technology. Drawing upon prior research that suggests that many e-Government policies contain myths and visionary images about technology, the purpose of this paper is to investigate the discourse on digitalization through an analysis of a Swedish digitalization policy. The research utilized a theoretical framework which describes four views on technology. The methodology used was interpretative, based on a "What's the problem represented to be?" (WPR) approach. The findings suggest that the discourse on digitalization in the policy shifts between describing a serving, and a dictating technology. Digitalization is presented as a solution to external problems, based on the condition that we adapt to a future, data-driven society. The policy remains silent about groups and individuals that do not want to take part in the digital society, since the proposed solution is that everyone should embrace the technology. The paper concludes with suggestions of alternative perspectives on technology. As such, this paper contributes to the current literature with critical reflections of how technology is represented in a digitalization policy.

Keywords: e-Government, digitalization, digital government, policy

1. Introduction

During the last two decades, there has been an increase in government policies concerning the use of digital technologies. The policies are found at all levels of government, including the European Union (e.g., (European Commission, 2010), national, regional and local. Mansell (2010) argues, from an information society perspective, that critical views stemming from this theory are rarely highlighted in the debate about policies concerning Information and Communication Technology (ICT). Bekkers and Homburg (2007) analyzed policies on electronic government (e-Government) in Australia, Canada, the United Kingdom, Denmark, and the Netherlands. These authors found that all national policies include myths of technological inevitability, a new and better government, rational information planning, and empowerment of the intelligent citizen (see also, Hellberg & Hedström, 2015). In similar fashion, Lindblad-Gidlund and Giritli Nygren (2009) refer to e-Government as a "mythologized megatrend".

Findings in research articles, with titles such as "Old Wine in new Bottles" (Ilshammar, Bjurström, & Grönlund, 2005), "The Emperor's New Clothes" (Melin, 2009) and "Something is (not) changing in the state of Denmark" (Persson, Reinwald, Skorve, & Nielsen, 2017) suggest that certain themes are recurrent and reinforced in e-Government policies. Schou and Hjelhold (2019) studied Danish governmental digitalization strategies from 2002 to 2015. These authors conclude that the studied material reproduced constructions of a flexible and responsible "digital citizen", to justify and legitimize digital era governance.

There have been a range of literature studies on Swedish policies concerning IT and e-Government. For example, Johansson (2006) argues that the view on IT in the public debate in the 1990s consisted of techno-optimistic views regarding an epoch shift from an industrial society to an information society. Johansson (1997) contends that the period between 1994 and 1997 can be described as a period of hype revolving around internet-based technology ("information superhighways"). Karlsson (2005) studied government reports on IT between 1994 and 2004 and characterize the descriptions of the information society as a mix of technocracy and social engineering. Hall and Löfgren (2004) describe how the Swedish visionary ICT policies, formulated by experts, rarely proceeded beyond the agenda-setting stage. Moreover, Löfgren (2007) argues that Swedish e-Government policies are subject to endless reinterpretations among the actors involved, and that the absence of governance and a clear chain of command invite renegotiation of policy solutions.

Today, the term digital government is often used to describe practice and research in this area. The “digital” aspect of digital government can be understood as either the process of “digitization” (converting analog signals to digital), or “digitalization”, which refers to the macro-level changes associated with the increased use of digital
technology in society (Brennen & Kreiss, 2014). As seen in Figure 1, there has been a high rise in documents on
digitalization on the Swedish parliament’s web site over the past decade.

This shift in terminology, from IT and electronic government to digitalization and digital government, raises the
question of whether the rhetoric in policy documents has changed as well, and what views on technology are
reflected in current policy documents?

Against this backdrop, the purpose of this paper is to investigate the discourse on digitalization through an
analysis of a Swedish digitalization policy.

This paper proceeds as follows. In Section 2 a theoretical framework that will be used in the analysis is presented.
Materials and methods are described in Section 3. Results and analysis are then presented in Section 4, followed
by concluding remarks in Section 5.

2. Theoretical framework: Four models of technology

In this paper, a theory by Nordin (1983, 1989, 1991) is utilized to understand digitalization. According to this
theory, different models of technology can be illustrated by using two criteria, goals and norms, both of which
can be either external or internal (Figure 2).

![Four models of technology](image)

Figure 2. Four models of technology (Nordin, 1989, used with permission).

2.1 Traditional technology and Extreme Externalism
In a traditional model of technology, the goals, or problems, are externally formulated, and the choice of technological solution is up to the technologist. Through empirical tests of functionality, prototyping, and simulation (framed by a range of social institutions such as patents, insurances, courts etc.), a practical artifact can be developed and utilized in certain areas. In this model, the technology itself is often viewed as neutral: it is subordinated to external needs. This means that, within the frames set by society, technology is used as a tool for solving external problems (Nordin, 1983).

Another model variant, extreme externalism, differs from the traditional view in that even the norms are externally formulated: the technologist uses the technology he is told to use. In this view, technology becomes a slave, that responds to external commands.

In both these views, technology plays a role as a solver of external problems: it is serving. Decision making about the technology is rather small-scale, and not considered crucial, although resources, including human competences, have been allocated and invested in the technology. The problem with both these views, according to Nordin (1983), is that they do not take technology dependence into account. Since investments have been made (which can include fiscal funds and education of actors), a natural next step is to start looking for other problems to solve with this technology. When additional problems are solved, the results are used to demonstrate the superiority of the technology: Nordin (1983) refers to this as the propagating phase.

2.2 Autonomous technology and Paraprax

According to the autonomous view, no external guidance is needed: technological development, performed by the technocrat, based on scientific-technological criteria (Nordin, 1989). Autonomous technology is bound to happen if it is centrally planned, which, in line with an ideal from Plato’s republic, is subject to expert rule. In this state, no need for discussing diverse political and ideological ideas, since these matters have been settled through science and technology. This state is more dependent on institutions for research and education rather than ethics and economic and social order. Struggles between partial interests are replaced by an enlightened management based on scientific knowledge and technological rationality. Consumers of technology have no legitimate function except for further progress of technology: everyone who uses technology is a “subordinate cog in the global enterprise wheel” (Nordin, 1991).

Ellul (1964) contends that when technology is integrated within every area of life, it stops being external to man: it integrates and absorbs him: the technology becomes autonomous. Winner (1977) refers to technological drift to describe how technology gains autonomy: “A multiplicity of technologies, developed and applied under a very narrow range of considerations, act and interact in countless ways beyond the anticipations of any person or institution.” As the speed and extent of technological innovation increase, societies face the distinct possibility of going adrift in a vast sea of “unintended consequences”. Sometimes these consequences are fast, and irreversible. Possible interest groups which form around issues are simply formed too late.

A model that resembles the autonomous is the paraprax (from the terms paradigm and practice, Nordin 1983). In the center of the paraprax lies a certain technology or practice aimed at solving a problem. The person involved in developing the solution is usually enthusiastic and positive about the particular technology, believing that the technology, or practice, can be used to solve almost any important problems, if given the opportunity. If there are additional members of society who share this person’s enthusiasm for the technology that is becoming established in society, this person is a part of a paraprax. Within the paraprax, the purpose is no longer to solve an external problem with the simplest technology. Like members of a scientific paradigm (see Kuhn, 1970), the members of the paraprax tend to solve problems (within the paraprax) with their specific technology, which is now granted a status that can be compared to religion. The difference between the autonomous model of technology and the paraprax is that the later is subject to external norms: it depends on the competences of its members (compare: Wenger’s (1998) communities of practice). Another difference is that, just like competing scientific paradigms can exist, several different technologies may exist side per side, as evident, for example, in the transport industry (Nordin, 1983). A paraprax can be pluralistic as long as “the user” is offered more than one solution to a problem. The more monopolistic a situation is, the more the paraprax resembles an autonomous technology: it has a sensitivity for political and societal contexts. A pluralistic paraprax resembles the traditional, or externalist view of technology (Nordin, 1989).
In both these views, negative consequences of the technology are viewed as flaws in society, such as the economic system. Technology is increasingly playing a more active role in the formulation of problems. In other words, the technology is becoming more dominant, and society is adapting more and more to technical demands rather than external problems. The technology is "necessary", because not using the technology is irresponsible, irrational, inefficient, etc. Threats against the paraprax may disrupt the whole balance of society and would negatively affect those who "need" the technology (Nordin, 1983).

When the paradigm gains monopoly, it resembles an autonomous technology, since there are no viable alternatives to choose from. Democratic political engineering cannot remedy this, since political leaders are a part of the paraprax, and therefore cannot present any alternatives on the political agenda. Moreover, when the paradigm is established in the political sphere, it gains new means for expansion, through fiscal funds, and new laws (Nordin, 1991).

At the periphery of the paraprax, a range of supporting technologies are established in society, with the aim of keeping the paraprax functioning. For example, Nordin (1983) refers to roads and bridges in relation to car technology. Today, a suitable comparison would be what broadband and wireless infrastructure, protocols, and standards do for networked ICT technologies. In the final, dictating phase, when society has become increasingly dependent upon the technology, it can demand additional resources in the form of educated workers, geospatial locations, and energy (Nordin, 1983).

3. Methodology

The object of study in this paper is the Swedish digitalization policy that was published by the central government in 2017 (Regeringskansliet, 2017). Like previous strategies, this document was built on prior works stemming from investigations conducted by expert groups, such as the “Digitalization Commission”, which was established in 2012. While digitalization is not defined in the policy from 2017, in a report from 2014, the Digitalization Commission (2014) uses a definition that resembles that of Brennen and Kreiss (2014) mentioned in the introduction. The report makes a distinction between the digitalization of information and society, which can be compared to the distinction between digitization and digitalization. The commission chose to focus on the digitalization of society.

A traditional, or "rational" view of policy analysis can be summarized as defining problems and or goals, identifying alternatives to solve or reach these goals, evaluating the alternatives, implementing the policy, and monitoring the effects (see e.g., Geva-May & Pal, 1999, Taylor, 1998). The risk with this kind of analysis is that important dimensions are left out, such as the nature of problems, and in this paper, technology’s relation to society. An alternative view is the "What’s the Problem Represented to be?” (WPR) approach by Bacchi (2009, 2012). WPR is a tool used to facilitate critical review of public policies by analyzing how “the problem” is represented. A point of departure is that the formulation of problems contributes to shaping our conditions. Since we are governed through problematizations, these need to be studied. WPR can be summarized in six steps, as described in Table 1.

<table>
<thead>
<tr>
<th>Table 1. What’s the Problem Represented to be? (WPR)</th>
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<tr>
<td>WPR question</td>
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<tr>
<td>WPR1: What’s the problem represented to be in a specific policy?</td>
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<tr>
<td>WPR2: What presuppositions or assumptions underlie this representation of the problem?</td>
</tr>
<tr>
<td>WPR3: How has this representation of the problem come about?</td>
</tr>
<tr>
<td>WPR4: What is left unproblematic in this problem representation? Where are the silences? Can the problem be thought about differently?</td>
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</table>
WPR5: What effects are produced by this representation of the problem?  
Considered assessment of how identified problem representations limit what we can talk about as relevant, shape people’s understandings of themselves and the issues, and impact materially on people’s lives.

WPR6: How/where has this representation of the problem been produced, disseminated and defended? How could it be questioned, disrupted and replaced? 
A sharpened awareness of the contestation surrounding representation of the problem.

By posing the six questions from Table 1, WPR stimulates reflexivity with respect to the problem. WPR also provides a counterweight to evidence-based views on policies as problem solvers, by highlighting the meanings associated with concepts such as “problems” and “solutions”.

The questions from WPR (Table 1) will be used to discuss the content of the digitalization policy, with the aid of concepts from the theoretical framework presented in Section 2. The methodological approach in this paper is interpretative. To discuss what digitalization “is” in the studied policy, privileged meanings (discourses) are identified in accordance with the theoretical framework, and supported by WPR. In parallel, norms that accompany the meanings and prescribe how subjects should act, are disclosed.

4. Results and analysis

This section presents the results of analysis of the Swedish digitalization policy (Regeringskansliet, 2017). The policy is the latest in a range of similar documents on IT and e-Government, which has been subject to prior research, as mentioned in the introduction. The content is described as a way to promote digitalization through political leadership: it clarifies the way forward for “people, enterprises and other parts of society”. The overall goal is to create a sustainable digital society. The problem represented is that today’s society is largely “run and shaped” by “the” digitalization. Hence, the overall problem represented in the policy (WPR1) is that society is becoming increasingly digitized, and if we adapt, we can achieve certain benefits, such as sustainability.

In the preface, the responsible housing- and digitalization minister compares digitalization to the industrialization of the last century (Sweden was industrialized relatively late). Just like IT was described as leading to the information society in prior policies, digitalization is described in a similar fashion: as a part of an epoch shift, leading to a new, data-driven society. Hence, the representation of the problem (WPR3) has a heritage in practices and processes that were involved in shaping previous documents on digital technology.

The content of the policy revolves around five themes: competence, safety, innovation, leadership, and infrastructure. It is described how digitalization permeates all levels of society: the smart city and the countryside. The individual and the collective, reality and virtual reality, government entities (EU, national, regional, local), state-owned companies, the education system, health care, the labor market, all types and sizes of enterprises, smart grids, food production, transports, traffic safety, media and culture (this list is not exhaustive). Representative technologies mentioned include artificial intelligence, automation, the internet of things, big and open data, cloud computing, robotics, high computing, blockchain, and 5G.

This section continues with analyzing the digitalization policy based on the four models of technology from Section 2.

4.1 Traditional technology and Extreme externalism

Although the policy rests on a logic of what seems to suggest an inevitable digital future, traces of externalism can be found in the document. One paragraph states that “A political vision is necessary, not due to a technology-driven development, but for a society that benefits from the possibilities of technology. Digitalization is therefore not an end in itself.”
External norms are also mentioned in the form of a range of involved actors. The Internet should be developed by multiple actors, and Sweden should act to make sure this applies internationally as well. Digitalization is described as a global phenomenon and the Swedish part of the Internet should be available, open, legal and robust, characterized by freedom and respect for human rights. A returning condition in the digital society is competence: "Digital competence and maturity are critical to ensure trust in created services." Digitally competent people can follow and participate in the development. As such, the policy promotes pluralism of actors.

The policy formulations suggest that everyone is responsible for this development, including the risks associated with everything being connected to the Internet: "Private and public actors need to act responsibly". Independent, objective journalism and public service should protect democracy. Research on risks that come with digitalization and how to preserve privacy in the digital society is relevant, and creators of digital artifacts need to assume their “societal responsibility” to ensure equality.

Digitalization is also described as a potential solution to external problems, such as climate change, for example through sustainable transports. Moreover, digitalization serves society by following current norms: the "digital market" and consumers should be protected in line with laws and regulations.

4.2 Autonomous technology and Paraprax

According to the policy, "[The digitalization] enables us to do entirely new things and things we have done before can be done in entirely new ways. The change affects the foundations of society, including democracy, social interplay[s], employment, local and regional development, sustainability, and the competitiveness of countries and continents." There is never any question “if” this future society should be created, rather than “how”. Digitalization (often in definite article) is hence described as an autonomous phenomenon to which we need to adapt in order to ensure beneficial outcomes. Since no alternative technologies or scenarios seem relevant to the policy, digital technology is utterly monopolistic. As such, the policy rests on the assumption (WPR2) that society is dependent on the technology for “the change to succeed”.

Similar to a paraprax, the policy promotes expansion of (digital) technology: development and innovation are enabled through opportunities for testing, validating, spreading and up-scaling. Through competence, additional members can be recruited to the technology. In turn, these members can contribute with innovations. These innovations are spread through supporting technologies: hard infrastructure (things that transport data) and soft infrastructure (enablers of data exchange). The material impact on people’s lives will be shaped by digital artifacts, whose creators are acknowledged to rise in power.

The data-driven society is acknowledged in the policy to be vulnerable (compare Winner’s notion of technological drift). The generated data needs to be protected, democracy defended, and privacy preserved: “Secure digital system that preserve privacy are needed when humans and society are increasingly becoming dependent on that technology is being connected to the Internet.” Hence, a range of problems stems from within the technology (internalism): digitalization is changing society, and problems are increasingly becoming re-formulated in terms of digital technology. Moreover, problems are not only generated, but also solved within the paraprax. For example, some jobs will disappear, and others will be created, and digitalization is considered a tool to fight unemployment.

A political decision states that Sweden should be the world’s leading nation in utilizing the opportunities of digitalization. Sweden is a nation that needs to establish itself in a “continued leading position and find new innovative solutions to gain the advantages of the possibilities of digitalization.” In contrast to following laws, laws and regulations should not constitute unnecessary barriers to digitalization. Hence, on a political level, no alternatives to the development are presented since the political leaders are a part of the paraprax, as described in Section 2.2. Further formulations describe how the government “needs” to relate to the development and make “necessary” decisions to reach political goals, through increased coordination. The implementation of the policy “demands” continuous state involvement,
including the development of rules and identification of barriers. The implementation "demands" a horizontal approach involving several political spheres.

The policy describes the digital society as driven by data, innovation and research. Areas where digital maturity is stagnating should be identified and resolved through digital competence and the educational system: although the definition of what constitutes digital competence is rather general, information evaluation and algorithms are mentioned as examples of important skills in the digital society. The policy remains silent (WPR4) about groups and individuals that do not want take part in the digital society, since these issues are assumed to be solved by digital competence and maturity.

5. Concluding remarks

The purpose of this paper was to investigate the discourse on digitalization through an analysis of a Swedish digitalization policy. The research was based on a theoretical framework by Nordin (1983, 1989, 1991), and Bacchi’s (2009 2012) "What’s the problem represented to be" (WPR) methodology.

The findings, summarized in Table 2, suggest that the discourse on digitalization in the policy shifts between describing a serving, and a dictating technology. Digitalization is presented as a solution to external problems, based on the condition that we adapt to a future, data-driven society. Digitalization serves in the sense that it follows current laws and regulations, yet these should not constitute barriers to a successful change. As a paraprax, digitalization rests on incorporation of external norms from a variety of sectors in society. However, since no alternatives to the proposed development are presented, digitalization is ascribed autonomous features, as a solution in search for problems. By recruiting competent members, who in turn create digital innovations in additional sectors, digitalization spreads to all parts of society, and thus becomes a self-fulfilling prophecy. Digitalization is propagated as the successor to the industrial revolution, however, the transformation to a digital society comes with a cost in the form of increased vulnerability. Thus, just the industrial society did, the digital society generates its own problems. It could be argued that, by growing dependent on a new ensemble of technologies, we risk repeating the same mistakes as we did in the industrial society, with unforeseen consequences. However, since a digital transformation is viewed as inevitable, accountability for the development seems limited: the responsibility for a beneficial transformation belongs to "everyone", yet everyone, including the government, also needs to adapt.

Table 2. Summary of findings

<table>
<thead>
<tr>
<th>WPR question</th>
<th>Findings</th>
</tr>
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<tbody>
<tr>
<td>WPR1: What’s the problem represented to be?</td>
<td>The overall problem represented in the policy (WPR1) is that society is becoming increasingly digitized, and if we adapt to embrace the technology, we can achieve certain benefits, such as sustainability.</td>
</tr>
<tr>
<td>WPR2: What presuppositions or assumptions underlie this representation of the problem?</td>
<td>Although the policy formulations refer to technology as a solution to external problems (externalism), it rests also rests on an internalist discourse that resembles an autonomous technology (or, a monistic “paraprax”).</td>
</tr>
<tr>
<td>WPR3: How has this representation of the problem come about?</td>
<td>The policy is the latest addition to a range of visionary policies on IT and e-Government formulated by the Swedish government in collaboration with external experts.</td>
</tr>
<tr>
<td>WPR4: What is left unproblematic in this problem representation? Where are the silences? Can the problem be thought about differently.</td>
<td>No alternative scenarios are presented in the policy. Since it is suggested that we need to embrace digitalization to ensure a successful transformation, non-members of the paraprax are left in silence. Although external norms are incorporated within digitalization, the policy builds on internalist notions of re-formulations of problems and solutions in terms of digital technology.</td>
</tr>
</tbody>
</table>
WPR5: What effects are produced by this representation of the problem?

By granting digitalization an autonomous and privileged status, investments in technological infrastructure can be justified. The IT industry will grow, and large sets of data will be generated. Members of the paraprax will grow in power, while norms that do not conform to the technology might be given less attention.

WPR6: How/where has this representation of the problem been produced, disseminated and defended? How could it be questioned, disrupted and replaced?

The problem is repeated through government rhetoric in policy documents, which are based on perceptions that resemble an autonomous view on technology. This view can be challenged by technological pluralism. Moreover, when digitalization is described as the enabler of everything, it resembles a so-called “empty signer” without a reference to any specific meaning, or object.

Finally, in line with WPR6, this paper contributes with a selection of perspectives that challenge the views in the policy. Nordin mentioned that technological pluralism is opposed to a monopolistic paraprax: thus, digital technology could be viewed as a solution among many, instead of the enabler of everything. Moreover, since digitalization permeates almost all sectors of society, the term might lose its meaning, or become an empty symbol to which almost any meaning can be assigned: a so-called floating signifier (MacKillop, 2018). A completely opposing view could also be imagined: “analogization”, meaning to reverse the process of digitization by converting digital data to analog.

This paper has contributed to the current literature with critical reflections of how technology is represented in a digitalization policy. In line with prior research on national strategies, the findings suggest that current discourses on digitalization represents views where the technology dictates the conditions that leads us towards an inevitable technological-driven future. These discourses are mixed with ambiguous descriptions, which also incorporate external norms and goals. A suggestion for further research is to investigate how this, and similar policies are enacted in practice.

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References


