The Road Not Taken: From Digital Networks to Networked Governance

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***Abstract*—The research paper explores the connection between internet as a network technology and transformation of governance into network-based model. Academic literature suggests that networked governance is gaining currency among advanced countries. Estonian developments in digitalization of governance have also benefited from the networked nature of digital systems and decentralized decision-making processes. However, the analysis of the basis of five governance scenarios suggest reform agendas of executive and legislative branch aim at centralization and ignore benefits of networked governance.**

Keywords-computing in government; digital networks; digital government; networked governance; scenarios

I. INTRODUCTION

While discussing digital governance the connection between internet as a network technology and transformation of governance into network-based approach is made. It is assumed that technology has power to change governance and make it more similar to the structure of internet. Often such prescriptions are offered from a perspective of technology optimists, if not technology determinists. They tend to believe that technology itself is sufficient for implementing changes. However, technology is necessary but not sufficient ingredient for digitalization of public sector governance. Public sector governance must be seen in the broader context of institutions and their change. This paper explores synergies between digital networks and governance on the basis of Estonian digital government which has received a considerable attention in policy circles as well as in academic and policy literature [1, 2, 3, 4, 5, 6, 7, 8]. The accomplishments of Estonia have been often served as an example of best practices that other governments can learn from. However, implementation of digital governance in Estonia has also shortcomings, which must be considered. This paper is a part of research project on the future of (e-)governance in Estonia with the aim to increase awareness of potential future developments and highlight main critical junctures for decision-makers in the Estonian Parliament as well as in the executive branch. In order to do so, alternative scenarios about the future of governance in Estonia by 2030 have been created. The scenarios rely on interaction of both institutional and technological factors affecting potential developments in the future. The project aims to answer to the main question: "How to create efficient, equitable and agile governance model in Estonia by combining interaction of institutional and technological factors?" While the decentralized digital networks have been a source of innovation in the Estonian e-government, there is a need for greater interagency cooperation and centralized coordination. The importance of these departmental constraints reveals clearly that the adoption of information and communication technologies (ICT) do not depend only on the availability of new technical solutions, and is not as linear as it is often perceived. In fact, the ICT adoption as adoption of any other technology is epistemological by nature [9, 10, 11, 12, 13, 14]. This implies that in different institutional, social, political and economic context we should expect to witness different levels of ICT adoption and the nature of ICT use. Hence, the ICT adoption and the use in government requires a consideration of broader institutional setting. Institutions are understood as both formal and informal rules of the game [15, 16]. Institutions matter because through them political, economic and social preferences are channeled. As Milner points out "…political institutions in particular matter for the adoption of new technologies because they affect the manner and degree to which winners and losers from the technology can translate their preferences into influence. Groups that believe they will lose from the Internet try to use political institutions to enact policies that block the spread of the Internet. These "losers" hope to slow down or stop its diffusion, and some institutions make this easier to do than others" [17]. The importance of formal institutions is particularly important for inter-agency cooperation and cooperation between private and public sector. As Fountain points out in the context of policy-making in the United States "the future of government relies not simply on greater efficiency, but also on increasing capacity to work effectively across agency boundaries to gain traction on pressing, inherently cross-boundary challenges" [18]. Similarly, the widespread cooperation in governance is considered crucial in the European Union as it can lead to so-called invisible government, where distinction between public and private services becomes blurred. Public sector services can be delivered in the context of existing work flow and pattern which can considerably reduce transaction costs in their use [19]. The capacity to cooperate and work effectively across boundaries is particularly important in the emerging platform economy. The recent literature has emphasized the importance of the rise of digital platforms in economic, social, cultural and political affairs and interactions [20]. This set of literature refers particularly to private sector created systemically important platforms such as Facebook,

Amazon, Uber and others, which have gained dominant market positions. Platforms are also crucial in governance as digital government scholars have increasingly started to discuss e-government as a platform and emphasized the importance platform-based governance [21]. Most importantly, both market-based and government platforms are interacting which leads to interdependence of platforms, and by doing so to networked governance. As will be discussed below government platform may be built on market-based platform and vice versa. For successful collaboration it will be crucial to reduce institutional complexity [22]. Smaller degree of institutional complexity lowers transaction costs and allows for both policy entrepreneurs and private sector entrepreneurs find opportunities for collaboration and strive towards what Mazzucato calls "entrepreneurial state" [23]. Indeed, such entrepreneurial discovery processes can take place in both private and public sectors as smart specialization literature has emphasized [24, 25]. What Crouch calls "institutional entrepreneurs" [26] can shape the institutional design of governance with benefits of enhanced collaboration and lower transaction costs in mind. The paper relies on multimethod research by combining expert-driven scenario planning, document analysis, online network analysis as well as focus groups with policy-makers. Scenario planning is a tool for taking a long-term view in order to develop alternative versions of future instead of one vision or forecast. In order to generate alternative governance scenarios 10 experts (listed in the acknowledgment) from the leading Estonian universities and think-tanks participated in scenario planning workshops in March-May 2018. The scenarios developed in these workshops combine both external and internal factors which may contribute to the realization of specific scenarios. The paper is structured in the following way. The next part will give an overview of digital government networks in Estonia. Then the potential future trajectories of digital governance on the basis of five scenarios will be highlighted. Conclusion highlights key findings and implications of the paper.

II. Digital Government Networks in Estonia

One the most successful and early digitalization efforts was introduction of online tax declarations by the Estonian Tax Authority in 2000 [27, 28, 29, 30]. The Tax Authority provided this service on the basis of internet banking which was already introduced in 1996. Figure 1 shows how the use of internet banking has grown in Estonia in comparison with the EU average and selected Central and Eastern European (CEE) countries. The use of internet banking in Estonia has considerable exceeded the use in other countries. By this public and private cooperation identification of taxpayers' identity was made simple. Most importantly, it was not a result of grand strategy of central government but entrepreneurial approach by the Tax Authority's management. The central government did not intervene. In many ways, it was utilization of decentralized digital networks and network governance at its best.

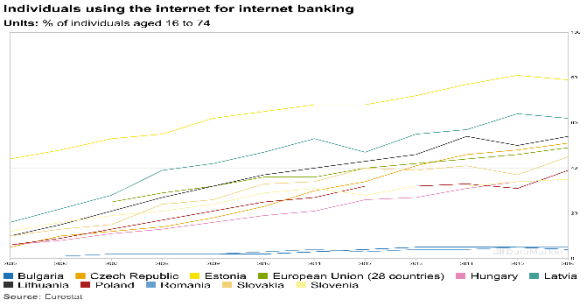

Figure 1. Individuals using Internet for Internet banking in selected CEE countries and EU on the basis of data from Eurostat (2017).

Figure 2 shows online network analysis of Estonian e-government websites carried out by inserting key websites of Estonian e-government services into issuecrawler.net.

Figure 2. Online network analysis of Estonian e-government websites conducted by author with issuecrawler.net (2017).

Figure 2 shows relatively centralized network where the central point is emta.ee – the website of Estonian Tax Authority. Quite tellingly eesti.ee – a central e-government portal is featured less prominently in the periphery of network and is connected to the Tax Authority through several network nodes. The Tax Authority has managed to establish itself as the most important e-government service in Estonia by using internet banking as a platform. However, instead of leveraging already existing Tax Authority platform several agencies prefer to develop their own systems, which is an important bottleneck for inter-agency cooperation. Most importantly, platforms enabling networked governance are also crucial in governance as digital governance experts and scholars have increasingly started to discuss digital government as a platform and emphasized the importance platform-based governance. Estonia launched its digital governance platform X-Road in 2001, which has been also exported to other countries ranging from Finland to Azerbaijan [31]. The platform is relative de-centralized and its design suggests that centralization has considerable risks and bottom-up approach in both governance and digital government is preferable. Most importantly, the system does not only facilitate cooperation among public sector entities. The cooperation between private and public sector is also facilitated by de-centralized X-Road. The distributed nature

of X-Road makes it more secure than centralized system and allows to exploit the benefits what was called "stupid network" by Icenberg [32].

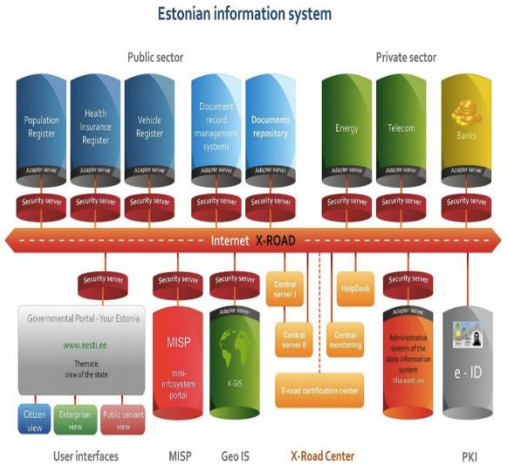

Figure 3. Estonian Information System based on X-Road adopted from the State Information Agency [31].

The X-Road can route queries with different databases in the public and private sector as demonstrated above. As systems are technologically different, then they have to use adopters to send and receive information through X-Road. Each computer system uses its own secure server for encryption to protect sensitive data. Figure 3 demonstrates how public sector registries, telecom and energy companies, banks, government portal as well as electronic identity card infrastructure are all connected through a decentralized network. The cost of X-Road has been up to 67 million dollars over lifetime, including all maintenance costs, salaries, investments and all other costs [33]. Usually, countries spend more than that per year for their e-government information systems with significantly more modest results.

III. Digital Governance Scenarios

This part will give a brief overview of five scenarios generated with scenario planning approach [34]. The scenarios are following and summarized in Table I.

A. Ad Hoc Governance

This scenario combines strong budget constraint, centralized and fast decision-making processes. The budget constraint implies either need to cut public sector spending because of external or internal developments or dominant ideological position among decision-makers that public sector governance must be managed within limited financial resources. The scenario is characterized by top-down fast decision-making in order to overcome economic crisis and to exploit emerging new opportunities. Budget constraint implies also privatization of public services in some areas which implies that government does not have sufficient leverage to change situation in every area.

Digitalization is valued in this scenario because it allows to cut costs and start new projects. It facilitates improvements in service delivery, collect data for policy-making as well as direct citizens to needed services and react to changing circumstances. Since budget imposes significant constraints and decision-making is centralized, then ad hoc governance scenario implies that most services are standardized and special circumstances are rarely considered. Standardization implies so-called forced digitalization where the use of digital services might be only option. On ad hoc basis some areas will receive special attention and these pet projects will be developed differently.

Government will prioritize the use of big data but as the approach is not systematic many institutional barriers do not allow to exploit the benefits. The use of open data does not get sufficient systemic attention which implies not improvement in comparison with other countries. The combination of data from different public and private sources is possible in some areas but not in some other areas. The government does not see the whole picture in its data policy by focusing in some areas but ignoring others. The government digital identity use in different services will increase but unevenly. Various private and public sector digital identities will emerge and many citizens will rely increasingly on private sector solutions.

B. Night-watchman State

This scenario combines strong budget constraint, centralized and analytical decision-making processes. The underlying aim is to reduce the role of state in many areas and focus on the areas where state intervention and provision of services is absolutely necessary. The government will cut expenditure, reduce number of public sector employees and will privatize services. The scenario implies that systemic framework will be created for governance of public sector where limited role of government intervention in private sector and lives of individuals is the key priority.

On the one hand, digitalization is valued in this scenario because it allows to cut costs and reduce bureaucracy. On other hand, several barriers will be created for digitalization because of privacy and security concerns. The minimalist government is worried about data collection because it might enhance government intervention in individual lives and private sector. As cost-cutting is key driver of digitalization, then it would imply high degree of standardization and universal basic solutions. The lack of customized solutions which consider specific needs may lead to dissatisfied users. Both open data and big data use is not advanced sufficiently. Barriers stem from institutional factors as government is concerned about misuse of data. Combination of different public and private sector databases is mired in complexity or impossible. The use of government issued digital identity is limited because of privacy and security concerns. Increasing number of citizens will rely on private solutions, including those provided by global digital platforms from the United States and China.

C. Entrepreneurial State

This scenario combines quick centralized decision-making strong with generous budget constraints. The

flexibility with resources allows government to invest more in service delivery as well as large projects, often in the form of Public Private Partnerships (PPP). The government will behave as a large enterprise by developing and investing into some key priority areas. The government's mission is to enhance economic development and improve country's position in the international division of labor.

Digitalization plays fundamental role in this scenario because it allows to collect data, offer better services and enhance anticipatory policy-making. As the government spending is generous and fast decision-making is appreciated, then digitalization can occur rapidly in many areas. However, government priorities imply that some areas receive more funding than others, which will lead to uneven outcomes. Overinvestment and misallocation of investment may also lead to failures in large scale projects.

Big data and open data use is highly encouraged by breaking down so-called silos among agencies. Government designs policies for combination of different public and private databases. The government's mission is to enhance digital data projects globally in order to understand trends and developments in the world. This means active cooperation with international organizations, private and public sector actors. One of the key priorities is to develop further Estonian government issued digital identity by offering solutions globally. Government prioritizes e-residency as a global digital platform as through this platform other Estonian public sector platforms can be diffused to other countries.

D. Caretaker State

This scenario combines generous budget constraint, centralized and analytical decision-making processes. Improved living standards and economic development means increased demand for high quality public services. The government aims to meet this demand by increasing social spending and employing more officials. The main mission of government is to improve well-being of its citizens. For these purposes government intervenes in many areas of life, protects people from evils and ills and regulates different economic and social activities.

Digitalization plays an important role in this scenario because it allows to collect data, offer better services, direct citizens towards better choices and enhance anticipatory policy-making. As the government spending is generous and analytical decision-making is appreciated, then digitalization will occur evenly in different areas. However, technological lock-in and path-dependence may lead to difficulties in adopting solutions in some areas. Big data use is encouraged by breaking down so-called silos among agencies. Government designs policies for combination of different public databases. However, government is reluctant to cooperate with private sector in this field because of risks and security concerns. Government does not encourage open data projects for the same reason. Instead of offering public data to private sector government will design incentives and regulations for ensuring access to private sector data. The government's mission is to focus on domestic services and not to enhance digital data projects globally which will carry unknown risks. This implies that one of the key priorities is to develop further Estonian government issued digital identity for domestic users. E-residency as a global digital platform will be closed down because domestic online service delivery may suffer from new risks and overcrowding of platforms.

E. Networked Governance

This scenario combines generous budget constraint, de-centralized and analytical decision-making processes. The government aims to get citizens involved in decision-making processes and public service delivery through co-creation. For these purposes decisions are made in bottom-up fashion, closest to citizens and without unnecessary bureaucracy.

Digitalization plays an important role in this scenario because it allows to collect data, offer better services and get citizens involved in policy-making. As the government spending is generous but decentralized decision-making is appreciated, then digitalization will occur unevenly in different areas. Different governance models will emerge in digital projects where some rely more on public sectors while others engage private sector and volunteers. Big data use and open data use is highly encouraged as well as combination of different public and private databases. However, many different models will emerge in their use. Digital identity and e-residency will be developed further by involving numerous stakeholders from public and private sector.

TABLE I. SUMMARY OF FIVE DIGITAL GOVERNANCE SCENARIOS

Scenario	Governance	Digitalization
Ad Hoc Governance	Centralized and fast decision-making under strong budget constraints. Executive branch centric, reduced role for parliament and local governments.	Uneven digitalization. Cost-cutting and standardization in most areas.
Night-watchman State	Centralized and calculative decision-making under severe budget constraints. Executive branch dominance, minimal role for parliament and local governments.	Limited digitalization aimed at efficiency gains. Privacy and security concerns.
Entrepreneurial State	Centralized and fast decision-making under generous budget constraints. Executive branch aims at strategic agility and acts as a corporation. Limited role for parliament and local governments.	Strategically important areas are priority. Internationalization of government platforms,
Caretaker State	Centralized and analytical decision-making under generous budget constraints. Government focuses on welfare of all citizens. Parliament and local governments play formally important role but not in reality.	Even, holistic digitalization and quality of services and preventive policies through social analytics.
Networked Governance	Decentralized and analytical decision-making under generous budget constraints. Executive branch has limited role. Parliament, local governments, communities and citizens play important role.	Diverse digitalization with different models. Co-creation of services and many tools for participation.

IV. Conclusion and Implications

The academic literature suggested that the current trend is a shift from the efficiency driven digital government to equity driven networked digital governance. A move from efficiency driven digital government to digital governance suggests that participatory aspects must be kept in mind in the governance of public sector. Even though many experts and scholars emphasize these trends, the potential future development of networked digital governance is uncertain. Nevertheless, the point of scenario planning approach is to think about diverse set of options – including options with lower likelihoods and consider weak signals because they may grow stronger over time [35].

In the Estonian context, development towards networked digital governance is at best a weak signal. From a current perspective, it is least likely scenario as the trends have been towards centralization of governance in the past decades. The proof in the pudding is the Estonian government's current implementation of "state reform" agenda. By "state" Estonian government means primarily executive branch. The executive branch's action plan from January 2017 to March 2019 concerning public sector reforms states that the core principles are balance (as balanced development between regions, balanced service delivery between local and central government), efficiency and openness [36]. Nevertheless, these reforms are primarily efficiency driven focusing on cost-savings in various tasks of public sector services delivery as well as in key functions. Furthermore, parliamentary discussions in the special committee on "state reform" have focused solely on executive branch agenda and reacted to the goals of government. The committee for state reform drafted bill titled "Principles of State Reform and Good Administration" in Spring 2018. The bill emphasizes importance of public service delivery, their accessibility and standardization by use of digitalization. It stresses cost-efficiency and need to reduce public sector employees as well as transparency and simplicity of regulations. It also sees increasing role for ministries in policy-making and importance of defining political responsibility clearly. Most importantly, the draft bill ignores democracy and equity concerns where executive branch stopped at discussing its reform agenda and specifically highlighted a role for parliament.

In summary, parliament's bill as well as executive branch action plan combine elements from "Ad Hoc Governance", "Night-watchman State" and "Entrepreneurial State" scenarios. However, it is a move away from "Networked Governance" scenario. Most importantly, government lacks a holistic view of networked digital governance. In this area, developments in Estonia have gone backward in the last years. The institutional development and the dominance of mental models in Estonia towards centralized governance models is puzzling. This is particularly so because early governance digitalization seems to point to a different direction. Emerging democracies such as Estonia in the 1990s benefited from not having legacy digital systems and this allowed them to start from scratch. Early phases of government digitalization seemed to suggest that relatively decentralized networked governance delivers success.

Acknowledgment

The author thanks and acknowledges the contribution of following experts in the scenario planning workshops from March to May 2018: Tea Danilov (Director, Foresight Centre), Kai Härmand (Undersecretary, Ministry of Justice), Nele Leosk (Researcher, European University Institute), Innar Liiv (Associate Professor, Taltech), Külli Sarapuu (Associate Professor, Taltech), Siim Sikkut (Undersecretary, Ministry of Economic Affairs and Communications), Mihkel Solvak (Director of Skytte Institute, University of Tartu), Erik Terk (Professor, University of Tallinn) and Rauno Vinni (Head of Governance Program, Praxis)

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