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Spring 4-5-2017

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E-Government in a connected society: a friend or a foe

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Abstract

Organisations in the last decade are faced with the challenges posed by modern technology, changes in consumer behaviour and the emergence of new enterprises, whose operations are entirely based on innovative business models and the digital business. Digitization itself is the concept, which often occurs during the strategic plans of the organizations. Although public administration does generally not fall within the areas of high competition, the external environment is also forcing it into changes. These changes may be seen through the renewed portal of public administration, an increasing emphasis on digitization of the services, connecting e-Government towards the people etc. However, it is often forgotten that digitization is not based merely on technology itself, but it should include also organizational aspect and business process management as well. The purpose of this research in progress is to present the concepts behind e-Government and to demonstrate the extent to which digitization of public services is following objectives such as reducing costs, shortening business cycles and improving the quality of service. The paper will through the eyes of the end user highlight the shortcomings of the public administration digitalization and indicate possibilities for future development.

Keywords: e-Government, digitalization, cloud computing, business process management

1.0   Introduction

Electronic business has significantly changed in the last decades. Its original role was to make business processes more efficient, more transparent and share the necessarily information among the involved stakeholders. With time, it has spread to all spheres of business and personal lives as well. Although it became a necessity in the contemporary business, the term e-business is currently under great pressure. This pressure is caused by the digital transformation era that is currently over flooding the market. The digital transformation era will probably become even more important in the next years, since it is one of the core topics of several academic and practitioner conferences. Some even call it as a new revolution, despite there is no data available to confirm the term revolution.

Although the digitization initiative began in the 1980s it has become vital over the last few years and will become even more important in the next decades {Gerth, 2016 #954}. However, many organisations are having problems familiarizing with and adjusting to this new era. Many companies are namely not having a suitable vision of the coming future or are unsure how to adjust their business with all these possibilities that are challenging them. Digitalization has overflowed several (if not all) areas of organizations and is offering new career possibilities. Digital skills are namely becoming greatly valued in many modern organisations and it is expected that these skills will become crucial in the near future. Digital transformation has thus an

important impact on the business world since contemporary technological trends have significant influence on business processes, products and business models, and all these trends and issues are forcing companies to rethink their strategies. The same applies to public organizations and public administration.

This paper thus reviews the latest issues and challenges that are influencing particularly public administration and its digitalization, namely the concept of digitalization itself, cloud computing and social media since all these concepts are a driving force of digital innovation in many organizations and public administration as well. Although the concept of e-government is not new, it is under a great challenge in the era of digitalization. The challenge for organizations and public administration today is not just to start with an e-business initiative but to predict the future challenges of e-business and its possibilities. New technological improvements are forcing organizations into changes and driving the digital transformation.

The purpose of this research in progress is thus to present the concepts behind e-Government and to demonstrate the extent to which digitization of public services is following objectives such as reducing costs, shortening business cycles and improving the quality of public services. Shortcomings of the public administration digitalization are also discussed and some possibilities for future development are also presented.

2.0   Literature overview

2.1 Digitalization

Organizations are nowadays facing with the challenges that are driven by the new technologies, innovations or the advent of new online based companies. Contemporary technological trends, such as cloud computing, social media, internet of things and data analytics together with the complexity of coordinating all these aspects are bringing several new challenges. One of the main challenges of the existing companies is how to transform their business models into the digital ones.

The digital transformation era is sometimes called even as a new revolution. It is claimed that digital transformation will transform business processes, the customer experience and the entire business model and consequently improve competitive success. However, the question is to what extent the digital transformation differs from the traditional e-business. Digital transformation is highly related to the increased rate of more and more information being available for individuals and organizations, and it is also related to the performing tasks differently {Sganzerla, 2016 #1001}.

All these disruptive changes that are driven by the new technology have resulted into new forms of business models. Quick technological progress is requiring that organizations promptly adapt to innovations. It has been claimed decades ago that business models from the industrial age are not suitable to deal with the upcoming challenges of the information age {Venkatraman, 1998 #950}. The latter is becoming even more important. Nevertheless, innovative business models were always claimed to be the key reason behind the success of several corporations like Amazon, Microsoft, Wal-Mart or eBay {Afuah, 2004 #951}.

Digitalisation is becoming the most significant technological trend faced globally {Leviäkangas, 2016 #1003}. It is affecting individuals, organizations, communities and entire nations. Different countries, industries and sectors are varying in the level to which they are making use of new technologies and digitalisation. However, digitalisation offers enormous opportunities for all, yet it is also bringing new issues particularly related to the human labour. Transport industry sector is namely an example that is not the core topic of research dealing with the digitalisation; however, as a primary societal service it will experience digitalisation probably in an extraordinary way. Powerful industrial clusters in the automotive industry and organizations involved in services like Google will transform the sector and challenge transportation's services and activities {Leviäkangas, 2016 #1003}. The sharing economy phenomenon characterized by the non-ownership, temporary access, and redistribution of material goods is just an additional example of transforming these industries including transport.

The extent of current development and prediction that presented issues will overflow the future may be seen from Figure below showing the number of connected devices and their prediction. The point of having more connected devices than inhabitants on Earth has already been achieved four years ago. With the rise of IoT the number of connected devices seems to escalate.
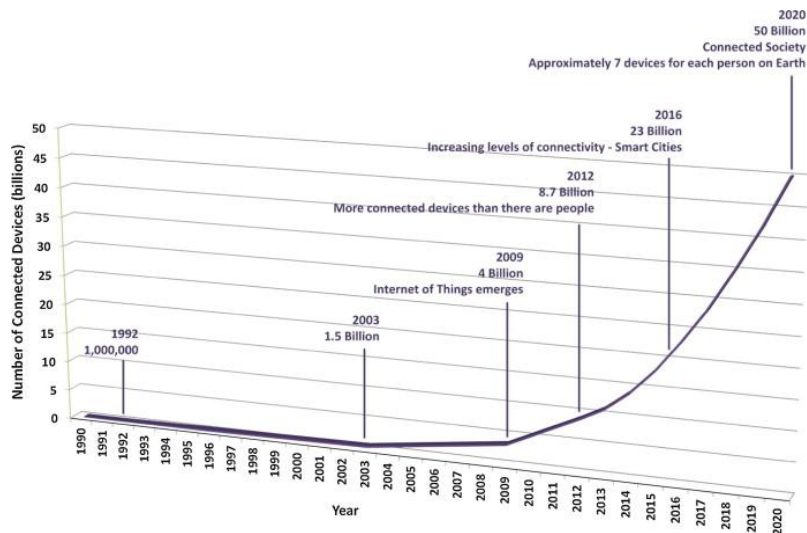

Figure 1.   **Growth in the connectivity {Bradley, 2015 #1000}**

As it is evident there are several issues related with the digital transformation. Despite the fact that digital transformation is sometimes claimed to be just another buzzword, it is evident that important changes are overflowing the business world. These changes should be considered by other organizations that want to follow this new wave.

It is quite obvious that important changes and issues forcing new emerging debates. Naming these new concepts seems to become a challenging task for practitioners and researchers. Although new buzzword, new phrases or accepted concepts are flooding in almost every year, there are some trends to be observed. E-business has transferred to or joint with the m-business and is at the moment transferring to the digital business; and internet itself is more en more becoming internet of everything (despite the fact IoT is still in the emerging phase). It seems that the future is combined with

intelligent sensor production, supported by economies of scale, depending on the platforms such as mobile devices, consumer electronics and urban infrastructures making it possible to monitor and analyse almost anything, anytime, anywhere.

2.2 Cloud Computing

Cloud computing was considered as a new business model. However, historically model merely emphasizes the beginning of IT. In the first phase, the users of the terminals (monitor, keyboard and mouse) were connected to a central computer called a mainframe. In the second phase, personal computers have become independent and have sufficient capacity for users. The third stage has brought connectivity among stand-alone computers that formed the local network. By connecting local area networks the fourth phase of the global network emerged. The fifth phase is accounted for sharing computing resources computers (distributed computing) and the sixth phase presents cloud computing, where users (and devices) access to computing resources via the Internet.

One of the main challenges in the last decade is related to the cloud computing and how to use effectively use it. Allowing access from anywhere and anytime, it offers a new way for individuals and organisations to communicate and work over the internet (da Silva, 2013).

Cloud computing is now perceived as a global trend that has gained attention from both academic and practitioner communities in the last decade. Although the development of cloud computing has not reached the maturity level, there is still a lack of research on it (Bayramusta & Nasir, 2016). In the initial years, researchers focused on the definition of cloud computing and studied how it could be applied to existing solutions. Therefore most of the articles were dealing with the conceptualization of cloud computing. Later, when the consensus on the definition was somehow achieved, the research moved to the technical dimensions of cloud computing including architectural designs. Even though cloud computing has achieved great progress in recent years; it is expected to continue its growth (Wang, 2013).

Cloud computing offers several benefits from the technology and functionality perspectives as well like increased flexibility, availability, and functionality (Xiang, Di Martino, Wang, & Li, 2015). Nevertheless, it offers a scalable IT system infrastructure that is enabling organizations to start or develop its businesses at lower starting costs (Hugos & Hulitzky, 2010). However, there are also several important issues related with cloud computing like security, privacy, reliability, legal matters, open standard, freedom, and long-term sustainability (Singh, Mishra, Ahmad, Sagar, & Chaudhary, 2012). It has been suggested that these issues should be solved before the wide deployment of cloud computing (Xiang, et al., 2015), which seems to be beyond the reach.

2.3 Big Data

Big data is a concept that originated from the need of large organizations like Yahoo, Google, and Facebook to analyse large amounts of data {Garlasu, 2013 #969}. It presents a concept that is related to the increased volume of data that are difficult to store, process and analyse using the traditional database technologies. Although, the

term big data is quite new in the field of information technology, several researchers and practitioners have already used it in previous literature. It was for instance referred to a large volume of scientific data for visualization {Cox, 1997 #975}. Currently, several different definitions of big data exist. It was also defined as the amount of data that is hardly efficiently store, manage and process {Manyika, 2011 #976}. Recently, different explanation from 3V like Volume, Variety, and Velocity to 4V like Volume, Velocity, Variety and Veracity have been offered to define big data {Gandomi, 2015 #970;Hashem, 2015 #971}. The 4V definition of big data is commonly recognized since it denotes both the meaning and necessity of big data as well.

Big data has also a large research potential and therefore it is getting substantial devotion from academia and practitioner communities. The latter is becoming even more important in the digital world where the amount of data that is generated has escalated in the last few years. Consequently, this expansion of data is offering many new challenges {Yaqoob, 2016 #959}. Walmart alone handles more than 1 million transactions every hour, and it is estimated that this value results in more than 2.5 Petabytes of data each hour.

Big data analytics helps social media and several private or public agencies to discover the behavioural patterns of people even the hidden ones {Raghupathi, 2014 #973}. Furthermore, big data analytics also enables decision makers to take a valuable decision by improved understanding of customers and products. Nonetheless, data analytics also supports acquiring the knowledge about market trends. In addition, the benefit of data analytics is also to timely identify potential risks and opportunities for an organization.

Big data and big data analytics presents enormous potential for different applications. One of the main sources for producing huge amounts of data are namely IoT, multimedia and social media. Also cloud computing and big data analytics are related since big data analytics enables users to process queries across multiple datasets and receive results in a timely manner, while cloud computing provides the underlying data processing platforms {Hashem, 2015 #971}.

Additionally, it has been forecasted that there will be an enormous increase in demand for big data skills in the near future. It is been even expected that the increase in demand for these skills will grow by 160% in the United Kingdom alone {Yaqoob, 2016 #959}.

2.4 Social Media

Development of Web2.0 enabled social media like Twitter, Facebook and others to significantly change the social life of several people by allowing everyone to share its knowledge and interests and doing so simple and with fun {Nie, 2016 #977}. Beside personal influence, social media technologies allow also many possibilities for organizations to compete and also to fail in the market {Hansen, 2016 #995}. Social media also describe several tools that enable an organization to achieve social capabilities {Chun, 2012 #993}; and therefore, are highly related with the social capital. Social capital namely generally refers to the resources that are accumulated through the relationships between people {Coleman, 1988 #982}.

These possibilities that origin from the development of Web2.0 include blogs, wikis, social networking systems, internet-based communication systems, photo and video sharing, audio sharing, virtual worlds, microblogs and several others {Chun, 2012 #993}. It is important for employees to interact with customers by using the social media. These interactions can result in different activities, from merely informative to participatory. Social media technologies namely allow user-generated content and thus offer several new challenges for organizations to transform their businesses. Many organizations are namely using social media to create online user innovation communities and are therefore stimulating open innovation initiatives. Organizational innovation capabilities are also growing by the increased popularity of crowdsourcing which also presents a strategic use of social {Dong, 2015 #996}. The application of social media may be distinguished based on the different characteristics {Davis, 2009 #994}:

- User-generated social content: The main characteristic is that social media enable site visitors to submit content that is accessible by other.
- Social networking: The main characteristic is that users of social media connect together in online groups. This allows them to see the profile information about the people they are connected to and can share information with them. Social network offers a digital space for exchanging ideas, products or information with others.
- Collaboration: The main characteristic is that users are engaged in the conversations, content co-creation and any other shared activity.
- Cross-platform data sharing: The main characteristic is sharing the content by transferring data across sites.

Particularly, social networking services are becoming more and more prevalent and popular in the last years, especially since smart mobile devices offer several utility modules such as Wi-Fi connectivity, global positioning facilities, cameras, and several other sensors including heartbeat. Consequently, many device users are available for sharing information at any time, merely for posting a photo, or sharing its status {Nguyen, 2017 #978}. At the moment, there are more than 300 million active monthly users of Twitter only who post over 500 million tweets per day. Besides, there are more than 1.5 billion monthly active users on Facebook and 187 million active monthly users on LinkedIn.

Given that online relationships are be supported by technologies like distribution lists, photo directories and search capabilities {Resnick, 2001 #980}, new forms of social capital and relationship building are arising in online social network sites. Additionally, this social capital is even improved by such sites are allowing users to create and maintain networks of relationships {Donath, 2004 #981}. Social networks sites are also improving the weak ties individual could form and maintain since the technology is well-suited to maintaining such ties inexpensively and easily {Donath, 2004 #981}. It has been claimed that online social network may even have a role different from that described in early literature since online interactions do not necessarily take people away from their offline world. Contrary, they may be used to even support relationships and keep people in contact even when this is physically not possible {Ellison, 2007 #986}.

Social networks sites have also introduced a special service called a data stream in order to provide the latest relevant messages for the users or third-party clients. This

service automatically sends a notification of relevant messages to related users {Nguyen, 2017 #978}. The latter also present an important basis for the concept internet of things.

3.0 Digitalizing e-Government

Today, almost half of EU citizens is looking over the Internet for a job, visiting a public library, filling a tax return, apply for a passport or using any other e-government services. However, users are generally more satisfied with online banking services and online shopping comparing to a public service on the web since digitalization of public services did generally not cope with the technological advancement. Moreover, the need to use public services is also much behind the need to use banking or shopping.

In 2009 Slovenia received the quite prestigious international recognition of excellence in public administration The United Nations Public Service Award - UNPSA. Slovenia won the award for the e-VEM system for companies in the category "Improving service delivery in the public sector". However, from being an example of excellence in the next years the passive role in the field of e-Government development put the country in the lower middle of E-Government Development Index in Europe. Yet, in the last years the effort for renovating e-Government services resulted in the improved ranking putting in on 21st place among 193 countries.

3.1 Renovating e-Government services in Slovenia

Ensuring the proper function of public administration IS and communication systems in Slovenia is in the domain of Ministry of Public Administration. The main tasks of Ministry related to the field of IS are: infrastructure management, development of IS solutions (G2C, G2G, G2E, G2B, G2EU), planning and management of budgetary resources in the field of ICT in public administration, planning and coordination of IT projects, managing and coordinating the development of e-business in the public administration (e-government, e-services) etc.

National computer cloud (NCC) project was presented in August 2014. In December 2015, the project has started, while the first system, namely custom's system at the Financial Administration of the Republic of Slovenia was launched at the end of January 2016. NCC is intended for state institutions that are using it as an appropriate service model to fulfil their objectives. The infrastructure is owned by the state (Ministry of Public Administration). NCC is built of completely new equipment (85% of EU funding) and partly from the equipment of the institutions will no longer be needed once their application will migrate to the NCC. Currently the migration of applications and servers from different Ministries to NCC are in place. However, some applications will remain at the current locations since they are not all suitable for the new infrastructure. For further development of the NCC, there are two ideas. The first is a hybrid cloud computer, which could be connected to a private cloud. In hybrid cloud, companies should deploy their solutions and sell them to both the public administration as well as others. Another idea is the creation of innovative cloud-development computer; however, there is not much information available. It could be intended for start-up companies and educational institutions.

At the same time, the project of renovating the e-Government portal took place as well. The renovated portal of e-Government in Slovenia was launched in November 2015 (beta version); while the stable version took place in 2016.

3.2 Presenting important e-Government services: a friend or a foe

In 2016 there were 30,267 applications submitted through the portal of e-Government submitted in Slovenia.

Most visited applications	Most visited activities
Certificate of criminal record	ID card
Obtaining identity cards	Certificate of criminal record
Obtain a passport	Passport
Application for registration of temporary residence	Registering a residence
Electronic application for the basic rights of public funds (child allowance, a kindergarten, a state scholarship	Subsidy for reduced kindergarten payment

Table 1. **The most prevalent activities done by the e-Government portal.**

Despite the fact there are some quite popular applications at the portal, still too many applications need considerable rethink about their necessity. At the moment the portal consists of (among other more or less useful information) 324 applications that can be submitted via the portal. This number reflects the fact that renovating public portals is often done as recolouring the facade, while the processes behind remain unchanged.

However, considering the companies and their duty of reporting to the state for the statistical purpose or other obligatory reporting reveals additional problem of increasing the number of reports that have to be submitted to several agencies owned by the state. It seems that with the advent of e-applications and e-reports their complexity is not reducing. Since (in the theory) e-reports or e-applications are easy to manage, several agencies are yearly including new reports imposing additional obligation for companies. Therefore, many entrepreneurs perceive this increase as something annoying and unnecessary.

4.0 Conclusion

The paper presented an overview on some of the most important current issues related to e-Government, namely digitalization, cloud computing, social media and big data. As it is evident from the paper, the concepts that were related with e-Government a decade ago significantly differ from the concepts that are topical. Since all these new technological advancements and concepts are forcing and transforming current businesses into the digital ones, the term digital transformation or digital business is becoming a new trend word. The same applies to e-Government. Therefore, the paper presented a case of new e-Government portal in Slovenia since it was just recently renovated. During the process of digitalization, the process of optimization is quite often forgotten. Once it was called business process management; however today it is more elegant to call it digitalization. Yet with the digitalization it often mistakenly

transformed merely the visual part of the organization while the skeleton or internal processes remain unchanged.

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