# eGovernment and eHealth in Bulgaria:

# Developments and Challenges

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## Abstract

The purpose of this article is to briefly review the developments of the eGovernment and eHealth in Bulgaria since the start of their introduction. The paper studies and is limited to the strategic, regulatory, co-ordinational, and organisational dimensions for a period of more than 20 years. The milestones of the eGovernment and eHealth progress are underlined and summarised by years. The paper also examines the state of the Bulgarian information society incorporating up-to-date statistical data and analysis as indicative measure for the progress and prospects. Besides the overview of this long-term process, we discuss some challenges. Further in-depth researches of the effectiveness and efficiency of electronic governance policies and practices in Bulgaria for the studied period could provide a significant contribution to the discussion of the entire public policy evaluation and its future developments.

**Key Words:** Information society, eGovernance, eGovernment, eHealth.

## Introduction

This paper discusses the electronic governance and government (eGovernment) policies and initiatives in Bulgaria as part of the economic and social transformations (transmutations, innovation) that are taking place in the country. The eGovernment is embraced quite as another hope, a kind of "*engine*" of the progress and a tool for new management and governance quality and efficiency.

The study traces the electronic governance and, complementary the electronic health (eHealth) developments in Bulgaria, twenty-five years after that the society and the public sector have been in the spotlight of the *"reinvention of government"* by achieving a *"better"* government, rather than continuing the continuous discussion of "*more or less*" government [Osborne & Gaebler, 1993].

*"Better"* government is aimed at citizens and their needs; changes are needed to be accomplished, establishing a new institutional culture and work organisation. This reorientation is supported by the subsequent and rapid development of the Internet and the information and communication technologies. Their use to achieve a "*better*" government and to provide "*better*" public services to citizens is known in a narrower sense as "eGovernment" and a broader sense as "eGovernance" (comprising the hole governance structure). It should be noted that no distinction is considered for the purposes of this paper.

The process of introducing eGovernment in Bulgaria started in the late 1990s. It has been accompanied by numerous strategic papers and legislative procedures, multiple institutional-organisational changes, and a project-oriented approach of funding, largely under the Operational programmes and other European funds in the recent years.

This research is limited to the study of the strategic and regulatory management and, institutional aspects of the eGovernment and eHealth in Bulgaria, summarising and systematically structuring the progress over the last twenty years covering the relevant strategies, regulations and the coordination of the respective policies and initiatives, simultaneously in three directions of the existing interactions "administration-citizens", "administration-business" and "administration-administration".

Focused principally on the mentioned three aspects of the policymaking and execution, the paper does not encompass comparative analysis of the strategic planning and management performances, effects and impacts achieved in the respective studied fields. No effectiveness and efficiency aspects are quantified and evaluated in this paper. Further studies should be done to analyse and assess the reported achievements and outcomes during the studied period (inputs-outputs, cost-benefit and other analysis). This paper only partially gives a description of the project implementation and funding as well as some results achieved, keeping pace with the understanding that

socio-economic progress in a particular area is a function of knowledge, attitude, culture and expectations of the society as a whole.

The paper is structured in four main sections: (i) general socio-economic and technology provisions for the development of the electronic governance; (ii) European context for electronic government implication; (iii) eGovernment and eHealth developments in Bulgaria focused on the strategic conception and landscape, regulatory background, coordination and organisation activities; (iv) Bulgarian information society and its preparedness for electronic government and electronic health in the studied period.

## 1.      General Provisions for eGovernment Development in Bulgaria

The socio-economic transformation is a fact more than 30-40 years in the country's economic practices – from the "*five-year planning*" of technical progress [Popov, Ovcharov & Ivanov, 1987] through the intensification of the development to the present day when designing "*catching up*" economic development and market economy. A number of factors have been accountable for it, among which the most important are:

•       Economic policy towards the market economy and its instruments such as privatisation, marketing, and others;

•       The "*opening*" (or "*dominating*") of the national economy in the European and global economic system;

•       Changes in the external economic situation and the inevitable "shocks" of global development such as crises, stagnation and others on the national development.

Overall, business dynamics and transformation go in parallel, and the roles and location of technologies in socio-economic development are conscious.

However, the "secret" of success in the modernity is not to explain the "things of life", but to think how to change them in a way that satisfies both business and society. Hence, there are numerous requirements and limitations to the governance, which succeeds more and more difficultly to be adequate to expectations. Political life is being dynamized, which leads to frequent changes in management 'elites', lack of continuity, quality and competitive ability of the ruling. They are increasingly unprepared for effective decisions and are inclined to believe, even at a degree of religiosity, that

modern digitalisation, and the so-called "internet of things", "big data", cloud technologies, will be the solution and the counteracting of exponential complexity and diversity.

In the Bulgarian reality, several interrelated and interconnected phenomena are superimposed:

- Globalisation and privatisation;
- Loss of markets and reorientation from central planning to market economy;
- Failure of the concept of balanced and proportional development implemented centrally;
- Climate change and the cost of environmental problems in the context of "quality of life";
- Long-term structural, technological and political changes.

Cornaj [2000], Polterovich [1996], Stiglitz, Sen & Fitoussi [2010], and others showed with statistics and economic logic that in times of decline and stagnation the trends to reduce both production and well-being dominate. At the same time, inflation rates are or remain high. One of the reasons for the alternating periods of stagnation is ineffective scientific and technical progress in the Eastern European countries and Bulgaria. We can add another reason – the asymmetric foreign trade, whose collapse has led to a massive collapse of the national economy. This further reinforces the faith and the hope in technical progress – even more since our country has undertaken commitments within the former Council for Mutual Economic Assistance to specialise in electronics.

Analyses of the causes and consequences of economic crises are often and rightly associated with the technical-economic level of production, the dynamics and the effectiveness of technical progress. The automation and the digitalisation of the production processes and their management have a strong influence on it.

Automation takes away some of the human functions and assigns them to the machines. The result is higher productivity and lower production costs. It leads to higher competitiveness of production processes and organisations.

The advent of the electronic-computing machines and the microprocessor equipment has become a prerequisite for inclusion, although partially, of logical and control functions in the automation process. Robots and robotic units (complexes) in the

production system have an essential place in this process. It is a higher stage in automating and expanding the application scope of electronics.

Historically, the next stage in the development of automated management systems is the new systematic approach to cybernetics and the widespread use of economic-mathematical models and methods in management. This stage also led to an intensification of labour, restructuring the labour resources and bringing new challenges for the education and training.

The integration of the automated management systems continued the already started development. The relative share of logic functions and control impacts increases sharply. The new quality in automation and digitalisation inevitably brought positive changes in the economy.

The development of information and communication technologies (ICT) and the possibilities for integrating them entails two significant consequences:

- The first is the self-organisation of automated systems and their subsequent development;

- The second is the so-called 'digital economy' where the use of ICT has led to radical changes in many sectors, in social and cultural development.

These findings provide new opportunities and challenges for the management. Since it is known that management is above all an information process, this means that:

- The most crucial production resource is information;

- The Internet dominates the process of overcoming restrictions;

- The internet itself is the most significant limitation to the scope of operational management;

- Performance management becomes an essential problem because a physical resource can be used in many different projects with different returns. What is the best option in this case?

- Information is a resource that can be used repeatedly to improve management functions.

There are many indicators to characterise the digital economy and the digitalisation of economic and social governance – a network society, information and communication technology development index, eGovernment development index, and others.

In Bulgaria, prerequisites for eGovernance were created in the late 1980s and early 1990s. In the context of a centrally planned economy, the so-called national programmes (automation, microprocessor equipment and technologies, flexible automated production systems, new materials, biotechnologies and others, totally eleven) had to create the material and technical basis for global penetration of the digitalisation in production, culture and lifestyle of Bulgarians.

Still, concerning the development of digitisation and electronic governance and government, the state has mostly considerable influence. One possible explanation could be the fact that despite the reforms to privatisation and decentralisation, the new organisational and innovative forms (start-ups, innovative structures, others) still fail to unambiguously impose an impact on gross added value, productivity growth and the competitive capabilities of the national economy.

Overall, there are three major barriers to setting up electronic government: firstly, the weak or limited innovation power of the society (it still just imitates); secondly, the insufficient technological diversity and, thirdly, the relatively not bold and not large-scale management projects. The "ideological" debate on how to build eGovernment is continuing along these lines:

• Setting up eGovernment through targeted and bold centralised solutions, where the inertia of centralised planning is a fact;

• Setting up eGovernment through decentralising implementation through innovative small and medium-sized enterprises;

• What is the price of each of the two possible paths, and who will pay it and how?

It is evident that the answer to these questions is also political – courage is needed for a new and large-scale vision for the society, its economy and business concentration, all concentrated in the wisdom of management.

The first steps are made. Some of them are already forgotten, others deliberately destroyed by economic reforms. The necessary actions should now be designed and implemented in an environment of competition and a new type of coordination and cooperation. We are currently building scientific and technological ecosystems for knowledge, skills and attitudes by creating the necessary institutional conditions. The roads, however, are more than one, but the time does fly.

## 2.    European context and eGovernment

The price of modern technical progress is high. The rates of its development are also intense. However, the price is highest for those who lag behind the general development. The later a country integrates into the global digital space, the higher the price it pays.

Bulgaria has been implementing a radical economic transformation, which is a context for national development in itself. It is, however, a backdrop of another, broader context – Europeanisation and globalisation, which particular expression is the so-called Fourth Industrial Revolution (Schwab, and others). The uneven development is a self-contained, but extremely important problem (Schwab), leading to a generally recognised disorder, to futility in management elites, to poor financial market orientation, focusing on short-term targets and tasks, while digitalisation requires 'long money' and a political perspective.

The process is fundamentally important. Information is the one that lends meaning to eGovernment. While the modern economy is the knowledge, skills and attitudes to use, general resources such as information and how to "produce", distribute, use and protect property rights in the knowledge society, in a situation of electronic science management, production and consumption are questioned.

In the context of economic development, governance, including electronic, is a resource. Services today determine the appearance, pace and direction of development in modern economies. The services sector of Luxembourg economy is 87%, while in Bulgaria and Romania it is significantly lower (52% for Romania according to Dyankov & Aslund [2018].

The European context of eGovernance in Bulgaria is essential since the trade in services is still lagging behind the total volume of trade and trade of goods. Doubtless there is a potential to overcome the fragmented nature of trade in services in Europe, but we have to note that it will take place in a highly sensitive context of the labour market in Bulgaria, with huge emigration, job contraction and low nominal unemployment, not last to mention growing doubts regarding the EU's governance adequacy.

## 3.    eGovernment and eHealth in Bulgaria – Main Developments

The eGovernment and eHealth policies should be considered within the framework of the strategic and programming documents for setting the country's development objectives up to 2020. Such are the National Development Program: Bulgaria 2020, and the National Reform Programme of the Republic of Bulgaria implementing the Europe 2020 Strategy.

The national development document has defined the vision, the objectives and priorities of the government policies in order to achieve an accelerated economic growth and to raise the living standards of the Bulgarian citizens in medium and long-term. It is aligned to the commitments that Bulgaria has taken at European and international level. Still, and this should be underline that it is a "document for national growth solutions", as it represents the national way (road) for progress. However, several concrete action plans have been created since 2014 (exactly, five three-years Action plans for the implementation of the National Development Programme), which could be an indication for the changing character of the national growth solutions, and an increased focus on paper production instead of sustainability of the process and long-term policies.

The second strategic document has been elaborated to integrate the Lisbon Strategy and the Europe 2020 Strategy goals and covers sectors policies. Again, highly intensive process of constant updates has been observed during the studied period (document updated on an annual basis since 2007, accompanied by plans for implementation).

### 3.1 eGovernance – historical overview

One of the first initiatives of the national government on its road to introduce the electronic governance in 1998 has been the one to create a Coordination Council[1]. This body had both coordinating and controlling functions over the 'information society' issues. In that period, Bulgaria ranked also among the first European countries that developed strategic documents in the field of the electronic governance. Those were the Strategy and National Program for Development of the Information Society[2]. Later

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[1] With Decree No 40 of 17.02.1998.
[2] See for more details Slavinski [1998].

on, these strategic documents have been updated according to the Action plan Europe+ concerning the European Union candidates' countries.

Meanwhile, other strategic documents are proposed and approved such as the Program for implementation of modern information technologies in the administration and Strategy for development of high-tech activities and high-tech parks. Yet in 2001, the legal regime of the electronic document and electronic signature in the civic and public turnover was regulated in Bulgaria (Law on electronic document and electronic signature). Also, the legal foundation for establishing security of the electronic exchange concerning validity, content and integrity of the electronic statements has been a fact. The electronic form of statements was equated with legal consequences to the written one. An electronic document has become a mean of proof in the process (in case there is no requirement for a qualified written form). It was introduced a relative legal force of electronic signatures. With the agreement of the parties, ordinary and advanced electronic signatures were equated to the legal consequences of the handwritten signature. A qualified electronic signature was recognised by all, including public authorities or local government bodies and local administration.

Then, the business opportunity appeared for certification service providers, which by the end of 2018 counted a total of six companies[3]. The price, which has long been considered 'unfriendly' for the broader deployment of electronic services (eServices), has decreased over the years. At the end of 2018, as for the issuance, renewal, re-issuance of qualified certificate for a qualified electronic signature for three years, the price is about 30 BGN totally for individuals and around 120 BGN for legal entities. Nevertheless, and still, the eGovernment and eServices progress remained a remarkable challenge, especially the provision of more and better-quality administrative services electronically, simple, understandable and complying with personal and business life events.

However, back in 2002, the Government declared clearly and officially its support both for the introduction of the eGovernment "at the highest state level" in long-term and, for the modernisation of the public administration "from accession to integration". The major directions for the implementation of the eGovernment Strategy are focused on the citizens and businesses, market orientation, identification and security. More, this

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[3] See CRC [2018].

strategy had to be implemented in coordination and partnership with the respective stakeholders; an approach that could be considered positive as it is generally supposed to bring added value if it is implemented in the context of transparency and competition. There were several big challenges that have been identified at the time such as the lack of unified information environment in the public institutions as a consequence of the lack of integration of available information systems and registers (as far as electronic ones are available). To overcome them efficiently, the strategy has been organisationally backed; an organisational structure was put in place to support its implementation. Also, there were designed specific criteria to strengthen the selection of the important for the eGovernment projects. Such critical projects having fundamental importance for the future of the eGovernment were listed, as it was with the relevant activities to enhance its development. So, an entire system of concrete measures has been designed and put into action.

Further, in the same year, the individuals' rights during the data processing have been guaranteed by the law (Personal Data Protection Act, 2002). The individuals have been protected against the unlawful processing of personal data in the process of the free movement of data. It was meant to ensure the integrity of individual and private life. Later, as of 2006, the amendments have been applied also to personal data processing by means of automated tools. The main eGovernance law (Electronic Governance Act adopted in 2008) has also its provisions for the protection of personal data; it has introduced an obligation for the providers of electronic administrative services to collect, process and provide only personal data insofar as they are necessary for the delivery of electronic services within the meaning of the law. In this way, the personal data collected could not be used by suppliers for purposes other than the purposes of the relevant electronic services (one exception is the explicit consent of the person to whom they relate). Personal data had to be automatically and electronically provided as an internal electronic administrative service by the primary administrator and between institutions.

Another public body was created in the same period to support the implementation of the eGovernment, Coordination Centre for Information, Communication and Management Technologies (CCICUT), with main purpose to methodically ensure and coordinate the activities in the field of information governance, the private sector and donor organisations. Additionally, it was set up a Council for State Administration

Modernisation equipped with a Working group for coordinating the implementation of eGovernment Strategy, as well as a Coordinating Council for the Information Society to synchronize activities in the field of information and communication technologies, including through consultation of the institutions in the process of developing and implementing national strategies. Obviously, multiple bodies with overlapping policy and coordination functions could blur the responsibility.

A new initiative using the eGovernment mechanisms has been put in place in 2004 to guarantee the right to ownership of real estate properties and to redound the sustainable management in this domain. So, it was adopted a vision for a single national database of territory, population and resources.

The development of the electronic governance in Bulgaria was quite dynamic since 2005, characterised by the establishment of a further legal framework (Law on eCommerce (2006), Law on Electronic Communications (2007), Law on Electronic Governance (2008) with a number of secondary acts). The principle of the single collection and creation of data by administrative authorities performing public functions and public service providers has been enshrined. The institutions had to automatically collect data from the primary administrators and had not require citizens and organisations to present or prove data that is already collected or created within the institutions. The State Agency of Information Technologies and Communications was inherited by the Executive Agency of Electronic Communications Networks and Information Systems and the Directorate of eGovernment (also Directorate of Communications and Directorate of Information Technologies at the Ministry of Transport, Information Technologies and Communications (MTITC), which has been already into the charge of the organisational and co-ordinational activities for the implementation of eGovernment. In this way, the development of electronic services, interoperability and information security have been reconciled in one institution.

For the next two years and again in order to assist in the implementation of eGovernment policies, two bodies were created, the Council for Network and Information Security of Information Systems of Administrative Authorities and the eGovernment Council to the Minister of Transport, Information Technologies and Communications. It was elaborated a specialised programme to boost the Bulgarian information society (National Program for Accelerated Development of Information Society in Bulgaria 2008-2010). The purpose of the new programme was to define the

operational framework of the Bulgarian information society model in a technological, economic and social context recognising the role of modern technologies for social and economic development. The approach adopted was the almost same as previously: priority areas (excluding eGovernment and eHealth) determined, guidelines for establishing the subsequent roadmap developed, and projects of key importance for the development of the Bulgarian information society identified.

In 2009, it was created an advisory body to the Council of Ministers on the coordination of the government policy in the area of public administration and decentralisation, including coordination of public policy to improve administrative services (Council on Administrative Reform (CAR) [4]. It had a responsibility to develop the guidelines for integrated administrative services and to propose measures to improve the processes of delivering administrative services [5]. Given the functions and the composition, the Council had the prerequisites to drive the modernisation of the public sector and accelerate the reforms for the benefit of the citizens and businesses in Bulgaria. According to the public information[6], for the period since its inception, its highest activity was marked in 2015, followed by two years of activity decrease and relative recovery of activity in 2018.

Building an administration, oriented towards the needs of the society is the old refrain for the newly adopted Strategy on Public Administration Development (2013-2020). Under the first Strategic Objective, all three fundamentals of the modern state and effective institutions, the better administrative services, the smarter regulation and the more open administration, are covered. Still, the strategic document has set out the expected results for the three sectors of the target generally. No plan has been set for their gradual achievement during the seven-year strategy implementation period. However, it is a necessary step in order to conduct a systematic policy and to carry out a (regular) monitoring of the progress. The strategic document stated the incorporation of three other strategic papers, namely: Human Resources Management Strategy in Public administration (2006-2013), Strategy on Training of administration staff (updated in 2006) and, Concept on improving administrative services in the context of the one-stop-shop principle. This should imply that the objectives set and the expected

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[4] With Decree No 192 of 2009.

[5] Under the Rules of procedure of the Council for Administrative Reform, adopted by Decree No 283 of 2009.

[6] http://www.saveti.government.bg/web/cc_203/1

results in this document were determined following the achievements of the previous ones.

Focused on better services and designed to remove the legal and administrative barriers to trade in the internal market, the European Directive on Services[7] from 2006 has been transposed into the Bulgarian legislation four years later (Law on the activities for services delivery, 2010). Its primary purpose was to realise the full potential of services markets in Europe through nationally coordinated transparent, clear, and friendly electronic service delivery. This goal had to be performed by the already existing by the time Portal for electronic provision of administrative services[8] built and maintained in accordance with the eGovernment Act. This platform was created as a centralised source for citizens and businesses for information and administrative services electronically. Still, a quite limited number of services are available and the access to it is still hampered, more than 11 years after its launch.

Since 2010, the vision and objectives of the Bulgarian electronic government have been defined by the Concept of eGovernment in Bulgaria (2010-2015), which represented the basis for the development of the national strategy and roadmap. The subsequent strategic document - the General eGovernment Strategy in Bulgaria (2011-2015), had as the primary aim the digitalisation of the institutions, namely to achieve interoperability at a national level, to establish a "digital administration", to coordinate the planning and implementation of projects at the national and local level, to introduce business models in the work of the administration, as well as convenient access to administrative services. Besides, the adopted electronic communications policy had to create conditions for the development of the electronic communications sector, the promotion of investment policy and the implementation of technological innovations. The efforts were directed to ensure easy access to quality, secure and efficient electronic communications services.

Following a decision by the Council on administrative reform, the Plan on the Implementation of the Public Administration optimisation measures (2010-2011) incorporated measures concerning the access and quality of the public services, the institutional organisation and the efficiency of the public spending.

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[7] Directive 2006/123/EC of the European Parliament and the Council of 12.12.2006 on services in the internal market

[8] http://www.egov.bg

Another electronic governance issue that has been approached at the time, it was the spatial data and infrastructure. The adopted in 2010 Spatial Data Act provided rules on the construction, maintenance and use of infrastructure for spatial information in the form of metadata, arrays of spatial data, including those in electronic form; spatial data services, network services and technologies; exchange, access and use of agreements; coordination and monitoring mechanisms; other processes and procedures within the spatial prospective. So, it regulated the provision of access to spatial data and the provision of services for environmental data or activities that may affect the environment by ensuring compatibility and security in the exchange of data.

New eGovernance initiative was related to the European digital programme for the social and economic potential of information and communication technologies and the Internet until 2015. In this sense, the parameters for the development of the Bulgarian information society have been renovated according to the European goals through a National Programme on Digital Bulgaria 2015.

For the next planning period from 2014 to 2020, Bulgaria had an eGovernment strategy (Strategy for eGovernment development in Bulgaria (2014-2020) with a vision for the development of the administration that provided for the effective and rapid performance of the public duties. The respective Roadmap for implementation of the Strategy has been adopted the same year but also cancelled two years later when a new Roadmap has been created. That should be bound to the overall stated expected result for the reduction of the time for service delivery, the introduction of "complex administrative services", the provision of services on the "events" principle basis, the performance of optimisation and reengineering of work processes, and others.

The will to accelerate the introduction of eServices has been reflected in the creation of the State Agency of eGovernment to the Council of Ministers instead of the Directorate of eGovernment and the Executive Agency for Electronic Communications Networks and Information Systems. Newly formed current structure conducts public policy on eGovernment, including electronic trust services, electronic identification, network and information security, infrastructure for spatial information, public sector information in a machine-readable open format. The functions are strategic, from coordination to control of eGovernment, to maintain centralised registers, to administrate private cloud and the public administration communication network. There was also a project in progress to establish a State Enterprise "Unified System Operator" as an information

contact centre for electronic administrative services, as well as for the construction and maintenance of a National Spatial Data Portal.

In recent years, the discussion about electronic identification is passing by picks and downs. Still, electronic identification is of paramount importance for eGovernance future development. In this regard, the public relations to distinguish between one person and another person(s) in the virtual environment, in order to ensure access to information systems and the possibility of electronic statements employing electronic identity verification have been regulated by specialised law (Electronic Identification Act, 2016).

## 3.2 eHealth Care Service – historical overview

In the field of health, several strategic documents specified the specifics of eGovernment and set priority areas for development.

Firstly, we should mention the initiatives of the government to the improvement of the health status and quality of life of Bulgarian citizens by ensuring equal access to modern, efficient and quality health services with the help of existing and new technological opportunities in line with the changing needs and increased mobility of the population. For that purpose, it was designed the Strategy for the Implementation of eHealth in Bulgaria since 2006.

Second, this public policy followed the concept of better health, as amended three times in 2010, aimed at improving public health and achieving higher levels of national health security, as well as overcoming identified Negative trends and the disintegration of health.

Thirdly, the leading strategic document, which specified the objectives for the development of the health system until 2020 is the National Health Strategy 2020, adopted in 2013 by the Council of Ministers and two years later by the National Assembly. It represents the strategic framework for health policy and the development of an effective health system, to which an Action plan for the implementation of the National Health Strategy 2020 is applied. eHealth encompasses health services, monitoring, awareness and education, and research.

The challenges faced by the eHealth policies included the lack of an integrated information health system and access of patients to data from their health records, a lack of vision and conditions for the development of telemedicine and other advanced technologies in the system of improving prevention, treatment, supervision and management.

The measures were aimed at developing the eHealth architecture, building a national information health system and introducing standards, ensuring interoperability, connectivity between different stakeholders in the system and the resulting opportunities to improve overall health care and training.

The development of eHealth is one of the priorities in the Governance Program of the Government of the Republic of Bulgaria for the period 2017-2021. To this end, it was intended to create an integrated information system that connects in real-time stakeholders in the healthcare system (Ministry of Health, National Health Insurance Fund, National Insurance Institute, National Revenue Agency, providers of medical and health services). The planned four measures concerned the improvement of the quality and effectiveness of the health care process through the establishment of a national health information system, the creation of an electronic health record, electronic prescription and electronic medical track, implementation of a single patient identifier and implementation of cross-border exchange of health data between Bulgaria and the EU Member States.

The basic information on the development and implementation of the strategies, regulations and, policies and activities' coordination for the realisation of eGovernment and eHealth in Bulgaria is summarised and systematised by years in Table 1.

It is adopted an approach of classification by years of adoption of the relevant document or the relevant decision of the government. It is obvious that 40 strategic documents have been developed during the period from 1998 to 2018 (without the list being exhaustive), of which at least half are specifically focused on the development of the information society, eGovernment and eHealth in Bulgaria, eight laws were adopted (not including the sub-normative framework), 15 different structures for policy coordination and implementation functioned.

**Table 1. Strategic, regulatory and institutional coordination framework of eGovernment and eHealth in Bulgaria after 1998**

| Year | Strategic Document | Regulations | Coordination and organisation |
|---|---|---|---|
| **1998** | | | **Coordination Council** for Information Society issues |
| **1999** | **Strategy** on Information Society Development and **National Programme** on Information Society Development (updated 2002)<br><br>**Program** on Implementation of Modern Information Technologies in administration | | |
| **2000** | **Strategy** on Development of High-tech Activities and High-tech Parks | | **Coordination Council** on Information Society Issues |
| **2001** | **National** Integrated Administrative Service **Programme** | Electronic document and Electronic Signature **Act** | |
| **2002** | eGovernment **Strategy** (updated in 2003 and 2006)<br><br>**Strategy** on State administration Modernisation - from Accession to Integration<br><br>**Strategy** on Training Employees in Administration (updated 2006)<br><br>**Concept** on Improving Administrative services in the context of the one-stop-shop principle | Personal Data Protection **Act** | Coordination Centre for Information, Communication and Management Technologies to Council of Ministers (closed 2006) |
| **2003** | | | **Council** on State Administration Modernisation with **Working group** for coordination of eGovernment Strategy |

| 2004 | **Implementation plan** on eGovernment **strategy and Action plan** for Bulgaria's competitiveness on global ICT markets | | **Coordination Council** for Information Society Issues |
|---|---|---|---|
| | **Vision** on a single national database of territory, population and resources | | |
| | **Updated Sector Policy** in Telecommunications of the Republic of Bulgaria | | |
| 2005 | **Strategy and Action plan** on ICT Introduction in Bulgarian Schools | | **Directorate** Strategic Planning and Governance **in Council of Ministers (CM)** |
| | | | **Directorate eGovernment** in MSAAR |
| | | | **SAICT at CM** |
| 2006 | **Strategy** on **Implementation** of eHealth in the Republic of Bulgaria (valid until 2012) | eCommerce **Act** | |
| | **Strategy** on Human Resources Management in State Administration (2006-2013) | | |
| | **Plan** on **Implementation** of **Strategy** for Human Resources Management (2006-2009) | | |
| | **National Framework** on Interoperability of Information Systems in the Executive | | |
| 2007 | | Electronic Communications **Act** | |
| | | eGovernment **Act** | |
| 2008 | **National Program** on Accelerated Development of Information Society in Bulgaria (2008-2010) | | Directorate eGovernment in MTITC |
| | **Program** on Providing Integrated Spatial Databases in the Republic of Bulgaria | | (Directorate Communications and Directorate Information Technology in MTITC) |

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|---|---|---|---|
| **2009** | | | ECMIS **Executive agency** at MTITC<br><br>**Council** for Administrative Reform |
| **2010** | eGovernment **Concept** in Bulgaria (2010 – 2015)<br><br>**General eGovernment Strategy** (2011-2015) (valid until 2013)<br><br>**Implementation Plan** on Public Administration optimisation measures (2010-2011)<br><br>Electronic Communications **Policy** of the Republic of Bulgaria<br><br>Better Health **Concept** (up to date) | Spatial Data Access **Act**<br><br>**Law** on service Activities | **Council** on Network and information security of the information systems of the administrative authorities of the MTSC |
| **2011** | | | MTIC eGovernment **Board** |
| **2012** | **National Development Programme**: Bulgaria 2020<br><br>**National Programme** "Digital Bulgaria 2015" | | |
| **2013** | **National Health Strategy** 2020 (adopted by the Parliament in 2015) | | |
| **2014** | EGovernment development **Strategy (2014-2020)**<br><br>**Strategy** on development of the State Administration (2014-2020)<br><br>**Plan for implementation** of the Strategy for the development of the State Administration (2014-2015)<br><br>**Roadmap** on the implementation of the EGovernment development **strategy** (2016-2020) | | |

| | | | |
|---|---|---|---|
| | **Three-year action plan** on the implementation of the **National Development Programme:** Bulgaria 2020 (2014-2016)<br><br>**Three-year action plan** on the implementation of the National Development Programme: Bulgaria 2020 (2015-2017) | | |
| **2015** | **Roadmap** on implementation of the **Strategy** for development of the State Administration (2015-2020)<br><br>**Action Plan** on the implementation of the National Health **Strategy** 2020<br><br>**Three-year action plan** on the implementation of the **National Development Programme:** Bulgaria 2020 (2016-2018) | | |
| **2016** | **Roadmap** on the implementation of the EGovernment development **Strategy** (2016-2020)<br><br>**Three-year action plan** on the implementation of the **National Development Programme**: Bulgaria 2020 (2017-2019) | **Electronic Identification Act** | **State Agency** eGovernment at CM |
| **2017** | **Three-year Action plan** on the implementation of the National Development Programme: Bulgaria 2020 (2018-2020) | | |
| **2018** | **Concept** for eGovernance Development in Bulgaria – towards Sustainable model of eGovernance (2018-2022) | | **State Enterprise** Unified System Operator (project) |

Source: Own compilation based on published documents in www.strategy.bg, www.lex.bg, www.mtitc.government.bg, www.e-gov.bg [Accessed on 30.12.2018].

## 4.    Information Society and the eGovernment and eHealth Development in Bulgaria

According to UN Global Survey on eGovernment (held since 2003), from the last position in 2014, Bulgaria climbs up, leaving behind Slovakia, the Czech Republic, Croatia, Latvia and Romania. The overall performance improvement is observed after 2014 (see Table 2). It is interesting to observe the country's assessment of the scope and quality of online services (OSI), which, after a consecutive decline until 2014, marked a significantly better performance in the past year.

**Table 2. Dynamics of UN Global Survey on eGovernment Ranking of Bulgaria – eGovernment Development Index [EGDI], eParticipation Index, Online Services Assessment (Sub-Index) (2003-2018)**

| Bulgaria | 2003 | 2004 | 2005 | 2008 | 2010 | 2012 | 2014 | 2016 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| EGDI rank | 35 | 41 | 45 | 43 | 44 | 60 | 73 | 52 | 47 |
| ePart Rank | 61 | 41 | 42 | 135 | 39 | 134 | 122 | 43 | 35 |
| OSI score | .5371 | .5058 | .5192 | .4849 | .4095 | .4902 | .2362 | .5652 | .7639 |

Source: UN, eGovernment Survey (2003, 2004, 2005, 2008, 2010, 2012, 2014, 2016 and 2018).

According to the National Statistics Institute (NSI) data published on 30.12.2018, the access of households to the Internet for the country is 72.1% in total; as expected, the internet is more used in the cities (75.7%) and less in the villages (58.0%). The people that are using it regularly are 63.6%; those with high education use it the most (89.6%), followed by those with secondary education (64.6%), it is less used by persons with primary education or lower (37.7%). As regards to the age distribution, the percentage is significantly higher in the age groups up to 44 years (35-44 – 80.4%, 25-34 – 86.9%, 16-24 – 92.2%), while for the rest it is below 70% (45-54 – 65.7%, 55-64 – 45.2%, 65-74 – 17.8%). It is almost 100% in the case of learners (98.6%), and as for employees – 80.8%.

On the other side, only 22.2% are using the Internet to interact with the institutions, which is without any real change from the previous years; there are only 17.1% of the people that are seeking information from the institutions' websites, only 9.4% are

downloading forms, and only 9.5% are sending completed forms to the institutions using the internet.

If we compare the 2018 data with 2012 data, we observe a diminution of the online interaction between the citizens and the public institutions; in 2012, the Internet-enabled persons that interact with public institutions are 26.6%, 24.9% of the people obtain information from the public administration websites, 13.2% download official forms and 11.3% send completed forms to the institutions.

If we compare the data on people using the internet to interact with institutions in Bulgaria and in EU for the period 2008-2018, we observe a progressive trend of the online administrative services users in the EU, while it is not the case in Bulgaria (Table 3). Besides, there is an increasing gap between Bulgaria and the EU and the share of the European population using online provided tools is more than double of the Bulgarian. However, the interaction of the citizens with public institutions over the Internet is directly dependent on the administrative service being designed in a way that is user-friendly for the citizens and businesses and not for the relevant public bodies.

**Table 3. People using the Internet to interact with public institutions for the period 2008-2018 in Bulgaria and EU (%, age group 16-74)**

|     | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EU** | 35 | 37 | 41 | 41 | 44 | 41 | 47 | 46 | 48 | 49 | 52 |
| **BG** | 10 | 11 | 24 | 25 | 27 | 23 | 21 | 18 | 19 | 21 | 22 |

Source: Eurostat (2019).

Concerning the eSkills of the individuals, in 2017, 44.3% of individuals can copy or move a file or folder; 27.9% of the people can use word processing software; 16.4% can use spreadsheet software; 10.1% can use photo editing software, video or audio files; 1.2% can create a computer program; 44.4% can transfer files between computer and other devices; 8.6% can change or verify the configuration parameters of software applications; 15.0% can create electronic presentations by means of appropriate software including images, sound, video or graphics; 19.9% can install software or applications. Totally, there are 26.7% of individuals who have never used the Internet. Among the main reasons households do not have Internet are lack of skills to work with

the Internet (17.3%), lack of need for the Internet (useless, uninteresting, others) (15.7%), too expensive equipment (9.0%), and too high access costs (phone, subscription, others) (7.2%).

In 2018, a total of 55.9% was the share of people using a mobile phone or smartphone to access the Internet outside of the workplace or home. Only 4.7% orders medicines on the Internet.

As for companies, 94.6% of them have Internet access, and 51.1% of them have own web pages. A total of 31.5% of employees in companies use a computer and 28.1% use the Internet. Around 75% of businesses interact with public institutions via the Internet to receive information (71.0%), to download forms (e.g. tax returns) (75.8%), to send out a receipt (e.g. providing statistical information) (75.7%). In 2018, 47.8% of businesses use an electronic invoice.

What is the state of the electronic administrative services from the public institutions' perspective? We note that no relative data are provided in the latest State of Administration Report while this information was reported in some previous reports. However, it is interesting to mention the huge lag between applications submitted to inquire electronic administrative services and the provided services (2 903 326 applications submitted by citizens for electronic administrative services against 25 670 provided services, 5 972 236 applications for electronic administrative services submitted by the business against 5 721 provided services). The electronic services made with online payment are only 916 in 2017. By the latest data, the Bulgarian institutions that provide electronic administrative services are around 37% (2013-2014). These services are traditionally information services and electronic access to forms, while only around 7% of the institutions are ready to carry out the two-way communication, and a fully electronic transaction (with online payment of the tax service) - only around 3%.

In terms of health, the budget expenditure on research and development for health in 2018 is 1.9% or 4 053K BGN. Almost as much as for the study of political and social systems, structures and processes (1.8%) and less than for urban space research (2.0%). Health information (injury, illness, nutrition, health improvement, others) seek 24.7%, and only 3.5% booked an appointment with a doctor via a website or application (hospital, health centre, others).

On the other hand, the development of eGovernment is a part of the priority axis, aimed at providing quality administrative services and is financed under the operational programme "Administrative Capacity" (OPAC) for the programming period 2007-2013. There are totally 180 projects, and more than 50 projects are designed to improve the quality of the public services offered to citizens and businesses (mostly on municipal level). These projects incorporate different aspects of the administrative reform, such as administrative services survey and enhancement, administrative processes optimisation, administrative servicing implementing the "one-stop shop" concept, information systems improvements and websites designs, public services integration, electronic channels for providing administrative services, and others. Examples of such projects for the provision of complex administrative services for citizens and businesses are numerous, as of the regional administration or the Communications Regulation Commission (CRC), which developed 39 complex administrative services funded under the Programme. The National Revenue Agency has implemented 35 projects for 5 491K BGN. The Ministry of Transport, Information Technologies and Communications is currently implementing five large-scale projects in the field of electronic governance to improve the information and communication environment for better administrative services of a value of around 49 mln. BGN.

**Conclusion**

As a result of the research, the following major conclusions could be drawn on the eGovernment and eHealth state and developments in Bulgaria:

▪ At a political level, there has been a consistent and systematic statement of political will for the implementation and development of eGovernment, and in particular for eHealth in Bulgaria, over the last twenty years. They are declared priorities for state government. Still, declaring political will in itself is not the main criterion, and it is not enough in itself for success. The political will should be aligned with real consistent, coherent, focused, systematic political action, strictly monitored, coordinated and controlled.

▪ During the studied period, it is observed a strong dynamic in the law-making and strategic planning concerning the electronic governance in Bulgaria. The regulatory framework of the eGovernment is consistently established by numerous normative acts including main domains of the electronic governance such as the regulation of the electronic document and signature, connectivity and interoperability of information

systems, electronic identification and, others. However, the question is whether the practical implementation and construction of eGovernment and eHealth infrastructures are in line, in terms of time and volume, with strategic and normative documentation. Likewise, no continuity and consistent upgrading of the actions and efforts for the implementation and development of eGovernment is found. There is no unified, unifying concept to build it from the very beginning of the process; the concept undergoes a number of changes. The required legal framework and considerable efforts have been made over the years to develop strategic documentation without it being a subject to an effective implementation by the institutions so that it results in obtaining tangible and incontestable improvements in the service delivery for citizens and businesses and institutional efficiency. Extensive evidence of inefficiency of institutions and continuous existing administrative barriers, as critical factors influencing the lack of improvements in the business environment and competitiveness at the national level, are accumulated over the years.

▪ The organisational-coordination structure is unsustainable and is subject to frequent restructuring. As a result, the responsibility for the achieved and/or not achieved results are blurred. Except for the last two years, there is no single unit to manage the whole processes of implementation and development of the electronic governance in Bulgaria.

▪ Bulgaria has clear strategic visions all the time, even that they have been overlapped in the multiple strategic documents, valid also for the established coordination structures aiming at the development of eGovernment and the set of rules. More and nevertheless, the country lags significantly behind or there is no confirmed progress for real, operational improvement achieved regarding the service delivery to citizens and businesses, especially in the light of the numerous purposeful projects funded. The implementation of eGovernment and eHealth in Bulgaria is a long process and obviously it will continue to be even longer. However, the eGovernment Strategy designed in 2002 relied already at the time on the re-orientation of the public administration to the needs of citizens and businesses and to increase transparency, accountability and ultimately the effectiveness of the institutions. So, at the very beginning of the process, there was an understanding for the priority digital transformation of the public sector through the use of modern technologies, which was in line with the direction and further developments of the eGovernment at the European level. The reformulation of the same objectives and outcomes ranging from "*building*

*a digital administration" in "transforming the administration into a "digital administration*" does not bring added value to the outcome of the policy. Although the principle of single data collection and creation is enshrined in the legal framework since 2007 (eGovernment Law) and public institutions should not require citizens and businesses to present or prove data already collected, it is still lagging to apply in practice in Bulgaria. The effect of the measures taken at the end of 2018 to facilitate institutions in implementing the legislation on electronic documents and electronic administrative services is still due.

▪ Greater transparency, communication with society and accountability for the actions and achievements in the field of eGovernment and eHealth in Bulgaria is still in deficit, although that progress is made since the creation of the new structure to Council of Ministers of the Republic of Bulgaria.

▪ There are a significant disbalance and even a gap between institutions, citizens and businesses about the readiness, opportunities and expectations for eServices delivery and efficiency of institutions.

More than twenty years after the start of the process of implementation of eGovernment in Bulgaria, there is still no integrated eGovernment, encompassing central and local government, regardless of the measures taken for the interoperability of Information Systems in public entities. Despite the significant number of strategic documentation, the vision for the eGovernment building is still not leading to consistent and satisfying results for the economy and society. Many projects are implemented without prior synchronisation, which leaves an impression of self-sufficiency and fragmentation, and does not achieve the necessary performance and effects. The process of standardisation of administrative services started more than ten years ago (with the establishment of the List of unified designations of administrative services) but did not progress at the expected pace and did not meet the expectations.

So, Bulgaria still faces the challenge to achieving "better" governance, the efficiency of institutions and processes and the higher achievements in relation to the implementation and development of eGovernment and eHealth, so that citizens and businesses could consume practically electronic administrative (and healthcare) services with less effort, time and cost, and monitor progress and achievements in reforming and modernising institutions, and participate in the governance and decision-making processes.

Obviously, studying eGovernment as a state and development, we cannot underestimate and not account corporate interests, migratory flows, the universality of management culture, but also the cultural resistance to the eCulture. The subjective factor "lags" or digitalisation, including in management, is not any different from a well-disguised corporate interest due to the short-sighted development. Shall we regard this as an issue or a challenge: Can eGovernment in Bulgaria, positively influence the economy and industry (in its present state) and transform it to the required level in a competitive way.

More, further in-depth researches of the effectiveness and efficiency of the electronic governance policies and practices in Bulgaria for the studied period could provide a significant contribution to the discussion of the entire public policy evaluation, its impact on the economy and its future developments.

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