E-GOVERNANCE IN THE DIGITAL ECONOMY ERA

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Abstract

This paper presents a view over the way in which governments adapt to the changes in the social and economic environment related to the digitalization of various aspects of the society as well as trends in policy making and public opinion that challenge traditional governing methods. Three distinct e-governance infrastructure are tackled: Government to Client, Government to Businesses and Government to Government solutions that can use tools and technologies, each with financial implications and relevance from a tax policy stand point. The most significant functional, technical operational implications are briefly explored then the paper then analyses the development of possible E-governance applications for each function of the government in the economy. All such developments manifest both deterrent forces and incentives, but a well-executed system has all prerequisites for good e-governance.

Key words: *digital economy; digital government; e-governance; public service infrastructure; regulation gap*

JEL Classification: *O33, O35, O38, P48*

I. INTRODUCTION

The digital economy refers to an economy that is based on computational technologies and that are becoming an increasingly significant part of the wider economy. The term first appeared in 1995 in the book "The Digital Economy: Promise and Peril in the Age of Networked Intelligence" by Don Tapscott, one of the first books that analyzed changes in the business environment with the rollout. With the availability of computers and communications infrastructure (internet, computers, software, networks, etc.) individuals and organizations redesigned a number of business processes and developed entirely new applications exclusively serving the digital economy. The introduction of social issues that have come to dominate the current concerns of many people have blurred the boundary between the classical and the digital economy, as well as added complexity to the concept. Bitcoin, for example, as the first major decentralized digital currency is both a product of the digital economy and a pillar of development, and there are other models and examples.

E-governance is an application of new technologies for the delivery of government services, transfer of information from state institutions to civil society and businesses, but also a platform for running processes and internal mechanisms of government. The concept represents, in my view, a crucial component in the digital economy, even if the public environment does not always keep pace with the private sector in terms of implementing new technologies. Changes in economy and the inelasticity of the policymaking process leave state institutions lacking in some important areas such as job creation or fiscal regulation and this gap must be explored not only theoretically but also through practical tools and applications. For this reason through public-private partnerships or other mechanisms through which the state can receive infrastructure information and benefit from advanced technology and, in turn, it can identify measures, programs and decisions that drive the reform process forward and streamlines the entire system on all its levels: government - citizens, government - civil servants (or other employees which serve the governance structures), government - businesses and government - other governments (we include here above governmental institutions). The ultimate goal of e-governance is to improve public services, strengthen democratic processes and transparency, reduce corruption and decrease the administrative costs of the state.

II. GOVERNANCE GAME CHANGING PHENOMENA

Before analyzing the financial implications and possible tools and applications for e-governance we must recall a series of phenomena that affects the functioning of the state in a broad sense and have a relevance in search and designing solutions to improve the system. Usually, the process of regionalization and globalization have the effect of amplifying these phenomena.

a. NIMBY

NIMBY is an acronym for the phrase "Not In My Back Yard" which refers to attitudes that characterize a population to reject a project or an initiative near them, even though they admit it's necessity. The concept can be extended to individuals or interest groups that support certain proposals (for example austerity measures) but preclude deployments that would require sacrifice on their part.

E-governance can streamline the mechanisms by which a decision of public interest is taken which, in turn, may lead to a sharp manifestation of the phenomenon. The connotations can be positive by discouraging projects that pollute, that offer unjustified compensation to selected parties or are distributed unjustly, affecting the local business environment and level of income, projects that imply the depletion of natural resources. On the other hand, it can also be negative by blocking infrastructure investments of public interest (roads, renewable energy projects, real estate projects with social connotation etc.). There are situations where opposition to the developments is based on suppositions and unfounded fears, which is why a growing population control on decision-making must be accompanied by adequate information and educational infrastructure that enables informed decision making.

b. BANANA

„*Build Absolutely Nothing Anywhere Near Anything*" is an acronym which describes the attitude of certain groups who fully oppose support land development, namely economic growth in the classic sense. Regardless of the strength or the justification of their arguments, this phenomenon can be a force in shaping decisions and policies with economic and social impact.

c. NAMBI

„*Not Against My Business or Industry*" designates business practices and corporate rejecting the policies that affect private interests, even without taking into account similar effect on other business. The danger arises when corporations devote significant resources to combat a policy or a line of thought under the pretext of defending principles of business or the economy as a whole to protect practices that are harmful or provide skewed payoffs. A characteristic example is the use of tetraethyl lead as an additive in fuel by the oil industry. Significant resources have been allocated to counter medical research proving the accumulative toxic effect.

d. „Not In My Jurisdiction" and „Not In My Term Of Office"

These concepts represent an extrapolation of NIMBY concept of public policy and governance. As a point of debate and in the context of increasingly complexity of government process, decision makers at governmental level can use administrative limitations inherent to the rule of law (jurisdiction or term related) to tacitly or expressly oppose certain actions, even if they are for the benefit of the community. This behavior reflects inefficiencies in government processes and constitute barriers to achieving governance and has consequences at the civil society level trough waste of resources and through failure to address legitimate needs of society. Field manifestations of this phenomenon have a particular relevance to critical infrastructure because there are many situations where the management, operation or improvement of useful, if not essential infrastructures depend on operation of state institutions in a formula in which jurisdiction is difficult to define or implementation period exceeds or does not correlate with electoral cycles. This problem is manifested even at the level of nation states, particularly in matters of environmental protection and reversing the process of global warming. The best example is the case of plastic marine pollution. Although the problem is well known at a scientific level and increasingly acknowledged by other people, at the time of writing there is no significant governmental initiative in this regard.

Decisions of state institutions also suffer from a problem of legitimacy given that in many cases election turnout decreases over time, particularly in advanced economies, but also there is a substantial gap between the act of representation by elected officials and the public impact of their decisions and the real interests of the electorate. This is aggravated by the fact that the modern state's noncompliance with its own laws, without any response instrument, is not a fictitious scenario. This issue depends on the legislative electoral system. Further reading works such as "The Study of Electoral Behavior", Larry M. Bartels, Princeton University

e. Internet neutrality

This principle refers to equal treatment of all internet users and data generated and transferred by and to them. Proponents of this concept of thought aim to combat digital discrimination, respectively charging differentiated by user, content, field, specific application or communication module, or artificial limitations of access and connection speed. A growing number of individuals, organizations and even companies support the idea of "open internet" with transparent standards, removing barriers of censorship and removing barriers to access. Internet neutrality is an important component of the concept.

An essential aspect of this issue is control data transferred over the network by screening or filtering content transferred via internet interruption by operators of telecommunications infrastructure. Access to such techniques without a court order or warrant is dangerous in the sense of a severe communication restrictions, resulting in a suppression of freedom of expression or noncompetitive economic practice. While telecommunications companies practice higher tariffs to ensure quality of service (often pseudo-services, as there is no separate infrastructure for preferential access to certain services to customers), access to tools of

intentional manipulation of traffic allow maintenance of a business abusive model which exploits a legal vacuum and a lack of instruments from the user. Also, various agreements between infrastructure operators distort the digital economy because it changes the principles of freedom of the internet. Restricting traffic to websites of competitors and restricting access to certain services may affect the success of certain companies operating on-line, regardless of quality, limiting innovation. A number of governments such practices by blocking access to certain services (Twitter in Turkey, China) or even access internet as a whole (blocking access to the internet in Egypt in 2011). Such practices directly affect people's freedom of expression and represent a serious obstacle to the proper implementation of digital governance tools.

There are points of view that are limiting regulatory efforts in favor of net neutrality, especially from companies that develop technologies in IT field. A group of corporations, including IBM, Intel, Cisco, Qualcomm or Alcatel-Lucent have sent an open letter to the US Congress and the Federal Communications Commission on December 10, 2014, criticizing the initiative to classify broadband as a utility under Title II of public Communication Act. This proposal has the following key provisions for industry:

- Broadband providers may not block access to lawful content, applications, services and devices that are not malicious ;
- Broadband providers cannot degrade lawful Internet traffic based on the content, applications or services;
- Broadband providers can prioritize legal connections over other connections.

Broadband industry accuses severe technical and financial implications of internet regulation as a public utility such as:

- infrastructure investments will decrease in volume, the entire industry entering a stagnation in conditions of uncertainty regarding the return on investment;
- this decrease will have a domino effect in an economy that was based on unregulated internet services;
- the shift from a system where internet traffic is unregulated to one that is regulated (default measured and monitored at government level) leads to technical complications, operational and possible financial losses depending on the implementation of regularization charges on traffic;
- The rationale of Title II of the legislative proposal (Telecommunications Act of 1996 , updated classified under Title II broadcasting services - https://transition.fcc.gov/telecom.html) is to protect consumers against monopoly, rules inapplicable in a competitive market, without addressing the issue of net neutrality in essence;
- Net neutrality has not been necessary so far, and the operation and development of internet has been notable in recent years;
- Government intervention in various fields proved counterproductive in terms of history and especially in terms of technology.

It is obvious that the implementation of the legislation has since been passed, and developments in the industry and the digital economy as a whole will determine the accuracy of different opinions. Net neutrality, at least in the United States was transformed from an ideological problem in a technical one, demarches had global implications.

The phenomena described above reflect behavioral attitudes of all stakeholders from public life, from individual and to corporations or bureaucrats and represents analytical parameters when designing a system of e-governance. The target of such an efficient system is to avoid excessive regulation, simplifying administrative aspects of the state leadership and enable a transparent process where communication between voters and elected to be bidirectional.

III. E-GOVERNANCE IMPLICATIONS, POSSIBLE APPLICATIONS AND DRIVING FORCES

A healthy and effective e-governance system has multiple financial, technical and operational implications that will be explored below.

- Establishing the identity of the beneficiary government services.

In a classic bureaucratic system, identification and individualization taxpayer is difficult, and statistical information published by specialized institutions are subject to statistical error and not faithfully reflect reality. Through a system with high accuracy in identifying beneficiary which shortens the access road for service, eliminating interference can achieve significant savings in operating, offsetting the cost of implementing IT infrastructures, and a more fair efficient allocation of resources.

- Strengthening relations between government and citizen.

Government - Client infrastructure type enables rapid and accurate information transmission to the public and offers a platform to simplify tax payments, reduce waiting times, and saves time for certain services. Complete replacement of traditional institutions is not feasible given that internet access is unevenly distributed and not every person has the knowledge required to operate a computer.

- Improving communication between the government and state employees including those of state-owned companies or agencies.

A wide suite of tools can be developed to build an advanced management, monitoring and control system:

- Online management system for wages and salaries, information on fees and other liabilities, costs related human resources;
- Management system for benefits to entitled employees ;
- Training systems through which existing staff can be in touch with the working procedures and technological or legislative changes, and new staff can be trained to easily integrate in the work environment ;
- Mechanism to ensure transparency in government;
- Tools to fight corruption.

- Facilitating inter - institutional solutions, including the interaction between state, local agencies, departments and other state organizations as well as international organizations (above state) organizations.

One of the essential functions of a government system that is based on IT infrastructure is depoliticizing certain processes or decisions, especially those of a technical nature. Solutions can be developed for different applications, security related being the most commonly used, and many of them being connected with other Government to Citizen or Government to Business solutions. The aim is not only an improvement in the wider sense of government services but specific functionalities can be identified, each with financial implications such as:

- Reducing inter-institutional redundancy - an essential feature in reforming the apparatus of government.
- Legislative and regulation coherence, eliminating contradictions in laws, clarifying provisions that are difficult to interpret, or have unclear procedures or cannot be implemented for technical reasons.
- Reduce unnecessary bureaucracy. This point is closely linked to reducing redundancy. For example, inter-institutional access to databases would allow certain information (for example: tax compliance, company shareholder status, active approvals and notices, etc.) to be used in administrative process or delivery of government services without issuing unnecessary documents and a set of procedures and costly processes. The benefits of such systems should be greater transparency, greatly improved response time and reduced government overhead. To illustrate, fulfillment of tax obligations by companies is a prerequisite in many situations such as procurement and accessing grants, but issuing tax certificates to show compliance is not the most effective method. Any circumstance in which a state institution requires a document or other information generated by other state institution or agency can be simplified.
- Reduce incidents of fraud or conflict of interest.

- Maintaining healthy Government – Businesses relations to encourage added value.

This type of interaction between central and local authorities and companies is to provide information, advice and transfer of best practices. Recommendations might include accounting practices, legislative changes, and access to legal services, procedures and methodologies.

Apart from the informative functionality, systems can be used to achieve other goals such as obtaining permits, licenses, payment of taxes or financial reporting. All these online transactions represents time and money savings for companies and ultimately they have the effect of reducing the administrative burden on businesses.

To attract users and build on online e-government platforms and achieve adequate levels of involvement of the civil society and businesses, as well as realizing the shift from traditional government to governance, a number of parameters must be respected:

- Government efficiency and rapid response;
- Visibility of results and policies adopted after the involvement of members of civil society and the business sector;
- Security and privacy protection;
- Easy access to internet resources;

E-governance infrastructure, specifically solutions to implement new technologies, together with the absence of investment effort in this area have a particular relevance in terms of economics and financials in the context of redefining the role of the state in the economy and society. Given that the private sector, individuals and companies are evolving rapidly based on innovation and have increasingly complex needs that traditional governments can no longer satisfy with existing change resistant systems, there are many cases that remain unregulated. That is why reforming the mechanisms of the state is presented as a necessity. This is reinforced by

the fact that the markets start to offer solutions to the needs of the wider economy which can the effect of substituting the role of government institutions thus rendering them obsolete. This leads to the perception, in some cases, of the state as an obstacle to development, aggravated by ineffective policies, unclear and vague laws, procedures whose sole purpose is simple operation and perpetuation of an inefficient system, inefficient regulation, corruption, lack of transparency and an unsatisfactory management budget, an implicit excessive taxation. From this point of view, technology can be used to address these problems , even if sometimes the implementation itself of solutions is hampered by the fact that change is performed by the existing system and imperfect not the desired one, therefore the state can only use instruments existing, even to create new instruments or to make changes.

The need for this infrastructure as well as its the status of critical infrastructure can be justified by the need to respond by public institutions to changes in society, without whom imbalances with cumulative effect may affect the sustainability of long-term economy, competitiveness of a country in the global market and the overall level welfare of the population. An example of an inflexible system is education in Romania, a service with features that are heavily influenced by state activity. An analysis of statistical data published by the National Council for Higher Education, at the request of the Ministry of Education and Research, necessary for implementation of the methodology for allocating budget funds for basic operations and additional funding to institutions of higher education (UEFISCDI - CNFIS 2014 2014 - The information is publicly available on www.cnfis.ro), reflects the following trends : the number of graduates in various fields differ significantly from the percentage level compared to averages in other countries (reference the EU countries, Japan, United States, Norway, Switzerland, Finland, Sweden). Although the statistics would indicate underfunding of the education system in Romania, with the lowest budget allocation as a percentage of GDP in the EU (3.07 % in 2011) and a downtrend in the allocation during 2009-2011, qualitative analysis leads to other results. While 80% of university graduates practicing in the area other than the one it was prepared, and many jobs involve additional training, this raises the question of public expenditure efficiency on education. There are clear indications that the system is out of sync with the real needs of the economy, and this leads to the conclusion that the volume of public expenditure is not a definitive unit of measurement for government activity and cannot transmit information on the results of a government initiative but can only measure relative importance at policy level compared to other areas.

Traditional government is protected, to a certain extent, from test of markets, but the perception of the state as an entity that cannot fail is a concept inherently erroneous that ignores not only the historical developments of the manner in which conducted the government but recent events have proved system insufficiencies. E-governance means that through using technology, a conceptual structure can be developed to evaluate each element of state (including the usefulness of a process, gaps in regulation, the effectiveness of certain categories of government spending) in a comparative context - for example the costs of operation of the collection of taxes vs. process efficiency and level of taxation. Even so, the consolidation of certain categories of expenditure with regard to the support and funding of the administration, public and non-public agencies or other allocations to inoperative sectors, makes the efficiency of the state management to be more difficult to assess. Some bureaucratic interests, inherent to the system, are perpetuated because of the difficulty of identifying their inefficiency and the complete lack of mechanisms for addressing them. The competition between political parties, the differences in functionality and civil institutions that have exposure to the public as well as those who don't ("Front -office" vs. "Back- office") have the effect of amplifying the distortion of the system.

The most significant financial implication of e-governance is the increase in efficiency of the taxation system. Taxation capacity is a key principle of a modern state and a general indicator of the efficiency of the state apparatus. An analysis of tax systems trends for the developed states reflects the shift from specific to general, from a set of precise directions that depend on specific duties, excises or tolls for certain products (alcohol, fuel, taxes on luxury etc.), to a system which revenue is broadly taxed (income tax or value added tax). Impact of fees at a general level and in the economy allows a for a semi-automatic collection trough turnover in economics and collect through withholding. Tools which allow firms and individuals to easily manage contributions and taxes reduce the actual costs of paying tax obligations and lead to an effective rate of taxation relative to the funding effort for tax collection. This, in correlation with a reduction in taxation can have a multiplier effect in the economy and reduce the effective cost of democracy. A significant limitation is the fact that policies for sizing the operating costs of government are not determined by the formula and structure of expenditure, therefore the efficiency of spending budget funds (mainly taxes) does not affect the internal organization, but are determined by the formula and structure of revenue, which can put pressure on society by excessive taxation or perpetuation of inefficient models (example of public education). However, good e-governance for the optimization of taxation leads to the ideological approach to the role of government as active protector of the interests of consumers, businesses and financial institutions and well as to establish transparent rules. The table below suggests a number of possible applications for each major function of government in the economy.

Table 1. E-governance applications relative to the role of government in the economy

The function of government in the economy	Applications related
Defines and implements the "Rules of the game"	Platforms for consolidating data on consumer experiences for detecting and removing non-competitive behaviors. Feedback to correct regulatory failures Transparent and efficient procurement system
Corrects market failures	Detection instruments for shortcomings on the market, or goods and services that the market cannot satisfy properly. Transparent mechanism for diverting a percentage of taxes based on taxpayer preferences.
Provides goods and services with high transaction costs (e.g. parks, public utilities and other public goods)	Tools for realistic assessment of the necessity and impact of public goods and services. Dynamic, but predictable subsidy allocation systems. Mechanisms to facilitate research and development programs.
Provides goods and services with high risks (e.g. space exploration)	Mechanisms for allocating resources to high risk tasks and workloads (financial, technical). Private public partnership platforms for issues that are long-term or go beyond jurisdictions (addressing global warming, ocean pollution, etc.)
Manages the allocation of social goods	Mechanisms for linking labor demand and supply (centralized or shared databases, facilities for employers) Social imbalances detection systems.
Regulates natural monopolies	Business monitoring systems for regulating natural monopolies and pricing practices.
Stabilizes aggregate economic activity	Platforms standardization programs development. Adjusting tax policy and optimizing collection systems. Reducing unfair advantages of certain sectors. Private sector delegation mechanisms for service delivery. Reducing imbalances caused by subsidies. "Immoral" subsidies detection systems. Effective mechanisms to regulate markets.
Redistributes income through social policies	Intelligent mechanisms for social services delivery. Cross databases to avoid abuse, fraud or double financing.
Regulates industry	Systems to minimize externalities in various industrial sectors (subsidy schemes). Systems for copyright. Data collection systems for regulatory impact assessment in the economy.

Replacing or complementing classic bureaucratic operations with tools can have positive effects on the economy and society broadly, helping to foster legislative efficiency at the expense of law vague and difficult to implement, some bureaucrats have too much discretion. However they can identify and forces that slow and discourages modernization of the system in this respect, in contrast to the positive. Some refers to legitimate concerns of functionality or security issues but others are manifestations of inefficiency and inflexibility proof system to change.

Table 2. Forces affecting the implementation of e-government

Deterrents	Incentives
Correct and functional implementation represents a significant investment in equipment, software, human resources and training. Amortization of investments is uncertain in the context of budgetary constraints. Reducing staffing needs in government institutions generate discontent and reactions from trade unions. Failure to update the services or malfunctions can deter users, the result is an apparent lack of demand. Data security and user identity represents a risk factor. Parallel operation of classical institutions and new systems can lead to a short-term increase of the administrative complexity. Barriers to implementation (e.g. lack of access to appropriate education or internet) The use of personal data is a security risk The trend to outlaw mechanisms, market or economic phenomena that are unregulated, difficult to regulate or for which a strong divergence of opinion is manifested.	Increased efficiency leads to an increase in overall taxation revenue. Increasing public confidence in state institutions and sense of representativeness. Citizens, by the need to have legitimate interests represented. The needs of the civil society to have instruments for reporting problems, including legislative errors or corruption. The need for tools of feedback on the implementation of government projects. The development of new communications technologies. The decrease communications costs.

Despite the fact that we can identify a number of factors that appear to act as barriers to adoption of e-governance solutions, the majority are either technical in nature, and are solvable on a technical level, or a manifestation of the systems obsolescence. Given the growing availability of technology and the strengths of incentives, we feel that e-governance solutions are getting closer to the status of mandatory for raising the level of confidence in government and maintaining adequate satisfaction of the taxpayer. As the benefits of possible applications outweigh shortcomings, reform in this area is inevitable because the technological gap between modern digital economies and government services should be decreased, and not increased.

IV. CONCLUSIONS

It is clear that the digital economy changes not only the way in which we conduct business, but also the way in which we govern and are governed. Policy makers are faced with both an opportunity to propose reforms that benefit from technology the innovations that are tested by the markets, and a challenge because it touches key change resistant points of state institutions.

The use of technology must be viewed in a wider context where the society manifests phenomena that affect the way in which policies are proposed, accepted and executed. To achieve good governance, institution designers will have to address attitudes of rejection from the population towards new developments and infrastructure, be it on a local level or on a general level. This sometimes happens regardless of the necessity or utility of the project, and more often than not originates from lack of public understanding and deficiencies in education. E-governance should propose solutions for all of these problems. Business and public policy practices are another point that can be addressed, to eliminate bias towards a certain company or economic sector, or limitations pertaining to jurisdiction and the electoral cycles. The way in which internet neutrality unfolds will also impact the deployment and implementation of digital services and applications.

The paper identifies several implications of e-governance, mainly the challenge of establishing the true beneficiary of the services, the way in which government can improve the efficiency of inner mechanisms as well as the relationship to businesses and other private clients, including the individual as a taxpayer. In this regard, e-governance solutions constitute an essential infrastructure for the workings of a state.

Several applications can be proposed an implemented to enhance the core functions of government in the economy such as defining the rules of the markets, correcting market failures, providing goods and services with

high transaction costs, allocating and managing social goods, regulating monopolies, stabilizing economic activity, redistributing income or regulating industry. In all cases a strong case can be made in favor of pushing e-governance and closing the gap between government services and the digital economy.

V. REFERENCES

1. Carayannis, E. G., Campbell, D. F., & Efthymiopoulos, M. P. (2014). *Cyber-Development, Cyber-Democracy and Cyber-Defense - Challenges, Opportunities and Implications for Theory, Policy and Practice.* New York: Springer.
2. Castles, G. F. (2007). *The Disappearing State? Retrenchment Realities in an Age of Globalisation.* Cheltenham: Edward Elgar Publishing Limited.
3. Dieterle, D. A., & Simmons, K. C. (2014). *Government and the Economy.* Santa Barbara: Greenwood, ABC-CLIO, LLC.
4. European Central Bank. (2012). *Virtual currency schemes.* Frankfurt: European Central Bank.
5. Mowbray, T. J. (2014). *Cybersecurity. Managing systems, conducting testing and investigating intusions.* Indianapolis: John Wiley & Sons, Inc.
6. Mullard, M. (2005). *The Politics of Public Expenditure, second edition.* London: Routledge.
7. OECD. (2015). *Measuring the Digital Economy A New Perspective.* OECD Publishing
8. Parry, Richard (2007), „The changing cost of government: trends in the state overhead budget"
9. Shaughnessy, H. (2015). *Shift - A user's guide to the new economy.* London: The Disruption House.
10. UEFISCDI – CNFIS 2014 . (2014). *Raport public anual – 2013 Starea finanțării învățământului superior și măsurile de optimizare ce se impun.* Bucuresti: CNFIS - CONSILIUL NAȚIONAL PENTRU FINANȚAREA ÎNVĂȚĂMÂNTULUI SUPERIOR .
11. UNDP. (2013). *Human Development Report - The Rise of the South: Human Progress in a Diverse World.* New York: United Nations Development Programme.