

# Open data in Kazakhstan: incentives, implementation and challenges

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Kazakhstan

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## Abstract

**Purpose** – The purpose of this paper is to analyze the promising potential of open data in Kazakhstan to boost public sector innovations and trace the emergence of the related civic engagement initiatives in order to understand how it affects the democratization of political communication processes in a typical developing country.

**Design/methodology/approach** – This is a case study research which begins with a brief history of the official open data project and then investigates various political and socioeconomic drivers, corresponding regulatory acts, the leading role of the key stakeholders and policy entrepreneurs in the diffusion of the open data movement as well as the main challenges associated with the advance of the open government concept in Kazakhstan, while various independent open data-driven projects provide a rich empirical basis for the analysis.

**Findings** – Open data provides new opportunities to promote civic engagement and e-participation but does not affect the fundamentals of the political system nor advances democratic institutions in a typical developing country. The traditional directives could paradoxically be effective in advancing open data even in a less collaborative political culture. The unitary administrative context is conducive for the development of the ICT-driven public sector initiatives as a single platform. The existence of independent developers is crucial in promoting various open data-driven projects and sharing related expertise. The open data movement creates a favorable atmosphere for the participation of the non-governmental sector in the sphere.

**Research limitations/implications** – This case study is primarily focused on the analysis of the open data movement at the national level of government, taking into account the unitary structure of the public administration system existing in Kazakhstan, which apparently has a crucial fundamental effect on the realization of any e-government system in this country. In this respect, the main limitation of the research is that the possible existence of various open data-driven projects at the local levels that hypothetically may have a different set of political and socioeconomic drivers and challenges was excluded from the final equation, which provides a new window for the future research in the area.

**Practical implications** – The results of the research could be used by e-government practitioners and policymakers in evaluating and improving the operation of the open data-driven projects in many developing countries.

**Social implications** – The author of the paper tried to develop a universal framework of the case study research that could be used in investigating the open data phenomenon not only in Kazakhstan but also in the context of other developing and transitional countries, especially in analyzing the apparitional emergence of the unique networking activities among the key stakeholders of the open data movement, i.e. policymakers, NGOs, businesses, developers, mass media and citizens. In addition, the results of the analysis could be used in testing the political and socioeconomic implications of the highly centralized e-government approach in the realization of the open data concept in a number of other typical unitary states.

**Originality/value** – In scientific works, the open data phenomenon is usually analyzed in the context of the most developed and democratic countries of the world with a vast majority of case studies being focused only on North America and Europe, forgetting that it is a global trend. In contrast to the traditional trends in the academic literature, the author of the paper studies the realization of the concept in an unusual context, resorting to the case study of a typical emerging and post-totalitarian nation such as Kazakhstan and focusing on the analysis of the key drivers and challenges in the diffusion of the open data concept in an attempt to answer the ultimate question: whether it is really harnessed by the members of civil society to promote civic engagement and e-participation.

**Keywords** Open innovation, Freedom of information, E-government, E-service, E-collaboration, E-democracy

**Paper type** Case study



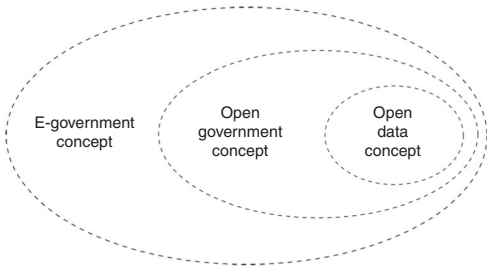
## 1. Introduction

Taking into account the recent rapid advance of various e-commerce and e-government platforms in this emerging nation, Kazakhstan might be regarded today as a real poster child of the new great opportunities that the ICT-driven economic reforms bring to the

public sector in a typical developing country. In this regard, one of the interesting trends that are beginning to play an ever increasing political role today in the development of e-government is an open data movement. Being regarded as a necessary prerequisite to reform a somewhat cumbersome and old public administration system inherited from the Soviet past, especially through the promotion of civic engagement and greater transparency of government, it becomes, in fact, an official watchword of the e-government concept at the national level (The Open Data Project of Kazakhstan, 2016). However, what are the true drivers and challenges of the concept realization in Kazakhstan and, more importantly, does open data really promote transparency and civic participation in government? Is it just an additional usual public administration-focused undertaking that has no effects on the political domain of the e-government paradigm?

It is necessary to note that open data as a political idea is a relatively young theoretical concept that propagates a free public access (Shadbolt *et al.*, 2012) to government information and data sets (Zuiderwijk and Janssen, 2014), especially in a machine readable format (Heimstädt *et al.*, 2014; Oyama *et al.*, 2015). What is really important, in this connection, is that the publication of the official data sets in special depositories could presumably provide an effective indirect political instrument to make government more transparent and collaborative with the public, not only by the mere fact that government information is now freely accessible but also by the promise to harness new opportunities that its reuse may bring to the non-governmental and private sectors, for example, in boosting civic engagement and political participation, at least, in a digital manner. Hypothetically, through the launch of related independent open data-driven projects, individual citizens, regardless of cultural and economic contexts they live in, themselves could change the very core of the e-government realization mechanism, where, traditionally, only the representatives of government agencies have played a decisive role in advancing the ICT-driven public sector reforms with practically no input from the members of the civil society on how to reform the governance itself (Kassen, 2013). In this regard, the emergence of various platforms to promote the openness of the national and local governments via the publication of official data sets and information is widely regarded as a necessary prerequisite to realize the fundamental principle of the concept (Janssen *et al.*, 2012), i.e. the reuse of open data in various third-party applications and projects, for example, to create visualizations (Graves and Hendler, 2013), e-participation (Evans and Campos, 2013), transparency or public scrutiny tools (Böhm *et al.*, 2012).

It is interesting that, in general, the open data project in Kazakhstan might be regarded as an integral part of the open government concept, which itself is apparently part of the e-government idea, taking into account the fact that they are both actively promoted by the national authorities within a single unitary platform of e-government and same digital ecosystem (see Figure 1). Therefore, the realization of the concept should presumably be



**Figure 1.**  
Open data as an  
integral part of the  
open government and  
e-government  
concepts

**Source:** Author's own illustration

carried out in accordance with the same administrative logic, where the direct administrative commands or directives would play an important, if not crucial, role in its promotion at all levels of government with its own advantages and disadvantages such as a quite quick decision-making process at the expense of a less collaborative political dialogue with the public and regional authorities, taking into account the unitary structure of the public administration system.

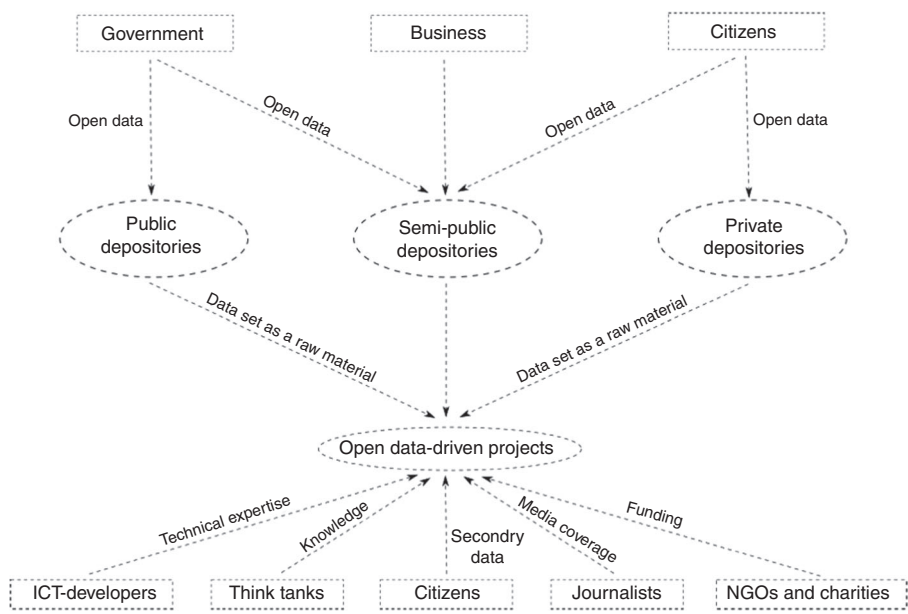
Officially, the primary goal of the open data project is to increase transparency of public agencies (The Open Data Project of Kazakhstan, 2016) through the publication of government data sets in special depositories and create new channels of digital political communication with business sectors and citizens to demonstrate, at least formally, the readiness of the authorities to be open to new progressive ideas. Probably, another indirect purpose of the project is to leverage a promising phenomenon of the open data to accelerate the emergence of the related e-participation, crowd-sourcing, and even civic engagement initiatives, including in an attempt to boost political image-making processes (Åström *et al.*, 2012; Girish *et al.*, 2014), which, however paradoxically, allows to leave intact the fundamentals of the real political institutions that continue to exist beyond the digital or e-government realm.

In this regard, the political public relations should play an important role, too. Taking into account the fact that the central government has always paid special attention to the image-making part of any national innovative projects, another political goal of this open data policy is to demonstrate before both domestic and international audiences that the e-government policymakers follow the universal open data movement and try to implement the world's best practices in the area in an attempt to eventually improve its e-government rating in a global sense, since the operation of the related projects, including the national open data portals, is closely monitored today on a systematic basis by such global organizations as the United Nations (Stier, 2015), the Open Government Partnership (Harrison *et al.*, 2012) and the World Bank (Davies and Bawa, 2012).

## **2. Hypothesis: the promise or demise of civic engagement?**

Theoretically, one of the most perspective ways to harness the promise of the open data concept could be found not only in its primarily use as a universal platform to publish government data sets in an attempt to make it arguably more transparent and accountable as it is traditionally understood by policymakers almost in any country (Lathrop and Ruma, 2010; Helbig *et al.*, 2012), but also in its realization as a broader political concept where both the public and private sectors could equally provide open data and ensure a systematic update of data sets in special depositories, not necessarily supported and sponsored by government. Moreover, the fact that an ever increasing number of individual citizens and business entities are beginning to publish their own open data in these semi-public or even their own personal portals (Open Data Aarhus, 2013; Krantz, 2015) could arguably indicate to a new trend in the development of the open data phenomenon, which is reflected in a greater privatization of the sector, potentially democratizing the whole implementation procedure and eliminating, in fact, the traditional monopoly of the public stakeholders in the sphere. These fundamental transformations could even change the very core of the political communication within the e-government paradigm since the realization of the open data concept should create a favorable environment to develop various independent peer-to-peer e-government projects (Kassen, 2012) that use data generated and distributed by the all members of the civil society themselves (see Figure 2).

Furthermore, these open data platforms could potentially encourage people to provide additional information and even their own data sets to ensure a continuous development of the independent open data-driven projects, which are created by peers (e.g. developers or technically savvy citizens) themselves, eventually helping to maintain the overall sustainability



Source: Author's own illustration

**Figure 2.**  
The hypothetical  
sustainable  
mechanism of the  
open data realization

of the whole theoretical concept as a truly rewarding environment of political collaboration between all stakeholders, whether they are governments, citizens, businesses, mass media, ICT developers, NGOs or even international organizations that closely monitor or track the development of the national open data projects on a more global scale. In this regard, in order to increase transparency and accountability of both national and local government institutions in Kazakhstan, where, according to the abovementioned generalization of the open data logic to boost civic engagement, the role of the public sector presumably should become less important than even cooperation between other stakeholders in the realization of the open data-driven projects due to the promise of crowd or citizen-sourcing.

In this respect, the main goal of this paper is to analyze the promising potential of open data in Kazakhstan to change the traditional inertia of public mindset and trace the emergence of related atmosphere of civic engagement and e-participation that presumably should accompany the development of the independent open data-driven startups and initiatives. Another goal of the paper is to understand whether the open data concept affects the democratization of political communication in a typical developing and post-totalitarian country. The case study of the open data movement begins with a brief history of the official project itself and then involves the investigation of various political and socioeconomic incentives to promote the movement, the study of the leading role of its key stakeholders such as policy entrepreneurs, ICT developers, journalists and NGOs as well as the identification of the main challenges and opportunities that are associated with the advance of the open data concept, while various open data-driven projects provide an empirical basis for the analysis.

### 3. The key features of the official open data project in Kazakhstan

#### 3.1 Centralization as a realization strategy

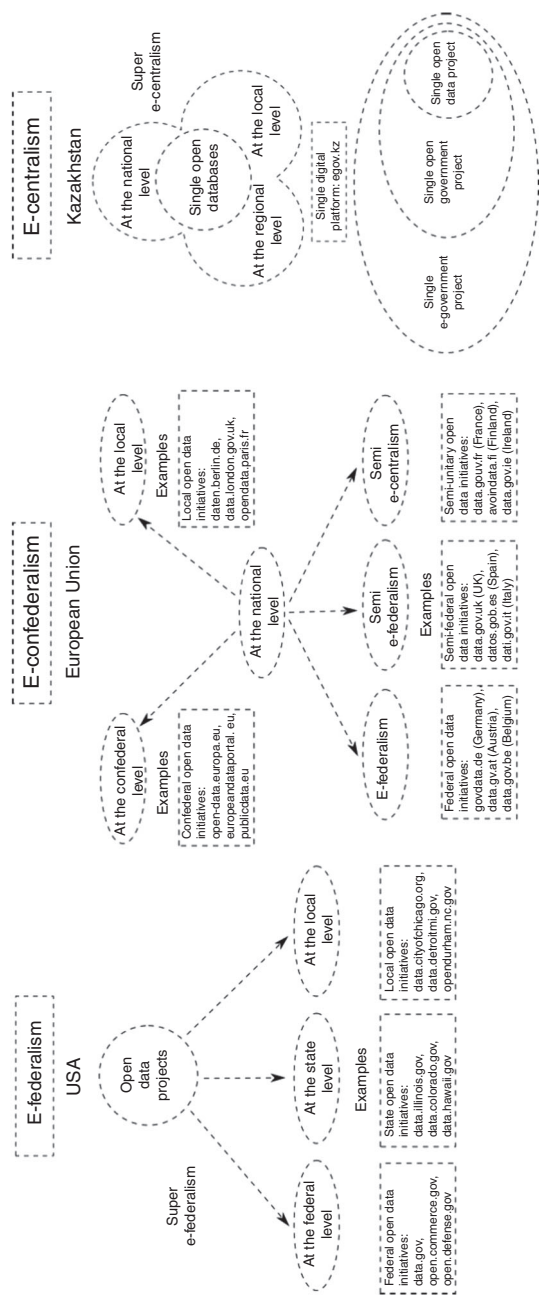
Officially, the open data initiative was launched in Kazakhstan in early 2013 as part of the advanced e-government project aimed at publishing certain government data sets in a computer readable format to ensure its further use in various third-party applications and

platforms (The E-government of Kazakhstan, 2013). Therefore, the concept is at its infancy in Kazakhstan and the project itself is realized and maintained in accordance with a somewhat classical model of implementation derived from a political practice that has been previously developed and widely used in many western countries. One of the classical examples to follow, in this respect, was a successful realization of the open data project in the USA at the federal level – data.gov program – launched in early 2009 as part of the open government directive (Obama, 2009), which later paved the way for the global introduction of the concept. The national open data project was initiated by Barack Obama to reform public administration at the federal level where the idea of transparency, participation and collaboration became a key part of his political agenda (Coglianese, 2009). Later, similar open data projects have been launched at the local level in many states and major cities such as Los Angeles, Chicago, New York and San Francisco, reflecting a truly unique political phenomenon of electronic federalism or e-federalism, a definition of which was coined almost 20 years ago by David Post (1996).

This federal model of the e-government realization in the USA, which is characterized by a really strict and unambiguous political division between national, state and local ICT projects, including the area of open data (Kassen, 2015), has been later practically evolved into its more sophisticated and conceptually continuous paradigm at the confederal level in the European Union. The paradoxical coexistence of various regional, national and local e-government platforms in both federal and unitary states with a single supranational open data project such as the Open Data Europe (2016), which itself apparently propagates a much greater administrative autonomy and discretion of the national governments in political decision making in the sphere, could be tentatively called as an electronic confederalism or e-confederalism. In contrast, the Kazakh model of the e-government politics, which embraces a strictly centralized approach in its realization and does not differentiate at all any distinction between local and national open data projects, represents neither federal nor confederal model but a typical unitary approach in building related open data projects or e-centralism (see Figure 3).

In fact, the current rapid globalization and evolution of the open government movement all over the world (Kassen, 2014), truly unprecedented in its scale and speed, are leading to the emergence of an extremely wide range of possible variants to promote politically the open data concept that could be tentatively called as super e-federalism (e.g. in the USA, Canada and Brazil), semi e-federalism (e.g. in the UK, Spain and Italy), semi e-centralism (e.g. in Finland, France and Ireland), e-centralism (e.g. in South Korea and Japan), and finally, super e-centralism (e.g. in Kazakhstan and Estonia) both at the national and local levels of governance, any of which, nevertheless, could ideally fit within these three strategic models in building e-government-related projects, regardless of the economic and cultural contexts.

In technical terms, the open data project in Kazakhstan is a special portal that operates as a single digital depository of open government data sets, which are usually generated, aggregated and published by the central government itself. The automatic aggregation and integration of open data from all public agencies in one digital venue helps to ensure a single authorization policy in the area, the policy that reflects well the unitary structure of the nation, where many official ICT-driven initiatives and projects, including the e-government sphere, are traditionally realized and financially supported by the central government at the national level with almost no participation of regional and local authorities in the related political decision making. The e-centralism or the unitary model of the e-government realization allows the national authorities to expedite the launch of various projects in the sphere. Along with single public funding and single legislation, it gives the central government a very powerful instrument of monopolistic administrative control over the promotion of the open data initiatives at the national level. In this regard, one of the distinguishing features of e-centralism as a political approach is a single open data project



Source: Author's own illustration based on further theoretical elaboration of e-government systems from Kassen (2015)

**Figure 3.**  
Three global models  
of the open data  
concept realization  
(hypothesis)

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that integrates all government data sets, regardless whether they are aggregated at the national or local levels of public administration. Likewise, all related digital channels and data processing centers operating at the regional and local levels should be regarded merely as elements of a single e-government system.

### *3.2 The open data tactics: focusing on public relations*

According to the administrators of the official open data project, the concept not only could provide a powerful instrument to ensure transparency of government but also potentially increase civic engagement and e-participation (The Open Data Project of Kazakhstan, 2016). It is interesting to note that the Kazakh open data portal explicitly identifies several target audiences that could benefit from the realization of the project such as non-governmental organizations (e.g. in enjoying a fundamental right to scrutinize the activity of public agencies), citizens (e.g. in making the community life in their neighborhoods better and safer), businesses (e.g. in improving various information and interactive e-commerce services), independent ICT developers (e.g. in generating new ideas on how to promote various startups and initiatives in the e-government sphere and open data-driven products for citizens and businesses) and eventually public agencies (e.g. in saving budget funds due to the utilization of the related crowd-sourcing tools and engagement of the private sector and citizens to share new ideas on how to improve together the work of the public sector) (The Open Data Project of Kazakhstan, 2016).

Since it offers various feedback options, the open data portal welcomes reaction from all stakeholders, especially citizens and ICT developers in an attempt to leverage a promising phenomenon of civic engagement with an ultimate goal to make the interface of the whole system better and more intuitive. Additionally, it provides some guidance for the designers, programmers and technically savvy citizens on how to use open data and even how to code some basic open data-driven mobile applications, computer programs and even mashups, i.e. special web-application hybrids (Heath and Bizer, 2011), which could be used later by other peers and even government agencies in generating new ideas and proposals on how to improve the public administration systems in Kazakhstan. It is interesting to note that previously the same approach to make the open data systems better had been widely used at the local level by e-government policymakers in the Chicago open data project, the realization of which later proved to be really effective and reinvigorating in promoting the phenomenon of civic engagement and e-participation at the local level (Kassen, 2013).

In order to promote further the open data movement among local developers and citizens and facilitate the growth of civic engagement around the project, the administrators of the project have also resorted to a truly cost effective and productive tool to boost public relations and motivations as prize contests and competitions such as the e-Government Hackathons (Manley, 2015), The Startup Battles Project (2016) or multiple and widespread Open Data Hack Days as well as a number of networking platforms and events such as The Tech Garden Project (TGP, 2016) and The Innovation Week (Kazakh TV, 2015) among various independent Kazakh developers and professional coders. For example, in September, 2014 one of the contests was organized to attract students from national technical universities and colleges to the open data concept (Kaulanova, 2014). Such contests among professional networks of ICT experts and students help to identify the most urgent community needs and have a positive effect on the overall development of the project in Kazakhstan with minimum investments and efforts from the public sector due to the promise of the extensive PR strategy in social media.

### *3.3 Seeking a more sustainable model of the open data realization*

By the end of January 2016, the open data portal has published more than 300 data sets distributed among categories such as employment, education, transport and communication,

legal assistance, culture, social welfare, taxation and finances, citizenship and migration, security and healthcare, etc. It is interesting to note that the education category disproportionately contains the largest number of data sets (The Open Data Project, 2016). According to the Kazakh law on access to information (Law No. 401-V, 2015), only data that are regarded as public might be published by government agencies in Kazakhstan. In this regard, the data sets usually contain such types of information on public institutions as descriptions of services, statistics, contact details of public agencies, geographical positions, etc., which help developers to create a diverse range of open data-driven products, e.g. visualization and mapping tools as well as marketing and research instruments intended for use both in desktop and mobile platforms such as Android, Apple iOS and Windows Mobile.

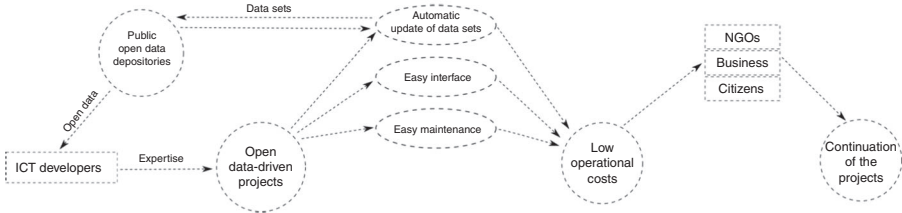
In addition, this system allows both the offline and interactive update of the data sets in the mobile applications, which, in turn, may have a positive effect on the overall sustainability of the open data-driven projects and startups in Kazakhstan, since most of them are usually created by independent developers and technically savvy citizens who tend to minimize time and resources invested into the projects and often are not ready to maintain them later on a more systematic manner. It is especially true when the open data-driven projects are handed over to third parties, e.g. NGOs and individual citizens, who are usually more interested in continuing the concept only if it requires basic technical maintenance and low-operation costs. In the USA, for example, the notorious unsustainability of peer-to-peer civic engagement projects due to a lack of financial resources and systematic support from the non-governmental or business sector is one of the fundamental challenges in the overall development of open data as a political idea at the local level (Kassen, 2012). In this regard, the technical opportunity to easily modify the interface of the software and use interactive functions that are initially embedded by independent ICT developers in the design and source codes of the open data-driven projects could dramatically increase later the number of volunteers who would be inspired by this technology and continue the projects, paying less attention to the manual update and maintenance of such projects. Therefore, the will of the local ICT developers and technically savvy citizens to invest their time and resources to the open data startups, often on a charitable basis, plays a crucial role not only in the development of the projects at the beginning of their life cycles but also in the further diffusion of the whole concept among other stakeholders (see Figure 4).

4. The key drivers of the open data movement in Kazakhstan

4.1 The political drivers: creating new channels of political communication

4.1.1 E-government as a tool of global publicity. It is necessary to note that the realization of the national e-government strategy, including the open data and civic engagement domain of the concept plays a very important role not only as an economic tool to improve public administration and advance public sector innovations due to citizen or crowd-sourcing but also as an indirect political instrument to boost the image of the e-government project both

**Figure 4.**  
The crucial role of the independent ICT developers in the development of the open data-driven projects in Kazakhstan



Source: Author's own illustration



domestically and internationally, as if the implementation of the national digital policies is an additional channel to promote political communication and public relations. In this regard, taking into account the recent popularity of the open data movement all over the world (Huijboom and Van den Broek, 2011), especially in North America (Lathrop and Ruma, 2010; Peled, 2011) and Western Europe (Shadbolt *et al.*, 2012; Schellong and Stepanets, 2011; Janssen, 2011), that affected almost all aspects of government and public administration processes there, the advance of the open data concept could be regarded today in Kazakhstan also as a new great opportunity to boost globally the positive image of the country as a modern and promising nation that promotes the same technologies and platforms that are popular today in western countries. Indeed, this distinctive policy of global publicity in the e-government sphere has proved to be very effective in recent years, especially, when it comes to efforts in promoting the country in various e-government-related rating lists, one of the most notorious of which is a biennial global ranking carried out and published by the United Nations Public Administration Network (UNPAN). In this regard, for the last decades Kazakhstan has been steadily improving its stance in the e-government ranking (Amagoh and Bhuiyan, 2010; Kassen, 2010), especially demonstrating impressive results in the e-participation component of the ratings (Åström *et al.*, 2012) (see Table I).

*4.1.2 E-government as an instrument of domestic publicity.* It is necessary to note that any achievements of the central government in the reformation of the public sector, especially of those that were somehow recognized at the international level, play a very important role also as a great tool to boost a domestic political image of the government. In this regard, the primary goal to further the global promotion of e-government could be regarded as a matter of national priority, since the government of Kazakhstan has some ambitions to enter the list of the 25 most developed countries in the world in terms of the e-government development (Information Kazakhstan – 2020, 2013). In this respect, the further promotion of open data platforms could play a key role in improving the overall position of the nation in the list, which, in turn, could be used later as a reference in political debates about the efficiency of the national authorities in the reformation of public administration. Therefore, any activity in this direction could be really rewarding and promising from this *sui generis* political perspective, guaranteeing a higher level of government attention to the matter. Moreover, the possible transition of Kazakhstan from a presidential-parliamentary republic to a parliamentary system of governance in the foreseeable future (News Kazakhstan, 2015) will presumably lead to greater civic engagement and participation of citizens in open government initiatives, since it could be regarded by the top political leadership as crucial for the further successful development of the nation. This message could send a really strong political signal to promote open data-driven platforms at all levels of government and indicate a desire to reform the whole system of public administration towards higher participation of citizens in the decision-making process through other e-government platforms such as wiki-based and peer-to-peer systems.

## 4.2 The economic drivers: focusing on public sector innovations

*4.2.1 Building cost-efficient public administration.* The opportunity to make public administration more cost-efficient by harnessing the potential of open data-driven platforms and boost civic engagement and crowd-sourcing might be regarded as one more

	2003	Change in global rating of the national e-government project					2014
		2004	2005	2008	2010	2012	
Kazakhstan	83th	69th	65th	81th	46th	38th	28th

**Sources:** Elaboration based on data from UNPAN (2003, 2004, 2005, 2008, 2010, 2012, 2014)

**Table I.**  
The dramatic change  
in the international  
rating of the Kazakh  
e-government project  
in 2003-2014

reason to introduce the concept at the national level in Kazakhstan. In this regard, one of the promising aspects lies in the emergence of new channels to collect additional data from the public in the independent open data-driven projects (Janssen *et al.*, 2012), for example, to solve various community issues that in turn could arguably save significant financial resources of the local municipalities and governments, i.e. making the public sector more efficient and less costly for the local budgets due to the promise of open data-driven collaborative and participatory processes in the civil society.

*4.2.2 Encouraging competition among local ICT developers.* The open data concept might also be regarded as quite an effective tool to boost competitiveness of the local ICT developers by increasing their competence and expertise in the open data sphere with an ultimate goal to outsource in the foreseeable future some of the public services to the private sector, i.e. finding new more sustainable ways to save public funds and human resources by resorting to a really powerful tool of collective wisdom of the civil society in order to increase public knowledge (Martinez and Walton, 2014) and decrease the operational costs of various public administration systems due to civic engagement and collaboration from the part of various independent ICT developers as well as businesses and NGOs who presumably could cooperate in co-financing various open data-driven projects and initiatives.

*4.2.3 Open data as a business accelerator.* The open data concept might be regarded as an instrument that could potentially boost the business activity due to the emergence of new startups and related market of mobile open data-driven applications and projects. In this respect, the national government plays a role of a special platform or depositary that provides valuable information and data sets in a machine readable format. For example, the vast majority of PR events such as various masters classes, conferences (Obi and Iwasaki, 2015) and forums, especially organized in partnership with foreign experts (OECD, 2016), which are designed to promote the concept are mostly intended for the local businesses and ICT entrepreneurs in Kazakhstan so that they could create their own commercial products based on the use of open data. Therefore, the project itself is aimed at developing the innovative economy in Kazakhstan that would less depend on the lop-sided oil industry.

In this respect, taking into account the economic significance of the ICT-driven reforms, it is necessary to note that so far almost all efforts of the public sector to advance e-government in Kazakhstan have usually been accompanied with a strong political will and support, despite some latent political and administrative resistance at the institutional level (Verheijen, 2007). It is especially true when it comes to the innovative public administration projects supported by the central government. The e-centralism in this typical unitary state has proved to be a paradoxically strong tool in promoting digital government at the national level, where notorious executive directives in launching ICT-driven public sector reforms among all government agencies are beginning to play a crucial role in the diffusion of the open data concept, too.

## **5. The key open data stakeholders: it is all about networking**

### *5.1 Government as a main actor of the open data movement*

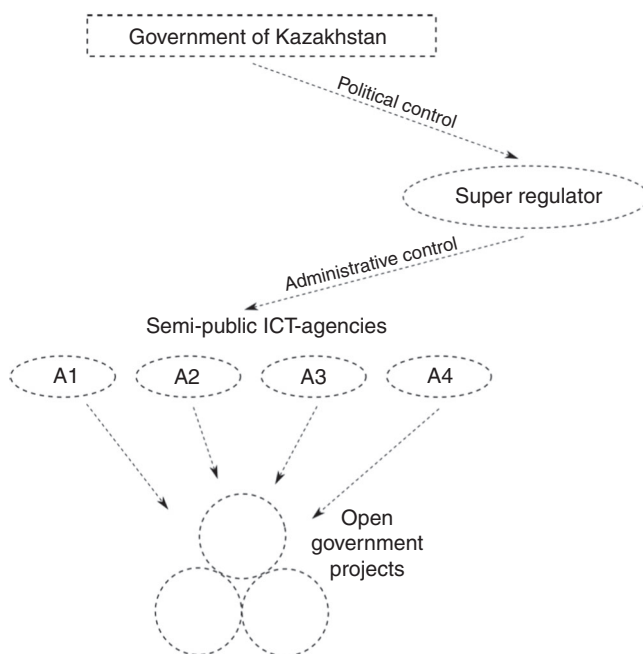
Taking into account the fact that almost all information pertaining to government activities is generated and stored by public agencies themselves, the government of Kazakhstan plays a crucial role in promoting the open data concept at the national level. Moreover, being regarded as an intrinsic part of the e-government concept, the open data project is deemed to be aimed at not only popularizing related political aspects of the concept such as civic engagement and e-participation among all members of civil society but also at promoting economic development of the country. In this regard, the central government could always resort to a really generous funding that is traditionally guaranteed by the national budget for the

realization of the innovative projects, ensuring the overall development of e-government platforms for many years ahead. This strong support from the public funds could arguably be regarded as one of the main reasons that explain the recent active promotion of various e-government systems in Kazakhstan, the obvious positive result of which has been recently reflected in various international rankings (UNPAN, 2012, 2014).

It is interesting to note that the central government, mainly represented by the Ministry of Investments and Development (2016), indirectly supervises the development of both open data projects and almost all e-government platforms through specialized semi-public agencies and state-owned companies, which themselves follow a traditional logic of the double-layer bureaucratic subordination and administrative control. Organizations such as the National Agency for Technological Development (2016), the National Information Technologies Agency (2016) and Infocommunication Development Fund (2016), which play a really crucial role in the development of all public ICT-driven projects at the national level are all supervised today by Zerde National Infocommunication Holding (Zerde, 2015). Despite their semi-private status, all these agencies have always had access to ample funding and resorted to the traditional top-down mechanisms of the e-government development. In this regard, the policymakers have quickly realized that this combination of administrative control and direct funding from the national budget might be a highly effective tool to advance open data, too. Therefore, almost all measures to diffuse the concept across various public agencies have been promoted via traditional administrative directives (see Figure 5).

### 5.2 Independent ICT developers: revealing the crucial role of the technological middlemen

Taking into account the fact that today the promotion of any civic engagement and collaborative projects in the e-governance sphere, especially related to the realization of open



Source: Author's own illustration

**Figure 5.**  
The indirect  
government regulation  
of the ICT-driven  
public projects in  
Kazakhstan

data phenomenon, is unimaginable without direct involvement and networking of independent ICT developers, the voluntary and mutually beneficial cooperation of the latter with government agencies in creating various open data-driven projects is especially important (Kassen, 2015). In fact, the independent networks of Kazakh developers play a critical role, to some extent, of a technological bridge between government and citizens, i.e. a proxy that makes the concept more or less sustainable as a truly collaborative public project. Indeed, if the government platforms publish data sets in a machine readable format that needs some technological processing as a raw material, which might be often provided only by developers and sometimes technically savvy citizens in the third party open data-driven startups, the existence of an army of coders, designers and various ICT entrepreneurs from the business sector and NGOs and, more importantly, their readiness to cooperate with the public sector is a really crucial element in promoting the open data concept as a sustainable project.

Taking into account the fact that public relations are critical for the diffusion of the concept among all stakeholders, the central government should try to encourage the professional networks of Kazakh and even foreign experts in the e-government sphere to join the open data movement by adopting the best international lessons on how to better promote the idea, especially among independent developers by resorting to the practice that has been previously widely used in the USA and many countries of the European Union such as civic hackathons (Johnson and Robinson, 2014; Möller *et al.*, 2014; Irani, 2015), various thematic forums, online debates and open data contests (Ayele *et al.*, 2015; Lee *et al.*, 2015). These events are usually aimed not only at finding the best open data-driven solutions to advance governance but also networking developers and, more importantly, facilitating the creation of a truly reinvigorating atmosphere of civic engagement and collaboration during multiple unofficial meetings and online through social networks.

In this regard, social media plays a very important role as a certain platform for open professional cooperation in the sphere. For example, various accounts of ICT specialists in popular global networking platforms such as Facebook, Twitter and Github as well as frequent organization of various hackathons or hack days (The HackDay Kazakhstan Project, 2015) and forums of the e-government expert such as the Ted<sup>x</sup>Astana (The Tedxastana Project, 2015), The Week of Innovations (Kazinform, 2015), the TechConnect and Open Data Conference (The Techconnect Project, 2015) are the most interesting venues to promote such networking platforms among Kazakh ICT professionals. The government officials often help developers to also launch online contests and special open lunches to help the programmers and designers meet in person and brainstorm new ideas of perspective open data-driven applications and project a better interface of existing mobile platforms and startups. This private-public partnership helps to promote the open data concept as a truly collaborative process, where the participation of all stakeholders becomes a prerequisite for the successful realization of the concept.

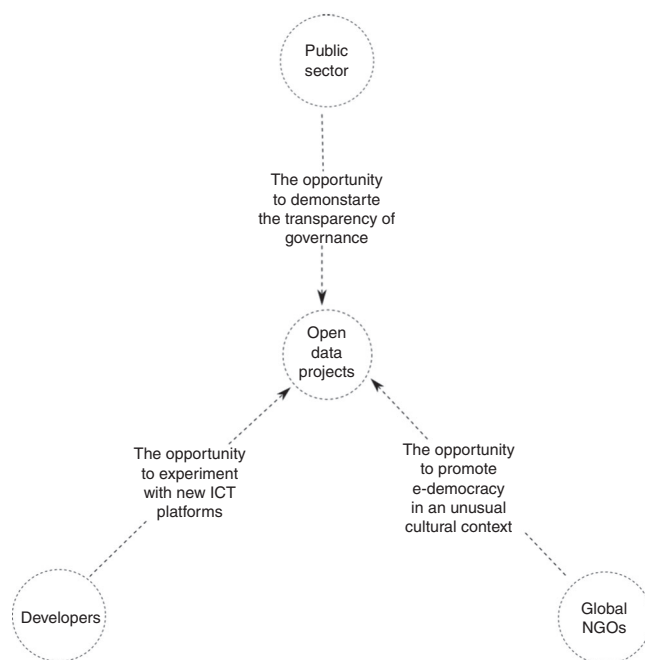
### *5.3 The non-governmental sector: engaging the civil society to the open data movement*

Another important player in the diffusion of the open data concept in Kazakhstan is a non-governmental sector. In this regard, along with a really generous support of the national budget and technical help from the central government and associated semi-public ICT agencies, the methodological assistance of international non-governmental organizations is crucial, too, for the successful realization of the open data-driven projects. The promotion of the concept among public agencies and increasing popularity of the related open data-driven projects launched by independent developers in Kazakhstan attract the attention of various foreign non-governmental and non-profit organizations to the phenomenon, which they see as a certain experimental platform to test the socioeconomic and even political implications of the concept in an unusual cultural context and indirectly play with e-democracy in the region.

For example, such a globally renowned non-governmental actor in the e-government area as the Center for Open Data Enterprise, an international expert venue specializing on open data research, provides really valuable consultative and technical assistance to the open data projects in Kazakhstan, for example, in organizing various roundtables and participating in global exchange of knowledge (The E-government of Kazakhstan, 2015). They have helped to organize recently a number of meetings for the local developers in close partnership with experts from the Open Data 500, an international network of ICT organizations created by the Government Lab Project in the New York University that studies the impact of the open data concept on the advance of democracy and civil society at the global level (The Open Data 500 Global Network, 2015). In this regard, the government-private partnership in the sphere has helped to ensure the overall sustainability of the open data concept as a truly multi-level international collaborative project (see Figure 6).

## 6. The key open data legislation in Kazakhstan

First of all, it is necessary to note that legally the public access to government information, including to open data, is regulated today in Kazakhstan by two fundamental documents, in particular, by the Article 18 of the Constitution of the country that guarantees the right of citizens to access government information (The Constitution of Kazakhstan, 1998) and by the special freedom of information law that in the Article 10 explicitly requires all government agencies to publish their data sets in a proactive manner in special public digital depositaries (Law No. 401-V, 2015). However, it is interesting that the American tradition of the Freedom of Information Acts (FOIA) or its European analogue – the access to information laws – adopted a few decades ago in the USA (Katz, 1969; Wald, 1984) and many countries of the European Union (Banisar, 2004; Ackerman and Sandoval-Ballesteros, 2006) to



Source: Author's own illustration

**Figure 6.**  
Three key  
stakeholders of the  
open data-driven  
projects in  
Kazakhstan

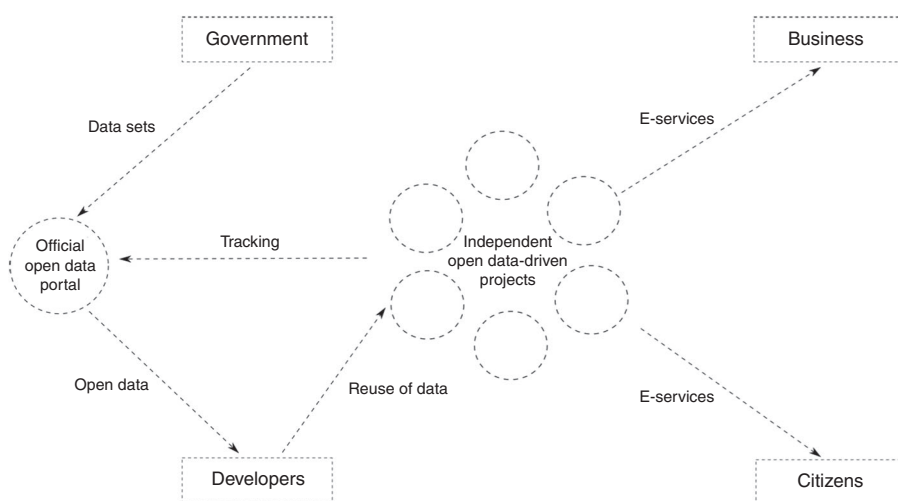
legally regulate that the sphere has been an unknown practice in Kazakhstan until recently. In this regard, the Kazakh Law on Access to Information was finally adopted only in November, 2015 (The Strategy 2050, 2015) after really long and intense debates and discussions between the central government, various domestic and, more importantly, international intergovernmental and non-governmental organizations (LPRC, 2015) over the legal details of such regulation. For example, some drafts of the Kazakh versions of the FOIA have been previously developed and discussed with an active participation of the Office for Democratic Institutions and Human Rights under the auspices of the Organization for Security and Cooperation in Europe (2015). In this respect, the adoption of the law provides a very powerful legal instrument to promote the concept at the national level and sends an indirect political signal to all potential stakeholders to join the open data movement, since the document unambiguously welcomes the reuse of government data sets by third parties, potentially decreasing dramatically the traditional monopoly of the state in the sphere.

### **7. The open data-driven projects: focus on socioeconomic development**

The analysis of the independent open data-driven projects is probably one of the most important aspects in evaluating the overall realization of the concept. Although, officially, the open data portal in Kazakhstan was launched only three years ago, its operation as a single provider of various government data sets has already led to the creation of a number of interesting third party open data-driven projects, mostly, at the national level of governance. The projects claim to be independent and presumably rely on the promise of civic engagement and active participation of the members of civil society. However, it is necessary to note that the administrators of the official open data project try to track the further reuse of the government data sets in the private sector and even publish all information related to the third party open data-driven initiatives on their single portal with a short description of the startups, the full names of the developers and even hyperlinks to the installation distributives. In this regard, the distributives are possible to download either from the official open data portal or directly from the App Store or Google Play accounts that host the original distributions of the mobile applications, i.e. resorting to the technological practice that could be rarely seen today in western countries, where the official open data platforms usually play a passive role of the data sets provider rather than a venue that aggregates and publishes the information on the open data-driven projects created by the third parties (see Figure 7).

One of the possible reasons of this quite strange centralization policy is a strong administrative control and system of reporting existing in the management of the official open data project that encourages tracking of the third-party projects in the sphere. The policymakers of the official open government platform regard the launch of these independent initiatives as a strong evidence of the progress in this direction, the information of which could be used by them then as a reference in communication with the political leadership and even as an effective way to improve the ranking of the national open data project in the international ratings, particularly in various global e-government listings that on a regular basis closely monitor the implementation of the related projects all over the world (WJP, 2015), including Kazakhstan. In addition, the references to concrete successful examples of the open data projects could be regarded as one more effective instrument to popularize the development of similar startups among ICT developers and technically savvy citizens. This is one of the reasons why the official portal also hosts various guides and instructions on how to reuse the government data sets and even create new open data-driven applications.

Moreover, some administrative pressure that usually accompanies the realization of similar ICT projects almost in any country (Janssen, 2011), taking into account their socioeconomic and even political importance, could make the operators to pay special attention to the evidences that would directly point at the efficiency of the concept



Source: Author's own illustration

**Figure 7.**  
The official open data  
platform as an  
aggregator of  
information on the  
third party open data-  
driven projects

realization and adopt a series of effective PR measures and campaigns aimed at diffusing the open data philosophy and motivating members of the civil society, especially developers and technically savvy citizens, to join the movement through various contests and active promotion of the concept in mass media and social networks. In this regard, the adoption of this *sui generis* open data policy in Kazakhstan has led recently to the creation of several successful open data-driven initiatives that use the government data sets as a raw material in various third-party mobile applications such as the Kindergartens of Astana, Post Offices, Cultural Astana, Meken, Statistics of Regions and many other projects.

### 7.1 The Kindergartens of Astana project

One of the interesting projects that clearly demonstrate the socioeconomic promise of the open data concept is the Kindergartens initiative. The project is aimed at making the lives of young parents easier by helping them to find suitable kindergartens for their children in the capital city of Astana. The initiative that reuses data sets from the official open data portal and operates through a special mobile application which could be downloaded via the App Store allows its users to receive really valuable information on addresses and contact details of all nearby kindergartens in this city (The Kindergartens of Astana Project, 2015). The project is really in need among its residents, since today the capital city of Kazakhstan is experiencing a baby boom, i.e. an unprecedented rise in birthrate, a remarkable demographic result of its truly rapid economic development and related hyper migration of young Kazakhs from all parts of the country to the city in search of better life in recent years. This fact was one of the primary reasons why the application was declared as a winner of the special contest organized in 2014 by the central government among students of all national universities and colleges in an attempt to popularize the open data concept and facilitate the development of the related market of the open data-driven projects and startups.

### 7.2 The Post Offices project

The Post Offices project is another initiative that harnesses the promising potential of the open data concept and is aimed at helping citizens of the country to find information on

post offices in remote areas of the country. Synchronized with the flow of data sets updated regularly on the official open data portal, the project that operates as a mobile application provides citizens with quite simple but useful mapping tools that help them locate easily details such as the schedule of operation, addresses and contacts of the nearby post offices (The Post Offices Project, 2015). Taking into account the fact that Kazakh Postal Service, as a largest national postal company, operates hundreds of post offices in Kazakhstan distributed all over its territory, the interactive synchronization and update of the application with the government data sets can guarantee a better service for the target audience, i.e. ordinary citizens who live in the remote rural areas. In addition, since the cellular telecommunication signals cover almost the whole territory of the country, even where there is no direct access to the broadband or fixed landline Internet, the use of mobile applications is often the only convenient way for people to access the online information on the topic.

### *7.3 The Meken and Cultural Astana projects*

One more initiative that is based on the use of open government data sets is a project named Meken to provide an easy mapping tool that helps people find addresses of various public and private organizations in Astana (The Meken Project, 2015). The Cultural Astana project is another initiative that is interesting for tourists and guests of the capital city. It helps to locate nearby museums, theaters and libraries (The Cultural Astana Project, 2015). Created as a mobile application that resorts to the regularly updated flow of data sets from the official data platform, this mapping tool provides cultural and touristic information on the main sightseeing attractions in the city. In the light of forthcoming events such as Astana Expo-2017, which will be partly aimed at attracting foreign tourists to the city, the further development of the related projects seems really rewarding for the local businesses and promising for economic development of many neighborhoods.

### *7.4 The Statistics of Regions project*

As an analytical and research tool that could be helpful for scientists, students and journalists, who are interested in studying the regional development of Kazakhstan, the Statistics of Regions initiative is another open data-driven project that provides various information on the topic. Based on data sets derived from the official open data portal concerning the economic development of various regions of the country and integrated into one mobile platform with easy interface and navigation, the application is becoming really popular among citizens, since it provides a single entry to all statistical data and offers useful research instruments that help to automatically create, for example, different types of visualizations and graphics on the development of various regions of Kazakhstan (The Statistics of Regions Project, 2015). Taking into account the fact that the Statistical Agency of Kazakhstan usually publishes a really huge massive of information both in paper and online forms with thousands of data sets in a machine readable format, the project could truly revolutionize the research methods traditionally used by Kazakh academic and professional audiences, making them presumably more accessible and cost effective.

## **8. Challenges in the development of open data and ways forward**

### *8.1 Lack of open data-driven projects in the political domain*

One of the interesting aspects that one can easily notice in the development of the open data-driven projects in Kazakhstan is a lack of the initiatives that are aimed at promoting civic engagement and increased collaboration exclusively in the political domain of the concept such as projects that propagate greater transparency of the government institutions through the independent digital open data-driven platforms. Through these third-party projects,



citizens could directly participate in decision-making processes, track lobbying activity, contribute to the lawmaking processes, etc. even if they already have the opportunity to take part and input personally or collectively in various similar promising projects, which are administered today within the national e-government project (e.g. blog-platforms, open budget and open lawmaking initiatives). In this regard, despite the efforts of the central government to promote equally the open data phenomenon in all dimensions of the concept, whether they are economic, social or political ones, the primary focus of the independent open data-driven projects on the development of the socioeconomic aspects is apparent. The trend is a consequence of the recent ubiquitous tradition to value the economic aspects of the public sector reforms over the political ones in multiple programs that the government has been carried out for the last two decades. Any developments aimed at political transformations have been usually regarded as quite sensitive ones and, therefore, often avoided. In this connection, the recent adoption of the national law on access to information, i.e. of the Kazakh version of the FOIA, might send a certain political signal to all stakeholders, especially independent ICT developers, businesses and NGOs to join the open data movement and harness the public value of the concept in an attempt to boost the development of the nation, hopefully, both economically and politically.

### *8.2 Quality of data sets and formatting*

The adoption of the law on access to information in the end of 2015 has paved the way to a more systematic publication of the government data sets in special digital depositories. According to the e-government policymakers, in general, up to 70 percent of government information could be published as open data today in Kazakhstan (Orazgaliyeva, 2015). In this regard, a huge amount of data and information that needs to be technologically processed and prepared even as a raw material and, preferably in a machine readable format, is one of the primary reasons why so many agencies in Kazakhstan are still slow and even reluctant in disclosing their data sets (Kaulanova, 2014). For example, some data are really challenging to publish in a computer readable format due to the fact that they only exist as a paper document or these files may contain some personal and commercial data or other type of confidential information, which should not be published according to the existing laws. In addition, even if such information or data could be disclosed by law, the level of discretion by public servants and administrators in the decision-making process in the area at the moment could be extremely limited or even non-existent not only due to the ubiquitous bureaucracy and red tape that still exists in many public institutions but also due to the lack of traditions of self-regulation and administrative autonomy in the public administration. In this regard, the reformation of the public sector in this direction could solve the challenge in the future.

### *8.3 The perils of the traditional mindset*

It is necessary to note that in Kazakhstan, like in many other emerging and even some developed nations, the paradox in the development of open data and other related e-government concepts such as digital civic engagement, online crowd-sourcing and e-participation in the ICT-driven projects is itself the traditional mindset of both operators and citizenry in understanding how to realize and further the idea. For example, the ubiquitous “closed government culture” (Huijboom and Van den Broek, 2011) or no clear strategies on how to deal “with user input” (Janssen *et al.*, 2012) among government agents and lack of understanding on how to reuse the data sets among citizens, who usually play a role of passive consumers of various e-government services and products rather than as collaborators of their development, often impede the promotion of more independent mechanisms of e-government. In fact the actual realization of any e-government ideas is usually very trivial and articulated in the straightforward executive

directives (Linders and Wilson, 2011), i.e. administrative memorandums or mere declarations of intentions, when almost all projects are funded and implemented by government itself or its subsidiary agencies, while the old top-down and one-way channel of implementation with practically no input from citizens is regarded as an accepted norm (Kassen, 2013). As a result, paradoxically, the fundamentals of public administration remain the same, i.e. the old traditions of public service and public sector such as bureaucracy and red tape in its operation are the most challenging to change due to the inertia in public mentality. In this regard, the obvious progress of the national e-government and indirectly even of the e-democracy systems due to the further advance of the open data phenomenon is more a by-product of a highly centralized and really relentless official e-government policy aimed at improving its innovative image both domestically and, more importantly, globally rather than an ultimate political goal of the project itself.

In this respect, such influential international intergovernmental and non-governmental organizations and consortiums as the UNPAN, the Open Government Partnership, the World Bank and the Open Knowledge Foundation begin to play a very important role in globalizing the best e-government practices all over the world, especially the universal standardized mechanisms to realize various open data-driven projects and startups. The indirect political demand of the international community to reform governance, at least digitally, all over the world makes the policymakers and entrepreneurs in many emerging nations, including Kazakhstan, to adopt the best realization and operation models and eventually promote the progressive ideas of transparency and participation. The e-government practitioners finally begin to realize that the open data concept is not only a tool to improve public administration but, after all, also a promising political platform that for its successful realization requires today new ways of political communication and, most importantly, collaboration such as civic engagement and peer-to-peer e-participation, truly creating new indirect incentives and opportunities to potentially democratize the fundamentals of the public domain through open data-driven projects and other e-government initiatives, regardless of the economic and cultural contexts.

## 9. Conclusion

The paper presents an analysis of the promising potential of the open government concept in an unusual cultural context in an attempt to understand how it affects the democratization of political communication in a typical emerging and post-totalitarian nation by investigating the development of the open data movement in Kazakhstan that recently adopted a special legislation on free access to information and began to implement its own projects in the area. The author presents his research as an agenda-setting paper, the results of which could be used by e-government scholars, practitioners and policymakers in understanding the political and socioeconomic drivers and challenges of the open data movement, analyzing the interesting dynamics of professional networking activities that presumably comes with the realization of the open data-driven projects and, finally improving the operation of the related e-government systems in many developing countries. Analyzing related legislation, key political and socioeconomic drivers, main stakeholders and challenges in the diffusion of the open data phenomenon, the author seeks to trace the emergence of the increased participatory political culture that should accompany its development. In this regard, one of the key findings of the study is that open data provides new opportunities to promote civic engagement and e-participation but does not affect the fundamentals of the political system nor advances traditional democratic institutions in a typical developing country, since the speed and ultimate goals of the open data-driven transformations in the political and socioeconomic domains not necessarily correspond to each other. However, the recent adoption of the Kazakh FOIA and active implementation of various independent open data-driven projects, especially at the national level in the sphere,

which arguably will demand an increased participation from the members of the civil society in the future sends a certain political signal to other stakeholders to join the movement. Another finding is that the traditional top-down administrative commands and usual generous public funding, a classic yet really successful bureaucratic formula that has been previously widely used in advancing various e-government projects in Kazakhstan, could be paradoxically effective in advancing open data projects, too, despite the fact that the concept presumably requires a more collaborative political environment.

E-centralism or a single e-government realization policy in such a typical unitary state as Kazakhstan, in this connection, is also conducive for the convergence and integration of all ICT-driven public sector projects in one single platform with single data sets, centralized authorization and processing centers, a phenomenon that is rarely seen today in the world. In contrast to e-federalism and e-confederalism that are promoted in the USA and European Union, respectively, super e-centralism in Kazakhstan is arguably a more effective yet less collaborative and participative approach in the realization of the ICT-driven public sector reforms, including the e-government sphere, which, however, creates great opportunities to promote various official projects in the open data sphere but increases dramatically the chances of system failures and mistakes if there is no budget funding and strict administrative control of specialized public and semi-public agencies, making the whole centralized model less sustainable in the long-term perspective. Finally, the existence of diverse and socially active networks of Kazakh developers, programmers and designers that have necessary technical expertise and knowledge in the sphere is really crucial in developing various independent open data-driven projects. In this regard, the increased communication among developers during multiple contests, conferences, forums and hackathons play a very important role of the social platform that helps them to learn and share knowledge and experience in the sphere. Likewise, the development of various independent open data-driven startups creates a favorable atmosphere for the participation of the non-governmental sector, i.e. universities, think tanks and NGOs, both domestic and international ones, in providing additional consultative and technical assistance to the projects, which, in general, is conducive for the advance of the civil society and political pluralism, at least, in a digital context.

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