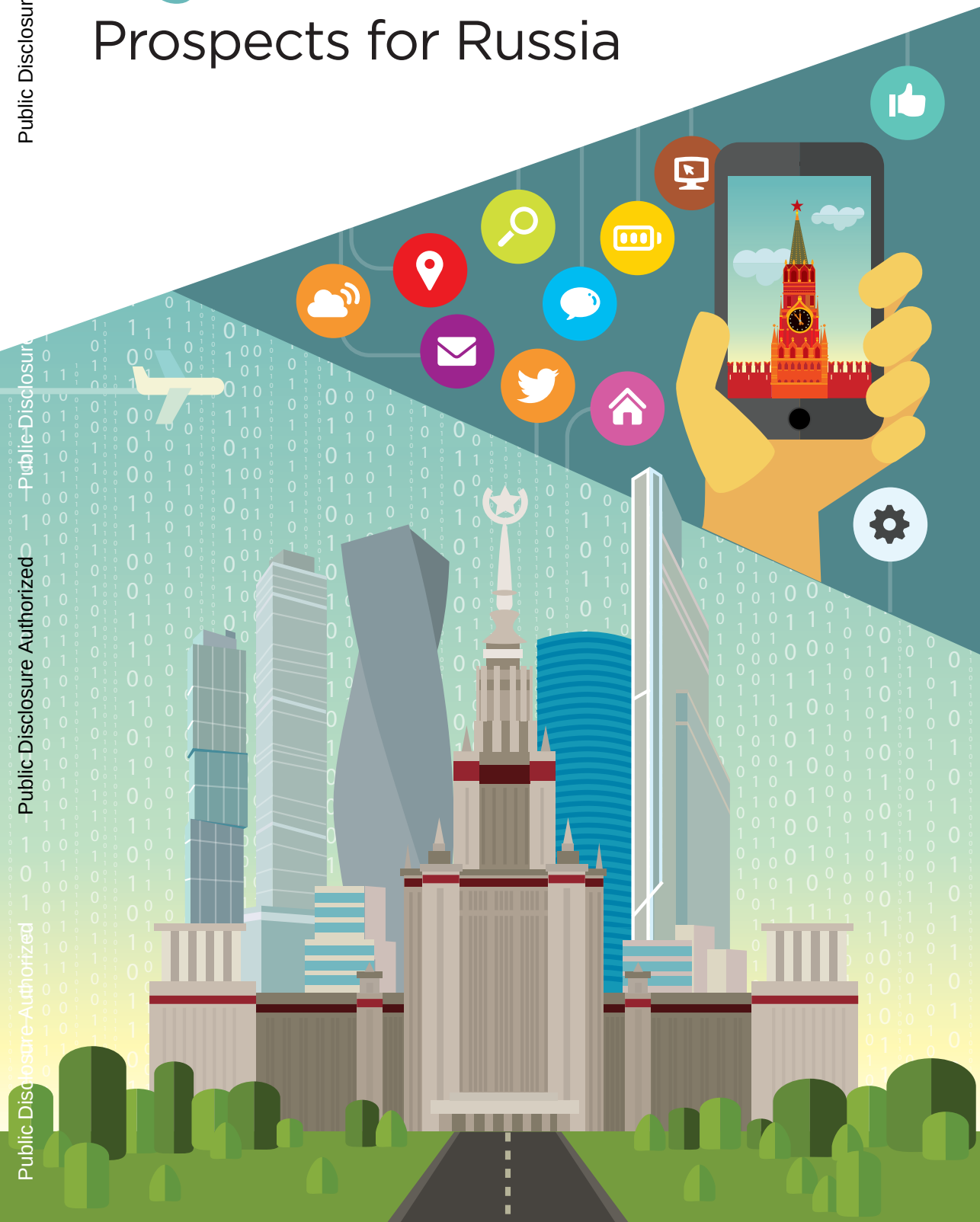
Digital Government 2020
Prospects for Russia



DIGITAL GOVERNMENT 2020: PROSPECTS FOR RUSSIA

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Executive Summary

Governments around the world are facing a double challenge. Their citizens are expecting ever-higher standards of service and want to be able to interact with the government online as easily as they do with banks and Internet commerce companies. At the same time, governments need to reduce administrative costs and increase program effectiveness.

For many years, "e-Government" has been a major contributor to meeting these challenges. Yet in many countries – even those who were seen as the leaders – the potential to transform and truly "digitize" services often remain unrealized. Leaders in e-Government have now embarked on the next stage of their service transformation journey – often referred to as "Digital Government". Building on the investments and transformations made during the earlier phases of e-Government, this transformation envisions fully digital services from start to finish, and with government processes being driven by data rather than documents.

In recent years Russia has made good progress on its existing e-Government strategy for providing digital services in parallel with other channels. The progress includes implementation of the Multi-Function Centers and a Unified Portal; setting up infrastructure to link different government institutions; establishing national databases; and introducing common services such as identification, authentication, and payments systems.

Yet the take-up of many electronic services is disappointingly low. Technical achievement has sometimes not been accompanied by changes in business process or legislation to allow its potential to be fully realized. Interoperability solutions have improved inter-institution communication, but have not made them look any more connected to citizens. In addition, "back office" internal processes are not sufficiently digital.

To assist the Government of the Russian Federation with its plans to develop and launch a project that will be designed to address these issues and move the country towards a Digital Government, this report from the World Bank team sets out high level recommendations that are tailored to the needs of Russia, and that are in line with the best international practices. It recommends that the Government of the Russian Federation consider:

- Moving quickly to a revised strategy of adopting Digital Government best practices by 2020 onwards.

- Mandating the transformation of its administrative processes using the "*Digital By Default*" principle.

- Building a new infrastructure for digital government delivery.
- Creating a sharper and more integrated institutional focus for developing the strategy and overseeing its implementation.
- Tackling the issues of Digital Inclusion due to Russia's size and demographics.

By making the key strategic investments quickly, Russia has the opportunity to improve digital services to its citizens and businesses, to meet their expectations of being able to access government services as easily and conveniently as other online and mobile services, to improve the effectiveness of administration and enforcement, and to save or redeploy resources currently used for routine administration.

The World Bank looks forward to the opportunity of working with the Government of the Russian Federation to help it implement these strategies, and to become a global leader in Digital Government.

1. Digital Government 2020 – Global Outlook

1.1. Introduction to Digital Government

Gartner defines "Digital Government" as:

> "Digital government is government designed and operated to take advantage of digital data in optimizing, transforming and creating government services"

In some senses this is a government version of "digital business," which Gartner defines as "the creation of new business designs by blurring the digital and physical worlds due to the convergence of people, business and things". In both, there is a transformation from an organization providing products and services supported by data, to an organization that is primarily driven by its data, and uses its data not only to deliver existing products and services but also to create new ones. The key characteristic underlying this concept is that governments and their services should increasingly become data-driven.

The drivers for Digital Government reflect internal and external pressures on governments to transform:

- Citizens and business using government services increasingly expect them to be delivered through the same channels and to the same standards as they conduct the rest of their lives, and conventional e-government programs are seen as having failed to deliver this. In the United States, twice as many people perceive online government services as being worse than the private sector. In other words, the private sector is perceived as operating better online.[1]

- "Austerity" policies in Europe are driving institutions to reduce their administrative costs. A review of UK government online services, by Internet entrepreneur Martha Lane Fox, found that shifting 30% of "front office" government service delivery to digital channels would yield

1 Boston Consulting Group 2014; https://www.bcgperspectives.com/content/articles/public_sector_center_consumer_customer_insight_digital_government_turning_rhetoric_into_reality/#chapter1

gross annual savings of more than £1.3 billion. These savings would rise to £2.2 billion if 50% of contacts shifted to digital channels.[2] The UK government's Digital Efficiency Report suggests that transactions by digital channels (including existing e-government channels) are 20 times cheaper than by phone, 30 times cheaper than by post, and as much as 50 times cheaper than by face-to-face meetings. Such savings were seen as ways of improving efficiency and effectiveness and of reducing the unit cost of delivering UK government services. This would avoid the need to achieve fiscal targets by eliminating or restricting the availability of those services as a whole to the public.

- The ability to live and interact with public services digitally is seen by some governments as a competitive necessity. In launching "Smart Nation" in November 2014 the Prime Minister of Singapore said: "We are a leading city today but other leading cities like San Francisco, New York, London, Sydney, Shanghai, they are attracting capital, talent, ideas. … We have to move ahead with them and stay up there amongst the leading cities of the world."[3]

- Governments are seeing data as a strategic asset to be used to increase policy effectiveness. The "Good Basic Data" strategy[4] of the Government of Denmark saw re-use of high-quality data as an essential basis for public authorities to perform their tasks properly and efficiently and an important contribution to modernizing the public sector. Not only would the public and businesses be provided with a better and more efficient service when data that has already been recorded is shared across institutions and is included directly in case processing, but also employees in the public sector would be released from repetitive and routine tasks and used in more effective ways.

- The idea that "Government" and "digital Government" are different things is increasing unacceptable to citizens and businesses, and can be a dangerous diversion. In an increasingly digital world, and with many governments increasingly enabled by data and digital technology, it is untenable to structure policy and administrative processes around a non-digital model with a digital veneer.

Sometimes, for political reasons, the move to digital government has been presented as a "revolution," and fundamentally different in nature to the "e-government" structure that preceded it. However, it is notable that the leaders of the "digital government" movement have also been seen as among the leaders of "e-government". This suggests that it has not been that "e-government" has been a complete failure but that many e-government programs have fallen short of the initial vision, and that public expectations and technology capability has risen. Areas of shortfall include:

- A failure to achieve sufficient shift of citizens and businesses to digital channels, because e-government systems do not offer sufficient incentives for users to make the transition. This in turn means that traditional face-to-face and telephone channels have had to be maintained,

2 Fox; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/60993/Martha_20Lane_20Fox_s_20letter_20to_20Francis_20Maude_2014th_20Oct_202010.pdf

3 Loong 2014; https://www.ida.gov.sg/About-Us/Newsroom/Speeches/2014/Transcript-of-prime-minister-lee-hsien-loong-speech-at-smart-nation-launch-on-24-november

4 The Danish Government 2012; http://www.fm.dk/publications/2012/good-basic-data-for-everyone/~/media/Publikationer/Imported/2012/Gode%20grunddata%20til%20alle/BasicData_UK_web_2012.10.08.ashx

not only continuing a high operational cost base but also continuing to provide an attractive alternative channel to many citizens.

- A poor user experience, with services difficult or complex to use because they are designed and implemented from the point of view of the service managers rather than the users.

- A failure to transform back-office business processes to achieve a fully digital workflow. Too many e-government systems are about filling in (and sometimes printing out) forms that are then processed in the traditional manner.

- A failure to change business processes to accommodate the new technologies that citizens are using; while it is possible to fill out a form on a browser on a desktop computer, few will succeed in doing so on a mobile telephone (and how many mobile telephones have a printer attached if the form needs to be printed out and physically signed). To accommodate new technologies effectively requires new business processes.

- A lack of the "instant fulfillment" which has transformed industries such as book and music publishing, banking, insurance, and travel. Citizens who have to wait weeks for responses from government ministries may not see much advantage in submitting applications electronically. Many countries' e-government services remain a digital veneer on unreformed, slow and inefficient back end processes.

- A failure to address the critical inequality in access where poorer citizens with more dependence on government services have much less ability to access digital services. This dampers the take-up of services and to the ability to close down legacy delivery channels.

It is not necessary true that these changes have been technically difficult to provide – indeed the way that other services have been provided to the public with less resources in other sectors has shown that it need not be financially challenging either. However some of the necessary measures have not come naturally to government bureaucracies – especially where coordinated or standardized actions are required by several institutions, or where policy or legislative change is needed in order to transform business processes. User-centric digital services require horizontal integration among different agencies – perhaps also at different levels of government – and normal governance structures make this difficult to accomplish. So, Digital Government initiatives often involve organizational or governance changes as well.

Therefore, Digital Government initiatives have seen the emergence of a number of key design principles and elements for success in plans up to the year 2020. The main characteristics of Digital Government can be summarized as follows:

Principles of Digital Government Services	• Digital By Default • Device-agnostic and mobile-centric • User-centered service design • Digital from end to end • Government as a Platform
Building Blocks of Digital Government	• A single portal • Unified data shared across the public sector • Cross-government shared services • Shared government infrastructure • Improved sensor networks and analytics • Cyber-security and privacy
Leadership and Skills for Digital Government	• Leadership and Governance • Innovation within Government • Culture and Skills
Measurement of Digital Government	• Measurement of Digital Government

The remainder of this Chapter describes how the leading countries in digital government are approaching these issues.

1.2. **The Principles of Digital Government Services**

Digital by Default

In many e-government initiatives a web channel was only one of a number of channel alternatives presented to citizens; some e-government initiatives actually introduced local, face-to-face service centers whose success limited transactions which might have migrated to digital channels. Therefore, leading governments are starting to talk in terms of Digital by Default. It is important to understand that this is a principle of business design – re-designing and re-engineering business processes so that they are services that are delivered through digital channels, and take full advantage of the efficiency and effectiveness of doing so.

This does not mean that attention is being focus exclusively on the digitally connected and the digitally skilled at the expense of perhaps poorer and older citizens. Rather it is a shift towards an expectation that in the future, services will be increasingly delivered digitally and that help needs to be provided to those who cannot access digital services. So in this context, service centers are being positioned not as an alternative channel for conducting services but as a place where people are helped to do their transaction digitally. In Singapore the Prime Minister has announced "Citizen Connect Centers with officers to help citizens access Government services, while we make these ser-

vices available online"[5] (author's emphasis). Similarly, the UK Government has said "We will always provide assistance for those who need help in accessing government services online".[6] The principle is that the service is a digital one; those who cannot use it themselves will be helped to do so, instead of being provided with a non-digital alternative.

Device-agnostic & mobile-centric

E-Government services often assumed that services would be accessed from a computer with a browser. However, since 2011, annual global smartphone shipments have exceeded personal computer shipments, and by 2015 it is estimated that more US citizens will access the Internet via mobile devices than via desktop PCs. Moreover, citizens are increasingly expecting continuous engagement with government services through all the channels and computing devices that they use.

So digital government services are being designed to be accessed from smart-phones and from other digital devices – such as TV and watches, as well as from the desktop/laptop browser. This is not simply a matter of a different presentation layer. Mobile-first is an important design principle because mobile devices create more of a challenge and an opportunity to the digital service designer: on mobile devices the traditional business process model of requesting a government service by completing a form is unsustainable; instead the service itself, perhaps assisted by the mobile device itself (for instance through a location-reporting or photograph-taking capability), needs already to have most of the data it needs to complete the transaction successfully. This puts a premium on sharing and re-use of previously supplied data and single means of identification. Moreover, the requirement to be able to engage continuously through a variety of digital channels means that digital government services will increasingly need to offer a seamless experience through all the user's computing devices. Of course, services designed for mobile and other such devices can still be accessed through traditional browsers.

User-centered service design

Some of the early movers in digital government consider that e-government services were neither attractive nor transformative because they were designed around business needs rather than user needs.

So while there was lip-service to "user-centered service design" in the previous generation of e-government, "customer centric design" or "start with user needs" are visible and fundamental principles of digital government. The UK Digital Design Principles say "The design process must start with identifying and thinking about real user needs. We should design around those — not around the way the 'official process' is at the moment[7]". The US Digital Government Strategy says, "We must focus on our customers' needs. … It means coordinating across agencies to ensure when citizens and employees interact with government information and services, they can find what they need and complete transactions with a level of efficiency that rivals their experiences when engaging with the private-sector."

User-centered service design is often backed by the sort of research or analytics typical of leading web services but not often practiced in government. The emphasis is on what makes a positive difference to user behavior or user acceptance of the service. This may include "alpha" and "beta"

5 Loong 2014

6 Rust 2014; http://www.theguardian.com/technology/2014/jun/23/when-the-uk-goes-digital-by-default-who-will-be-left-behind

7 UK Government 2012; https://www.gov.uk/design-principles#first

services to test service design decisions on live users, and recognition that "what users ask for is not always what they need" (UK).

User-centered design means not only overcoming the barriers and differences in business practices between agencies at the national level, but also where relevant, between national, regional, and municipal levels as well in federated countries. This is particularly important where national, regional, and municipal services need to work together to provide the service which the user is seeking, for instance in the regional administration of national schemes. Some federated countries, such as the United States, benefit from relatively clear distinctions between the responsibilities of the federal level and individual states; others, such as Canada, and Australia, sometimes have overlapping services which require more active leadership to bring within a single and user-centered design.

It is also important to understand that the "user" at the center of the design is not just a standardized, generic, consumer. User-centered design should reflect the needs of the wider variety of individual users, not just "one size fits all". Leading countries are seeing the future as being about individualized services, with a high degree of personalization of services and a granular understanding of customer need, driven not only by a full view of the data about that individual customer and analytic techniques to deduce his or her preferences and wishes but also by a wide range of sensor/internet of things inputs about the individual's circumstances and environment.

Some leaders see this as being taken a step further, with the government not necessarily providing services itself but ensuring that data and common shared internet resources are used to deliver services that meet user needs, possibly without the intervention of government itself. So, for instance, personal tax systems in countries like Norway automatically calculate and collect tax through employers and investment institutions, reducing the administrative burden not only on citizens but also on the state tax agency itself.

Digital from end to end

Many e-government services have digitized some or all of the interface used to make service requests – by providing information, by allowing a form to be downloaded, or even by allowing a form to be filled in and submitted online. However, even if the form has been submitted online some services still process the application through the same, paper-based, business processes within the responsible institution. This is compounded when other institutions have to be consulted as part of the processing of the application; with the lack of inter-operable systems or reliable transaction sharing hubs, the default mode of communications are on paper.

So, digital government initiatives can be as much about re-engineering the back office processes as the front office website. The objective is to have an entirely digital workflow. The re-engineering of the back-office processes is of course also driven by user-centric designs that may imply changes to previous, business-centric, designs. Digital workflow gives a number of benefits. Firstly, it is more efficient and manageable. Secondly, it allows the progress of applications to be tracked, including keeping the citizens informed of important steps. Thirdly, and perhaps most importantly, by providing data on the processing of transactions, it allows data-driven techniques to be applied. These may include automated checking of applications against not only existing service data but also cross-government databases; the identification of high-risk cases and the diversion of those into specialist processing; conversely, the automatic processing of low-risk cases; and importantly, a continuous data-driven revision of case processing business rules to allow the available resources to be used with maximum effect. Such data-driven processing can both improve efficiency and timeliness of processing and make the processes more effective in achieving business objectives.

The concept of digital from end to end is also being applied not only to the processes but also to the nature of the services that are delivered. In the same way as the music industry has been transformed from the sale of disks to the sale of downloads, and now streaming, government services can become entirely digital, with the replacement of physical fulfillment with a digitally-delivered outcome. A good example of this is an "e-Visa" introduced by a number of countries such as Turkey, and similar systems from the USA (visa waiver travel approval) and Australia (travel approval). Not only is the application and payment process entirely digital. There is also no 'sticker' to place on the applicant's passport. The visa only exists on the country's border control systems, and is checked electronically on entry (and, possibly, when the airline supplies advanced passenger information). The digitization of this workflow is not only to improve the visitor's experience, but also to use data more effectively to enhance national security. Similarly, in the UK, ten years after the introduction of the original system the paper car tax certificate has been abolished; the car tax paid status is held on the vehicle licensing agency's computers, and enforced digitally through automatic camera systems.

Government as a Platform

In e-Government, the interaction model was typically one in which the user interacted directly with a government website – or more recently directly with a government mobile application.

Leading governments are now thinking in terms of how providing application programming interfaces (APIs) to trusted intermediaries can open opportunities for new private sector services and entrepreneurs, reduce the burden on and costs of government itself, and increase program effectiveness (for instance by leveraging existing channels or transactions). This approach has been termed "Government as a Platform"[8] by Tim O'Reilly.

Digital government strategies are envisioned for a variety of interaction models, in which third-party services or applications are allowed and encouraged to play part in the delivery chain. This is driven by a desire to stimulate innovation in service delivery, a realization that "one size does not fit all," and a focus on maximizing citizen and public service outcomes whether or not they involve a government website. The US Government talks in terms of an "information-centric" approach: "rather than thinking primarily about the final presentation—publishing web pages, mobile applications, or brochures—an information-centric approach focuses on ensuring our data and content are accurate, available, and secure. Providing this information through web APIs helps us develop interoperability and openness, and makes data assets freely available for use within agencies, between agencies, in the private sector, or by citizens."

There is some overlap between this and the "Open Data" policies that have emerged in the last five years. However, Open Data policies have generally focused on the re-use for other purposes of information generated in the course of public services. In digital government, it is also recognized that by the provision of data, on open terms and increasingly through APIs, the government can leverage third-party applications, channels, and innovation to help achieve public service goals. In Singapore, Prime Minister Lee himself has expressed the need to strengthen the government's APIs: "Our APIs are not as polished and as standardized as they should be – sometimes there are no APIs."[9] In the UK, Martha Lane Fox's report[10], which started the transition to digital government in that

8 O'Reilly 2010; http://chimera.labs.oreilly.com/books/1234000000774/ch02.html (Note that in the UK "Government as a Platform" itself is often used in a completely different sense, to refer to the use of standard PaaS services.

9 Basu 2015; http://www.ifg.cc/aktuelles/nachrichten/regionen/93-sg-singapur-singapore/51081-singapore-smart-nation-to-focus-on-open-data-elderly-care-transport

10 Fox 2010; https://www.gov.uk/government/publications/directgov-2010-and-beyond-revolution-not-evolution-a-report-by-martha-lane-fox

country, called for government to act as a "wholesaler, as well as the retail shop front, for services and content by mandating the development and opening up of Application Program Interfaces (APIs) to third parties".

While most leading governments are keenly talking in terms of APIs to allow others to use their content, the extent to which they will be willing to allow third-party applications to "write" to government databases is less clear. One of the most well-known examples is the Open311 interface standard, which allows third-party applications to submit service requests to some municipal authorities in the United States. Compared to most government transactions, this use case is relatively undemanding because it does not require strong authentication of the user. Even so, take-up has been limited to a minority of relatively enthusiastic municipal authorities. However, it is possible that some governments will allow a wider range of "write" transactions through a limited number of trusted intermediaries (such as banks); the UK Verify service[11] incorporates these elements.

1.3. **The Building Blocks for Digital Government Services**

Leading digital government strategies seem to involve some similar key facilities as core building blocks of their digital government architecture. These include:

A single portal

A key feature of the leading digital government initiatives is a stronger policy to bring as much of the government's information and services together onto an integrated website as is possible. Most Digital Government plans foresee a dominant single integrated portal for government services. Information and services are presented in terms of the users rather than in terms of the structure of the government and, unlike the previous generation of "portals", the user experience is one of completing the transaction on the integrated website rather than being "handed off" to another website.

A further key characteristic in the new generation of government portals is transactional integration. For instance:

- In Singapore ecitizen.gov.sg is a true integrated portal with strong search capabilities across interactive transactional services, including payment for a wide range of services and some critical identity functions such as applying for passports and identity cards.
- In France some 30 services are accessible with a single user name and password through mon.service-public.fr.
- In Australia some 2 million citizens now have an account on the myGov portal, which allows seamless access to content across six different government health and welfare services.

Unified data shared across the public sector

A number of countries have explicitly recognized the importance of unified databases accessible to and used across the public sector, rather than each agency keeping its own records. In 2012 Denmark published a strategy for "Good Basic Data". Public authorities in Denmark register vari-

11 UK Government 2015; https://www.gov.uk/government/publications/introducing-govuk-verify/introducing-govuk-verify

ous core information about individuals, businesses, real properties, buildings, addresses, and more. This information, called basic data, is seen as important to be re-used throughout the public sector because it is an important basis for public authorities to perform their tasks properly and efficiently, "not least because an ever greater number of tasks have to be performed digitally and across units, administrations and sectors". Some of the registers do not contain personal information and are released as open data (for instance Addresses). In the Netherlands there is a similar initiative for the sharing of 17 "Base Registers". The UK, despite past political controversy, is collaboratively developing a data sharing policy that will allow the use of key databases across the public sector, and in some circumstances beyond.[12]

In federated countries those datasets need to be available not just between agencies at national level, but also to agencies at regional and municipal levels. Since changes to master data may first be notified to other agencies, it is essential that there are robust processes for the maintenance of the master data using notifications of change at the earliest possible point; this is even more important in federated systems where important changes, such as change of address, may well be notified at local level first.

A key step being taken by leading governments is to see databases, not functions, as the key assets of government administration and to develop strategic plans to introduce interoperability standards and middleware that allows seamless integration of these databases through open APIs.

Besides key data used directly in transactions, leading governments are seeing other key datasets as part of a "National Information Structure" widely used by institutions in the public sector – and often by businesses and others in the wider economy as well. The prime example of such data is geospatial reference data – including maps, transport and other networks, and addresses. It is often said loosely that 80% of public sector has geospatial attributes, and high-quality geospatial reference data allows such attributes to be reliably linked between datasets and allows public services to "see the whole picture", by combining data about a locality from different sources.[13] The central importance of geospatial data has been recognized in the EU by the enactment of the INSPIRE Directive in May 2007 to establish an infrastructure for spatial information across Europe to support Community environmental policies, and policies or activities which may have an impact on the environment. Based on the infrastructures for spatial information established and operated by the 28 Member States of the European Union, the INSPIRE Directive[14] addresses 34 spatial data themes needed for environmental applications, with key components specified through binding technical implementing rules covering Metadata, Data Specifications, Network Services, Data and Service Sharing and Monitoring and Reporting.

Cross-government shared services

E-Government initiatives have often failed initially to deliver on a vision of common cross-government shared services for common components. This has been symptomatic of the wider problem of the failure to change individual agency business practices. Because of the stronger governance associated with the digital government initiatives leading countries are starting to deliver on this. For instance, Singapore's SingPass program provides a single online authentication system through which users can access 270 different services from 58 government agencies. With 90% utilization, it has now largely replaced individual credentials on these different services.

12 Data Sharing Blog; http://datasharing.org.uk/

13 An early leading application of this was Virtual Alabama https://virtual.alabama.gov/

14 http://inspire.ec.europa.eu/

Shared government Infrastructure

Rather than invest in application-specific facilities, leaders in digital government look to use increasingly standardizing infrastructure components, including public infrastructure. Use of cloud computing is seen as a strategic tool to achieve the flexible and fast deployment and elastic continuing capacity needed to meet digital government goals, and not just as a form of data center consolidation or server efficiency (although they are achieving that too). For instance, Singapore implemented, in 2012, both a "private" government cloud and a contract for government agencies to use public cloud services; interestingly these 'clouds' replace infrastructure which often was already shared so it is the flexibility, and not the sharing, which is the step forward.

At the same time there is a change in the nature of private sector engagement. There is a move away from traditional systems integration contracts or Public-Private Partnerships, for applications-specific services; these are now seen as over-complex, inflexible and costly. Instead, there is a greater use of standard services components (such as cloud services) which can be procured quickly through standard framework contracts. For instance, the UK Government has a "Cloudstore" catalogue[15] of 3185 pre-defined and priced services available through 462 vendors (of whom 75% are SMEs) and available to central, regional, and local governments. Because of the pace of technological change and innovation in this sector, this catalogue is re-recompleted every six months. The US Government has worked with major Internet services to get them to provide Government-standard versions of standard building blocks. Companies include Google Apps (mail, documents, etc.), and Amazon Web Services cloud hosting.

The role of PPP seems also to be changing from providing total solutions to providing standardized components, which can be integrated into a business solution, such as a government-wide cloud. This form of PPP may actually be easier and more advantageous for both parties because the nature of the PPP services is more clearly defined and less subject to business or political change, and because both private and public partners can benefit from the greater use of the standard services provided.

Therefore, Digital Government is not necessarily pushing up total demand in value terms for ICT sector services. While more technology services are needed, they are being commissioned through new approaches to service design and procurement. The UK has been envisioning a 50% reduction in ICT spending through its new approaches at the same time as increasing the pace of delivery and the extent of digital government. However, there are indications that it is leading to innovation and cultural change in supply to government, as new players enter the market and as demand lessens for legacy skills in providing tailored end-to-end services on long term contracts.

Improved sensor networks and analytics

Digital government services will increasingly improve public services through the use of sensors and analytics of the data they generate. This will allow the availability and quality of public services to be optimized and for services to the individual to be more closely tailored to the individual's circumstances at that moment in time. This is already being seen in traffic and public transport information and in parking sensors, and will become increasingly important in other areas of public service such as health care. This in turn is driving strategies to develop platforms for the "Internet of Things" and is making real-time data accessible by data-driven services.

15 2013 figures–later figures are larger

Cyber-security and privacy

Citizens will only use digital services if they believe that there is sufficient protection to their personal information – both from threats outside government and from misuse within government. The required threshold may be higher than in other sectors, such as e-commerce, because the motivations of citizens to use digital government services compared to non-digital alternatives may not be as high. Conversely, if a government has switched to digital delivery and then loses the trust of its citizens, then it could face extremely serious problems of ensuring the continuity of public services. This means not only the rigorous application of best practice in cyber-security, but ensuring that there is active and informed public consent to the sort of data-sharing and "single customer view" inherent in providing linked government services.

1.4. **Leadership and Skills for Digital Government**

Leadership and Governance

Different countries have had different e-Government governance models.[16] In broad terms, those who have been more successful have had greater centralization and powerful governance, although countries with greater collaborative cultures between agencies have been able to make progress without this.

Digital Government has seen a greater push towards centralization. Even in Singapore, in which the Infocomm Development Authority has been a powerful driver for change for the last 15 years, further centralization is on the agenda: last year Prime Minister Lee said[17]:

> "I think we have to pull the pieces together from all over the Government. We will set up a Smart Nation Programme Office. Today, the Government departments are all variously doing their own thing … quite interesting programmes, but we need to bring them together. We can go much further if we can put it together, to identify issues, prototype ideas, deploy them effectively to benefit the whole nation. We will have a Smart Nation Programme Office … in the Prime Minister's Office."

In the United States, the appointment of a national Chief Technology Officer in the Executive Office of the President, and most recently a Chief Digital Officer[18], demonstrate strengthening of the governance of digital matters at the center of government.

In China, although details are scarce, there are reported to be plans to develop a single architecture for government service delivery at all levels, supported by single platforms for common systems such as in resilience and emergency response. It remains to be seen how effective the government will be in achieving implementation of these plans.

Digital leaders include both relatively large and relatively small countries. It is sometimes argued that larger countries, both because of the existence of regional or other levels of government and because of sheer scale, are at a disadvantage in being able to move quickly and decisively to digital government. However, one could equally argue that their size should place them at an advan-

16 Hanna 2007; http://web.worldbank.org/archive/website01006/WEB/IMAGES/ELEADERS.PDF

17 Loong 2014

18 Nichols 2015; http://www.prweek.com/article/1339968/white-house-brings-goldman-first-chief-digital-officer

tage: at the first approximation, it costs the same to develop an online system for a service whether it supports a population of 1.5 million people or 150 million people, so smaller countries should find it more difficult to find the funds to invest in order to do a proper job.

Innovation within Government

The new digital service organizations are also deliberately bringing new culture into government service delivery. The Singaporean government is setting up data teams and "skunkworks" which are small groups of people developing services using agile techniques, continuously testing and improving the product[19]. The United States has established a unit called "18F", explicitly modeled on successful internet start-up models, to develop digital and web services which help agencies deliver on their policy mission. 18F includes both an in-house digital delivery team, which builds effective user-centric digital services focused on the interaction between government and the people and businesses it serves, and "Presidential Innovation Fellows" whom it places in other agencies to help them innovate and think digitally.

The new government digital services see a key step in delivery as launching "alpha" (early, incomplete) and "beta" (largely complete, but still being modified and tested) services to engage real users in the development and testing of services,[20] adopting the principles of "lean startup", and then using the techniques of continuous integration to improve services and introduce new features on a daily basis.

Culture and Skills

Establishing the necessary culture and finding the necessary skills for success in digital government is proving difficult for many of the leaders in digital government. Existing cultures and skills within governments are not only unsuitable but, in some cases, actively inimical to the necessary changes. In some countries the skills to drive forward digital government seem to have been largely found by recruiting in some of the best people with the necessary experience from outside government. In the UK, the Government Digital Service is reported by a venture capitalist[21] as "having recruited some of the UK's top digital talent," and as being "the best startup in Europe we can't invest in".

Digital governments are increasingly more data-driven, and so data skills are at a premium. The governments of the United States,[22] France and the United Kingdom have all appointed "Chief Data Officers" in the past year. Although part of their job is to promote further use of Open Data, they also have missions to increase the use of data in decision-making in government and to help utilize data for innovation.

Leading digital governments are also bringing more of the design and service integration responsibilities in-house and to the center of government. Government Digital Services have been created both in the USA[23] and the UK,[24] not only to give governance and intellectual leadership to the migration to digital government, but also to take control of critical design elements. This is also leading to a change in the purchasing of supporting services, with greater use of specialist small and medium sized enterprises and of standard infrastructure services and tools (such as cloud computing and public code repositories such as Github).

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19 Basu 2015

20 For a UK Government Digital Service model of this see https://www.gov.uk/service-manual/phases

21 Klein 2013; http://www.theguardian.com/technology/2013/nov/15/government-digital-service-best-startup-europe-invest

22 Smith 2015; https://www.whitehouse.gov/blog/2015/02/18/white-house-names-dr-dj-patil-first-us-chief-data-scientist

23 The U.S. Digital Service; https://www.whitehouse.gov/digital/united-states-digital-service

24 Government Digital Service; https://gds.blog.gov.uk/about/

1.5. **Measurement of Digital Government**

There does not appear yet to be a recognized system of measurement for Digital Government – or a recognized maturity model; and the models used for the previous generation of e-government do not measure some of the key differences that leading governments are trying to make. Indeed, few of the leading governments have published detailed metrics for their own achievement: the US Digital Strategy[25] only has milestone targets; the UK Digital Strategy has[26] a savings target of £1.8 billion a year, from more efficient provision of IT services, and a target to make 25 of the most-used government services "digital by default" (but without specific metrics of what that means), with a potential saving of £1.3bn-£2.2bn a year from savings in non-digital channels. This is perhaps inevitable in a fast-developing field where the leaders are ahead both of other countries and of organizations that perform independent assessments.

However, it is likely that by 2020 the principal measures of success will be measured by such factors as:

- Time-to-value – how quickly new demand is met and satisfied by new digital services, and how those services are improved continuously over time.
- The extent to which citizens and businesses have adopted digital channels for their interaction with government.
- The extent to which channel shift has allowed the closure of alternative legacy channels for service delivery – including face-to-face offices and call centers.
- The extent to which the number of people requiring help to interact with the government online has been reduced – and, importantly, the extent to which people previously needing help have become digitally self-sufficient.
- The financial savings to government.
- The saving to citizens and businesses in terms of time saved.
- Customer ratings of the standard of government digital services relative to the other, private sector, digital services that they use.
- Transaction accuracy.
- Effectiveness of policy delivery.
- Reduction in fraud, error and corruption.
- The proportion of cases handled entirely automatically and instantly.
- The proportion of remaining agency resources used for proactive tasks rather than routine case processing.
- The extent to which interactions are digital from end to end.

25 Digital Government; https://www.whitehouse.gov/sites/default/files/omb/egov/digital-government/digital-government.html

26 Government Digital Strategy 2013; https://www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy

Moreover, while there is no established digital government maturity model, some authors have suggested key characteristics of a successful digital government. For instance the Boston Consulting Group has suggested:

- **Focus on value** – concentrating efforts on making the biggest differences to the most important services.
- **Service Design Thinking** – adopting the tools, practices and techniques from the growing discipline of design thinking to put the agency in the shoes of the users of its services.
- **Lead Users Online, Keep Users Online** – the extent to which users get an online service from start to finish, rather than start online but then have to do something offline (such as signing a form or provide offline proof of identity). This also means that governments themselves need to go online, using electronic communications rather than mailing out paper letters and statements.
- **Senior Leadership and Commitment** – Not only is this a matter of setting clear strategy and policy with aggressive targets and timelines, but also helping ensure the essential cooperation and coordination among different agencies.
- **Capabilities and Skills to Execute** – Institutions need to develop digital capabilities. This can be especially difficult for public institutions because digital talent is not naturally attracted to the public service, and the cultures and behaviors of the best digital start-ups may not fit well with traditional government cultures.

It is likely that established assessments, such as the UN e-Government Index, will incrementally adopt some of these measurements as they become more generally recognized and as data becomes available. As e-Government transitions to digital government, so will the measures used to assess it.

2. What are the Implications for Russia?

In this section, the Bank is proposing high-level recommendations for the government's consideration, which are in line with the world's best practices in digital government.

The Bank's recommendations are based on the team's preliminary assessment of e-government development (see Annex). In broad terms, independent experts consulted by the Bank summarize the current position in Russia along the following lines:

(1) There are good examples of the use of technology by some individual institutions.

(2) However, behind the scenes business processes are too often manual and slow, and are not taking advantage of data that they could to reach accurate decisions.

(3) Institutional separation leads to inefficiency and duplication of effort.

(4) Promising technological solutions are too often undermined by failure to change regulatory framework and organizational structures, and to optimize administrative processes to make best use of technological opportunities.

(5) Technology could help solve pressing problems of the country and its government, but cannot do so without business changes, and that will in turn require political leadership.

(6) Conversely, the economic situation means that investment in technology cannot be justified unless it gives benefits in improving government efficiency and effectiveness more widely. Technological investment can only be justified if it is accompanied by the necessary institutional and regulatory reforms needed to ensure transformational benefits.

Therefore, based on emerging best practice by global leaders and on the preliminary assessments of the current state of e-Government in Russia in 2015, this Section makes a set of recommendations for consideration by the Government of the Russian Federation on possible lines of extension from the current strategy. The approach proposed in this paper is, wherever possible, to build on

successful models in the current program and show how some of the most important and necessary components for the next phase could be put in place in parallel with the aims of accelerating Russia's closure of the Digital Government "Gap" between itself and the global leaders, and of ensuring digital government achievement at both federal and regional levels.

The necessary measures can only be successful if they apply to the whole realm of Digital Government in a holistic way, including formulation of policy goals and objectives, changes in legislation and in business processes, changes in institutional management and responsibilities, technological infrastructure transformation and investment, and the necessary capacity building of civil servants and the population to equip them with skills needed to make the most of Digital Government services to improve citizen satisfaction, increase efficiency of government operations, and obtain effective achievement of government programs and policy goals.

It is therefore important to recognize that the scope of the recommendations is inevitably beyond the direct responsibilities of the Ministry of Communications and Mass Media. Transformation of today's e-Government infrastructure in Russia is certainly vital for the achievement of Digital Government goals, and we make specific recommendations for that transformation. However, global leaders in this field have clearly found that wider transformations are needed as many ICT investment projects, especially in government, fail to provide the boost to development that is expected. Often, this is because the introduction of digital technologies is not supported by the development of business transformation practices, and institutional structures necessary for the achievement of the full benefits of digital government. Therefore, our recommendations also cover institutions, skills, and regulations since high quality technical skills and infrastructure investment cannot alone achieve their objectives.

2.1. **Moving to a Digital Government Strategy**

Russia currently has a broad "Information Society Development" strategy (2008). There is a need to articulate an updated approach, so that the country is well positioned to reap the benefits of digital technologies. In order to transition to a true Digital Government strategy, the Government of the Russian Federation should consider:

(1) **Revising, extending and consolidating the Strategy for Digital Government in Russia.** The Policy for Information Society Development in the Russian Federation is outlined in the Strategy [Strategy for Information Society Development in the Russian Federation, 2008], a number of presidential decrees, the Concept of long-term socio-economic development of the Russian Federation until 2020 [Strategy-2020], and other strategic planning documents. A new framework is needed and should include new programs and targets for 2020 onwards, set around the clear objectives of the reduction of administrative costs, the improvement of services to citizens, and the delivery of benefits to all of Russia in a digitally inclusive way. This should also include goals and objectives for the use of ICT in different sectors, bridging the digital gap between center and the regions, including in the state and municipal governance as well as among populations of different age groups. It should also involve the parallel revision and extension of the Concept of Regional Informatization, and changes to it should include a greater focus on user-centered Digital by Default service design, mandatory infrastructure sharing and greater integration of the federal, regional, and municipal services.

(2) **Developing a detailed "Digital Administration Strategy" for the transformation of each federal authority.** These strategies should include the formation of the political goals for the use of digital business methods to achieve better development and outcomes in the sectors for which each Ministry is responsible (such as social support, housing, agriculture, transportation, and environment). The Strategies should set out how the core services of the authority will be transformed for delivery through digital channels and a digital workflow from end to end, and how this will reduce administrative costs. They should consider how document-centric processes can be transformed into secure, data-centric ones, including any need for changes in legislation, and changes to services provided to other institutions.

(3) **ICT master-plans for each federal authority**, to support the implementation of the Digital Business Strategy towards use of shared data, shared services, and shared infrastructure.

2.2. **Applying the Principles of Digital Government Services**

Digital By Default

Like other countries, the current phase of Russia's e-government program is based on making services available to citizens through a variety of channels. In addition to the portals and official websites, services are provided through state offices, multi-function centers, telephone and post offices. This multi-channel strategy can win a certain degree of citizen acceptance. However, it does not allow the full realization of the benefits of digital government, either in channel shift or in business transformation. Therefore, in the next phase of digital government the Government of the Russian Federation should consider:

(1) **Adopting an unambiguous "Digital by Default" business design principle** in which services and business processes are systematically redesigned to be optimized for digital delivery and in which citizens are steered towards a digital channel rather than given a neutral set of options.

(2) **Repositioning Multi-Function Centers** – and other face-to-face service points – as places where citizens are helped and taught how to complete their transaction online rather than as alternatives to digital service. The recent investment in Multi-Function Centers in Russia has been successful – arguably so successful that their attractiveness to citizens as the preferred channel creates a risk of "cannibalizing" transactions that could be done more economically online. They should be re-positioned as key resources to help get citizens to use digital government services themselves. The role of staff in Multi-Function Centers would need to change: at the moment they are agents of the government providing government services to citizens; there is a need to help and advise citizens in the use of digital services. New Multi-Function Centers should be designed with this new role in mind, and existing Multi-Function Centers converted during the course of digital government strategy implementation. Multi-Function Center KPIs should be adjusted to include targets for getting citizens to use digital channels sustainably.

Device-agnostic and mobile-centric

Mobile voice and SMS services are available to 99% of the population of Russia; smartphones are already used by around 20% of Russian citizens, especially the young and those living in cities; and, in line with other countries, mobile is likely to become the dominant internet device as broadband and LTE rollout proceeds. Digital Government services need to be usable where and when citizens want to use them. Yet mobile devices are not small desktop devices: for instance, while the form paradigm can be transferred to a desktop browser it does not work well on a mobile device. So mobile-centric services need to use more information that the government already has. The Government of the Russian Federation should consider:

(1) Including the use of mobile devices to handle transactions from end to end for every new e-service to be developed.

(2) Investigate appropriate steps, in both business process and technological terms, to provide native mobile alternatives for key existing e-services, and prioritize them for implementation.

(3) Consider introducing mobile-based identification and authentication mechanisms, supported by any necessary amendments to legislation to make mobile identification and mobile e-signatures valid. Strong identification and authentication can be designed to take advantage of the capabilities of mobile devices that citizens already have.

(4) Develop and/or procure a set of standardized tools to build mobile applications, so that different mobile e-services have a common "look and feel" and so that best practice is efficiently applied to the implementation of all such services.

User-centered service design

Achieving successful Digital-by-Default implementation requires that digital government services need to be attractive and easy to use by the vast majority of citizens who can do so (and measures recommended later will increase the number of citizens who could do so in future). This means that services as a whole – the business processes as well as their e-government interface – need to be designed around the users rather than around institutions or around existing business practices. To make a start on this the Government of the Russian Federation should consider:

(1) **Developing all new services placing the user at the start and in the center of the system life-cycle**. The focus needs to be on design of the e-services from the user perspective versus an institution, informed by user research rather than late-stage user testing.

(2) **Taking a Government-wide view of user needs in key life episodes or business situations**. The overall design of digital services needs to recognize that in some circumstances a "life event" will require a citizen to interact with two or more institutions. The user needs to be able to do so in a consistent, and wherever possible, unified way.

(3) **Piloting User Centered Service Design on a number of frequently used transactions**. Suitable candidates might include transactions that have an online element, but

for which current online take-up by citizens is low. The pilots should include a mix of Federal, Regional, and Municipal Services.

(4) **Developing a central advisory capability in User Centered Service Design**. Successful user centered design needs a degree of challenge to existing business practices; in all institutions this is difficult to achieve solely from within, so leading nations have set up some form of central cadre who can work with individual institutions on the re-design of their services, and in doing so can build a wider set of user design skills.

(5) **Recognizing and incentivizing user centered design, by setting a target take up for digital services, and by running competitions among government agencies for the highest digital uptake of e-services**. Excellence in user-centered design means that citizens should prefer to use quick, secure, reliable, and convenient online transactions versus paper-based or face-to-face alternatives.

Digital from end to end

Citizen expectations of digital government are influenced by experiences of interactions with the private sector. In such interactions, the services are offered through simple transactions that can be completed entirely electronically where possible; when physical fulfillment is needed, it is automatic and predictable. Such services also allow the user to see the status of a transaction – it is digitally visible throughout. Digital government services will not be preferred by citizens unless they are delivered in a similar fashion and have the same qualities: for instance, fulfillment needs to be quicker than, and at least as certain as going to a Multi-Function Center in person. So the Government of the Russian Federation should consider:

(1) **Ensuring end-to-end redesign and re-engineering of business processes as part of the recommended pilots in User Centered Service Design**. The goal in each case should be that the vast majority of transactions should be completed instantly without manual intervention, and where exceptional manual intervention and decision-making is required this is done "on-system" through an entirely digital workflow and case management system. This goal will require automated decision making based on access to authoritative national and other databases and based on data-driven risk management.

(2) **Ensuring institutions maximize the automation of routine decision-making or case-handling activities** and using the resources released for more proactive enforcement or for proactive citizen assistance and other services.

(3) **Examining opportunities to transition from physical documents to authoritative database records, and understanding what changes would need to be made to the legal framework in Russia**. Doing so would remove the need for physical fulfillment, for instance by post or courier, and the risks and service failures associated with physical delivery. It would also enable services dependent on those documents to be digitized, because they could use digital identification to securely access authoritative records instead of requiring sight and checking of physical documents. Russian experts have suggested that doing so would require changes in the legal framework, and if so it is

important for the Government to understand what changes would be required and how these could be accomplished. The transition should also move from electronic forms of the document paradigm for inter-agency communication (as SMEV has successfully implemented) to conducting inter-agency transactions through direct and secure access to web service APIs between agencies.

Government as a Platform

Particular attention during the development of Digital Government services should be given to **including provision for Open Data in the design of digital services** in line with the existing policies of the Russian Federation. Including Open Data in the design of systems ensures that the Open Data policies are consistently and automatically maintained.

In addition, the Government of the Russian Federation should consider:

(1) **Providing Open Application Programming Interfaces** to new government digital services.

(2) **Promoting development of additional open and commercial solutions for access to government services**, for instance to reach groups of citizens and businesses who would otherwise be difficult to engage or to reduce administrative costs within the government itself.

2.3. **Creating the Building Blocks for Digital Government**

Analysis of the existing infrastructure of e-government shows that the current architecture requires a major upgrade to ensure the delivery of Digital Government in the Russian Federation on par with the best practice.

A Single Portal

Starting in 2009, Russia has developed a Unified Portal of Public Services (EPGU) providing information, application forms, payment services, and in 2015 integration with the Unified Identification and Authentication System. This concept is a good one on which to build, and it is important that the "unification" of services onto the portal is relentlessly pursued with strong political backing. This should include:

(1) **Agreeing plans for each federal Ministry to integrate its services onto the portal** with a clear understanding of how this will be made to look seamless to the user and firm dates by which the transition will be made.

(2) **Defining the common services to be provided by the portal infrastructure** (rather than by individual Ministry systems). Identification and authorization (ESIA), payment and receipting (GIS GMP), SMS gateways are an excellent start, but there are other services – such as maintenance of personal details, address and contact numbers – which should be integrated from the point of view of the citizen and where the portal, in collaboration as necessary with the relevant federal database, should provide the service rather than individual Ministry systems.

(3) **Consider how electronic services from regional and municipal tiers of government should be integrated into a consistent portal experience**. While the constitutional status of regional and municipal tiers of government obviously needs to be respected, from the point of view of the citizen this may be secondary to their needs to obtain services from different tiers of government in a consistent and integrated way. It may be that the integration of the citizen-facing electronic services into a single portal could help address the issue of a shortage of finance and skills to develop different systems for all the regions and municipalities across Russia: while decision-making would still rest with the relevant competent authority the communication between the authority and the citizens might increasingly be through a common portal that presents the necessary services to citizens and provides decision-making support including access to national and other databases to government institutions.

Unified data shared across the public sector

Future digital governments will be based on a data-driven approach to public administration. Increasingly authority will rest in legally relevant data stored in databases and legally significant records of transactions and notifications; the possession of documents will cease to be legally authoritative and transactions will be authorized based on electronic records rather than the production of documents. In such a system it will be important for key national databases to be accessible not only to the institution that maintains them, but also to other institutions that need to access or validate that information as part of their business – who at the moment rely on the applicant having official documentation issued by the original agency.

Russia has already made good progress in identifying the list of basic national databases used in public administration by state authorities and local governments and in terms of the provision of public or municipal services. These have been defined in the Decree №861 of the Government of the Russian Federation «About Federal government information systems for electronic delivery of public and municipal services (execution of functions)», 24 October, 2011 The Decree also charged the authorities responsible for these databases to provide access to other institutions on a 24-hour basis and set standards for the correctness, and completeness of the data. However, some of the databases still have issues due to the processes by which they were originally created.

So the Government of the Russian Federation should consider:

(1) **Applying the recent experience of the transformation of the citizens' registration databases to additional databases**, including those covered by the 2011 Decree of the Government of the Russian Federation. The citizens' registration databases are now entirely electronic. There is a need for a systematic investment program to re-engineer other legacy national databases in Russia.

(2) **Extending the application of interoperability of systems throughout government** institutions, with priority given to the definition and coordination at the national level of the semantics of the main types of information objects used in state and municipal information systems and resources. Full interoperability will require not only the adoption of technical semantic standards but also the harmonization of current semantic differences arising from different regional and municipal regulations.

(3) **Ensuring that there are clear agreements on data standards, data quality and data security** for unified data systems, so that both the custodians and the users of the data can confidently and reliably use the shared data for decision-making.

(4) **Ensuring the availability and use of a national spatial data infrastructure, requiring the use of common core geospatial reference data to all levels of government, and requiring the use of common standards**, including for metadata, data specifications and data quality. The Government of the Russian Federation should study the implementation of the INSPIRE Directive in the EU and consider how the principles and approach could be adapted and developed to meet the needs of the Russian Federation.

Cross-government shared services

Leading digital governments are using common and shared services across government to save costs, increase collaboration and provide consistent citizen and official experiences.

Russia has a good record of establishing common systems for the interchange of information between institutions. For instance, the State Automated System "Management" for statistical and analytical information and the MEDO system for interagency electronic document circulation are good examples of this. However, they are essentially interfaces between different systems in different institutions.

By contrast there is overlap and duplication of system solutions at federal and regional levels, and conversely a lack of readily reusable components to allow the rapid and economic development of system solutions in less well-resourced regions. Therefore, the government should consider the principle of a "Build Once, Reuse Always" Shared Public Service Delivery Platform in order to enable various government agencies to deliver e-government services to citizens in a fast and cost efficient manner. Building on a shared government infrastructure, a shared public service delivery platform would give financial savings from not having to build duplicate infrastructure at individual Ministries and agencies; the ability to capitalize on shared human resources; and faster implementation of e-Government services in different sectors and across all regions. While these benefits could be particularly valuable to regional and municipal bodies with limited resources, and the benefits would apply to line-of-business systems as well, they could also be of benefit to some federal agencies for common administrative tasks. Once the shared platform is in place, various government agencies and regional authorities will not need to set up individual data centers or independently develop common elements, such as authentication and payment mechanisms that are needed to deploy e-services.

Therefore, in the next phase the Government of the Russian Federation should specifically consider:

(1) **Providing core common institutional applications as Software-As-A-Service from a Russia Government Cloud**. These could include personal productivity, email, document and case management, and collaboration and project management. This would help provide semantic interoperability and reduce the investment costs and demand for technical skills in individual Ministries.

(2) **Providing necessary digital services for regions and municipal governments as a "Digital Government in a Box" solution on the Government Cloud**. There are insufficient financial resources and skills for each region and each municipality to develop

its own systems, and even if resources were available doing so would be both inefficient and poor in terms of citizen experience. Instead of building their own systems these governments should be able to obtain the services they want as high-quality best-practice services from the Government Cloud. However, for this to be fully effective it will require close engagement with potential users in regions and municipalities to ensure that the services meet their needs, and since different regions and municipalities may have different needs the approach should be not to expect "one size to fit all" but to encourage a small number of alternative solutions from which each authority could select the one most suited to their needs. There should be encouragement for the most successful regional and municipal institutions to offer their proven solutions to other institutions through this "eco-system". Close attention would need to be paid to contractual terms to ensure that the interests of government institutions and ownership of their data were protected; where the state has funded development then the intellectual property rights should reside with the state and be available to all agencies, regions and municipalities to reuse freely.

Shared government Infrastructure

It is essential that there is appropriate investment in architecture development and infrastructure provision to ensure that there is a sound basis on which to build digital government services. The detail of architecture development is a separate project and it would not be right to mandate the outcome of that here. However, in overall terms the Government of the Russian Federation should consider:

(1) **Developing and mandating a common infrastructure architecture suitable for Digital Government**. This will include not only technical structures, but the institutional rules to prevent duplication or fragmentation of capabilities and to ensure that future systems are built to consistent standards and to run on common platforms.

(2) **Implementing a portfolio of Russian Government Cloud services** to provide common platforms for Digital Government services. While there have already been efforts to implement cloud technology for use by the Russian Government, the experience of other leading governments is that realizing the full benefits requires that the technological capability is complemented by technical, governance and institutional policies, by procurement and certification processes, and by access to a diverse range of cloud services, possibly from a range of different suppliers, to meet different business needs – a portfolio of interoperable cloud solutions rather than a single, one-size-fits-all model. This would provide state-of-the-art standardized, secure, resilient and scalable platforms for the new digital government services and in due course could involve the transition of a number of existing state information systems and information resources onto a common government computing and storage resource.

(3) **Develop shared platform to improve Government ability to deploy e-Services (Platform as a Service (PaaS))**. PaaS as an e-Service Delivery Platform would aim to establish a whole-of-government ICT application infrastructure to complement the Government Cloud. This would include leveraging common ICT enablers needed by most electronic services, such as authentication, electronic ID integration, mobile delivery

platform, electronic payment services, SMS notification services, etc. Such shared enablers would allow different government agencies to develop and deploy their electronic services and mobile applications in a cost-effective and rapid manner. This way, various government agencies would not need to invest in their own e-Services infrastructure but instead focus on serving their constituencies by leveraging shared platform.

(4) **Using the Government Cloud as the platform to offer common "Software as a Service" solutions**. The Government Cloud should not just be "Infrastructure As A Service" providing a compute and storage service. Instead, as well as providing such services, it should also be platform for a range of suppliers, including best-of-breed smaller companies, to offer common ICT-based services such as those suggested above, including both common business functions and citizen-facing services for regions and municipalities. In creating these services there is the possibility to work with other partners (such as Yandex) to bring advanced and well-regarded services into a secure, resilient and government-grade platform, and work with the Ministry of ICT to market them to institutions.

(5) **Implementing a common, secure, data transmission network among public authorities** – to allow access to common information services and to allow the secure sharing of data and APIs among trusted parties. Rather than being a single and inflexible "government intranet" this should be implemented through investment in a range of secure communications options as virtual private networks riding over common fixed and mobile networks to support appropriate data and service sharing among all locations and levels of government.

(6) **Creating a next-generation version of SMEV**. The SMEV e-Government Service Bus has been successful in enabling the closer integration of the systems of different government institutions across Russia. However even in its current version it is optimized for a store-and-forward model of document passing. To fully support the levels of service and responsiveness required for digital government it will need to be enhanced technically to allow real-time exchange and processing of messages within the timeframe of a single interaction (including not only Government-to-Citizen but also Government-to-Business and Government-to-Government transactions). In doing so the institutional framework of SMEV and its successful management will be important foundations on which to build.

(7) **Ensuring that there are demanding service level agreements for shared infrastructure**. Expecting institutions to use shared infrastructure rather than manage their own facilities will only be effective if those user institutions can be confident that the standards of service they need for their operations will be delivered. There need to be clear service level agreements, and proper accountability of shared service providers to their users for meeting them.

Improved sensor networks and analytics

Sensors are an essential part of "Smart Cities". A few institutions in Russia, such as transport authorities in Moscow and St Petersburg, are already starting to use sensors to gather data to help

manage their operations and decisions. **The Government of the Russian Federation should develop a strategy for the deployment of sensors and for the management and use of the data they produce**. This strategy should include the development of a cadre of officials with the necessary skills and expertise to enable Russia to take full benefit of this new and potentially valuable data source for public administration.

Cyber security and privacy

Cyber security of the Digital Government is exceptionally important – not just because of the rising threat from state-sponsored and other actors but also because the digital government system, and the data that it holds, will be increasingly essential to the proper functioning of government institutions in Russia. In addition, citizens will only use digital channels if they are confident that their information and money will be as protected from unauthorized access as it is if they transact face-to-face at a Multi-Function Center. **The Government of the Russian Federation should ensure that cyber-security and the protection of personal data is built into the architecture of digital government from the start** and that new investments, such as a Government Cloud and a Government Network, are used to further strengthen the security and resilience of the state.

2.4. **Building Leadership and Skills for Digital Government**

The benefits of digital government, and the successful and beneficial implementation of the specific architectural, technical, and business change measures recommended above, requires strong digital government institutions and leadership. Without this, there is a major risk that the transformational capabilities of substantial technological investment are not exploited. Effective leadership and governance is needed not only to ensure compliant, effective and efficient implementation but also to ensure that benefits are realized. Given the current challenges of finding the necessary funding for technology investment, it will be essential for the investment case to demonstrate not only that the financial and program effectiveness benefits of digital government can be achieved but also that the institutional structures are in place to ensure that it is.

Leadership and Governance

Among leading countries, the transition to digital government is requiring changes to previous models of leadership and governance, including the balance of authority between central bodies and individual operating institutions. Often this has involved setting up a new organization at the center of government with direct and visible backing from the head of the government.

The governance model for Russia needs to fit with the constitutional requirements and the national standards and practices. Nevertheless, commentators have highlighted issues with the current structures, including:

- The remits of the Government Commission on the use of ICT, the Sub-Commission on the use of ICT in the provision of public and municipal services and the Council for Regional Informatization are, at least in practice, limited to ICT issues and do not provide sufficient high-level leadership for legislative or business process change.

- The Government Commission on the use of ICT, the Sub-Commission on the use of ICT in the provision of public services and the Council on Regional Informatization are principally

concerned with setting policies, and do not play a sufficient role in driving implementation, sharing of services and interoperability.

- There is a division in institutional responsibilities for digital government policies: ICT policy is for Ministry of Communications and public service transformation and business process re-engineering policy is with the Ministry of Economic Development.

- There are separate responsibilities for administrative co-ordination between federal government and regional and municipal government.

Driving cross-government change has sometimes been more successful where a special cross-government agency has been created to lead policy development and implementation with visible top-level political backing.

Therefore, the Government of the Russian Federation should consider:

(1) **Extending the remit and membership of the Government Commission on the use of ICT**, the Sub-Commission on the use of ICT in the provision of public and municipal services and the Council for Regional Informatization to include the business change and cultural and skills elements needed for Digital Government (and, for the Commission itself, a wider Smart Nation policy setting and implementation). Particular attention should be paid to consideration of how the interests of user stakeholders (citizens and business) are included in the Commission's work and on the role that the Commission should have not only in setting policy but also in driving implementation. It would be important to rebrand the Commission, the Sub-Commission and the Council to signal its wider role.

(2) **Bringing together policy responsibilities for public service transformation, business process engineering, use of ICT in government and co-ordination of administration between federal, regional and municipal governments**. A single institution is needed to oversee all the new targets of the Strategy and with the necessary authority over the range of matters – both technical and non-technical – essential to the achievement of successful digital government. The Government of the Russian Federation will need to consider options for doing this, which would include widening one of the existing Ministries to cover the entire role, or creating a new, separate, agency focused specifically on this role.

(3) **Establishing a Digital Government project office** to support the formulation and implementation of digital government strategy, policy and programs for Russia. This would be a key part of the institution given responsibility for overall digital policy as recommended in the previous paragraph. It would act on behalf of that institution and be the body owning the measurement system. It would have a strong mandate and authority to drive implementation of digital government at federal, regional and municipal level, including ensuring the effective alignment between business and technological aspects. It should have business and technical design authority over important relevant developments in other Ministries.

(4) **Establishing key leadership roles for digital government in Russia**. Other leading countries have established roles such as Chief Digital Officer, Chief Data Officer, Chief

Information Officer and Chief Technology Officer. Having all four would be overkill: a good combination would be a Chief Information Officer/Chief Digital Officer who would focus on business transformation and on creating the user-focused service design, and a Chief Technology Officer who would focus on technical policies and standards, including technical architecture and semantic interoperability, and on creating a world-class technology infrastructure and services for the delivery of digital government.

(5) **Creating a Digital Government Centre of Excellence** responsible for collection, structuring and disseminating know-how about Digital Government. The Centre of Excellence should also have a role in training of digital leaders. This should be distinct from the Project Office.

Innovation within Government

In many countries ICT related innovations are happening faster and more fundamentally outside government than within it. There is a need to find ways to bring in these innovative solutions for the benefit of the government as well as find a way to effectively harness the drive and talents of young technologists and innovators. In this context, the Government of the Russian Federation should consider:

- **Running Innovation contests:** This can be organized as an annual competition that would select and recognize the innovations by government agencies in pre-determined categories. The winners could be announced as major conferences and the prizes may include formal recognition by higher ups, unique learning opportunities, including attendance of the study tours, etc.

- **Promoting "corporate crowdsourcing"** to gather employees' ideas on how business procedures could be optimized by the use of technology. With the fast pace of technology development some of the younger and more junior officials make use of the latest gadgets and applications in their own lives, and they could be an internal resource to help institutions explore how those technologies could be used to improve their processes.

- **Establishing Government Innovation fellowship program** to attract young, talented technologists to work side by side with government. This program can be designed as a way to bring together technologists and innovators with top civil servants working at the highest levels of the federal government. Such joint teams of government experts and young technologists can work together for certain periods of time (6-12 months) on ICT related initiatives and e-services development by government agencies.

Culture and skills

Section 6 of the Annex in this report has outlined the programs already in place to develop ICT skills within federal, regional, and municipal services, including substantial investment in the development of e-leaders. As a result of these programs, the Government of the Russian Federation has a good track record of technical delivery of major systems.

However, and as the leading nations in digital government are also finding, the design and implementation of digital government will require changing the mindsets of civil servants and in

institutional cultures outside the technical field of ICT. **The Government of the Russian Federation should implement professional development and training for institutional leaders and business process designers in digital delivery, drawing on the training delivery** experience form ICT skills and the e-Leaders program:

- **Develop specialized training for government leaders** (i.e., ministers, vice-ministers, department heads, agency managers and key staff) through leadership seminars, study visits, and twinning arrangements with countries that are leaders in digital government.

- **Develop specialized training of civil servants** who are involved in the provision of digital services in participating agencies. The focus will be on encouraging management to motivate and engage, and obtain staff buy-in to new digital realities. There will also be emphasis on **technical training for government IT personnel** on new technologies and processes introduced, such as cloud computing, the principles of e-services development (digital by default, user centric design, and service oriented architecture).

A transformation to digital government needs to be properly communicated to citizens and businesses, to obtain their support for the program in order to put pressure on departments that are reluctant to embrace it. It is also important to alert the population when new e-services become available, and explain how to take advantage of them. Therefore, it is important to pay special attention to:

- Development and implementation of a strategic communications program;

- Creation and management of strategic partnerships with the private sector;

- Organization of knowledge-sharing seminars, workshops, conferences, innovation contests, and TechCamps.

Digital Inclusion

Compared to the leaders in digital government, the Russian Federation has greater issues with achieving digital inclusion, not least because of its immense size, its remote areas and its demography. As noted in Section 6.2.3 of the Annex, only a minor part of the Russian population uses e-government services in practice, although more would like to do so. Achieving Digital Government not only means creating services that citizens need and want to use, in preference to traditional methods, but also to ensure that citizens have all the capacities necessary in order to access the services. This is often termed "digital inclusion". In Russia's huge territory, low population density in remote areas and aging population makes it particularly difficult to bridge the country's digital divide. **Therefore, bridging the digital divide within all Russian regions, age groups, etc., needs to be a high-priority political goal**.

Digital inclusion includes not only the technical capacity to access the Internet, but also the skills to be able to use digital services and the affordability of access. These touch on the responsibilities of a number of different federal Ministries as well as regional and municipal institutions. **Therefore the Russian Government should create and implement a Digital Inclusion Strategy aimed to solve of the digital divide in a holistic way**.

Within this strategy there should be specific programs to:

(1) **Understand the drivers and barriers for different groups of citizens moving to digital channels**, and to ensure that the design of services incentivizes citizens to move to digital channels.

(2) **Improve the ICT competencies and confidence of citizens, particularly older people and those in rural areas**, in the use of e-government services. Some regional and municipal governments already have programs along these lines. Best practices from these programs need to be captured and applied more widely. In addition to direct state interventions, there are possibilities to encourage inter-generational support.

(3) **Harness the project to modernize the current ICT and broadband infrastructure and extend it to smaller cities and rural areas as part of the digital government program**. The availability of broadband in new areas creates an opportunity to initiate programs to ensure that the citizens have the skills and means to use it effectively, and so maximize the return on the investment in infrastructure.

(4) **Ensure that poorer citizens can access digital government services without having to buy expensive equipment and services**. For those who cannot afford computers or smart phones, and a broadband or mobile data connection, **municipalities should be encouraged to provide communal access to digital government services**, for instance through computer terminals in libraries or community centers, or through "kiosks" in post offices. Where computers are provided in libraries or community centers there could also be the opportunity to provide some training and support in the use of digital government services.

(5) **Promote the value and ease of use of digital government services to citizens**. Even if skills, access, and affordability issues are addressed, there will still be the need for a cultural shift in order that citizens are comfortable in using digital services in preference to face-to-face services. The promotion of digital government services needs not only to cover the advantages in terms of speed, but also address any fears about security and about the validity of transactions conducted electronically.

2.5. **Developing measurement of Digital Government**

The existing systems for monitoring the development of e-government do not reflect all aspects of digital government. In particular, they have tended to give disproportionate weight to technical capabilities and undervalued the practical experience of citizens in using services. Existing models alone are not suited for assessing the future development of digital government.

Therefore, a crucial element of transitioning towards digital government in **the Russian Federation would be the creation of an effective system for monitoring Digital Government development**. This activity should be undertaken, for example, by the Digital Government project office.

This monitoring system should include:

- A "**maturity model**" for the different building blocks of digital government – institutions and governance, service design, infrastructure, shared platforms, use of data and so on – measuring not only technical achievement but also the absorption of their principles into management and control systems.

- A **coherent set of Key Performance Indicators** (KPI) that effectively measure progress towards the different aspects of digital government. These indicators should include business-focused measures as well as technical compliance measures, and should include citizen satisfaction (assessed independently from the institution concerned) and take-up of services. Some of the necessary data is not currently available so new information-gather systems would be needed.

Moreover, the federal structure of the country requires that the model and **the indicators should be similarly applicable to federal, regional and municipal levels**.

Leading countries that have already started on their digital government strategies also face the issue of monitoring progress, and generally accepted international measures have not yet emerged. There is an opportunity for the Government of the Russian Federation to **participate in this process of setting comparative measures from the start**, taking global trends into account and synchronizing its own monitoring system with the international one.

Concluding remarks

The substantial progress made in the last few years in the development and use of ICT in public administration in Russia shows that the country has clearly expressed the political will to radically improve the system of public administration and local self-government by leveraging the widespread use of ICT. It has been supported from the President of Russia downwards and there have already been significant achievements from some institutions at Federal, Regional, and Municipal levels.

Nevertheless, both the expectations of citizens and businesses, based on their experiences in the use of technology more widely, and the new goals that the leading countries now have in their Digital Government visions, show not only the need to carry through the plans currently in implementation, but also look beyond the targets set in the past and aim to transition towards strategy development and implementation of a next phase of "Digital Government".

So this report recommends that the Government of the Russian Federation should consider:

- Moving quickly to a revised strategy of adopting Digital Government best practices by 2020 onwards.
- Mandating the transformation of its administrative processes using the "*Digital by Default*" principle.
- Building a new infrastructure for digital government delivery.
- Creating a sharper and more integrated institutional focus for developing the strategy and overseeing its implementation.
- Tackling the issues of Digital Inclusion due to Russia's size and demographics.

By making the key strategic investments quickly, Russia has the opportunity to improve the digital services to its citizens and businesses to meet their expectations of being able to access government services as easily and conveniently as other online and mobile services, to improve the effectiveness of administration and enforcement, and to save or redeploy resources currently used for routine administration.

It is noted that the government has recently commissioned a consultancy aimed at assessing the current state of e-government development and ICT use within the government, articulate Digital

Government vision 2020, define main directions and develop an Action plan.

It is hoped that the World Bank's analysis of emerging international best practice and strategic recommendations for Russia will complement and provide strategic context for the consideration by the Government of its overall Digital Government Strategy, including the need for transformation of institutions and business practices as well as of technology and the need for concerted and coordinated actions across Government, including actions not currently within the remit of the Ministry of ICT.

The World Bank looks forward to the opportunity of working with the Government of the Russian Federation to help it implement this strategy, and to become a global leader in Digital Government. It stands ready to support the government by helping it take the next steps towards implementing these recommendations, as well as align it with the best international practices. The World Bank is ready to collaborate on Digital Government Readiness Assessments for specific federal agencies, regions and cities using the conceptual framework described in this report.

Annex. State of e-Government in Russia 2015

This Chapter provides an overview of e-Government development in Russia.

1. E-Government Governance

Institutional organization of e-Government in the Russian Federation reflects the multi-level organization of public administration and local self-governments, particularly relating to the management and the use of ICT.

The past 5 years have seen changes in how e-Government is managed. To date, the following systems are in place, which function to manage the development and use of ICT for socio-economic development in Russia.

1.1. Federal level

Strategic direction of the country's socio-economic development shall be determined by the President of the Russian Federation and provided by relevant legislative and normative acts. Inaugural decrees by President Vladimir Putin in 2012 contain reference to the need to further improve Russia's system of public administration through the use of ICT.[27] Moreover, the Presidential decree defines key measurable indicators of achievement. One requirement is to provide 70% of all services in an electronic form by 2018.

The Government addresses the implementation of tasks of federal authorities in the Government Commission on the use of ICT, which is meant to improve the quality of life and business environment in Russia (hereinafter referred to as "the Government Commission"). Prime Minister of the Russian Federation, Dmitry Medvedev, chairs the commission.[28] Nikolai Nikiforov, the Minister of Telecom and Mass Communications of the Russian Federation, is Executive Secretary of the Government Commission.

The Government Commission is a coordinating body that was established to ensure concerted action by federal and regional executive authorities. Their aim is the creation and implementation of State policy in the field of development and use of ICT to improve public administration, update the

27 Presidential Decree 2012

28 ICT Pravkomissia 2013

social sphere, provide security, improve the business climate, and address other issues in development of the Information Society and e-Government in the Russian Federation.

The Government Commission includes the following operating bodies: the Sub-commission for the use of ICT in the provision of public and municipal services; the Sub-commission for the use of ICT in the implementation of migration policy of the Russian Federation; the Sub-commision on e-Health; the Sub-commission on classification of technical, economic and social information regarding the socio-economic sphere; and finally, the Council for Regional Formatting of Information (Informatization).

The Sub-commission on the use of ICT in the provision of public and municipal services is headed by the Minister of Telecom and Mass Communications Nikolai Nikiforov, who also is the Federal CIO. He coordinates the work of other agencies to develop strategic approaches to the use of ICT in the provision of public and municipal services.

1.2. Regional level

E-Government development coordination at the regional level is exercised by the Council for Regional Informatization, which is a working body of the Government Commission. The main objective of the Council for Regional Informatization is to provide organizational and methodical support for the interaction among Russian regions, as well as with federal authorities, on the development and use of ICT in regional public administrations, their subordinate entities, and organizations.

The Council for Regional Informatization is comprised of 93 regional representatives. Representatives hold the posts of Vice-Governors responsible for ICT, regional ministers of ICT, and directors of departments of the Ministry of Telecom and Mass Communications.

The first meeting was held in May 2014. Since the initial meeting, the Council has operated in meetings of working groups on specific issues. Meetings are held at 1-2 month intervals. During the period from May 2014 to May 2015, the Council and its working groups considered numerous issues related to the development of the Information Society and e-Government throughout Russia. This included the launch of an electronic service of enrolling children in pre-school and general educational institutions, establishment of a national housing and community amenities information system, and the development of specifications for using ICT to manage urban ground passenger transport systems, etc.

At the regional level, e-Government development management is organized on the basis of a similar model. The relevant recommendations were adopted at the federal level and are enshrined in the new version of the Concept of Regional Informatization (CRI 2014).

At the regional level, the overall management of ICT development and usage is performed by a deputy of the highest official of a Russian region, or a deputy of the head of the highest body in the system of executive power in the region. In many Russian regions, established coordinating bodies responsible for drawing up strategy on use of ICT and action plans for its implementation are already in place. As a rule, a region has the authority to implement regional ICT policy and coordinate activities of sectorial regional authorities. Sectorial authorities coordinate the use of ICT for social and economic development in their spheres of responsibility.

In some Russian regions, expert councils have been established that ensure public discussion of the use of ICT for social and economic development involving all stakeholders. Stakeholders include non-governmental organizations, the business community, the "expert community," and citizens of the Russian Federation. However it is not clear that these councils are yet fully effective: some are reported to have met only once, or not at all.

1.3. Local self-government and municipalities

One of the most problematic areas of e-Government development in Russia is ICT usage for local self-government. The complexity of the problem is characterized not only by the large number of local self-government bodies in Russia (about 23,000 at the beginning of 2015), but also by multiple types of municipalities, varying from municipal districts, to urban districts, to urban and rural settlements.

The main problems of municipal Informatization are rooted in the functioning of local self-governments in the Russian Federation, which have been influenced by legislation. The Federal Law on local self-government[29] specifies the priority areas for the activity and responsibilities of local self-governing bodies. Unfortunately, ICT development and usage were not included in the list of priorities, which explains the fact that most municipalities do not have the resources for development or even for maintenance of basic ICT infrastructure.

At the same time, a number of municipalities have sufficient resources for the introduction and usage of ICT in their activities. However, such municipalities account for less than 10% of the municipalities in the country, representing a digital divide at this level of governance. The uneven development of ICT infrastructure widens inequality at the municipal level, which creates worse conditions for rural settlements especially. Rural settlements include Siberia, the Northern Caucasus, and the Far East. This is in contrast with the European regions of the country, and the rich oil-producing regions.

Municipal Informatization suffers from the absence of a full-fledged methodological support on the part of federal and regional authorities. The absence of nationwide requirements and recommendations on the composition, structure, format of data, compilation, and usage protocols, on a semantic level, has resulted in a situation in which informational resources contain dissimilar data. The absence of unified regulatory and reference models make informational models incompatible at times.

Exchange of information between municipalities and bodies of state power is carried out in accordance with appropriate regulations. The composition and amount of information provided electronically to external users is usually determined by regulations. Municipalities are involved in this process in a "one-way" mode, providing the information stipulated by the legislation to authorities of different levels. In most cases they do not receive any data that is necessary for exercising their powers.

The governance system of development and use of ICT in local self-government bodies is also developed unevenly. There is a structural subdivision that deals with ICT introduction and usage. At the same time, an overwhelming majority of rural settlements, and even municipal districts, do not have the appropriate managers responsible for ICT use in municipality management. Lack of ICT competence is also a problem at the municipal level.

1.4. Management of e-Government development in Russia

The previous sections describe the current system of management of ICT use in public administration at the federal, regional, and municipal levels. It has also presented the status of ICT competences for major participants.

One of the problems of the current system of management of e-Government developments in Russia is the lack of centralization of authority in the implementation of technologies in public administration systems. Even at the federal level, the key players of this process are several agencies,

29 Law No. 131-FZ dated 2003

although the Ministry of Telecom and Mass Communications is appointed by the Government as the leader in this area. Activities of the state program «Information Society» are implemented by 15 federal authorities. However, it is not easy to organize coordination between them.

The presence of the high level Government Commission on the use of ICT to improve the quality of life and business environment makes it possible to make conceptual and strategic decisions. However, practical actions are the responsibility of each authority to conduct on its own. Substantial budgets for using ICT for different subject domains, including the responsible authority's back-office systems, are concentrated in the agencies. Further implementation is the prerogative of the agencies (Координация мероприятий по ИКТ в ФОИВ 2010). The annual plans submitted for approvals are comprised of high level documents, and do not affect the technology architecture.

Even more indirect influence may belong to the ministries of regional governments, because of the independence of regional authorities in making decisions on the spending of regional budgets, including the use of ICT for public administration. The analysis shows the need to improve the existing system of management use of ICT for public administration at both the federal and regional levels.

2. **E-Services**

The Strategy of Information Society Development in the Russian Federation[30] set a goal of reaching 100% of basic state service provision using ICT by 2015. Government actions in this field were further specified by the Decree of the President of the Russian Federation dated July 5, 2012.[31] Presidential decree No. 601 specifies that 70% of citizens should be provided state and municipal services electronically by 2018.

However, little progress has been made. By the end of 2010, only 0.15 % of the country population was registered in the Unified Government Services Portal. The capability to apply for and receive notice via the Unified Portal was implemented for 9.7% of federal level services and 10.7 % of regional and municipal services. The capability to utilize services through the Unified Portal was implemented for only 3.3% of services. Regional and municipal services have even lower indicators.

User registration on the Common Portal has progressively improved from 3.6 million users between 2010 and 2012, to 6.9 million users in 2013, to 13 million users in 2014, and finally to 15 million users in Q1 2015. The year of 2014 alone saw 112% growth in ordered regional services, or from 160 thousand up to 343 thousand services. Municipal services have shown 643 % growth from 53 thousand up to 399 thousand services. In 2014, users ordered services a total of 17 million times, as opposed to 12.9 million times in 2013 (Collegium of the Ministry of Telecom and Mass Communications 2015).[32]

According to the analysis, 80% of the applications are related to priority services, including registrations of title for real estate, state cadastral registration of real estate, acceptance and registration of applications of the citizens to be allocated pensions, registration of legal entities, and individual entrepreneurs and acceptance of personal income tax declaration.

30 Strategy 2008

31 Presidential Decree No. 601

32 Collegium of the Ministry of Telecom and Mass Communications 2015

2.1. Services channels

It is important to make services available for citizens and businesses through a variety of channels:

- On-site attendance of the state and municipal authorities that render the services, or multi-functional service centers;
- Application through the Unified Portal or regional portals of government services, official websites of the authorities, and organizations rendering the services;
- Telephone communications, including mobile phones, inter alia by SMS;
- Mail/courier service, etc.

It is also necessary to ensure that different forms of interactive platforms used to provide services are combined whenever possible.

In Russia, one of the public services channels has become a one-stop multi-functional services center, which was developed starting in 2007. Amendments to the legislation adopted between 2010 and 2012 abolished federal-level restrictions to provide public services that the federal executive authorities are in charge of, according to the one-stop principle. The multi-functional center is a full-fledged participant of the inter-agency interaction, which entitles the center's staff to request information that is available in different departments and agencies.

Since 2012, the Ministry of Economic Development of the Russian Federation has focused its efforts on commissioning new multi-functional centers. By the end of 2011, multi-functional centers were operating in 62 regions of the Russian Federation. During the year of 2012, 11 regions established the first multi-functional centers. By the beginning of 2015, 2,799 multi-functional centers were in operation across the country, ensuring availability of one-stop state and municipal services for 65.3 % of the population. This is in compliance with Presidential Decree No. 601, as of May 7, 2012. The Main Directions of Improving the Public Governance System established the target for 2013 as 20%, and 40 % for 2014.

2.2. Disadvantages of the current Concept

While having a range of positive ideas and issues, both the Concept and the Concept roadmap include a range of principal aspects that could result in widening the gap between Russia and countries that lead in e-Governance.

The Concept recommends a "service" approach to the government as the service provider for citizens and businesses, an idea that has gained recognition in some countries in recent decades. Today, advanced countries are moving to another model ("Government as a Platform"), in which citizens and businesses perform a range of actions by themselves without the direct intervention of state and municipal authorities (see Section 1.2).

In the modern environment, some countries consistently replace the multi-channel approach declared in the Concept by the digital by default service. The Concept does not pay attention to analysis of existing procedures of the state governance and reengineering of administrative procedures aimed at simplifying or reducing some services to avoid migration of the existing bureaucratic barriers on the electronic platform with the exception of National Business Initiative, which provides for the optimization of key procedures, including by means of information technology and electronic services. For this, citizens and businesses should be engaged both in ICT-based public administration processes using open data.

Another disadvantage of current implementation is the "document-oriented" approach to providing public services, when respective actions of state or municipal authorities in the course of service provision (especially when dealing with cross-agency public services) must be recorded in the form of legally binding electronic documents. Thus, optimization of the service provision processes as declared in the Concept can result only in reducing the number of generated electronic documents, while the modern approach is based on moving away from documents to legally binding digital records made by the state information systems.

3. **E-Administration Systems**

The second direction of e-Government development in the Russian Federation is using ICT to enable operations of the state and municipal authorities while performing administrative functions. Traditionally, using ICT to enable operations is popular in e-Government projects of many countries, including Russia. ICT supports the operations of state authorities, and is usually ensured through the creation of agency or inter-agency information systems that enable performance of administrative functions.

3.1. State information systems

In addition to the information systems of federal executive authorities, other branches of power should also be considered. In particular, the Federal e-Parliament information system, SAS Justice, and SAS Elections should also be considered. Let us consider the most important systems in greater detail.

SAS Management

State Automated System "Management" (SAS Management, http://gasu.roskazna.ru) is a consolidated information system that collects, accounts, processes, and analyzes data from state and municipal information resources, analytics, state official statistics, and other data required to support management decision-making for state governance. At present, SAS Management is used to solve the following tasks: 1) ICT and BI support of state/municipal governance decision-making for the state authorities of the Russian Federation and municipal authorities; 2) monitoring, analysis, and control over the performance of decisions made by the state authorities of the Russian Federation and municipal authorities; 3) monitoring and analysis of the processes that occur in real economies, finance/banking, and finally the social and economic development of the constituent entities of the Russian Federation; 4) assessment of the efficiency of operations of executive authorities of the constituent entities of the Russian Federation.

Tax AIS

The automated information system "Tax" (Tax AIS) is a set of functionally related technical, programming, information, organizational, and methodical means to ensure the functioning of tax authorities of the Federal Tax Service of Russia. It is expected to automate interactions with federal, regional and local governments, and other agencies, to run the state budget and add to its revenues. The modern stage of the use of ICT for tax authorities is associated with the development of Tax-3 AIS, which is currently operating in a test mode.

Public Procurement Portal

http://zakupki.gov.ru is the official website for information on procurements of more than 70% of all state and municipal customers, and includes a consolidated list of customers of the Russian Federation. The Public Procurement Portal was launched for pilot operation in 2008. Today, the Public Procurement Portal is the only official state platform for publishing tenders obligated under the law.

The Federal Portal of Civil Service and Senior Executives

http://www.gossluzhba.gov.ru/ is an information system, providing for effective search, selection, professional development, and promotion of personnel in the civil service. The Ministry of Communications and Mass Media of the Russian Federation is the authorized body to ensure the technical functioning of the portal; the Ministry of Labor and Social Protection of the Russian Federation is the authorized body to ensure the work and development of the portal.

Unified Interagency Information and Statistical System

http://www.fedstat.ru, the UIISS was developed in the framework of the federal target program on development of state statistics of Russia between 2007 and 2011. The system has a status of a publically integrated statistical resource for information, collected by the Federal State Statistics Service, federal state authorities, state authorities of the regions of the Russian Federation, local municipalities, and public organizations that produce statistics. As of the end of 2014, the UIISS register included 3,718 indicators, 1,526 (41%) of them fall under the Federal State Statistics Service. 2,192 (59%) fall under the remaining 60 agencies. The Ministry of Telecommunications and Mass Media of Russia is the operator of the system and is responsible for technical operation.

3.2. Re-engineering of e-Administration

Analysis of the e-Administration government information systems shows that most of them are at different levels of maturity and technology sophistication. Many of them do not satisfy the requirements of interoperability (especially semantic interoperability). Most of the system was designed with the goal of supporting the internal administrative procedures.

Moreover, many of the above mentioned systems do not interact in an automated mode with the interagency electronic document management system, Unified Portal of Public Services, and Federal Information Address System, etc. This leads to numerous duplicates of implemented functionality and to multiple entries of the same data in different government systems.

Another concern is the isolation of administrative processes. None of the back-office government systems are designed to automatically publish new data about authoritative activity. Instead, due to legal requirements, responsible government employees manually convert datasets from the various systems, and finally publish it on the portal. This leads to additional costs, significantly lengthens the process of publishing, and discredits the use of open data.

Contrasted with other systems, it should be mentioned that the new system AIS «Tax-3» which was reengineered for the architecture of the data warehouse, accumulates, store, and processes large amounts of data on tax revenues and taxpayers. It will also provide an opportunity to carry out Big Data analysis to support decision-making on tax audits. The system can serve as a best practice for the reengineering of government systems used both in a back-office and in inter-agency interactions.

4. **National Databases**

State and municipal databases in Russia have been developed for many years, both in terms of performance of administrative functions by state authorities and local governments. The list of basic national databases used in public administration processes, involving different state authorities and local governments, were defined in 2011 by the Decree of the Government[33]. These include:

- Information resources, obtained from individual (personalized) records in the mandatory pension insurance system.
- Unified State Registry of Taxpayers.
- State Real Estate Cadastre.
- Information resources, obtained as a result of recording issued, lost, and stolen national passports (passport blanks) of citizens of the Russian Federation.
- Information resources, obtained as a result of registration of citizens of the Russian Federation at the place of their residence and location within the Russian Federation.
- Information resources, obtained as a result of migration registration of foreign citizens and stateless persons.
- Unified State Registry of Legal Entities.
- Unified State Registry of Individual Entrepreneurs.
- Unified State Registry of Rights to Immovable Property.
- Registry of Motor Vehicles.
- Federal Information Address System.

4.1. Basic national databases

Individual registration in the mandatory pension insurance system

Individual registration in the mandatory pension insurance system managed by the Pension Fund of the Russian Federation (PFR) maintains information resources obtained from individual records in the mandatory pension insurance system. This includes information about citizens of the Russian Federation, registered in the mandatory pension insurance system, as well as foreign citizens, permanently or temporarily residing on the territory of the Russian Federation, or persons without citizenship.[34] Currently, the PFR's information resources contain data on about 145 million individuals and 9.3 million insurers of mandatory pension insurance.

33 Basic National Databases 2011

34 Law on Individual Registration 2014

The Unified State Registry of Taxpayers (USRT)

USRT is a state information resource, containing information on companies, organizations and individuals, registered by tax authorities in accordance with the Tax Code of the Russian Federation. The Federal Tax Service and its territorial bodies maintain the USRT. It is based on common methodological and technical principles as well as the documented information available to tax authorities.

The State Real Estate Cadastre (SREC)

SREC is a federal state information resource that contains data about registered real estate, as well as information about the state border of the Russian Federation, the borders between the Russian regions, municipal boundaries, borders, settlements, territorial zones, zones with specific terms of use, and additional information as stipulated by Law.[35] Summarized information about real estate, borders and territorial zones can be seen on the public cadastral map (http://maps.rosreestr.ru/PortalOnline/).

The National Passport Database (NPD)

NPD for citizens of the Russian Federation is a centralized information resource, containing information on issued passports. The federal registration is conducted electronically by the Federal Migration Service, which ensures the smooth operation of the NPD and performs automated collection, processing, storing, and provision of information on issued passports.

The Residence Registration Database (RRD)

RRD records the place of residence and location of citizens within the Russian Federation. The RRD for citizens of the Russian Federation is a national database, containing information received from citizens, federal and regional executive authorities, other authorities, local governments, as well as institutions implementing the registration and deletion of residence records of citizens of the Russian Federation.

The Database for Migration Registration of Foreign Nationals and Stateless Persons (DMR)

DMR is a centralized informational resource that contains data on foreign nationals and stateless persons who stay in the territory of the Russian Federation, analytical information, infrastructural information, and e-documents. The data is kept and handled in the State Information Migration Registration System (SIMRS) created and used in accordance with the laws of the Russian Federation.[36] The SIMRS is operated by the Federal Migration Service.

Unified State Registry of Legal Entities (EGRUL)

http://egrul.nalog.ru – EGRUL is a federal informational resource that contains general systematic data on legal entities that perform business activities in the territory of the Russian Federation. The Federal Tax Service, in accordance with the Law on State Registration of Legal Entities and Individual Entrepreneurs, maintains it.

35 Law on the SREC 2007

36 Law on Migration Registration, 2006

Unified State Registry of Individual Entrepreneurs (EGRIP)

http://egrul.nalog.ru – EGRIP is a federal informational resource that contains general systematic data on individual entrepreneurs who perform activities in the territory of the Russian Federation. It is maintained by the Federal Tax Service, in accordance with the Law on State Registration of Legal Entities and Individual Entrepreneurs.

Unified State Registry of Rights to Immovable Property (EGRP)

https://rosreestr.ru/wps/portal/Portal/PublicServices/EGRP – EGRP is a primary state informational resource that contains data on the existing and terminated rights to the immovable property, data on immovable property, and data on rights holders. The EGRP is maintained by the Federal Service for State Registration, Cadastre, and Cartography (Rosreestr), based on the Federal Law on State registration of immovable property and transactions.[37]

Registry of Motor Vehicles

The Ministry of Interior of the Russian Federation forms state information resources obtained as a result of state registration of vehicles owned by legal entities and individuals in the territory of the Russian Federation. As of 2014, the Registry of Motor Vehicles contained the data on more than 55.6 million motor vehicles.

State Address Registry

A national database that contains data on addresses and details of documents relating to assignment and cancellation of addresses. It is maintained in accordance with the Federal Law[38] on Federal Informational Address System, which was developed in accordance with the Order of the Government of the Russian Federation No. 1011-r, dated October 6, 2011. The Federal Informational Address System (FIAS, http://fias.nalog.ru) contains accurate unified and structured address information for the territory of the Russian Federation available for the use by state authorities, municipal authorities, individuals, and legal entities.

4.2. Common use and semantic interoperability of main national databases

The databases mentioned above use unique identifiers across the country, allowing access online data by federal agencies, state non-budgetary funds, and executive authorities of the Russian regions, and local governments.

Since July 1, 2011, federal authorities have been prescribed to electronically obtain and use IDs and data about persons and (or) information objects from the basic national databases, when developing and maintaining their information systems and information resources.

Many of the national databases were originally created during the past 10-15 years by different federal agencies, but their information has never been synchronized. Some of the information resources gathered data on paper, which was digitized later while retaining the history of its origin, both in the composition and semantics of the data and metadata therein. The task of ensuring semantic interoperability of available national databases, the standardization of used formats, and protocols to access them is still pending.

37 EGRP 1997

38 State Address Registry, 2013

A new approach to the formation of state national databases in 2015 resulted in the creation of citizens' registration databases, created in the digital form from the very beginning (use of paper documents is not allowed). Even if the information from related suppliers comes in printed form, it is digitized, entered into a database, and is protected by an electronic digital signature.

5. **E-Government Infrastructure**

The Infrastructure of e-Government (IEG) has been purposefully formed since 2009 by order of the President D. Medvedev. At the same time, the Government of the Russian Federation appointed Rostelecom to prepare the first draft of the IEG Systemic Project in cooperation with the Higher School of Economics and Academy of National Economy within one year. The IEG Systemic Project had the objective of being solely responsible for the creation and development of the Infrastructure of e-Government within the framework of the Federal Target Program, "Electronic Russia." The first draft of the project was criticized by the expert advisory group of the Presidential Council for the Development of the Information Society, and by the Russian Union of IT Directors. After review and consultations with stakeholders, the IEG Systemic Project was approved by the Governmental Commission for Use of Information Technologies in the Work of State Authorities and Municipal Authorities chaired by S.S. Sobyanin.[39]

The IEG Systemic Project determined key components of the IEG and areas of work related to the provision of state services and fulfillment of administrative functions in an electronic form. The System Project also suggested a transfer of state registration activities in a digital form, and the creation of key infrastructure for e-Government and its technological and engineering components. Based on the IEG Systemic Project, an action plan for the development of the infrastructure of the e-Government in Russia is to be prepared between 2011 and 2015. The activities for creation of the IEG were carried out by Rostelecom using funds provided within the framework of the Federal Target Program "Electronic Russia" and State Program "Information Society." Moreover, the initially approved architecture of the IEG was further revised and modified. Furthermore, changes in the architecture of the IEG were not officially recorded and added to the IEG Systemic Project. The contradictions and mistakes accumulated over the years of implementations resulted in the need for re-engineering the IEG, and a review of the IEG Systemic Project.[40]

Currently, the Infrastructure of the e-Government of the Russian Federation (federal level) includes among others: Unified Portal of Public Services, Unified Identification and Authentication System, e-Government Services Bus, Unified Normative and Reference Information System, State Information System on State and Municipal Payments, Data Center system for state authorities, Government Cloud systems for state authorities, etc.

5.1. Architecture of the Russian e-Government infrastructure

The Russian e-Government architecture is similar to the architecture of the e-Government infrastructure in other countries, and contains the basic components required for the provision of public services and the implementation of administrative functions in electronic form. Some infrastructural components have undergone several stages of modernization and can now support interactions between the information systems from the infrastructure itself, as well as between federal and regional government information systems.

39 IEG Systemic Project, 2010

40 IEG Systemic Project, 2015

In 2010, the architectural design of the e-Government infrastructure was recorded in the IEG Systemic Project 2010. During the last five years, many changes were produced that have never been recorded and reflected in the architecture. Therefore it can be noted that the government has not detailed and completed a description of the current state of its e-Government infrastructure. Moreover, the e-Governmnet infrastructure architecture in 2010 originally missed descriptions of some architectural levels: business architecture, system acrhitecture and technology architecture, and some important architectural aspects such as integration and interaction, data, security and trust, performance, etc.

The Russian Federation implemented a multi-channel approach of public services provision, using web technologies through the Unified Portal of Public Services, through the use of mobile applications which operates on iOS and Android. Additionally, the Russian Federation established multi-functional centers with the information system AIS "MFC" (recently rebranded as "My Documents"). However, despite these efforts, the full integration of digital channels of citizen interactions with authorities has not yet been realized. For example, not all public services are accompanied by information about the stage of providing a service via SMS. In some cases, an application for some public services through the multi-functional center does not give a possibility for the customer to track the stages of providing a service for your personal information on the Unified Portal of Public Services, etc.

This is not only a lack of integration and an absence of interoperability for the existing infrastructure components of the Russian e-Government, but also the methodological approach used during the design of administrative procedures. Most administrative procedures were implemented with the use of ICT without serious reengineering. Administrative procedures now preserve many traditional document-oriented stages in providing public services.

The functionality of the federal and regional registries of public and municipal services is not obvious in the infrastructure of the Russian e-Government. It seems the federal and regional registries of public and municipal services represent simple registration systems for public and municipal services. The registries contain only descriptive metadata about services which are used in the Unified Portal of Public Services mostly for the provision of information about public services and functions of federal, regional, and municipal governments. Using modernization and expansion of functionality for the registries, one could provide flexible configuration of complex administrative procedures aimed at supporting the process of inter-agency interaction. This arises from the provision of public services and administrative functions.

One of the most problematic components of the infrastructure of the Russian e-Government remains the Unified Normative and Reference Information System, which does not provide online access through appropriate interfaces with national taxonomies, controlled dictionaries, and classifications. It remains a simple and static repository of reference data, and it is not always up to date. The lack of this type of metadata makes it almost impossible to ensure semantic interoperability and the future transition to the provision of digital online services without human intervention.

In general, we can say that the existing architectural framework of the infrastructure of the Russian e-Government is not yet ready for the transition to Digital Government and needs to be upgraded.

5.2. Basic components of the Russian e-Government Infrastructure

Unified Portal of Public Services

http://www.gosuslugi.ru is a federal state information system that has multiple functions including publishing data on state and municipal services (functions) registered in the Unified Registry of Public Services, the provision of application forms and other documents needed for receipt of a state service (function), ensuring payment of fees and state duties, monitoring the progress in provision of state services or fulfillment of state functions, the receipt of the results of provision of state services (functions) in an electronic form, and the formation of statistical information on provision of services, etc.

Unified Registry of Public Services

The Federal Registry of State and Municipal Services (Functions), or FRGU, http://frgu.gosuslugi.ru, is a federal state information system, which is the only source of accurate data on services and functions provided and fulfilled by the state authorities and municipal authorities of the Russian Federation. The consolidated registry aggregates the data on services and functions at three levels: federal, regional, and municipal.

Unified Identification and Authentication System

ESIA, http://esia.gosuslugi.ru, is the federal state information system designed to streamline and centralize state and municipal service users' registration, identification, authentication, and authorization processes.

The ESIA provides an opportunity for identification and authentication of users with the use of a single account and wide range of supported authentication methods, when entering various information systems of state authorities. Moreover, the system uses a mechanism for management of personal data and control over their submission to the information systems of state authorities. The ESIA ensures maintenance of accounts of individuals, officers of legal entities, state authorities, and municipal authorities.

For online registration of a user in the ESIA, a simple electronic signature with the use of any of three identifiers, phone number, email, or insurance number of a personal account (SNILS), is sufficient.[41] To receive a range of state or municipal services, the user must perform online identification with the use of a qualified electronic signature or universal electronic card. Moreover, this procedure can be undergone in any of the multi-functional centers, or a confirmation code may be mailed via snail mail.

Initially, the ESIA was implemented in 2010 at the Unified Portal of Public Services and ensured registration of individuals. A password was needed for identification and authentication in order to enter the portal. Between 2011 and 2012, the system was modernized: identification and authentication with the use of electronic signature was implemented, registration of individual entrepreneurs, legal entities, and their officers was ensured. Identification and authentication of users for access to information systems of the participants of an interaction was ensured. In 2014, additional modernization of the ESIA that ensured integration with other information systems of the e-Government infrastructure through the e-Government Service Bus was carried out.

41 Simple e-Signature, 2013

In 2014, 13% of users used the simplified registration, 22% checked on-line, and 65% confirmed by personal visit. The system has a total of 13 million registered persons as of December 31, 2014.

E-Government Service Bus

The e-Government Service Bus (SMEV), http://smev.gosuslugi.ru, is a federal state information system that provides technical support for information exchange in which public services are provided. It also supports provision of state and municipal functions in an electronic form.

The SMEV registries include data that ensure access to the information systems that are used by the authorities and organizations. These information systems use technology of electronic messaging, ensure asynchronous interaction without a direct link established, and guarantee delivery of electronic messages and logs.

The SMEV includes software and technical tools that establish an interaction system that can be monitored. Further, SMEV software establishes compliance with the procedures provided by technical specifications, (approved by the Ministry of Telecom and Communications) and agreements made by organizations including participation in the processes of inter-agency interactions.

The first release of the SMEV was commissioned in 2009 and modernized several times. The initial choice for system architecture was not a success, which resulted in disruptions in the work of the SMEV and even its stoppage that lasted for several hours in August 2013, when the number of interaction participants increased substantially. After a detailed analysis of the cause of failure was carried out, a decision was made to redesign the architecture of the SMEV and implement new functions in the system such as: message routing, dynamic event monitoring, attributing incoming messages, and status monitoring. The works relating to the creation of a new version of the SMEV 3.0 were carried out in 2014, and since January 1, 2015 a gradual transfer to a completely new release of the SMEV has commenced.

As of late 2014, compared to 2013, the number of requests from both authorities and other organizations that participated in interactions increased more than 2.5 fold, reaching 4.3 billion. Now more than 11 thousand participants are connected to the SMEV, including 85 federal state authorities, 1,300 regional state authorities, 8,600 municipal state authorities, and more than 900 credit organizations.

Unified Normative and Reference Information System

ESNSI, http://nsi.gosuslugi.ru, is the federal state information system, which is designed to provide a single point of access to normative information used in state and municipal information systems, where all the stakeholders can obtain descriptions of current classification schemes, taxonomies and controlled vocabularies, and national databases.[42]

The ESNSI includes the registry of normative and reference information, which specifies the systematized set of classification schemes, taxonomies, and controlled vocabularies used in government and municipal information systems. Additional registries include the registry of basic national databases, which specifies the systematized set of metadata on national databases; and lastly the registry of key information objects and identifiers of objects. Publicly available data from reference books and classifiers found in the registry of normative and reference information is also included. The data are transmitted to ES NSI and are maintained in the system. As of 2015, the ESNSI contained information on 18 classifiers, taxonomies, and controlled vocabularies.

42 ES NSI 2014

The State Information System on State and Municipal Payments

GIS GMP, http://www.roskazna.ru/gis-gmp/, is an information system designed for posting and receiving information on payments from citizens and legal entities, public and municipal services, and the budgetary system of the Russian Federation, as well as other payments. The GIS GMP enables citizens and legal entities to obtain information on their liabilities to the budget system of the Russian Federation, based on the "single window" approach. Development, and maintenance of the GIS GMP are the responsibility of the Federal Treasury.

6. **Open Data**

The Russian Federation started to implement the initiatives on Open Government Data almost simultaneously with other countries. Whereas at first only enthusiasts from civil society promoting transparency in the activities of public authorities were interested in these initiatives, the second decade of this Millennium saw the increasing interest in the disclosure of public sector information in an open format.

6.1. Open data initiatives in Russia

The activities on the development of the Open Government in the Russian Federation are carried out in accordance with the approved Concept of Openness of the Federal Bodies of Executive Power.[43]

One of the areas of the development for Open Government in the Russian Federation is the coordination of initiatives on Open Government Data. The achievements of the initial phase include the adoption of: the Concept of Open Data for the Russian Federation (December, 2012),[44] the Road Map for 2012 and 2013, the National Action Plan of the Russian Federation in the Field of Open Data, and the Charter of Open Data, which was signed jointly by Russia and the G8 countries.[45]

The extension of legislation and the amendments of Federal Laws No. 8-FZ and 149-FZ, in which requirements to state bodies of power and local authorities to disclose information on their activities in the form of open data,[46] became a very important factor in influencing the development of open data initiatives in the Russian Federation.

The list of data that shall be posted by federal bodies of power as open government datasets shall be regulated by the relevant Decree of the Government[47] and specific timelines and key performance indicators for the implementation of the Concept of Open Data have been specified in the medium-term plan for 2015 and 2016.[48]

A list of organizational, semantic, and technical requirements for publishing Open Government Data such as Technical requirements for OGD 2013 and Methodical Guidelines 2014 was developed, which enabled the development of numerous data sets referring to education, health, transport, housing, and statistics. The data on public procurement proved to be particularly instrumental and popular. The official website of public procurement (http://zakupki.gov.ru) provides a full picture

43 FOIV Concept of Openness, 2014

44 OGD Concept 2012

45 OGD Charter 2013

46 Law No. 112-FZ dated 2013

47 OGD List, 2014

48 Open Data Implementation Plan 2014

of public spending, and enables the assessment of budgeting and other expenses in terms of their appropriateness, fairness, and objectivity.

According to the Ministry of Economic Development, by the end of 2014, federal, regional and municipal authorities had published over 8,000 datasets of public sector information, inter alia over 2,480 datasets on the national Open Data Portal, of which about 1,000 datasets were published by federal authorities and 1,200 datasets by regional authorities. Along with this, the regional authorities started to create their own open data portals (by of the end of 2014, 15 regional portals of open data had been launched), where the open datasets of regional authorities and local municipalities were published.

Along with this success, it should be noted that the efforts of the state authorities in Russia to disclose data have had little support on the part of businesses and citizens. Despite the ongoing hackathons, contests, and competitions of application developers, real-life examples of using open government data are few. Thus, 27 developers took part in the First All-Russia Contest on Open Finance Data, which ended in March, 2015. The winner was the Krista Company with its iMonitoring application, which used public financial data before any initiatives on Open Government Data were launched. At the same time, in Russia to date, there have been no examples of projects using open public data to build an economically successful business.

One of the few examples of the use of open government data is the mobile application Yandex. Parking developed by the Yandex company based on the open data on parking lots, provided by the Government of Moscow. Another transport application, Yandex.Transport provides real-time monitoring of buses, trams, trolleybuses and rout-taxis traffic. The service is also available in other cities: St. Petersburg, Yekaterinburg, Omsk, Kazan, Nizhny Novgorod, Novosibirsk, Perm, Kaliningrad, Krasnoyarsk, Voronezh, Chelyabinsk, Cherepovets, Lipetsk, as well as in the Moscow Region.

Another example is the OpenBudget project by Gennady Artamonov. (http://age71.ru) OpenBudget uses the Open Government Data related to Finance in the Russian Federation, which presents the major indicators of budget (revenue, expenditure, deficit/surplus, state and municipal debt) over the period from 2008 to 2014, in a simple visual format with the option of three-tier data detailing.

6.2. Open data portal

The work on the establishment of the national Open Data Portal began in 2013, with the development of the Concept of the portal, which was discussed publicly with wide involvement of the general public and experts in the field of open data. The customer of the work was the Russian Ministry of Economic Development as the architect of the portal. In addition, the Ministry of Telecom and Mass Communications was given the role of Chief Designer of the portal's infrastructure. The Council for Open Data, a working group of the Government Commission for the Coordination of Open Government Activities, was appointed as an editor of the portal.

The stakeholders were also tasked to develop a system for monitoring and assessing the demand for open data. Publication of data on the portal will be instrumental to enhance the accountability of the Government, build an application and services market, broaden the base for scientific research, and establish a knowledge base and tools for Open Government. A mechanism for public discussion of the relevance of the data, their formats, and so on will be launched on the portal as well. Tools for monitoring and assessing the relevance of the data will also be posted on the portal.

The Ministry of Economic Development is responsible for elaborative work, implementation and development, and the operation and maintenance of the Open Data Portal.

The Open Data Portal of the Russian Federation (http://data.gov.ru) was officially commissioned on March 26, 2014. The first months of operation of the Open Data Portal revealed flaws both in the concept and in its implementation. The overall number of visits (averaging about 5.6 thousand visits per month over the last year) has also demonstrated the low attractiveness of this resource. Substantial adjustments were required and a reengineering was needed. The new beta-version of the Open Data Portal appeared in Spring 2015.

6.3. Agency's and regional open data portals

A distinctive feature of the Russian approach to building the national Open Data Portal was that datasets are published both on the national portal itself and/or on the websites of the federal and regional authorities. The search for datasets will be available on the national portal.

The open data disclosure of public sector information on the activities of the Russian authorities began simultaneously in a few pilot agencies and regions of Russia. In 2013, the governments of several Russian regions embarked on open data projects of various scales. In particular, the governments of Moscow, Tula Oblast, Krasnodar Territory, and Ulyanovsk Oblast opened open data portals within the framework of the Open Region project. The platforms for open data were developed by a number of federal authorities within the framework of Open Ministry initiative.

The first steps in this direction were somewhat chaotic. For instance the elaboration of conceptual documents was not coordinated, and no national standard of data set quality was elaborated. Another problem was caused by the presence of a large number of technologically outdated state information systems in agencies and regions, resulting in a labor-intensive task facing civil servants. The task was to convert human-read information into a digital format (open datasets).

Today, most of the challenges are still current, despite efforts to promote open data initiatives taken at the federal and regional levels.

According to the Analytical Center of the Government of the Russian Federation, as of March 2015, 34 regional open data portals were functioning. Separate sections were opened on the official websites of authorities in 29 regions.[49]

Along with this, open government data sections were created on the official websites of almost all federal agencies. The leaders among the agencies that have published the greatest number of datasets are the Federal Antimonopoly Service, Federal Road Agency, the Ministry of Culture of the Russian Federation, the Ministry of Transport of the Russian Federation, and the Ministry of Finance of the Russian Federation.

6.4. Analysis of Open Government Data initiatives

The activities of the federal and regional governments to open government data have been quite purposeful and systematic. Open Data agenda is supported by political decisions embodied in the legislative and regulatory acts that are implemented by national and regional action plans for open data. In addition, federal and regional governments are developing technological platforms for the disclosure of public sector information in the form of open datasets.

Despite the progress made, it could be noted that the published datasets are being met with a low level of demand, and there has not been a massive re-use of open government data. This apparently explains the small number of sets of open government data reported in semantically «rich» formats on the national Open Data Portal. In fact only a few tenths of a percent of data sets are presented in RDF.

49 OGD 2015

Another barrier to widespread disclosure and re-use of open government data is the absence of proper functionality of many government legacy systems that contain potentially valuable datasets. Civil servants from agencies are required to manually upload, convert, and subsequently process of the data sets for open publication. In practice, none of the government information systems automatically publish open data sets on the Open Data Portal, or on the relevant section of the official agency website.

7. ICT skills of public servants, municipal employees and citizens

Federal and regional authorities provide large-scale training of public servants independently, and on the basis of the recommendations of the Ministry of Labor and Social Protection of the Russian Federation. These include the basic level of qualifying requirements in the field of ICT for public servants of all categories and groups for public service jobs. For public servants holding managerial positions that fall within the highest and main categories, the extended level of qualifying ICT requirements has also been developed. Finally, the special level of qualifying ICT requirements applies to officials responsible for ICT use in public authorities.[50]

Public servants are provided ICT training and retraining on a regular basis as frequently as it is stipulated by law for public servants to undergo the training, based on professional development programs (usually once in 3 years). According to the Federal State Statistics Service, an average of 8-9% of the total number of federal and municipal employees who receive additional professional education have recently completed training.[51]

An interesting example is how the Government of Moscow actively uses the system of remote learning to regularly host training for government employees and the citizens on the use of information systems (more on http://www.zelao.ru/13/26419/21135-sistema-distantsionnogo-obucheniya-pomojet-ispolzovat-sovremennyie-tehnologii-na-rabote-i-v-byitu/).

7.1. E-Leaders training

Apart from the professional development training programs mentioned earlier, which are to be completed by senior officials, unconventional approaches to the training of e-leaders have also been developed in Russia. The Ministry of Telecom and Mass Communications and the Ministry of Economic Development organized several educational trips for senior managers of federal and regional authorities to familiarize themselves with the best practices in countries that hold leading positions in e-Government development. A recent example is the trip of the Russian delegation to the United States organized by the Ministry of Communications and Mass Media in collaboration with the World Bank in 2013.[52]

One of the most dynamically developing ICT usage areas is distance learning, which became one of the priority areas for development of the education system. However, distance learning did not become common in the public servant professional development system in Russia. A few years ago, within the framework of the Federal Target Program "Electronic Russia," distance-learning courses were developed for training of e-leaders.

It should be noted that despite some attempts made, there is no comprehensive system of training in ICT related issues among senior managers of different levels of public administration at this point.

50 Requirements to the ICT skills of Government Employees, 2012

51 See Rosstat 2014

52 Russia ICT Day 2013

7.2. ICT-competence of citizens

Until recently, the situation in Russia in terms of e-Government services usage was significantly different from the situation in European countries: only 10% of the population of the Russian Federation would obtain information on government and municipal services from the Internet, which is at least three times less than in the EU; 8% of the population would download application forms and forms of other documents (25% in the EU); only 5% (21% in the EU) would send the completed documents electronically, and only 4% of the population of Russia would receive results of provisions of government and municipal services in an electronic form.[53]

As for the reasons for not using e-Government services, 4% of the respondents answered that they did not send the completed forms to bodies of state power or local self-government bodies via their websites due to lack of skills and knowledge of how to use them, or due to excessive complexity of these operations. However, these services in Russia are quite popular; 42% of the adult population believe that one of the most convenient ways for them to contact authorities is via the Internet, and over 50% of young people, after applying to a public authority, would prefer to communicate with the authority via the Internet with the provision that there was such a capability.

An issue of particular concern is senior age groups having no ICT competences, which creates a barrier for them to use e-Government services and e-services in the social sphere. These groups often need assistance from authorities and social support services, as their ICT-competency is substantially lower than that of young people.

In order to achieve the e-Government development goals by 2018, it is necessary to focus on creating more opportunities for the adult population of the country to acquire and develop ICT skills. Basic ICT skills should become common or, in a long-term perspective, universal. Particular attention should be paid to the senior age groups to prepare them for full participation in the Information Society.

8. **Monitoring of e-Government Development**

Development of any complex social system is impossible without a feedback loop that allows for making a controlled impact on the system. E-government is a complex socio-economic and human system intended for public authorities to exercise their powers and functions and provide public services for citizens and business.

Several monitoring systems to assess the level of e-Government development implemented by international and national organizations in Russia are discussed below.

8.1. UN e-Government Development Index

The Strategy on the Information Society in the Russian Federation envisions Russia to be within the top 20 countries in the global rankings of the information society development by 2015. Within the Russian Federation the UN e-Government Development Index is used both to conduct international comparisons and to evaluate the extent to which the strategic goal listed above has been achieved. The Russian Federation was consecutively placed at the following spots: 60th in 2008, 59th in 2010, 27th in both 2012 and 2014.

Nevertheless, to get to the Strategy's target value, actions are needed to enhance maturity of the services, primarily transactional and integrated services, in which Russia is evidently lagging behind the leaders.

53 ICT Competences 2012

8.2. Open government and open data monitoring

For details on development of open government and open government data initiatives in the Russian Federation please refer to Section 6. Within the scope of the approved strategic documents[54] it was planned that by 2013 and 2014 Russia would advance in international rankings of open government data to 5th place, entering the top 10 and top 5 in international rankings of open government. In reality, Russia was 33rd in 2013 and dropped to 45th spot in 2014 in the Global Open Data Index.[55] In another global ranking[56] Russia regressed from 20th place in 2013 to 26th in 2015.

8.3. Monitoring ICT usage by regional and local authorities

In the Russian Federation the ICT penetration and usage processes vary significantly across various regions and social strata. As a result, development of the Information Society has led to the emergence of a new type of socio-spatial polarization, or the digital divide which is now a new factor for the disunity of regions and marginalization of separate social groups.

Adoption of the necessary management decisions, specifically during the implementation of the State Program "Information Society (2011–2020)," is necessary. Regional programs, and the Strategy for the Information Society Development in the Russian Federation action plans, requires mobitoring of the digital divide and the factors that determine the differences between Russian regions.

A major tool to analyze the level of ICT development and usage in the regions of Russia is the monitoring of the Information Society development in Russian regions, regularly held by the Institute of the Information Society since 2004. The results of the monitoring are published in the Index of Russian Regions e-Readiness.[57]

The Index includes an ICT usage component calculated in reliance on six sub-indexes characterizing the ICT use in business, public and municipal administration, health care, culture, and education. It also has a component of information society development factors, and its three sub-indexes, that characterize the level of human capital, the economic environment, and the ICT infrastructure in the Russian regions.

Since the time it emerged, the Index has turned into a major information and analysis instrument to elaborate, conduct, and adjust the information society development policy on the regional level. The Index enables users to evaluate the current situation, identify the worst problem areas in terms of the digital divide of regions, and determine the lagging areas and obstacles hampering Information Society development in Russian regions. The regional authorities use the Index data for comparative assessment of the ICT usage situation in the region, and for establishing goals for further development.

A gap between Russian regions, the ratio of the maximum to minimum value, is measured for each of the integral scores. Maximum and minimum values of integral scores and gaps between them are used to evaluate trends in changes of the level of digital divide between Russian regions.

Some 70 to 94 scores are used every year to calculate the Index and its components, including the main ICT indicators recommended by international organizations. This enables the use the ranking data for international comparisons of the state of affairs in a Russian region and other countries.

54 OGD 2012 Concept

55 Global Open Data Index

56 Open Data Barometer 2013, 2015

57 Index 2015

"ICT in public and municipal administration" sub-index is based on the five groups of indicators that characterize regional access of the government and local authorities to the ICT. They are EDI, the level of government and local authorities' web presence, use of e-Government services by businesses in that region, and use of open government technologies. Overall 26 indicators have been monitored; the data used for the calculation of those indicators have come from the state statistical observations for the relevant years. Also, results of the independent survey of official web-sites of government authorities conducted by the Institute of the Information Society using UN DESA methodology for UN e-Government Development Index are available. Data from Eurostat (for 27 EU member states) were used for international comparisons.

The monitoring results confirm the existence of a steady group of regions that lead the e-Government development (Moscow, Republic of Tatarstan, Tomsk Region, Republic of Karelia, Republic of Chuvashia, Saint Petersburg). Recent years are characterized by a drastic increase in the level of government and the local authorities' ICT infrastructure development. The government authorities in many regions can boast of decent infrastructure availability, whereas local authorities, despite the fast pace of ICT infrastructure rate outfitting, still notably lag behind.

The web presence of the government and local authorities has seriously expanded. The gap between average scores in various federal districts has relatively narrowed. However, there is still a long way to go to achieve complete coverage of the activities of government and local authorities.

The businesses extensively utilize the e-Government services in interactions with the government authorities. By the majority of scores in this group, Russia outstrips the European Union and even has a commanding lead in the area of ICT use in the public and municipal procurement: even the lagging regions exceed the average European value for that score.

8.4. State statistical monitoring of e-Government development

The Russian Federation currently has several sources of statistical data on the use of ICT in public administration as well as the use of e-Government services by citizens and business.

The Rosstat annual sample surveys of households and individuals in the form of No. IT-1 «Sample survey of population on the use of information technology and telecommunications networks» has been in place since 2013. The form is also based on the OECD reference questionnaire for the survey of households and individuals (in the version recommended by Eurostat) and contains a set of questions related to the use of e-Government services. Besides the reference questions about obtaining information from websites and use of e-Government services, respondents answer questions related to channels of interaction with the public authorities, types of e-services received, the level of satisfaction with e-services, issues related to the registration on the Unified Portal of Public Services, and use of e-signatures.

In 2013, Rosstat introduced a new form of federal statistical observation No. 1-EGS «Information on the Use of e-Government Services» which was an attempt to measure the share of transactions carried out on the delivery of public services in electronic form. The form is intended to provide a survey of authorized public service authorities, which must specify the number of applicants, citizens who applied for the receipt of public services, and how many of them apply for services in electronic form. Unsatisfactory results are possibly based on an incorrect methodology of the survey.

8.5. Problems in monitoring of ICT use for public administration

The analysis shows that the situation with the monitoring of e-Government development in the Russian Federation as a whole is not bad. There are large amounts of data on various aspects of using

ICT for public administration and local self-government. Regular state statistical observations are conducted on an ongoing basis. In addition, international comparisons are made between the level of e-Government development for the Russian Federation, Russian regions, and industries.

Along with this, it should be recognized that the current system of monitoring the Information Society development, and in particular, e-Government development, does not allow observers to evaluate the level of penetration of new approaches or trends such as moving to Digital Government.

Most of measurable indicators used in Russia, as in many other countries, relate to assessments of the level of e-Readiness of the country, and of particular regions or industries. At the same time, a much smaller number of indicators allow us to estimate the use of ICT, and a very small number of indicators can be used to measure the impact of ICT on social and economic development, including public administration.

For Russia, as well as for other countries, there is a challenge to create a new system of monitoring for the use of ICT for public administration in the context of proper Digital Government maturity models.

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