The Promise of Digital Government

Svenja Falk, Andrea Römmele, and Michael Silverman

"Digital" is everywhere. More than 900,000 articles including the word *digital* being published in the last 3 months[1] are testament of an impressive career. Independent of context, the term "Digital" stands for an eclectic potpourri of assumed positive and negative social and economic outcomes. Positive assumptions imply that "digital" can open up new opportunities and provide solutions to many challenges that companies and societies are facing today.[2] The pessimistic view assumes that digital technologies will destroy jobs, making human labor redundant, causing unseen disruption in social and political life.[3]

The case in business seems comparatively clear—we can already see, especially in the business to consumer space, how digital provides more tailored and cost effective services to customers based on a granular understanding of their needs, revolutionizing production and radically transforming operations and governance.

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[1]Factiva Search in English speaking newspapers and online journals from March 26th, 2015 to May 25th, 2015.

[2]Accenture Technology Vision 2015.

[3]Oxford professors Carl Benedikt Frey and Michael A. Osborne estimated that almost half (47 %) of total US jobs are at risk due to computerization. McKinsey's Global Institute predicts that about 140 million knowledge worker jobs are about to disappear in the digital age.

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Digital technologies have already disrupted many industries like retail, travel, media and entertainment and others. Nevertheless, companies and policy makers alike are yet to understand the underlying business models and avenues to monetize digital in many other areas like the internet of things or smart services.[4]

In government, however, the case is even less obvious. Digital seems to blend with discussions around open data, big data, broadband policy, digital inclusion or -entrepreneurship, or whole-of- government transformation, resulting in a lack of clarity. Nevertheless, enthusiasm about digital is high among politicians and policy makers alike.

1 Strategy Inflation

Many countries have launched digital strategies in the last 2 years, but definitions of digital vary from being an umbrella term for a set of technologies and their applications ("SMAC"), a new way of public service delivery up to a holistic concept of a digital society or economy.

The desired outcomes in the strategies vary, depending on policy priorities of a country or institution:

[4]Accenture worked in partnership with the National Academy of Science and Engineering and with more than 70 German companies, business associations, labor unions and the best German industrial and IT universities to develop a vision on how to compete in the digital future on a global level. The group focused on business models, the regulatory environment and the people side. On the digital enterprise side, the group predicts the emergence of a new type of Software Defined Platforms to connect intelligent products during operations and the emergence of "Everything as a Service" bundles of products and smart services.

This public private partnership supports Germany's goal to become the number one country in Europe in terms of digital growth. With its first strategic initiative "Industrie 4.0", Germany has already taken an important step towards being the first country to tap into the potential of this new form of industrialization. Now, the second strategic initiative, entitled "Smart Service Welt", is focusing on the value chains that incorporate the smart products made by Industrie 4.0 once they have left the factory. Smart products are combined with physical and digital services to create smart services that then can be marketed as a flexible, on-demand service. The disruptive impact of smart services is already visible in retail, for example in online marketplaces. However, the changes are also affecting the traditional business models of Germany's flagship industries, such as the automotive, mechanical engineering, chemicals, electrical engineering, medical technology, logistics and energy technology industries, not to mention the rest of the economy.

Digital Strategies

Country	Launch	Objective	Approach
USA	(May 2012)	Efficiency, cost reduction, citizen centricity and security	Builds on four main areas (information-centricity, customer-centricity, shared platform, security and privacy) to lay the foundation for a radically different way in which government applications and services will be developed, focusing on leveraging data through web API, on building reusable and interoperable web services, on separating a data, a platform and a presentation layer to allow services to be deployed through the most convenient channel.
UK	(November 2012)	Cost cutting and efficiency increases	Digital information at the heart of its strategy, rather than being ancillary to service provision. All new government services are required to be digital, a set of existing ones have to be transformed.
Europe	(2010; revised December 2012)	Competitiveness and growth	7 key areas for further efforts to stimulate the conditions to create growth and jobs in Europe: 1. Create a new and stable broadband regulatory environment. 2. New public digital service infrastructures through connecting Europe facility loans 3. Launch grand coalition on digital skills and jobs 4. Propose EU cyber-security strategy and directive 5. Update EU's Copyright Framework 6. Accelerate cloud computing through public sector buying power 7. Launch new electronics industrial strategy – an "Airbus of Chips"
Singapore	2011-2015	Collaborative government	• Co-creating for greater value • Connecting for active participation • Catalyzing whole-of-government transformation

Source: Country Strategies

In many cases in fact, governments have launched more than one digital strategy. Australia, for example, launched three strategies between 2011 and 2013: the "Australian Public Service Information and Communications Technology Strategy" (2013), "Advancing Australia as a Digital Economy—An updated National Digital Economy Strategy" (2012) and a "Cyber Security Strategy" (2011). Both the US and the UK formulated a total of five strategies focusing on economic development, public sector reform, cybersecurity and inclusion.

In Germany, eight ministries at the federal level have been tasked with implementing different aspects of the three strategies in place there. Economic development, for example, is being looked after by both the "Federal Ministry for Economic Affairs and Energy" as well as the "Federal Ministry for Transport and Digital Infrastructure". Security questions are on the table in five ministries. Complexity of the governance is poised to increase; Germany launched a "Digital Agenda" in August 2014, focusing on a holistic digital transformation of the country with oversight not yet being defined.

Having multiple plans owned by different departments is the rule in digital government today. When it comes to implementation, different departments are getting involved, resulting in overlap and increasing coordination efforts, often without an oversight institution being in place. As we show in this book, taking implementation down to the program and/or institution level is even more disconnected.

The "return to digital" is assessed today only in a patchy manner. The National Audit Commission in Australia or the US Office of Budget and Management, for example, are assessing how the government is doing against plan, but are not talking about social or economic outcomes. The UK looks through the lens of cost reductions and efficiency increases, assuming savings of 200 million pounds related to digital. Germany has yet to evaluate the return on digital.

2 What Is Digital: Different or More of the Same?

Some commentators proclaim a digitally enabled new age in government, whereas others feel it is nothing more than a continuation of the E-Government paradigm and therefore just old wine in new skins. The first wave of eGovernment happened in most countries of the world in the 2000s, both in mature and emerging economies.[5] Primary focus then was on the online provision of services rather than a concept of digital transformation. Digital government is a more comprehensive

[5]In 1997, for the first time ever, the United States' administration articulated the idea of online citizen service in their National Performance Review "Access America: Reengineering Through Information Technology". And indeed, the US portal, then called FirstGov went online in 2000 with the intent to provide all government information online. Governments across the globe published their eGovernment strategies in the beginning of the 2000s:

- The UK publishes their first strategy in April 2000. The document "eGovernment: a strategic framework for public services in the Information age" talks about the need for a common infrastructure, urges public sector units to modernize and innovate.
- France publishes their reform program "Governmental Action Plan for Information Society" in 1998.
- Singapore published their "eGovernment action plan" in 2000, with a strong spin on the competitiveness acceleration through focusing on the transition to the knowledge economy.
- South Africa launched their eGovernment strategy Electronic Government Framework Electronic Government—The Digital Future: A Public Service IT policy in 2001.
- India the Dept of IT and Dept of Administrative Reforms and Public Grievances (DARPG) prepared a National governance action plan which was presented to the Prime Minister in 2003.

concept and is uniquely distinct from the eGovernment across a number of dimensions. The possibilities offered by the nexus of forces from SMAC technologies could be far more powerful in enabling a whole of government transformation.

3 Opportunities

Governments see huge opportunities in digital and are making significant investments. Enablers to capitalize on the opportunities are the deployment of technologies through dedicated government organizations (US), innovation in service delivery (UK), a more transparent government (India) or more collaboration between government and citizens to enhance innovation (Singapore).

- **Citizen Service and Innovation**: The US Government anticipates significant service enhancements through a focus on IT tools, processes and organizations. The Digital Services Innovation Center as a branch of GSA, as well as a Digital Services Advisory Group within the White House is advising government entities to implement the strategic change.[6] There is a strong focus on a mobile digital strategy: agencies should "optimize at least two existing priority customer-facing services for mobile use and publish a plan for improving additional existing services." Many of the US agencies now have at least two mobile apps which can be found on an official website Apps.usa.gov. Agencies also find case studies and advice how to implement the mobile strategy.
- **Cost Savings**: The UK Government assumes significant savings as a result of their "digital by default" strategy. The bottom-up methodology yields an annual saving estimate from this shift to digital by default as £1.8 billion.[7] Savings result from reduced cost of service provision: For some government services, the average cost of a digital transaction is almost 20 times lower than the cost of a telephone transaction, about 30 times lower than the cost of postal transactions and about 50 times lower than a face-to-face transaction.[8]
- **Jobs and Growth**: European policy makers anticipate that the full implementation of the digital agenda would increase European GDP by 5 %, or 1500 € per person, over the next 8 years, by increasing investment in ICT, improving eSkills' levels in the labor force, enabling public sector innovation, and reforming the framework conditions for the internet economy. In terms of jobs, up to one million digital jobs risk going unfilled by 2015 without pan-European action while 1.2 million jobs could be created through infrastructure construction. This would rise to 3.8 million new jobs throughout the economy in the long term.[9]

[6] http://gsablogs.gsa.gov/dsic/strategy-milestones/

[7] http://publications.cabinetoffice.gov.uk/digital/efficiency/#fig-1

[8] http://publications.cabinetoffice.gov.uk/digital/efficiency/#fnref:1

[9] http://europa.eu/rapid/press-release_IP-12-1389_en.htm

4 Challenges

While digital objectives might differ, challenges are quite similar across countries. Governance, change management and security are on top of the list. Some well-known stumbling blocks from early eGovernment times like the lack of a whole of government approach, adoption and user take-up or vertical integration are still to be addressed.[10] An interesting finding is that nearly one third of United States' internet users are using social media to access e-services. According to a recent study, "embrace" of social media by the United States government seems to have "particular appeal" to minority groups, low-income individuals, women and other groups that have historically lagged behind in their use of eServices. These groups all use social media at a rate similar to that of other citizens, leading to a smaller gap among different socio-economic groups than through other forms of online information and service delivery. So, social media could be a way to bolster usage of government e-services.[11]

Governance Effective digital services governance structures are of key concern.[12] At the moment, we find a variety of organizational solutions, often adding new coordinating institutions. These institutions agency are mostly influencers: they help to define standards, offers technical or managerial advice.

- The US, for example, has formed two additional entities, the Digital Services Innovation Center as a branch of GSA, as well as a Digital Services Advisory Group. Another important institution is the CIO council which coordinates across states.
- The UK has ditched their cross government CIO and has built a decentralized structure under the umbrella of Government Digital Service (GDS) by appointing digital leaders in departments. Directors of Digital or CDOs are expected to work closely with departmental CIOs to deliver digital transformation (design, development and delivery of user-centric digital services) (Techmarket View 2013).
- Europe has built a cross country, cross policy agenda initiated by Neelie Kroes, former Vice-President of the European Commission.[13]

Governments are currently establishing new C level positions like Chief Digital Officer or Chief Data Officer as digital strategies are challenging the current remit of government CIOs. According to Gartner, more than 20 % of organizations will appoint a Chief Digital Officer and 10 % of organizations a Chief Data Officer by 2014 (Gartner Group 2013). At this stage, complexity of the governance structure is a key obstacle to achieving digital value; we will see further consolidation and change.

[10] http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/eGov%20Benchmark%202012%20insight%20report%20published%20version%200.1%20_0.pdf

[11] http://unpan1.un.org/intradoc/groups/public/documents/un/unpan048065.pdf

[12] http://www.whitehouse.gov/blog/2012/08/23/building-blocks-21st-century-digital-government

[13] http://ec.europa.eu/digital-agenda/en/news/connected-continent-european-competitiveness

Change Management A true digital transformation requires a radically different way of doing things, including a different culture, role definition and collaboration in government. This is a journey which began in the age of eGovernment but is set to continue in a more complex and demanding environment. Funding is provided to incentivize collaboration. The European Commission, for example, has just announced a €13.7 million boost to cross-border digital public services.[14] The EURES—The **European** Job Mobility Portal would be one example. However, at the moment, there is no real incentive structure in place to motivate employees to embark on the journey. Developing approaches to build digital leadership top down and bottom up is needed to fully capitalize on the digital opportunity.

Security Currently, information security risks are making the headlines in many countries. Governments and citizens alike are concerned about the security implications of mobile technologies or open data. Security goes beyond spying: the UK Government loses over £21 billion per annum through fraud. Consequently, the Government has allocated an additional £650 million of funding at a time of extreme austerity to address these challenges.[15] The increasing dependency on data and the processes of creating, collecting and making sense of it come with a lot of risks. Even if security guidelines or policies are in place, governments find it hard to comply with them: the US Government Accountability Office (GAO) reported in February 2013 that only 8 out of 22 major federal agencies (down from 13 a year earlier) were in compliance with risk-management requirements under the Federal Information Security Management Act (FISMA).[16] "Security by default" is still a long way off.

Impact on Labor Markets The Code N competition for Start Ups at CEBIT 2015 in Hanover presented 50 "digital" entrepreneurs with innovative solutions for the digital economy and society. The Spanish company Aisoy, for example, builds a revolutionary emotional robotic mentor for kids. As per the company, the toy is friendly, helpful, intelligent and connected and enhances creativity through discovery combined with a new class of personal robotic platform for an innovative educational concept. This innovative idea exemplifies various possible perspectives on the implications of digital on life today and in the future. Many parents are keen to train their kids in human machine interaction early on to ensure their competitiveness in the labor markets, whereas others feel an era of social deterioration through lack of sufficient "natural" interaction between kids. Of course the question remains: Will we need kindergarten, school or even university professors in the future, given that machines are so much more intelligent? Are we facing an unseen disruption, with an "autonomous economy" making human

[14] http://europa.eu/rapid/press-release_IP-13-778_en.htm

[15] Digital Government Security Forum.

[16] http://www.fedtechmagazine.com/article/2013/08/state-information-security-federal-government

labor redundant or is this a temporary transformation of work, similar to the shift from artisanship to industrialized manufacturing in the nineteenth century with the number of jobs rebounding? Or are we at the beginning of a digital transformation where all jobs will be clean, healthy and enriching, leaving time for creativity, family and self-fulfillment?

If we believe leading economists, the blessing of using technology to do things faster, better and cheaper could turn into a tsunami in global labor markets, leading to economic and social repercussions unseen before. Already in 1930, John Maynard Keynes projected into the Economic Possibilities for Our Grandchildren and foresaw "technological unemployment" in the twenty-first century.

The question whether technological progress is actually creating or destroying jobs is currently on top of the agenda in many countries. While everybody is sure that technology already has an impact on the workplace and many alarmist assumptions are hitting the headlines, no one really has a clear view on the quantitative impact on the labor market and resulting implication for skilling. The main question is which (and how many) jobs will disappear, which ones will transform with human computer interactions and which new jobs will be created where. At the moment, most governments and policy makers are using academic models to come up with assumptions.

There are three main perspectives:

1. The Substitution Hypothesis: Jobs will be lost where humans compete with machines and algorithms that do the jobs faster, better and cheaper. Computerization will destroy certain jobs.
    - Oxford professors Carl Benedikt Frey and Michael A. Osborne (2013) estimated that almost half (47 %) of total US jobs are at risk due to computerization. The German Minister for Labor and Social Affairs, Andrea Nahles, has just applied this methodology to the German market, assuming a reduction of five million jobs due to computerization.
2. The Zero Sum Game Hypothesis: In contrast to earlier disruptions, which affected particular sectors of the economy, the effects of today's revolution are "general-purpose".
    - Michael Ford noted in "The Rise of the Robots" (2015) that from janitors to surgeons, virtually no jobs will be immune. Whether you are training to be an airline pilot, a retail assistant, a lawyer or a financial trader, labor-saving technology is whittling your numbers—in some cases drastically so. So, basically all jobs are affected, leading to massive unemployment and inequality. Consumption and tax revenue will collapse and redistribution policies are needed.
3. The Business as Usual Perspective (with a variation): today's displacement is similar to the shift from agriculture to industry.
    - Roughly half of Americans were employed on farms in 1900. Today they account for just 2 % of the workforce. Just as ex-farm laborers found work in the factories, so laid-off manufacturing workers were re-employed in the service industries. The IT revolution will be no different.

This deep understanding of changes to job descriptions in the digital economy is of utmost importance to inform policy in education and skilling and to help companies understand the skill requirements to remain competitive in the future. An analysis of employment trends, an understanding of changes in employment structures and organization of work should be the next step to formulate relevant labor policy strategies.

5 The Journey

How did it all begin? A vast body of literature published by multilateral organizations, academia, think tanks or consulting companies documents the history of priorities and activities in eGovernment quite well. The UN Public Administration Programme has published the most comprehensive set of assessments and benchmarking since 2001. They looked at online presence and maturity of 190/1 member states and assessed more than 50,000 features of eGovernment websites.[17]

We would like to introduce the main highlights of the eight reports published since then, as they reflect global discussions:

Title	Year published	Ranking: Top 3	Theme	Key Findings
E-Government for the Future We Want	2014	1. Korea 2. Australia 3. Singapore	eGovernment and innovation can provide significant opportunities to transform public administration into an instrument of sustainable development	- wide disparities among regions and countries in their state of eGovernment development - increased emphasis on eParticipation features and evidence of Open Government Data initiatives on national websites given the evolving expectations about transparency and participation in public affairs.

[17] UN.

E-Government for the People	2012	1. Korea 2. Nether-lands 3. UK	Harnessing the power of ICT for delivering much needed sustainability in social and economic services	- Whole-of-government approaches lead the way in vanguard countries - Member states are paying much closer attention to multi-channel service delivery - A good beginning but e-environment initiatives have a long way to go
Leveraging E-government at a Time of Financial and Economic Crisis	2010	1. Korea 2. USA 3. Canada	Leveraging eGovernment to mitigate the effects of the financial and economic crisis on development	- On-demand access to information, services and social networks […] is no longer considered cutting-edge but a norm - The mobile revolution and growth of high speed broadband and wireless access is beginning to have a measurable economic impact - eGovernment remains a distant hope for many of the least developed countries
From E-Government to Connected	2008	1. Sweden 2. Denmark 3. Norway	Value of eGovernment lies not in the use of	- Technology as a strategic tool and as an enabler for public
Governance			technology per se but in its application to processes of transformation	service innovation and productivity growth
From E-Government to E-Inclusion	2005	1. USA 2. Denmark 3. Sweden	Employ ICT for social empowerment and economic inclusion of citizens	- Importance of providing equal opportunity for participation in information society - Commitment and leadership for an ICT led development agenda is a prerequisite - Need for a vision to develop a socially inclusive development strategy - The market, government and citizens have a mutually beneficial role to play

Towards Access for Opportunity	2004	1. USA 2. Denmark 3. UK	Employ ICT application for creation of economic opportunities and human development	-	Widening disparities between countries in their eGovernment programs and implementations successes by income level - eParticipation as a means of user feedback
E-Government at the Crossroads	2003	1. USA 2. Sweden 3. Australia	Bridging the digital divide and providing access for all whilst enhancing eParticipation	-	There is on one model for and no distinct development stages for eGovernment development - A strong correlation between formal eGovernment policy and high rankings - ICT facilitated information and services are only reaching the privileged few in a country
Benchmarking E-government: A Global Perspective	2001	1. USA 2. Australia 3. New Zealand	Assessing the level of online presence and maturity of 190 UN member states and	-	A country's progress in eGovernment closely relates to its social, political or
			derive learnings from good practices		economic composition - Nation eGovernment development remains desultory and unsynchronized - Online service delivery should be thought of as complementary rather than accepting than […]replace many traditional channels for service delivery - National eGovernment teams are rather the exception than the rule - Considerable lack of public awareness campaigns

Governments across the globe have started to implement the online provision of services since the 2000s. According to the United Nations, 169 (88.9 %) of all UN members states used the internet to varying degrees to publish information and provide services. The main objective then was to provide current information and downloadable forms or an email address to contact a public officer. Only 17 countries (9 %) offered a set of transactional services like online payment for fees or taxes (UN 2002). Today, they are cautiously and to varying extents beginning to transform their operations, vertically crossing departmental borders and tailored to the needs of the individual citizen. In order to beat public depth, we can assume that more and more services will be provided fully online without offering access through other channels like phone or walk in offices.

Let us take a look back to the early days of taking governments online, which can be dated back to the mid 1990s. Till then corporates and governments alike, used information technology to professionalize or automate back office operations.

In 1997, for the first time ever the United States administration articulated the idea of online citizen service in their National Performance Review "Access America: Reengineering Through Information Technology".[18] And indeed, the US portal, then called FirstGov went online in 2000 with the intent to provide all government information online.

Governments across the globe published their eGovernment strategies at the beginning of the 2000s:

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- South Africa launched their eGovernment strategy Electronic Government Framework Electronic Government—The Digital Future: A Public Service IT policy in 2001.
- India the Dept of IT and Dept of Administrative Reforms and Public Grievances (DARPG) prepared a National governance action plan which was presented to the Prime Minister in 2003.

The first wave of eGovernment happened in most countries of the world at the same time, regardless of whether they are considered mature or emerging economies. Primary focus was on technology and optimism that transformation of back office operations would automatically translate into better services and cost reduction.

In parallel, stakeholders from academia, business and civil society explored the potential of the internet. Think tanks built a specific policy area looking at this field,

[18] http://www.nap.edu/openbook.php?record_id=11920&page=150

universities launched institutes focusing on eGovernment as a research field, excitement was high and expectations, if you look from 10 years later, were quite low. It was simple: Governments entered the virtual world by simply putting information online, providing simple information like the opening hours of an office or papers needed to execute a certain administrative process.

Over time, more and more interactive features were added. Citizens could write emails to public officials. Connection was the mantra of that time, which started in the "Tiger States" Singapore and South Korea in Asia and the mature economies in Europe and the Americas. Governments developed eGovernment plans with the objective of making it easier and more user-friendly for citizens to connect with government. Many countries undertook detailed and time intense mappings to understand which processes would be suitable to be provided online. Germany, for example, identified 440 federal services which would be available in three different modes: publish, interact or transact. Korea identified a much larger portfolio of online services after their mapping exercise: 4400 services were meant to be published, 426 with an interactive capability and 8 services were to be fully transactional. Both countries made the commitment to have the online construction work finished by 2005. This approach was very similar in many other countries.

At this point in time, the focus was on public services rather than extending the scope of the democratic agora to the internet. By then, the web was an add-on service channel for providing selected government services. The selection of services was based on the feasibility of putting them online. The idea was to provide services multi-channel to not exclude citizens who were not online. The main objective then was to make government more efficient whilst ensuring access for everyone. Debates were mainly focusing on the need to avoid reinforcing social exclusion by not appreciating the specifics of the digital divide, which was then seen as a mirror to inequality in the physical world. Expert groups on a national and international level were looking at ways to ensure access to information and communication technologies (ICT) and knowledge.[19]

In parallel, political candidates and incumbents also started to put their personal websites online. Back then (and we are talking end 1990s, beginning of 2000s), it was seen as a way of sharing information with their internet savvy electorate, rather than connecting with them. Transparency was used by some politicians as a way to differentiate themselves from the crowd. Indeed, it was seen as a new and exciting level of transparency that one could publish a politician's income online, their appointments to advisory boards or other activities which might result in additional sources of income. The German Liberal Party (FDP) was a first mover in founding a virtual state association which helped to add freshness, youth and hype to the image of the party which used to be perceived as a bit dusty. Rather than being an enabler or tool, being online was part of one's image. At this point in time, dialogue between governments and citizens was only possible to a limited extent. The ever expanding intellectual ecosystem exploring the potential of government online

[19] http://www.un.org/documents/ecosoc/docs/2000/e2000-55.pdf

came up with a new mantra: eDemocracy. Expectations were high. Basically, in its most advanced form, eDemocracy strengthens the nexus between citizens and government to a degree to question the continuing relevance of representative institutions and organizations. Among the more radical commentators of the time there was a tendency to regard them as antiquated structures and regarded the interactive capabilities of the new ICTs as paving the way to more direct forms of mass rule. Self-governing would supersede state machinery as internet based systems of voting, referenda and discussion were set up. Details of how such systems were to work remained sketchy, however, and as the empirical evidence of a lack of interest in politics online accumulated, the dream of a return to the Athenian agora appeared to have faded.

> [. . .] e-government is about the transformation of government. Indeed, it may well be the biggest transformation since the democratic revolutions of the late 18th century.[20]

The hope was that real-time online discourse between governments and citizens would lay the ground for more inclusive, participatory and equal nations.

While these early theories envisioned a full-time erosion, a more limited usurping of government institutions was envisaged. New communication tools would provide for more direct contact between executives and citizens. Online consultation and polls by government would streamline the political process, reducing the reliance on widely intermediary bodies such as legislatures and parties. Single-issue groups and direct-action politics would increasingly dominate society as the role of aggregative structures declined (Bimber 1998: 133–160).

Modernization theorists took a more positive view of the impact of new ICTs on our representative structures, some accounts saw them as offering the possibility for reform and modernization. New ICTs could improve the image of representative institutions particularly with younger people who are the least likely to vote or see the relevance of the representative system. Finally, some commentators have adopted a more radical view of the restructuring possibilities surrounding the introduction of new media. If properly developed, the communication technologies could sit at the core of a reinvigorated representative institution that could truly listen and thus re-engage the public (Colemann 2001). Rather than just modernizing internal practices, this would provide more opportunities for the public to participate in the political system and would reconnect representative organizations with the public. New media provide institutions and organizations with opportunities for engagement through their own websites and email such as live question and answer sessions. Given these opportunities of re-connecting citizens to their representative institutions by new technologies, there is considerable hope that these developments will restore the relationship and improve people's trust and confidence in government (Norris 2001).

Parallel to this broad discussion primarily framed by scholars of democratic theory, research specifically focusing on e-government put forward different

[20] http://kta.on.ca/pdf/cg6.pdf

models (for more detail see Coursey and Norris 2008). As the authors very rightly point out: "Normatively, these models . . . tell us that more e-government is better. E-government that is interactive, transactional, and integrated is better . . . and e-government should (and will) produce e-participation or e-democracy and a fundamental transformation in the relationship between governments and citizens." (Coursey and Norris 2008: 525). In all models developed around the turn of the twenty-first century, a linear, stepwise and progressive evolution of digital government was predicted. Governments typically have a simple web presence and then in a next step move on to more interactive tools such as e-mails and social networking sites. In a following step they also offer transactional services to citizens and businesses. The final step of digital government is described variously: either as seamless delivery of government services (Ronaghan 2002), eParticipation (Hiller and Bélanger 2001), eDemocracy (Wescott 2001), or government transformation (Baum and Maio 2000) (for a good overview see Veit and Huntgeburth 2014, Chap. 1) (Fig. 1).

The models however neglect the potential that barriers to eGovernment adoption naturally exist. The models assume governments' adoption of more and better e-government. However, there are to our knowledge no theories of innovation adoption that suggest that innovations are adopted without any hurdles, problems, obstacles and draw-backs. Certain obstacles (staff, infrastructure, money, other) may be more or less important to different governments (large versus small governments, wealthy vs poor governments) at different times in the adoption process (early adopters versus laggards) and with respect to different types of applications (Coursey and Norris 2008: 532).

In many countries, a focus on digital inclusion emerged. Almost on a daily basis, statistics on online access of populations were published, benchmarking states,

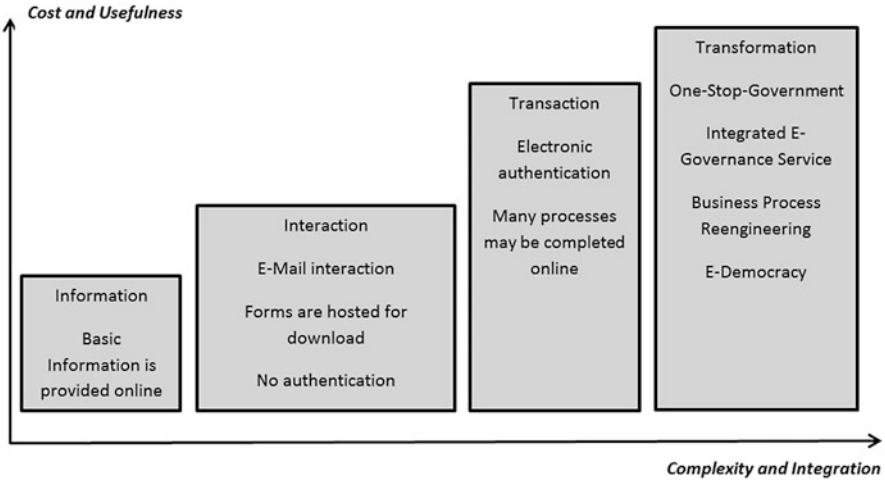

Fig. 1 Digital governance maturity model of Baum and Maio (2000)

segmented by gender, income group and educational attainment levels were published somewhere in the world. Governments were focusing on increasing online access and businesses are investing into the new goldmine of online business. Offerings for online consumers are emerging throughout the world.

Governments are beginning to realize the opportunities and challenges that digitalization brings: on the one hand it enables them to modernize, innovate, and transform the way they interact, administer and govern their countries. One the other, they see their citizens compete for jobs with people from other parts of the world. The density and speed of the online world makes globalization immediate and profound. right into their face. Globalization and the emergence of the knowledge economy have resulted in unprecedented opportunities for countries which were wholeheartedly called underdeveloped countries not long ago. Technology virtualizes services. It can import services to countries where people can do it faster, better and cheaper. India—and in particular the Indian IT industry—has spearheaded the movement to capitalize on these opportunities. The Indian IT industry barely existed in the mid 1990s and now it is generating over 146 billion dollars in 2015.[21] Indeed, India's "global sourcing" model has already altered the structure of the IT industry irrevocably and is now acting as a template for twenty-first century business models across sectors. The "Competition of Nations" (Michael Porter) is entering the debate again. Governments start to think how they can use technology as an enabler to enhance their countries' competitiveness. "Information Society" or "Knowledge Economy" is a key focus area in governments' strategic planning exercises.

Moreover, governments around the world understand that their citizens increasingly want to interact with government agencies online: in the EU 28 the number of citizen online interactions with public authorities is around 40 %.[22] However, today, people want governments to do more than put applications for drivers' licenses and birth certificates online, they want a truly connected government, which is transparent, inclusive and respectful of citizens' opinion and needs.

6 Case Studies

As an illustration of how governments are using digital technology to expand and enhance their capabilities, five digital projects from around the world were studied. The cases looked at the effectiveness of the projects in achieving their objectives as well as their relationship to their country's national digital strategy. While the projects were diverse in their scope and application, all had common elements in both their effectiveness as well as their limitations. The projects spanned both

[21] http://www.nasscom.in/indian-itbpo-industry

[22] http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/565890/EPRS_IDA(2015)565890_EN.pdf

developed and developing economies, and geographic regions of the world. The projects reflected the diverse application of the digital technology in public management.

They included:

- Mexico's single window for trade called VUCEM. Its goal was to digitize the country's international trade procedures to improve foreign trade and competitiveness.
- United States' National Broadband Plan digital strategy to improve economic growth and opportunity by increasing high-speed Internet access and adoption. The case used New York State's experience with the program.
- India's unique identity program (Aadhaar) which seeks to provide its billion plus citizens with their own identity number and card which provides linkages to other government and non-government services.
- Brazil's Transparency Portal ("Portal da Transparência") is a website that provides detailed information on the Federal government's revenues and expenditures.
- Germany: tracks and assesses how Germany implements its "National Action Plan to implement the G8 Open Data Charter".

6.1 Methodology

To provide consistency and uniformity in reviewing the projects, a common framework was created for their analyses. This included background on the country, the political and/or economic context for the project, a description of the country's national digital goals, the implementation of the project, its successes and limitations. Of particular note is a description of the internal and external drivers that both enabled the project and presented challenges to its operation.

6.2 Common Element

Despite the diversity of technologies employed and unique characteristics of the projects, all shared one common element—they are the products of government employing digital technologies to address a specific critical economic, social or political need. The United States declared that the lack of broadband accessibility in rural and economically depressed areas was a major economic and social problem that needed to be addressed. In Mexico, the need to expedite and improve trade processes was critical if the country was to remain economically competitive. The Brazilian Transparency Portal was an evolutionary step in the federal government's policy to open information to the Brazilian populace. In the Indian case, the need for information was vital to identifying its citizens and enabling their access to

government and other services, which for a large segment of its citizenry, was often not possible before the advent of the Aadhaar project.

6.3 Project Outcomes

The projects demonstrated that digital government initiatives entail a number of important features to be effective. These ranged from understanding technology's strengths and limitations, garnering political support, managing stakeholder requirements, having adequate financial resources, and even the ability to address legal challenges (in the case of India). They also require considerable coordination between government agencies and the need to review administrative requirements to avoid, as was stated in the VUCEM case study, merely "digitizing bureaucracy". A number of important points are derived from the case studies:

- None of the projects were started de novo but were evolutionary in their history. All the projects had their origins in earlier government policies, programs and initiatives often arising from efforts in eGovernment.
- Effectiveness of a project cannot be assured without the support of senior government officials who are willing to provide the power and prestige of their office to achieving the goals of the project. For example, the United States' case had both President Obama and the Governor of New York State championing the need to expand broadband access to its citizens, in Mexico the president was a supporter of the VUCEM project.
- Equally important, there was a legal framework that created the need for the project and eased its implementation. For example, in the Brazilian project, the legal framework gave "support" to the Portal and the mandate that government agencies cooperate in the project. Similarly, in Mexico, the government through a series of legislative reforms and mandates, e.g. digital signature law (FIEL) enabled the VUCEM to succeed.
- No project can succeed without the necessary resources (time, money, personnel) to fulfill its objectives. Governments in these cases were willing to commit the necessary funds to enable the projects. Equally important, to avoid squabbling between agencies and delays in implementing the project, funding for the projects were directed and provided by one agency.
- Given the complexity of their operations, the projects required considerable coordination between government agencies and non-government stakeholders. In the Indian project, a combination of government agencies (e.g. the department of posts) and private contractors were needed to effectively gather information for the Aadhaar project. The VUCEM project in Mexico required the cooperation of 12 different ministries, and the Brazilian Transparency Portal needed input from multiple ministries to supply the needed data. The US Broadband project required coordination between federal, state and local officials, private contractors, community representatives, and telecommunications companies.

- Management of the projects required one agency or unit to be specifically given the authority and responsibility to coordinate the project. Without assigning this authority, the government's ability to manage a complex project would be extremely, if not almost completely, difficult to implement.
- Beyond the primary objectives of the projects, there were a number of important ancillary benefits cited. For example, Brazil, Mexico and India each mentioned that implementation of their projects would have a positive impact on minimizing corruption in their countries.

6.4 Challenges

While the cases presented many positive attributes of the projects, the projects were not without a number of issues and challenges:

- Technology can be complex, ever changing, and often daunting to use. For example, in the Unites States' case, the very nature of broadband is changing rapidly with the expansion of wireless technology. But equally challenging is citizen usage of broadband technology. Without promoting adoption of broadband usage, expansion of access has little value. In the Mexico project, the training of both government officials and business trade officials was critical to effective utilization of the new VUCEM system, and as stated in the case, many government officials were fearful of the new technology. In the Brazil case, it was recommended that the presentation of the data be reformatted to make it more "user-friendly" for citizens who do not have an understanding of budgetary information. In India, the use of biometric data and creation of an enormous database of personal information caused considerable concern regarding individual privacy.
    - The projects' relationship to national digital strategy was often marginal, more inferential rather than explicit. While the projects came within the general scope and intent of the country's national digital strategy (where it existed), they, except for one case, were neither a direct result of country's digital strategy, not cited as a major priority, nor linked to other projects in the national strategy. For example, under the Indian national strategy "Digital India", the massive UIDAI program received a single reference under Digital India's "e-Governance" pillar. In Mexico, VUCEM was started before the current national data strategy was formulated, and in Brazil, there is no overarching national data strategy but a set of digital initiatives formulated by the federal government (of which the Portal is one). Only in the U.S. case was the New York State broadband project a result of the national strategy to expand broadband access.
    - Given the complexity of the projects, timetables and internal deadlines often met with delays. The projects needed additional time to be implemented. Reasons for delays were varied and ranged from technology implementation

(Mexico), legal challenges (India), to the complexities of government contracting for services (US).

- None of the projects were subject to any comprehensive evaluation or analysis as to their effectiveness or impact in reaching their ultimate goals. Each case cited limitations on project assessment. For instance, the Brazilian government had not examined the impact of the Portal. While it may track visits to the database, it had not evaluated the relationship between the Portal and its impact on Brazilian society. Similarly, the U.S. broadband, Indian Aadhaar, and Mexican VUCEM cases all cited the lack of assessment of their projects' ultimate goals, their involvement in other projects under the government's digital strategy program. The Mexican case, for example, specifically asks the question as to how the government will achieve synergies between its various eGovernment projects and initiatives.

7 Summary and Outlook

Governments across the globe began to embark on the digital government journey about 25 years ago. Much has been achieved since then, with most countries having a sophisticated online presence, channels to interact with their citizenry, more access and transparency as well as process optimization in some cases. However, the promise of digital government is still to be fulfilled—the aspirations of measurable citizen outcomes, transformative service delivery and public governance are not yet met. Our case studies show a disconnect between strategy formulation and implementation.

Our argument is that we can, in this regard, be optimistic. Economic and political flux brings the potential of convergence around shared goals and new ways of delivering public service value. Social pressure opens up the possibility of citizen-driven digital services that tap into the energy of citizens, entrepreneurs and communities. New technologies offer the potential of substantial change to the delivery of public services across the operations and management of government. Where to begin? Core to achieving these benefits is connecting strategy with implementation as well as effective measurement of outcomes—of a government's performance, its effectiveness and the productivity of the public services it funds and provides. Sustainable future public services will be about aligning incentives, performance and productivity across the spectrum of government. It is about the transformation of public services to deliver more personalized digital services. Also, it is about the transformation of government's role to be an enabler for growth and innovation.

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