

White Paper

Global Agenda Council on the Future of Government

Government with the People: A New Formula for Creating Public Value

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Introduction

Abraham Lincoln's Gettysburg Address is one of the most famous speeches in US history. Its concluding line has become synonymous with democracy itself, arguing that Americans had fought the Civil War so that "government of the people, by the people, for the people, shall not perish from the earth."

As this process evolved from the 18th century, governments became increasingly "for the people", providing services – from law and order to social welfare – for their citizens. Government traditionally created public value by providing security; its first and most important goal. This security goes hand in hand with justice – dispute resolution – creating not just safety, but also order.

Governments today also provide physical infrastructure to allow their citizens to travel and trade with one another. They also provide a host services – from education and health to a social safety net and safety regulations. Yet service-providing governments are in trouble. Their slow and massive bureaucracies simply cannot keep up with their citizens, who are increasingly accustomed to instant gratification via their smartphones, or their businesses, which are collecting and using data to hone their products in a way government can only dream of. Governments are the dinosaurs of the digital age: slow, lumbering and outdated.

The 21st century needs a new model of government, a government *with* the people. Olli-Pekka Heinonen, Director General of the Finnish National Board of Education, writes that this revolutionary shift happens if we, instead of providing public services to citizens, learn to achieve results with citizens. This means a fundamental change in how the identity of citizens is seen; a shift from consumer-citizens to value creator-citizens. Heinonen contrasts this model with the traditional top-down government tools of legislating, budgeting and organizing. He calls for a new approach that focuses on creating public value.

The concept of public value explored in this report is less about protecting and providing for citizens and more about empowering them. Governments of the future will provide value for citizens in three ways:

1. Mapping society and making it visible

Government has the tools, legitimacy and reach to see across all sectors of society. As Professor Yasar Jarrar of the Hult International Business School points out, governments' ability to gather and curate data means that it is the new mapmaker for virtual reality, charting new territories of social and economic interaction for its citizens to see and use. Just as monarchs paid mapmakers to mark their borders and to explore unknown territories to be claimed for the crown, governments today can demarcate their citizens' property rights, identify their traffic and purchasing patterns, chart public health, and map pollution and patterns of migration. More important, governments can make all of these new maps visible to their citizens in a real-time basis. In his paper, Civic Resource Group CEO

Gregory Curtin shows how augmented reality can light up data in real time for citizens and let them contribute to and benefit from the new maps. Government will actually be able to create new worlds.

2. Empowering citizens

The central proposition of "government with" is co-creation. As Professor Beth Noveck of Yale University writes, the shift from top-down, closed and professional government to decentralized, open and smarter governance may be the major social innovation of the 21st century."

Networks of citizens are already participating in open data challenges in cities across the United States and around the world. They are assisting crisis communications in natural and human-made disasters and they are helping draft government budgets, legislation and even constitutions.

Heinonen's paper shows the way: consider how Finland has redefined public transport as "mobility services" and enlisted citizens and companies to help. Professor Jane Fountain of the University of Massachusetts analyses how government can be organized to bring multiple agencies and departments together to support specific missions, including citizen collaboration, while Anne-Marie Slaughter, President and CEO of New America, outlines government investment in citizens to fulfill their individual potential to achieve their individual goals and to participate in governing themselves.

3. Reducing risk and fostering innovation

Governments can afford to take risks that individual citizens or businesses cannot. That may seem counterintuitive, given the typical bureaucrat's aversion to sticking his or her neck out. Professor Helen Margetts of the University of Oxford reviews the history of digital government and points out that in the 1960s governments led the way in developing computer technology, digitizing their operations and creating large-scale information systems; they only began to fall behind business in innovation in the 1980s. Margetts shows how government can create platforms of innovation, putting in first-stage capital and reducing risk for the citizens and companies that follow. Professor Mariana Mazzucato of the University of Sussex argues in her book, *The Entrepreneurial State*, every innovative component in the iPhone can be traced back to government investment.

With the rise of the internet, governments have tried to use new and emerging digital technologies in innovative ways to enhance the delivery of public services. This approach, commonly known as electronic government, or e-government, was heralded as revolutionary in the late 1990s and early 2000s. However, e-government, along with the more recent m-government (mobile government), has been far more evolutionary than revolutionary. Notwithstanding the many service enhancements that have emanated from e-government, in most cases it has not significantly changed the way governments conduct business or interact with their citizens. Moreover, it has raised many questions about e-access, the digital divide and e-literacy.

Tracking these trends, the World Economic Forum's Global Agenda Council of the Future of Government, in a 2014 report, traced the evolution of e-government and introduced the idea of a smart toolbox. The toolbox refers to a mix of soft and hard power elements that enhance government performance, allowing government to do more while reforming, "leaning up" and staying agile – it builds on a 2012 council report that outlined the FAST (flat, agile, streamlined and tech-enabled) government blueprint. Specifically, the 2014 report offered insights and practical examples on how technology can help governments get better at dealing with eight core government priorities: anti-corruption, political representation, stovepiping/bureaucracies, delivery of services, trust, leadership, security and innovation.

Trust in government, for example, has steadily declined over the past two decades, and governments around the world are facing mounting challenges from stagnating economies, complex unemployment issues, a changing climate and rising economic inequality. If left unchecked, these challenges can lead to rapid dysfunction, and even violent protest and action.

The only way to restore trust in government is for the people to join with government, in effect to become the government, in providing the security and services they need.

The future of government is to bring together different parts of society in a continual collective process of mapping, updating and acting on data. Societies will each become like an enormous self-driving car, steering in a collectively decided direction and continually adjusting course according to the data it generates and receives, and maintaining and repairing itself as it goes.

This report – *Government with the People: A New Formula for Creating Public Value* – looks ahead to a new social contract and a kind of government that may seem unimaginable to many citizens and governments today.

Government as a Source of Public Value

Making public services public again

By Olli-Pekka Heinonen, Director General, Finnish National Board of Education, Finland

The basic idea with public management is to get wanted things done. What we are experiencing around the globe is that we do not get things done any more. The expectations of citizens are not met through political processes and public management. The management of public services is more often seen as part of society's establishment that has let its citizens down.

In many countries, there is a widening gap between stated policy goals and the actual delivery of services that benefit citizens on the ground. It is known as the "delivery gap". The delivery of public services has been created under an era of Weber's concept of bureaucracy, Taylorism and top-down organizational structures. The distribution model has been copied from the industrial sector; public factories have duplicated identical services to all citizens.

With the new public management came even stronger influence from the private sector; increased efficiency by using tools familiar in corporate management. The focus has been on increasing the efficiency, not increasing public value or solving the problems, which are more often wicked by nature.

There are many reasons for dissatisfaction with the delivery of public services. As citizens become increasingly educated, informed and empowered through the spread of information and communication technology, they are not ready to settle anymore with ill-functioning services that do not meet their needs. Educated citizens require more individual and tailored services, and possibility to influence.

Slow GDP growth has put pressure on financing public services. In many developed countries, ageing population raises age-related public costs. In search of well-being, the newest research stresses the importance of an individual's ability to be in charge of one's own life.

We must find new ways to increase public value to society. Increasing public financing is not a sustainable answer. The traditional tools for government to get things done – legislation, budgeting and organizing – are also important in the future, but they are not enough. We must increase the capacity and tools in the government toolbox to cope in complex and unpredictable circumstances.

Public trust is a slowly renewable resource. Traditional governmental tools are based on the use of strong authority, which often burdens trust. In most OECD countries, it has been spent faster than it has renewed. That has led to the situation where decisions are not done because of lack of trust. The outcome has been a vicious circle; decreasing trust makes decision-making impossible, which decreases trust. The circle must be turned around.

We must learn to look at creating public value from a new perspective. The idea of separating thought and action, thinking and execution, has been thoroughly taken into use in public services. It is the politicians and the leadership that think and plan, and the civil service that executes replicable and standardized services to citizens.

The revolutionary shift happens if we, instead of providing public services to citizens, learn to achieve results with citizens. This means a fundamental change in how the identity of citizens is seen; a shift from consumer-citizens to value creator-citizens. Thought and action are brought back together again. The wanted changes in society should be made by minimizing the use of authority and maximizing the value outcomes. That is possible only by involving the citizens in the process of creating public value. Bottom up-steering mechanisms, experimenting and user-centric service design can speed up the renewing of public trust.

The information and communication technology makes it easy to connect, communicate and develop services together, in a network. Digitalization decreases the transaction costs dramatically while digital transparency makes responsive coordination possible.

The start of the platform economy (also described from different perspectives as the sharing economy, gig economy, on-demand economy, creative economy) – where needs and offerings can find one another easily without huge organizations – gives enormous possibilities for the public sector. It makes it possible for the public sector to create platforms where the increase of public value can happen.

The increase of public value does not happen in public organizations, it happens in networks between politicians, civil servants, citizens, scientists, private companies, NGOs and the media. The Finnish model of seeing mobility as a service is one example of such platforms. Such platforms must be developed with the whole system approach. The platform should be based on supporting the development of capabilities, open dialogue and stakeholder involvement. The leadership of the platform emphasize strategic vision, trust creation and building a learning environment with feedback loops. The main focus is not only on what is done, but how it is done. Ecosystem experimentation is the heart of these platforms, where public and private are intertwined. These platforms are the “public agency locations” of the future.

When public value is created in networks and through human interaction, context becomes king. The needs of citizens differ, and there is more need to cope with the complexity of expectations. The best way to do it is to increase the public sector’s ability to innovate, to design the services with citizens. That requires the use of a common language with different sectors and the citizens, possibility to tailor services from the citizens’ point of view despite administrative silos. Tools must also be created to encourage a citizen-oriented approach in service design. Open data gives possibilities to combine citizens’ abilities to control how data is used and shared (Mydata) and value creation for public service and commercial purpose.

All this is happening; the technology is there. The friction comes from the behavioural side, the existing ways of organizing and doing things. We continue to operate on the premises that are no longer valid.

We are caught in an intervention trap. It is the current world view that should be changed. That does not happen rationally, but through experiential learning, by helping people to observe, learn and unlearn, reflect and be part of the change. We must learn to create collective impact through adaptive action. Let us make public service public once again.

Citizen Participation

In data we trust: Government as data curator

By Yasar Jarrar, Professor of Business and Global Society, Hult International Business School, United Kingdom

Innovations have swept the government nomenclature over the past decade. Many government entities followed tried and tested private sector frameworks, and a lot of good outcomes were delivered in terms of better public policies and improved government services. However, the bulk of these innovations were encouraged inside-out, designed and delivered from within. In the meantime, the more interesting form of innovation was coming from outside government; namely the private sector, civil society and individual citizens. Empowered with more and more data, they started thinking truly out of the box and offering various “government hacks.”

Today, fast-moving and evolving trends in digital technologies are leading to a radical change in citizen expectations. Citizens are changing their approach to interacting with, and relating to, governmental organizations and services. The nature of these evolving interactions is horizontal, empowering and spontaneous. In many ways, the exact opposite of the traditional hierarchical, bureaucratic and rules-based systems government developed over the decades. Central to this new form of interaction is data: up-to-date, reliable, user-friendly and open data.

This need for data is quickly becoming a central theme that applies to all aspects of our evolving digital society. A case in point is the field of artificial intelligence, which promises to revolutionize society (governments included). Companies such as Google, Facebook and Microsoft are using AI-related techniques to train computers to recognize objects in photos and understand human language.

It is possible to train computers to perform these difficult feats because we have the enormous quantities of data that is required. The same applies to all forms of machine learning, smart manufacturing and every other tech-driven trend shaping the future. They are all reliant on data, and are only as good as the data they crunch. In this context, data has been described as the “new oil”.

The data age

The rapid pace of technology evolution over the past decades gave us new business models (at the centre of which is e-commerce), an unprecedented level of global connectivity (accelerated by the smartphone phenomenon). These developments created enormous volumes of data, which led to the rapid rise of the “data field”. What was once the domain of intelligence agencies, market research professionals and some technical statisticians is now going mainstream.

The new connected world of today is producing data at a pace that is unprecedented in human history. It is estimated that today more than 3 billion people are connected to the internet (compared to only 2.3 million people in 1990). These 3 billion people are producing data every second of their digital lives. This has led to the rise of big data, commonly defined using the four Vs: volume, variety (of sources), velocity (effectively around the clock) and veracity (given abundance, quality assurance becomes key).

If used effectively, big data can be a powerful tool. Various researchers have found a strong link between effective data management strategy and financial performance of companies as it helps them get to market faster with products and services that are better aligned with customer needs. It has the same performance enhancement potential for the public sector in terms of better policies, more tailored government services, and more effective and efficient distribution of resources. It can also lead to negative outcomes if used incorrectly, in addition to the much-discussed issue of privacy.

Effectively managing big data is now possible given the hardware and software developments, at the centre of which is the exponential growth storage capacity. Today, a hard disk with one terabyte storage capacity costs about \$50 (that was the global storage capacity only four decades ago). It is because of this storage power that many entities are following the “collect now, sort out later” approach when it comes to data. The low cost of storage and better methods of analysis mean that you generally do not need to have a specific purpose for the data in mind before you collect it. This means big data will only get bigger, and – per IBM’s Watson data crunching service team – the value of this data will go up every day AI advances.

Operating models in the data age

Today, a large majority of the world’s data is in the hands of the private sector (such as IT, telco and retail firms). Some, like Google and Facebook, managed to monetize this data and made it central to their business model. Others, including Uber and Airbnb, used data to develop platform models that disrupted their industry. So far, people have been willingly offering their data for free in exchange for access to technology services (e.g. email). But this will not remain the case for long. Business models are being developed to find the ways and means to start paying people for the data they generate in their daily lives. An exciting, and widely unregulated, sector is emerging.

The remainder of the global data sits in government hands, mostly stored in paper format, or legacy systems. To maximize the societal benefits of the data age, a new movement started promoting open data. While government data is all data or information that government entities produce or collect, making it open refers to publishing and sharing data that can be readily and easily consulted and re-used by anyone with access to internet with no fees or technological barriers.

Data is increasingly becoming a source of wealth and public value creation. In that context, one can argue it is more valuable than just being “the new oil”. It is the lifeline of the digital society. A business running without accurate data is running blind, and this is even more true in the public sector (especially given the growing scarcity of public funds).

However, there are big questions that are yet to be answered in the data age. Who owns the data, and who should own it (given its centrality in our digital society of the future)? Should there be a basic data charter for citizens so they understand their rights and responsibilities? Who is responsible for our data quality and security? How do we manage and ensure privacy? And, will people accept to continue generating data without being compensated for sharing it?

From e-government to government as data curator

Commercial decisions, innovations, public policies and all choices based on big and/or open data are only as good as the quality of data they use. The data needs to be vetted, maintained up-to-date and useable, and protected. This cannot be always done at the source due to the data sources’ variety and veracity. Societies will look more and more to their governments to play that crucial role.

Over the decades, governments have always had a technology arm. We moved from the first generation (web 1.0) e-government to web 2.0, which gave us richer, immersive web-based services with online applications. Now, we are looking at government 3.0. But rather than being represented by a technology or toolset, it is a shift in culture that views government as a platform for enabling the creation of public value. Data is at the heart of this platform.

Data is indeed the new oil, and it has the same economic and social transformative potential. If “crude” data can be extracted, refined and piped to where it can impact decisions in real time, its value will soar. If data can be properly shared across countries and societies and made accessible in the places where analytics are most useful, then it will become a true game changer, altering the way we live and work. For that to happen, governments need to design, refine and master a new set of capabilities, regulations, and shape a new culture. Nothing less than a new ecosystem will do in this case.

Most of this data currently remains locked up and proprietary (private property of companies, governments and other organizations). This severely limits its public value. Data is now a new social good and governments will need to think of some form of data responsibility legislation that guides the private sector and other data owners on their duties in the data age: the duty to collect, manage and share in a timely manner, as well as the duty to protect. This legislation is needed over and above a government’s own open and big data management systems, and will need to cover all data stakeholders (irrespective of ownership or other governing rules).

Once a clear legal framework is in place, governments need to develop, and quickly master, a new core capability: data curation.

The challenge for governments today is that the core skills and systems needed in the data age are far from the current government systems and regulations. Despite years of political attention, and billions invested, most governments around the world still struggle with legacy databases that are incompatible with each other, and work against any kind of data-sharing or data-driven design. Laws and regulations are still in their infancy and struggling to cope with the pace of change. More importantly, the talent needed to manage this new capability is not typically attracted to public service, and is in high demand in the private sector.

Government organizations need to design advanced processes for data management. They should be able to capture and process overwhelming amounts of data, and store it in a way that captures its context (contextual factors are critical as big data may lead to counter effects on decisions made consequentially). Governments also need robust processes to ensure and assure data quality. The value of data for decision-making purposes may be jeopardized if the data is not accurate or timely.

To enable such processes, governments must review a vast number of laws and regulations. From harmonizing and enforcing privacy regulations and protecting against data-breaches, to regulations that ensure net neutrality and data flows. Today’s debates over the future of big data are based on the assumption that the internet will remain a series of open networks through which data easily flows. Some countries have begun to harden their internet systems, and the concept of net neutrality is uncertain. If the internet becomes a network of closed networks, the full potential of big data may not be realized.

Governments must also improve their capabilities when it comes to citizen engagement to effectively and actively engage with both providers and users of data. This requires governments to create a culture of open data – something governments are starting to do with various degrees of success. The level of citizen engagement is not the typical government communication function, but a more open, horizontal, and fast-paced G2C platform.

Finally, and probably most critically, is the need to attract and retain the talent needed for the data age. Two decades ago, a statistician did not have many job prospects around the world. Today, the same skill set (rebranded as data scientist) is probably the hottest job on the market. IT firms (from start-ups to global leaders), financial services, retailers, defence companies and governments are all competing to recruit such talent. Those who will survive and thrive in the age of the Fourth Industrial Revolution will be the organizations that can attract, retain and continually develop those skills and capabilities.

Augmented reality for smart government, smart cities, smart citizens

By Gregory Curtin, Founder and Chief Executive Officer, Civic Resource Group, USA

Augmented reality, or AR, has been called the next big paradigm shift in computing, tantamount to the kind of transformational changes that the internet and the smartphone made in the field. Global technology leaders, including Google, Microsoft, Facebook, Snapchat and Apple, have all staked significant claims in the AR “digital” land rush. Apple CEO Tim Cook, for example, has said that “a significant portion of developed countries, and eventually all countries, will have AR experiences every day, almost like eating three meals a day.”

Augmented reality is the interaction of superimposed data, graphics, audio and other sensory enhancements over a real-world environment that is displayed in real time – the world we actually see, the world within which we actually work, the world our citizens navigate every day. (AR should not be confused with virtual reality, which places the user in a created, virtual, world.) The experience of AR is simple, but powerful – it is contextual, visual and even visceral.

How will this “next big thing” impact governments and governance? The concept of AR dates back at least to 1990 when researchers from Boeing coined the term “augmented reality”. Many would argue it goes back further than that. However, the essential elements for AR to flourish in the digital era are only just now starting to line up.

Smart infrastructure and the Internet of Things. The increasing availability of broadband internet along with the rise of the long awaited Internet of Things (IoT) have helped to accelerate the rollout of smart and connected infrastructure across cities, regions and entire countries. Roadways, energy grids, water and sewage systems, public buildings and facilities, communications networks, cars and homes, etc. are becoming “smarter” every day. There are over 6.4 billion connected devices already in 2016. Estimates are five to 10 times that number just in the next four to five years. This smart infrastructure and the massive amount of real-time, geo-specific data it generates provides both the engine and the fuel for AR in the public sector. This is being borne out across the globe as evidenced by the significant “smart city” initiatives and challenges being launched in the EU, India, China, the US and most recently in Canada (Canada has announced a 2017 Smart City Challenge modelled after the 2016 Smart City Challenge initiated in the US).

Data, data, data. Augmented reality is most valuable in the public sector when it is “lighting up” real data, whether those data are accessible through the open government data initiatives that are rapidly taking hold at every level, being generated by the growing sensor-based networks and smart infrastructure that are spreading across the environment, or capturing the massive amount of unstructured data being created every day by mobile users, the growing formal and informal networks resulting from the sharing economy, and other structured and unstructured data sources. With the combination of smart infrastructure, big data and open data, public sector entities at all levels are able to start stitching together the fabric for smart cities, smart solutions, and connected and cross-platform solutions to actually deliver integrated services and experiences to citizens and allow workers to operate in that kind of environment. AR serves as the visual portal to data across the public and private sectors, adding huge value to prospect of data as true public asset and resource.

Augmented reality technologies. Over the past few years, the core AR software and, most important, the devices that will deliver the augmented reality experiences, have finally begun to mature. They include:

- Handhelds and mobile devices, primarily smartphones and tablets, and built-for-purpose mobile workforce devices
- Head-up displays (HUDs) for windshields, screens, visors
- Head mounted displays (HMDs)
- Glasses, goggles, visors and helmets
- Contact lenses, virtual retina displays
- Spatial displays
- Others in research and development

Augmented reality in practice: “Seeing” the future of government

There are myriad uses for AR in the broad public sector, and as with any new technological innovation, its potential is limited only by the creativity and ingenuity of its users. The following potential use cases – some of which are already being planned or in the proof of concept stage – provide a cursory overview of the possibilities.

E-governance: Citizen engagement and e-services

Imagine a world where every government form and application can be accessed, viewed and completed through a variety of AR devices – smartphones, smart glasses, in-office displays and readers – with a full range of accessibility aids (sound, language translations, visual and graphic instructions, etc.). Imagine a world where the very foundations for governance – policy, legal, regulatory documents and frameworks – are transformed into truly “living” documents that can interact with citizens and officials via AR enabled devices. And imagine a world where citizens and businesses can actually “see” through augmented reality what planned public works projects will actually look like – highways, water and energy facilities, public parks, new transit lines and stations, etc. – and even interact with the augmented project

Asset management and maintenance

Imagine municipal workforces that are able to efficiently and accurately maintain city assets – from streetlights, cell towers and fire hydrants, to water wells, communal stock and roads – using head-up windshield displays on maintenance vehicles, smart goggles, hard hat-mounted devices and other hands-free AR devices. Imagine optimizing the reach and impact of high-value experts, specialists and supervisors who are enabled to provide real-time guidance and technical expertise to field workers with remote AR connections – audio, visual, data and sensory.

Public safety and emergency services

Imagine firefighter and disaster first responders being able to navigate to and through their environments with emergency vehicles equipped with AR head-up windshield displays providing route guidance and real-time sensor data on environmental and hazardous conditions; and with helmet-mounted AR devices and visors allowing them to see and hear through smoke, fire, rubble, poor weather and other conditions. Imagine AR disaster applications that provide visual and audio guidance for citizens seeking refuge, evacuation routes, or emergency assistance in a disaster situation. Imagine real-time data-driven AR applications that allow law enforcement officers to access location specific information and data on dangerous situations via smart glasses, in-vehicle displays and other wearables. Citizens and businesses can access authorized geo-specific data on crime statistics and other environmental factors just by pointing their mobile devices at a building, down a street, or for an entire community.

Public health, wellness and sustainability

Imagine inspectors of all kinds – health, building and public safety, environmental quality, etc. – being able to instantaneously “see” and interact with all the available data and information related to a facility, an agricultural area, a neighbourhood or district. Communities interested in encouraging healthy and sustainable living for their citizens can connect healthy amenities – parks, recreation facilities, farmers markets and urban farms, community health festivals – and connect them to healthy activities such as walking and biking, wayfinding and getting around resources that offer “healthy” options, or options with the lightest carbon footprint. Imagine a host of environmental quality (air, water, ground, etc.) detectors and AR combined with environmental sensors to allow environmental officials and citizens to make real-time decisions on movement, activity and official response.

Transportation and urban mobility

Imagine in this augmented future being able to see and visually “connect” the various transportation systems – from traditional highway, roadway and fixed-rail infrastructure, to modern on-demand and shared mobility services and active transit (walking and biking). Operators of rolling stock – trains, buses, shuttles, car/vanpools – will have AR windshield displays providing real-time information such as traffic incidents, scheduling and route changes, customer needs, vehicle maintenance and health, etc. And imagine augmenting physical maps of transit systems so that users – visitors and residents alike – can visually and or audibly access the portion of the transit network that they actually use and need.

Culture, heritage and tourism

Across the globe, protection of heritage and culture is a high priority. One of the richest uses of AR is to enhance places, such as historic buildings, castles, monuments and heritage sites, battlefields, etc. Museums and culturally significant buildings are perfect candidates for AR information and rich content around artwork, artefacts, publications, etc. Natural resources – including national parks, coastlines, forest and wetlands – combined with AR can provide a powerful educational experience while simultaneously encouraging and monitoring the appropriate use and preservation of natural resources. Tie this all together – wayfinding, things to do, art and culture, history and heritage – to create compelling connected AR experiences for cultural tourists and citizens alike.

The examples above of AR in the public sector are just a few of the real-use cases possible and which are just now coming on line. Augmented reality is emblematic of the Fourth Industrial Revolution, a blurring of the lines between the physical and digital worlds, and, indeed, the public and private spheres. Keep an eye out, and you will soon be able to “see” the very future of the public sector.

Organizing for Results

Fostering cross-agency collaboration and networked governance

By Jane E. Fountain, Distinguished Professor; Director, National Center for Digital Government, University of Massachusetts, USA

The government of the future operates seamlessly across boundaries to address complex challenges in a hyperconnected world. Increasingly, business and government executives manage an enterprise that works across organizations to tackle “wicked” problems, those that demand expertise and solutions brought together from disparate sources. Examples of such problems include economic development, intelligence sharing, disaster preparedness and recovery, and a range of social, environmental and financial issues.

Many think the internet makes networked government inevitable as if networked information systems equate to networked government. Many still think that information technology disintermediates within and across organizations, reducing layers and blurring boundaries. It is true that some roles, tasks and entire swathes of organizations have been automated (file handling, information sharing, printing) or externalized (email, social media, cloud services), but information technologies are merely an enabler for networked organizations, here defined as ministries and agencies with strong capacity to work across boundaries to solve important challenges.

A recent white paper I was asked to write for the United States presidential transition recommends that the next administration include “management” as a core part of transition planning, specifically the management required to develop and sustain cross-agency collaboration.

Careful observation of the US central government shows that an emerging ecosystem of institutions to support cross-agency collaboration has been forming since the Clinton administration of the 1990s, as the inability of technology alone to foster collaborative networks has become starkly apparent. This ecosystem of institutional support is necessary for cross-agency collaboration to be effective and sustainable.

In an ecosystem, each organization fills a niche or specific role. These niche organizations interact to form the supportive mesh of the ecosystem. The organizations below connect to translate policy formulation to implementation and management of cross-agency initiatives and to support integration and streamlining of management systems across the federal government. While some dimensions of the ecosystem focus on information technology, most others reinforce and support the many organizational changes necessary to make cross-agency initiatives feasible and sustainable over time.

Digital services are a trending topic. Consider the technology for a central government grants management system called Grants.gov. If technology alone could build collaboration, US federal grants processes would have been streamlined in the 1990s. The US federal government awards about \$600 billion in grants and other types of financial assistance to cities, towns, universities, colleges and other entities. Yet Grants.gov is a portal, however important, that allows organizations simply to find and apply for federal grants.

The more difficult management challenges of simplifying application and reporting requirements, improving coordination across service providers, and improving service delivery – goals that were signed into law in 1999 – remain a work in progress. The streamlining of government benefits programmes across agencies, using the platform Benefits.gov, tells a similar story of breadth without depth of integration. While technological innovation may be disruptive, institutional innovations progress slowly. Central governments in several countries began in the 1990s to take a networked governance, an enterprise, a “whole of government” approach to leverage IT and address problems that lie across jurisdictional boundaries. I wrote about some of these efforts and the resistance from those advantaged by bureaucratic structures in my 2001 book, *Building the Virtual State*. Since then, strong communities of practice among dedicated, expert government managers have worked for years to streamline governments’ administrative functions and lines of business across areas as diverse as grants, benefits, human capital, IT services, acquisitions and others. Many governments have made substantial progress, yet institutional changes have barely caught up with the potential afforded by digital technologies, including cloud services, social media and other more recent digital developments.

Legislating cross-agency collaboration: Cross-agency priority (CAP) goals

Some countries have legislated cross-agency collaboration with varying success. In the US, the Government Performance and Results Modernization Act of 2010 (GPRAMA) is primarily viewed in terms of enhancing performance management. But the law also requires the White House and the Office of Management and Budget to articulate a set of cross-agency priority (CAP) goals for the administration and codifies new roles, requirements and institutions to support their achievement as well as that of agency-level strategic goals.

Two types of goals – mission-focused and mission support – encompass two different types of problems. Mission-focused collaboration brings together pockets of expertise, know-how and information to address problems that lie inherently across agency boundaries, such as international trade, food safety, sustainable communities, disaster preparedness and intelligence sharing. Mission support focuses on streamlining administrative processes. The current set of cross-agency priority goals is presented below.

Modernization of infrastructure permitting processes across agencies is a success. The initiative is meant to “institutionalize interagency coordination and transparency by formalizing interagency coordination policies” to synchronize review and permitting processes and decisions (performance.gov). Legislation provided the legal basis, timeline and deliverables for the project. A permitting dashboard is the underlying technology platform to support collaboration (www.permits.performance.gov) by making visible to the public the status of all permits and review processes associated with large infrastructure projects.

But it is the painstaking work of benchmarking across programmes, developing timeliness indicators and helping agencies coordinate permitting processes that underlie success and sustainability. For example, recent legislation allows for centralized collection of fees thereby allowing an interagency permitting council to direct resources where most needed.¹⁰

Cross-agency priority goal projects have struggled most not on sharing technology, but on sharing resources across jurisdictions, sharing information when it is restricted to a particular agency, building shared processes for customers, and maintaining leadership and staff in a stringent budgetary environment.

An emerging ecosystem of cross-agency institutions

Rather than focusing exclusively on the well-known technologies that support collaboration (e.g. dashboards, wikis, portals), government managers should focus also on an emerging ecosystem of organizations that supports cross-agency collaboration. In the US federal government, the Executive Office of the President is essential to sustained leadership of administration initiatives that cross agency boundaries. The president’s policy councils – the Council of Economic Advisors, National Security Council, Council on Environmental Quality, and Domestic Policy Council – translate presidential priorities into action.

Mission-focused, cross-agency priority goal projects are co-led by a policy council executive and an executive from a lead federal agency, often a career official. The “management” offices of the Office of Management and Budget are critical to the ecosystem and are responsible under law for performance management, including cross-agency collaboration. Other government-wide administrative function policy agencies are located at Treasury, Office of Personnel Management and General Services Administration.

Cross-agency management councils include the President’s Management Council, which convenes agency chief operating officers (deputy secretaries) and agency heads from two management agencies. The chief executive officer councils include those for chief acquisition, financial, information and human capital officers, and focus on building administrative system coherence, specifically, organizational and institutional rules and practices to leverage networked technologies.

A Performance Improvement Council includes the performance improvement officers of each agency (both created by GPRAMA). These groups work with the Office of Management and Budget to implement cross-agency goals and improve performance management using internal consulting, coaching, training, and “convenings”: cross-agency summits, problem-solving sessions and working meetings to share knowledge and promising practices. These new roles and organizations – and the network they form – are the primary ingredients of the “glue” of coherence to support cross-agency collaboration. They are like pollinating bees – brokers and integrators connecting a large, often unwieldy set of government organizations. An ecosystem of institutions has emerged to support cross-agency collaboration. Successful innovators recognize it and the work it does and use it to support sustainable cross-agency collaboration.

Government Leading the Way

Government as innovator

By Helen Margetts, Director and Professor, Oxford Internet Institute, University of Oxford, United Kingdom

Government needs to reclaim its past role as innovator. It is often claimed that government is unable to innovate; without profit surrogates, public officials have no incentive to do so. This view was fueled in the 1980s, which sparked two decades of antipathy to the state. But when you look at the history of digital government, governments in the 1960s led the way in developing computer technology, digitizing their operations and creating large-scale information systems. It was only in the 1980s that governments started to lag behind the corporate world in terms of innovating with digital technology.¹¹ And as Marianna Mazzucato has shown in the *Entrepreneurial State*,¹² governments were behind many of the innovations that underpin today's digital society, from the internet to GPS to the iPhone.

A platform society

We live in a "platform society", where we spend an increasing proportion of our time on digital platforms, particularly provided by Google, Apple and Microsoft, but also social media such as Facebook, Twitter and YouTube, shopping platforms such as Amazon and eBay, and newer platforms of the sharing economy, including Uber and Airbnb. All these platforms run on the basis that the more time we spend there and the more things we do, the more data we generate, and that data can be used to develop the services provided, so that we spend more time there, in a virtuous feedback loop of usage, data generation and innovation. This platform society also exerts a number of pressures on government to innovate with digital technology and data.

The most obvious pressure for innovation comes from the decade of austerity and cuts that followed the financial crisis of 2008, pushing governments to do "more for less" with technology and to introduce "digital by default" programmes rather than expensive multi-channel approaches. Other pressures come from the large-scale transactional data generated by the platform society and by digital government itself that could be used for policy innovation, for example through predictive or probabilistic policy-making, as is already happening in education and policing, or in big cities where smart travel cards provide unprecedented quantities of fine-grained data on journeys and individuals with the potential to transform the design of transport systems.

A digital society means that regulation must also be digital – taxis for example, are heavily regulated in most cities, but Uber's data-driven platform poses a huge challenge to analogue regulatory models. Likewise, experience with other platforms means that digital citizens have new expectations of government in terms of being able to interact digitally; they do not expect to write a check or fill out a form (although they often have to), and they may not even expect to be able to call government either (as they do not think of calling Amazon).

Finally, government needs to innovate around the new challenges that the platform society introduces to the provision of public goods such as security and public health. Cybercrime and online extremism and radicalization, for example, are forcing security and intelligence services to reinvent themselves.

Government as a platform for innovation?

All these pressures from the platform society and platform economy push government to be more innovative. Can government meet this challenge? It may be that to do so, government has to develop as a platform itself, as proposed by the US writer Tim O'Reilly in his *Government as a Platform (GaaP)* model.¹³ O'Reilly argues that if you look at the history of the computer industry, the innovations that define each era are frameworks that enabled a whole ecosystem of participation, from the personal computer through the internet to the iPhone. So governments should aim to become an open platform that allows people inside and outside government to innovate. He puts forward seven principles for platform thinking in government: open standards, "keeping it simple", design for participation, experimentation, data mining, learning from hackers and leading by example.

One country pursuing enthusiastically the GaaP dream is the UK, so explicitly that the model was cited in the 2015 autumn spending review by then Chancellor of the Exchequer, George Osborne, and a Government as a Platform Chief has been appointed in the Government Digital Service, the lead agency for digital government. The approach is to create a series of building blocks or platforms that can be slotted into the services of any agency – Verify, a federated identity system; GOV.UK Pay, for making payments to government; and Notify, so that people know the status of their case or application.

But the challenge is that the data landscape is about as far from platform giants like Amazon or Google as it is possible to imagine. Legacy databases, unique to the largest departments and incompatible with each other, work against any kind of data-sharing or data-driven design, particularly as there is no unique personal identifier for citizens throughout their lives, but rather different identifiers held by different departments for different purposes. A plan to reform the government's registers, so that data is held once over and in an authoritative way by a department with sole responsibility for that particular data looks promising, but is still at the starting blocks.¹⁴ So data-driven service innovation, or the "intelligent centre devolved delivery" organizational model favoured by retailers,¹⁵ seems far away in the UK, as in many other countries.

It is perhaps tiny Estonia, with a population of 1.2 million, which offers hope for the idea of government as a platform for innovation. Estonia's digital government sits on two conceptual layers. First, eID is a secure identification layer based on a unique personal identifier – a PKI-based authentication contained in an identification card or mobile ID. Second, X-Road is a means of communicating securely between a series of registries where data is held in a distributed way, where only one department or agency has control over any one piece of data, and where citizens may see what data the state holds about them and who has accessed that data, and for what purpose¹⁶. These two layers allow a third service layer, where departments may develop any services they see fit, as long as they are integrated with X-Road.

Although the GaaP model was never explicitly followed in Estonia, X-Road and eID seem to offer the kind of platform for innovation that O'Reilly had in mind, with departments and agencies as well as banks, corporations and mobile companies developing their own digital services on the two layers. It is not yet a data-driven, policy-making environment, but the possibilities are there. Estonia is certainly following the GaaP principle of leading by example, offering X-Road freely to other countries as a way of communicating between their own data registries. Finland, Oman, Azerbaijan and Palestine have already taken the system, and Canada is showing an interest, with Germany's Chancellor Angela Merkel visiting Estonia's "e-government showroom" in the summer of 2016.¹⁷

Keep it simple

The case of Estonia illustrates the importance of the GaaP principle to build a simple system and let it evolve, which O'Reilly considers essential for innovation to flourish: "A complex system that works is invariably found to have evolved from a simple system that worked.... A complex system designed from scratch never works and cannot be made to work."¹⁸ To reclaim the role of innovator, governments may need to work out how to scale this tiny example of the platform approach in practice. After all, most of the platform giants where we spend so much of our lives – Google¹⁹, Facebook, Amazon, Twitter – started simple and small.

Thinking Long Term

Government as investor

By Anne-Marie Slaughter, President and Chief Executive Officer, New America, USA

The oldest and simplest justification for government is as protector: protector of citizens' security from violence. Thomas Hobbes' *Leviathan* describes a world of unrelenting insecurity without a government to provide the safety of law and order, protecting citizens from each other and from foreign foes. The horrors of little or no government to provide that function are on global display in the world's many fragile states and essentially ungoverned regions. And indeed, when the chaos of war and disorder mounts too high, citizens will choose even despotic and fanatic governments, such as the Taliban and ISIS, over the depredations of warring bands.

Government as protector requires taxes to fund, train and equip an army and a police force; to build courts and jails; and to elect or appoint the officials to pass and implement the laws citizens must not break. Regarding foreign threats, government as protector requires the ability to meet and treat with other governments as well as to fight them. This minimalist view of government is clearly on display in the early days of the American Republic, comprised of the President, Congress, Supreme Court, and Departments of Treasury, War, State and Justice.

The concept of government as provider comes next: government as provider of goods and services that individuals cannot provide individually for themselves. Government in this conception is the solution to collective action problems, the medium through which citizens create public goods that benefit everyone, but that are also subject to free-rider problems without some collective compulsion. The basic economic infrastructure of human connectivity falls into this category: the means of physical travel, such as roads, bridges and ports of all kinds, and increasingly the means of virtual travel, such as broadband. All of this infrastructure can be and typically initially is provided by private entrepreneurs who see an opportunity to build a road, say, and charge users a toll, but the capital necessary is so great and the public benefit so obvious that ultimately the government takes over.

A more expansive concept of government as provider is the social welfare state: government can cushion the inability of citizens to provide for themselves, particularly in the vulnerable conditions of youth, old age, sickness, disability and unemployment due to economic forces beyond their control. As the welfare state has evolved, its critics have come to see it more as a protector from the harsh results of capitalism, or perhaps as a means of protecting the wealthy from the political rage of the dispossessed. At its best, however, it is providing an infrastructure of care to enable citizens to flourish socially and economically in the same way that an infrastructure of competition does. It provides a social security that enables citizens to create their own economic security.

The future of government builds on these foundations of protecting and providing. Government will continue to protect citizens from violence and from the worst vicissitudes of life. Government will continue to provide public goods, at a level necessarily to ensure a globally competitive economy and a well-functioning society. But wherever possible, government will invest in citizen capabilities to enable them to provide for themselves in rapidly and continually changing circumstances.

Not surprisingly, this vision of government as investor comes from a deeply entrepreneurial culture. Technology reporter Gregory Ferenstein has polled leading Silicon Valley entrepreneurs and concluded that they “want the government to be an investor in citizens, rather than as a protector from capitalism. They want the government to heavily fund education, encourage more active citizenship, pursue binding international trade alliances and open borders to all immigrants.”²⁰ In the words of Alphabet Chairman Eric Schmidt, “the combination of innovation, empowerment and creativity will be our solution.”²¹ This celebration of human capacity is a welcome antidote to widespread pessimism about the capacity of government to meet current national and global economic, security, demographic and environmental challenges. Put into practice, however, government as investor will mean more than simply funding schools and opening borders. If government is to assume that in the main citizens can solve themselves more efficiently and effectively than government can provide for them, it will have to invest not only in the cultivation of citizen capabilities, but also in the provision of the resources and infrastructure to allow citizens to succeed at scale.

The most important priority of government as investor is indeed education, but education cradle-to-grave. The first five years are particularly essential, as the brain development in those years determines how well children will be able to learn and process what they learn for the rest of their lives. The government will thus have to invest in an entire infrastructure of child development from pregnancy through the beginning of formal schooling, including child nutrition and health, parenting classes, home visits and developmentally appropriate early education programmes. The teenage years are another period of brain development where special programmes, coaching and family support are likely to be needed.

Investment in education will fall on barren ground if brains are not capable of receiving and absorbing it. Moreover, meaningful opportunities for continuing education must be available to citizens over the course of their lives, as jobs change rapidly and the acquisition of knowledge accelerates.

Even well-educated citizens, however, cannot live up to their full potential as creative thinkers and makers unless they have resources to work with. Futurists and business consultants John Hagel III, John Seeley Brown and Lang Davison argue in *The Power of Pull* that successful enterprises no longer design a product according to abstract specifications and push it out to customers, but rather provide a platform where individuals can find what they need and connect to whom they need to be successful.²² If government really wishes to invest in citizen talent, it will have to provide the same kind of “product” – platforms where citizens can shop intelligently and efficiently for everything from health insurance to educational opportunities to business licenses and potential business partners. Those platforms cannot simply be massive data dumps; they must be curated, designed and continually updated for a successful customer/citizens experience.

Finally, government as investor will have to find a way to be anti-scale. The normal venture capitalist approach to investment is to expect nine ventures to fail and one to take off and scale up. For government, however, more small initiatives that engage more citizens productively and happily are better than a few large ones. Multiple family restaurants in multiple towns are better than a few large national chains. Woven all together, citizen-enterprise in every conceivable area can create a web of national economic enterprise and at least a good part of a social safety net. But government is likely to have to do the weaving.

A government that believes in the talent and potential of its citizens and devote a large portion of its tax revenues to investing in its citizens to help them reach that potential is an attractive vision. It avoids the slowness and bureaucracy of direct government provision of services, although efficient government units can certainly compete. It recognizes that citizens are quicker and more creative at responding to change and coming up with new solutions. But government investment will have to recognize and address the changing needs of citizens over their entire lifetimes, provide platforms to help them get the resources and make the connections they need, and see a whole set of public goods created by the sum of their deliberately many parts.

Conclusion

The shift towards “government with”, the co-creation of government services and the co-implementation of government functions is happening first and foremost at the municipal/city level – a level where leaders from different sectors know one another and all citizens feel a sense of collective destiny, but big enough to be able to collect and use data and have digitally savvy young problem-solvers who are willing to stick around.

Estonia is a case in point; it has roughly 1.3 million citizens – the size of a medium-sized city in the United States and a small city in China. Gradually, this approach will spread to the state or provincial level and then slowly to the national level. To get there, however, it is important to take note of several themes running through all the papers above and through the deliberations of the Global Agenda Council on the Future of Government.

First, technology alone is not the answer; it is merely an enabler and accelerator of new ways of being and doing. Governments today have to fundamentally rethink their architecture, operating model and funding structure. Governments also need to develop a new set of core competencies such as data management, cybersecurity and design thinking. These too should be developed and continually improved in partnership with the people and private sector. The government’s future operating model is a public-private-society network model.

Second, properly constructed and curated platforms are needed to help citizens help themselves, customizing specific goods and services to fit their own needs. Platforms combine the general and the specific, bringing together vast quantities of information and contacts and organizing it in a way that is accessible and usable. The design and content of platforms requires a series of important policy choices that citizens must be able to participate in. Once designed, they can facilitate “government with” and simultaneously empower citizens to do things for themselves in a way that will reduce their reliance on government.

Third, management matters. Jane Fountain brings out this point most explicitly, but it is a cross-cutting theme. Government must be managed for results like any other enterprise. The quality of the management is itself a measure of the quality of government. Those management challenges will change as the barriers between government officials become increasingly permeable and even dissolve. This will require a paradigm shift in how future government attracts, trains, rewards and retains public servants.

The future of government cannot arrive fast enough. The world is in the early stages of a technological revolution – the Fourth Industrial Revolution – that is transforming the way we live, work and relate to one another. We are several decades into the digital revolution, which is itself fuelling a biotechnology revolution. More generally, we are witnessing a fusion of technologies, as in the combination of artificial intelligence, data science and material science, which are blurring the lines between the physical, digital and biological spheres.²³

Previous technological revolutions have brought about political revolutions. John Micklethwait and Adrian Wooldridge identify “three-and-a-half” previous government revolutions and argue that the fourth “is in the air.” Indeed, in their view, “this fourth government revolution will change the world.”²⁴

The papers above identify the harbingers of the coming storm, but they also hold out the hope and perhaps the possibility that this revolution will take place without a storm, or at least not a violent one. Governments that do not fulfill their citizens’ needs cannot last. The current model for fulfilling those needs is broken in far too many states, and the fundamental relation between citizen and government is being redefined. But the future of government is visible on the horizon; it has already begun.

Endnotes

- 1 Quoted at the MacArthur Foundation Research Network on Open Governance website, <http://www.opening-governance.org/#the-context>. The Network, operated by the NYU GovLab, is developing and testing collaborative governance projects of three types: “smarter governance”, whereby government bodies gather the input of outside citizens to inform decision-making; “open data governance”, where government bodies share data that citizens and private entities can use and analyse to solve problems; and “shared governance” by which agencies and legislatures delegate responsibility for certain government functions such as budgeting to citizens.
- 2 The NYU GovLab (www.thegovlab.org) is coordinating many of these initiatives and several others, including: the Open Data 500 Study, which surveys a wide range of companies around the globe to understand how they use, value and could use open government data (www.thegovlab.org/static/files/od500-onepager-cropped.pdf); a network of 65 international experts, which joined online coaching sessions to help the city of Quito, Ecuador, tackle disaster management problems such as communication coordination, evacuation planning and gathering data in real time from citizens (www.thegovlab.org/project-crowdsourcing-innovations-in-disaster-management.html); and helping Chile, the Kurdish region of Iraq and other governments crowdsource laws via the online platform LegislationLab, which was first used to crowdsource a draft of the new Moroccan constitution in 2011(<http://thegovlab.org/a-growing-community-of-global-crowdlaw-practitioners>).
- 3 Forooar, Rana, “Why You Can Thank the Government for Your iPhone”, *Time*, 27 October 2015, <http://time.com/4089171/mariana-mazzucato>.
- 4 Edelman, *2016 Edelman Trust Barometer*, 2016.
- 5 Saurabh Khosla, Satya, *How to Prevent Recession: Using Ancient Wisdom and Management Ideas*, Partridge Singapore, 2015.
- 6 Vanian, Jonathan, “Why Data Is the New Oil”, *Fortune*, 12 July 2016, <http://fortune.com/2016/07/11/data-oil-brainstorm-tech>.
- 7 Data curation here is the management of data throughout its lifecycle, from creation and initial storage to the time when it is archived for posterity or becomes obsolete and is deleted.
- 8 Remarks by Apple CEO Tim Cook during an interview with US Senator Orrin Hatch at the Utah Tech Tour Conference, 30 September 2016.
- 9 Fountain, Jane, *Enhancing an Enterprise Approach: Creating an Ecosystem for Cross-Agency Collaboration in the Next Administration*, Partnership for Public Service and the IBM Center for the Business of Government, Washington, DC, 2016.
- 10 See Title 41 of the Fixing America’s Surface Transportation (FAST) Act of December 2015, which creates a new entity, the Federal Permitting Improvement Council, among other developments.
- 11 For a history, see Margetts, Helen, *Information Technology in Government: Britain and America*, Routledge, 1999.
- 12 Mazzucato, Mariana, *The entrepreneurial state: Debunking public vs. private sector myths*, Anthem Press, 2015.
- 13 O’Reilly, Tim, “Government as a Platform”, *Innovations*, Volume 6, Number 1, 2010.
- 14 UK Government Digital Service, <https://gds.blog.gov.uk/2015/09/01/registers-authoritative-lists-you-can-trust>; and <https://gds.blog.gov.uk/2016/03/11/getting-from-data-to-registers>.
- 15 For discussion of this model, see H. Margetts and P. Dunleavy, “The second wave of digital-era governance: A quasi-paradigm for government on the Web”, *Phil. Trans. R. Soc. A* 371.1987, 2013; and “Design principles for essentially digital governance”, 111th Annual Meeting of the American Political Science Association, San Francisco, 3-6 September 2015.
- 16 In this way, people feel in control over the own personal data and there appears to be no resistance to digital government on grounds of privacy or surveillance.
- 17 Margetts, Helen and Andre Naumann, “Government as a Platform: What can Estonia Show the World?” Working Paper funded by the European Social Fund.
- 18 O’Reilly, Tim, “Government as a Platform”, *Innovations*, Volume 6, Number 1, 2010.
- 19 The simple design of Google’s original homepage was due to the fact that the company’s founders were not experienced in HTML.
- 20 Ferenstein, Greg, *The Age of Optimists*, 2015, <https://medium.com/the-ferenstein-wire/silicon-valley-s-political-endgame-summarized-1f395785f3c1#9m13xe7gh>.
- 21 *Ibid.*
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- 23 Schwab, Klaus, *The Fourth Industrial Revolution*, World Economic Forum, 2016.
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