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Endnotes

1. A.A.K. "How Did Estonia Become a Leader in Technology?" The Economist, 31 July 2013.

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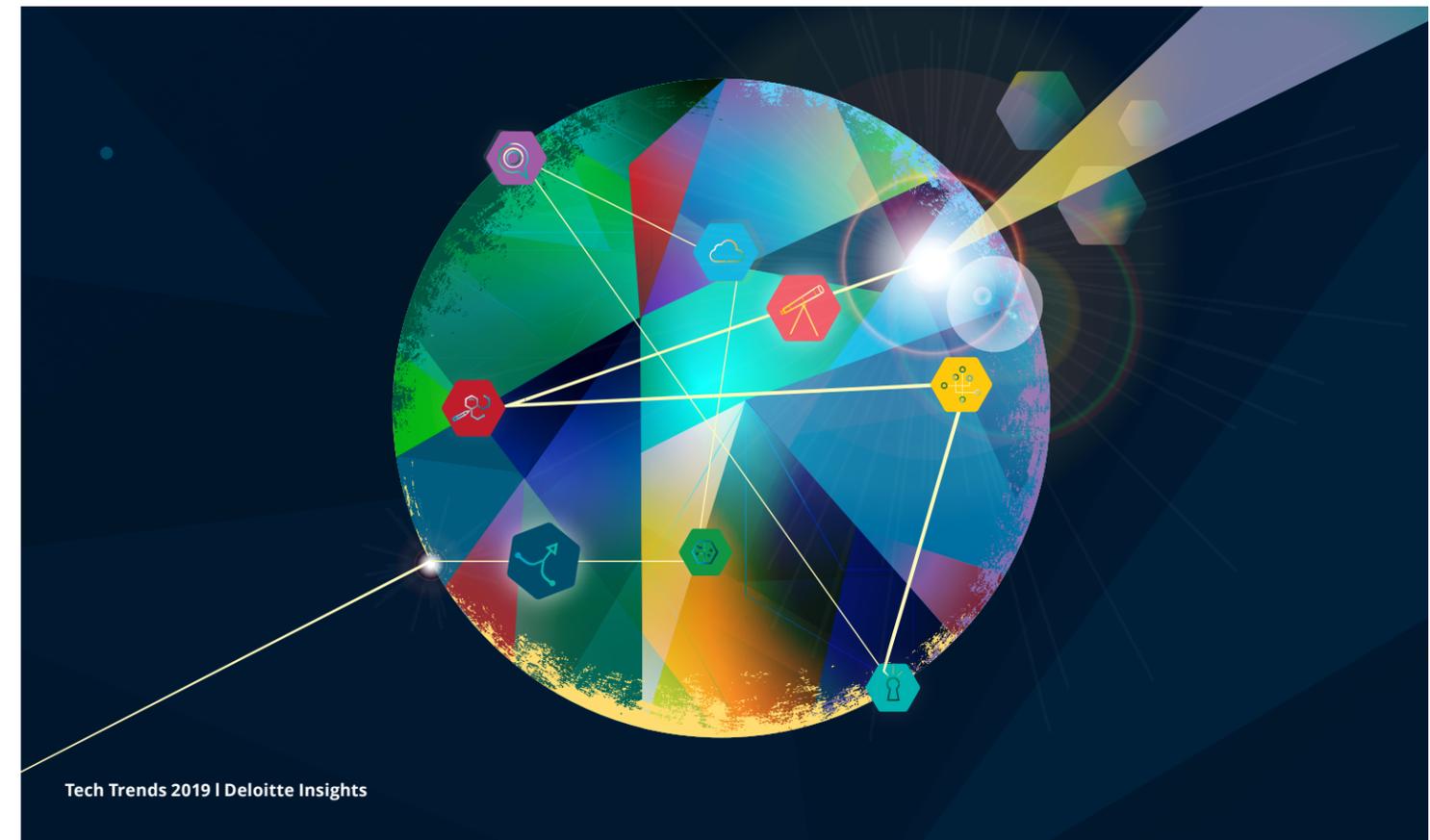
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Tech Trends 2019 Government and public services perspective

The story of technology trends is inseparable from the story of the public sector. Governments and other public entities support foundational research and put new tools to use. As missions grow broader and more complex, leaders feel pressure to make the most effective use of the newest advances.

Technology can help make government more effective by protecting and maintaining infrastructure, creating more personalized and secure constituent interactions, or automating tasks so humans can focus on more nuanced jobs. As leaders work to reshape their organizations and realize these possibilities, they rely on fresh, relevant insights. This report provides a Government and Public Services perspective on Deloitte's *Technology Trends 2019: Beyond the digital frontier*.

We project several important trends through the lens of the public sector—touching on the macro forces at play and how real power emerges when they combine. Finding jobs new technologies can do is a first-level challenge. Finding ways to integrate them into

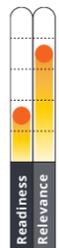
a new operational paradigm is the next-level challenge that's unfolding right now.

Public-sector organizations can learn from each other. They can draw lessons from their counterparts in private enterprise, and from other nations. Each agency is on a path toward greater digital adoption, but they're at different places on that journey. What do they have in common? A commitment to mission-driven service. Through real-world examples and sector-specific examinations of new technology capabilities, this publication should help leaders throughout the government sphere sharpen their view of how new tools fit into this mandate. ▶



Macro technology forces at work

Nine technology forces (cloud, analytics, digital experience, blockchain, cognitive, digital reality, core modernization, cyber, and the business of technology) have been the backbone of innovation past and present. These forces are critical for organizations—their controlled collision can compound the effect of purposeful, transformational change. What is the “state of the state” of these forces today and how are organizations harnessing them?



Getting started

- **Learn from the changes of the past decade.** We look back on cloud, analytics, and digital experience as the new normal. Consider what they mean for future trends.
- **Embrace technology at the core.** The support organization will increase in importance as new tools affect everything you do.
- **Keep your eye on the horizon.** Trends like blockchain, cognitive, and digital reality are next in line to find their place in how we work.

Trends in action

Organizations are making more progress by pioneering new technologies with integrated programs than by piloting new tools one at a time. Despite technology progress in the US public sector, it is not the world leader. Countries such as Estonia can provide useful lessons.¹ Opportunities for innovation are everywhere: AI can streamline claims and forms processing. Blockchain can enhance supply chains. Drones can perform inspections. Digital reality can enhance training.



AI-fueled organizations

Leading organizations are harnessing AI's full potential for data-driven decision making and generating valuable insights. To become a true “AI-fueled” organization, a company needs to find AI's place in the mission, rethink its talent, focus on human and machine interaction in its environment, and deploy machine learning across core business processes and enterprise operations.



Getting started

- **Decide what AI means to you.** Relevant applications can vary by industry, mission, and situation.
- **Strive to become an “AI-fueled” organization.** Change the question from “why AI?” to “why not?”—and get started.
- **Train the people you have.** Both in the mission and in IT, the nature of your plan and your maturity to date will help determine which skills to add.
- **Add the skills you're missing.** Hire or contract for talent as necessary.

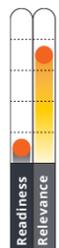
Trends in action

Agencies are finding AI can help curb fraud, waste, and abuse by detecting improper or mischaracterized disbursements. AI can speed simple determinations such as routine visa applications or social services interactions. That frees workers to focus on more complex cases. AI-driven text analytics can simplify correspondence by helping with routing, responses, and even sentiment analysis.



NoOps in a serverless world

Cloud providers have doggedly automated traditional infrastructure and security management tasks and are increasing the complexity and value of “as a service” capabilities. As a result, technical resources are interacting less and less with the underlying system infrastructure. Operations talent can shift to increasingly agile teams focusing on higher-order (and higher-value) activities that more directly support mission outcomes.



Getting started

- **Shift administration to an engineering footing.** Determinedly standardize, modernize, and synthesize so you can apply engineering principles and automation to operations.
- **Go cloud native.** Pilot and pursue technologies that don't involve managing physical servers from containers to storage “as a service.”
- **Transform your processes.** Make your processes automatable and repeatable without human intervention.

Trends in action

Pay-as-you-go models offer flexibility and cost-efficiency for seasonal demands like tax filings or health care enrollment. Government organizations are piloting or using container-based, function-based, or other new cloud computing models. Off-premises resources don't require large-scale apps—agencies can “pay by the drink.” But a fresh look at internal systems helps cloud apps mesh properly.



Connectivity of tomorrow

Advanced networking offers a continuum of connectivity that can drive development of new products and services or transform inefficient operating models. From edge computing and mesh networks to 5G, low Earth orbit satellites, and ultra-broadband, organizations across sectors and geographies are relooking at advanced connectivity options to design tomorrow's enterprise networks.



Getting started

- **Plan for the upcoming explosion of bandwidth.** A wirelessly connected world will bring changes that bring new demands and new opportunities.
- **Learn from history.** This isn't the first time bandwidth has exploded. Smartphones changed the ways we keep and use data. What parallel changes are ahead?
- **Button down the status quo.** If millions of new devices are soon to arrive, every existing mobile asset must be under control. Begin getting everything under control today.

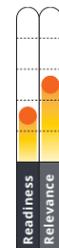
Trends in action

Agencies can break through existing connectivity limitations when new networks give more power to field workers. Field-deployed personnel will soon have greater bandwidth on their mobile devices than they have at their desks today. Are your current processes and systems ready to adapt? Advanced connectivity can extend AI, image recognition, facial recognition, and other tools into the field.



Intelligent interfaces

Intelligent interfaces combine the latest in human-centered design with leading-edge technologies such as computer vision, conversational voice, auditory analytics and advanced augmented reality (AR), and virtual reality (VR). Working in concert, these techniques and capabilities can transform the ways we engage with machines, data, and each other.



Getting started

- **See beyond the long-established standards.** Imagine new engagement patterns and capabilities that go beyond “click and type” and “touch and swipe.”
- **Rethink training, collaboration, and more.** Take advantage of new ways to connect and learn.
- **Unlearn limits.** How can intelligent interfaces observe, track, measure, and monitor without deliberate user actions like typing and clicking?

Trends in action

Caseworkers can use VR to face simulated situations. Technicians can learn to repair machines virtually. Virtual teams can collaborate more naturally. With AR, skilled technicians can move from one system to another without extra training. Inspectors can use facial and image recognition with speech capture interfaces. Indirect measures of activity time and personnel efficiency permit digitalization and analysis.



Beyond marketing: Experience reimagined

Today's astute customers expect highly personalized, contextualized experiences. To deliver them, leading chief marketing officers are looking inward to closer partnerships with their own CIOs and a new generation of marketing tools and techniques powered by data-enabled emerging technologies.



Getting started

- **Look beyond marketing.** Leading organizations are rethinking all of the ways constituents interact with them.
- **Create connections.** It's not just pushing information—new tools and techniques enable customized experiences and better relationships.
- **Go all-in on data.** Collect and manage information from your customers to better understand the interactions they desire.

Trends in action

Constituent-facing agencies can adjust each individual's experience from “high-touch” human contact to “low-touch” automation while keeping service consistent. Quasi-public entities in the financial sphere may resemble businesses in their demand generation needs. Data-based tools can make this outreach more effective. Service programs can use advanced marketing techniques to engage the population, gauge reactions, and adjust rollouts.



DevSecOps and the cyber imperative

To enhance their approaches to cybersecurity and cyber risk, forward-thinking organizations are embedding security, privacy, policy, and controls into their evolved IT delivery models. DevSecOps fundamentally transforms cyber and risk management from compliance-based activities (typically undertaken late in the development lifecycle) into essential framing mindsets that help shape system design from the ground up.



Getting started

- **Integrate security.** Don't test it in at the end—build it in throughout the system and operational lifecycles, starting with requirements and design.
- **Expand your security culture.** Compliance is still important, but the focus now is on proactive risk management.
- **Pick bold goals.** Propel the culture forward—don't be incremental on this one.

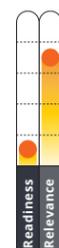
Trends in action

Enforcing good “hygiene” is both a culture change and a technology change. Past experience with implementing Agile techniques may prove useful. The NIH and the FDA are working to standardize, automate, and virtualize processes using close-knit teams that integrate development, security, and operations to reduce human error, speed results, and make difficult operations invisible to the user.



Beyond the digital frontier: Mapping your future

Digital transformation has become a rallying cry for business and technology strategists. Yet all too often, companies anchor their approach on a specific technology advance. Developing a systematic approach for identifying and harnessing opportunities born of the intersections of technology, science, and business is an essential first step in demystifying digital transformation, and making it concrete, achievable, and measurable.



Getting started

- **Build a recipe file.** “Get in the kitchen” to test promising combinations of techniques and technologies.
- **Look for examples.** Organizations and companies are already moving to become digital in processes and areas you support.
- **Learn the landscape.** New technologies include AI, digital reality, blockchain, and more. Catalysts include concepts like crowdsourcing, human-centered design, and the maker movement. Keeping up with what's new prepares you to invent what's next.

Trends in action

To make the most of technology adoption, public agencies are finding useful lessons in the private sector—and vice versa. Cashierless stores could serve as models for Department of Defense Exchanges. Government health providers can use health care insurers' AI-enabled verification of eligibility for medical procedures. Companies are increasingly using AI and other digital techniques to screen recruits.

