



# A Comprehensive Strategy for Driving Innovation

**MARKET TRENDS REPORT**



# Introduction

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A new age is dawning for the federal government. Technology is changing, and the rate of change is accelerating at unprecedented speed. As emerging technologies such as cloud computing, artificial intelligence (AI) and advanced analytics define a future that is hard to comprehend, many agencies will face a balancing act of innovation and risk. When emerging technology, new demands and compressed timelines converge, agencies will want to go fast. For these agencies, the real challenge will be moving rapidly without cutting corners.

With new capabilities come new concerns – especially when moving quickly. While emerging technologies such as AI promise to break new ground, they can also create risks that didn't previously exist. Agencies need to consider how each new capability fits within their enterprise architecture and risk management frameworks.

There can be significant impacts to both cost and security when new capabilities have secondary effects. For instance, emerging technology like AI challenge our past assumptions about the data layer and its security, management, quality, and governance. AI is only as good as the data that “feeds” it – bad data can produce bad AI. In addition to AI, data security was traditionally built under the assumption that it was stored in one “safe” location and that it would always come from predictable, known origins. Neither can be assumed any longer. To stay relevant in the coming years, agencies should consider a comprehensive innovation strategy – one that is agile enough to quickly embrace new technology while managing risk.

One shift toward innovation is establishing cloud computing capabilities. Cloud computing can help agencies bridge the gap between today's tools and those they'll use tomorrow. The cloud offers more than low-cost, rapid deployment of infrastructure. In 2020, automation, containers and incorporating security into the development and operations process are all part of cloud computing. Agencies that embrace cloud now can save time implementing emerging technologies later. And cloud's flexibility can also assist agencies with defending themselves against an ever-shifting list of security threats.

GovLoop partnered with SAP National Security Services (NS2), an enterprise software provider, on this report about securing agencies' emerging technologies. The following pages explore what the technology and security landscapes will look like over the next half-decade. We also list best practices for driving innovation with cloud across multiple areas.

## BY THE NUMBERS

# Emerging Tech: A Snapshot

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6%

is the amount the federal research and development (R&D) pledged in President Trump's [fiscal 2021 budget](#) increased over the amount promised in his fiscal 2020 budget.

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\$1 billion

was identified for non-defense R&D in the fiscal 2020 budget, establishing a [benchmark](#) for measuring all the nation's future AI R&D budgets.

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\$290 million

is pledged in the Defense Department's (DoD) Joint Artificial Intelligence Center (JAIC) [budget](#) in fiscal 2021, up from \$242 million in 2020.

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\$142.2 billion

is the amount pledged in federal R&D in the [fiscal 2021 budget](#).

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## The American AI Initiative

America's national [strategy](#) for AI leadership – launched in February 2019.



# THE CHALLENGE

## A Perfect Storm of Risk

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Trump's fiscal 2021 budget suggests emerging technology ranks among the federal government's top priorities. Consequently, agencies are feeling more pressure than ever to adopt tools such as AI.

Digital transformation doesn't happen overnight, however. At most agencies, integrating emerging technologies takes significant energy, money and time. Furthermore, the impact of emerging technologies extends beyond innovation and modernization. Any new technology, whatever benefits it brings, will also introduce new vulnerabilities that must be addressed. That double-edged sword can hinder the speed of adoption.

"It's about the accelerated pace of emerging technology," said Dean Pianta, Cloud Director at SAP National Security Services (NS2). "With any emerging technology, there's enormous potential. But there's a lag before we can put it to use."

Unfortunately, technology environments that constantly change can create multiple risks for agencies. For starters, every shift in technology opens fresh security vulnerabilities that weren't there before.

"It's easy to take advantage of cheaper, quicker infrastructure that isn't as locked down," Pianta said. "There's so much coming out that we as humans can't consume all of it."

Cost overruns are another risk for agencies. As their technology environments evolve, many agencies are surprised by the spending it takes to keep up.

"These are the things that you figure out as you stub your toe," Pianta said. "But you don't figure that out on Day One."

Finally, agencies are notorious for being risk-averse, and their technology environments may lack a key factor for success: Agility. In turn, these agencies won't be able to react to the fluid demands of their citizens and missions.

Currently, agencies are navigating the COVID-19 pandemic. Within days of starting, the viral outbreak has forced agencies to operate in ways they had not prepared for. Presently, which agencies can handle the bandwidth requirements for their entire workforce to telework? Which agencies have the tools to collaborate, gain insight and shape outcomes in real time? Saying "no" to emerging technology could reduce risks and costs the most during this period but standing still is not an option. Agencies need a comprehensive innovation strategy for keeping up with a world that never slows down.

# THE SOLUTION:

## Comprehensive Innovation With Cloud

**Cloud is crucial for a comprehensive innovation strategy for several reasons.**

First, cloud's agility means it can quickly support emerging technology. Whether it's about rapidly setting up development environments to "fail fast," or immediately reacting to surging computing demand, cloud enables speed and scalability.

Second, cloud can store, manage and scale vast amounts of data worldwide. This capability can anchor future analytical and AI services. When agencies use data to shape policies, practices and operations, they typically utilize data stored in the cloud.

Third, cloud's service orientation and adherence to open standards allows agencies to rethink the entire technology stack. Moving from cloud to cloud or supporting high-availability, multi-cloud strategies in days, not weeks, is all possible. Here the cloud offers a continuous, secure path of innovation for commercial industry to bring their technology to the federal government.

"If done properly, you can add new features and drive business value with the click of a button," Pianta said. "This is where commercial innovation supporting millions of users around the world can make its way efficiently, effectively and securely to the 'tip of the spear.'"

# BEST PRACTICES

## The Dimensions of Innovation

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What agencies can use to tackle digital transformation and build a technology roadmap for their future.

### 1. Address data quality

Innovation unfolds at the cutting edge, and so does emerging technology. But launching new tools like AI and analytics often requires huge stockpiles of data. Consequently, agencies should consider how their data can fuel emerging technologies. Consider how data is shared, pipelined and orchestrated.



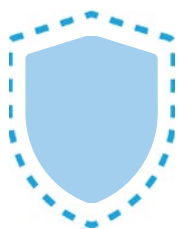
### 2. Adopt modern platforms

Agencies often cannot reach innovation with their legacy platforms. All too often, legacy platforms are rigid, slow and riddled with custom code. Thankfully, agencies can now gain hybrid-cloud, data and data management platforms to leverage their data by new application demands. And these platforms should drastically decrease the need for unsupported, custom code. They need to embrace pre-built connectors and an overall configuration strategy that drastically reduce both development, security assessment and authorization time.



### 3. Automate your application delivery

To reduce costs, improve consistency and embed security, it's imperative that automation eliminates manual processes. Picture software development as a modern assembly line where robots fix the robots that build electric cars.



### 4. Upgrade security

When it comes to innovation, agencies shouldn't stagnate. Rather than rely on increasingly outdated business applications, agencies should monitor evolving practices such as defending network perimeters. Innovation is about inventing new approaches to old ideas, and security is no exception.



### 5. Refresh business models

Business models and acquisition strategies are the final piece of the puzzle. Cloud ushered in a new era of service and accountability. Now, vendors are contractually agreeing that their servers, platforms or business level software run in a known, good state. Agencies should demand vendors become more accountable for aligning with the success of their missions.



## CASE STUDY

# A Federal Success Story

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A large federal agency migrated to a cloud-based, Software-as-a-Service (SaaS) training solution in 2018. SaaS clouds provide centrally hosted software solutions on a subscription basis. This agency's cloud supports 600,000 users while providing 15 million trainings annually.

In 2019, a mandate from Congress increased this agency's training requirements to cover its entire workforce. It was clear the mandate would dramatically increase online training, but it wasn't certain how much impact this upswing would have. The following month, the agency served and completed 3 million trainings. That was more than double the busiest month in the agency's history. On May 23, 2019, the agency completed 215,000 trainings in one day. At the same time, four consecutive hours of 20,000 concurrent trainings were performed.

"Every single agency cares about mission readiness," Pianta said. "If you're not up to date on your training, you're not certified to use equipment or perform processes. You can't do your job. Your mission is ultimately at risk."

The agency's record month proves cloud's agility. Cloud allows agencies to quickly adapt to and address massive events without impacting their availability and security. Here, the agency's cloud doubled within hours, facilitating thousands of employees' learning needs.

"The system never went down during that month," Pianta said. "We could scale it up quickly and support almost three times the load. This is a highly secure solution, authorized by DoD for controlled, unclassified information at Security Requirements Guidelines Impact Level 4."

## HOW SAP NS2 CAN HELP

The cloud can be a game-changer for agencies, as it helps them innovate more quickly.

"Unfortunately, most groups will face a learning curve of three years," Pianta said, adding agencies will become more agile and generate cost savings afterward.

Agencies can look to providers such as SAP NS2 for the experience required to quickly and securely reap cloud's benefits. Providers such as these specialize in helping organizations migrate on-premise solutions to a secure cloud. Their focus is on highly regulated environments, including

the intelligence, military, health care and finance sectors. Additionally, vendors such as SAP NS2 have cloud service portfolios for payrolls, supply chains, enterprise resource planning and experience, human capital and talent management.

"These are solutions that agencies shouldn't try to launch on their own," Pianta said. "Let us focus on developing enterprise application software and how it runs so your agency can focus more on mission outcomes."

Learn more at: [www.sapns2.com/cloud](http://www.sapns2.com/cloud)

# Conclusion

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For agencies, the biggest pitfalls are the ones they don't see coming. But agencies can buy the experience to avoid unforeseen risks that could negatively impact their budgets, data security and workforce readiness.

“The amount of innovation that's possible is astounding,” Pianta said of emerging technologies.

Cloud can support the comprehensive innovation strategy necessary for navigating change. Whether it is cost overruns, security vulnerabilities or other surprises, cloud's agility can become critical to agencies' mission success. Using cloud, agencies can serve the public with more agility without cutting corners.



## ABOUT SAP NS2

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### *Powering the Intelligent Enterprise*

SAP National Security Services (SAP NS2) was founded with the mission of security in mind. We offer a unique combination of startup agility and global stability to give our clients a competitive edge.

As an independent subsidiary of SAP, we are dedicated to delivering the best of SAP innovation, from cloud and predictive analytics to machine learning and data fusion. We build tailored solutions that leverage some of industry's best software tools and most talented humans.

At SAP NS2, we help tackle challenges across the national security community and critical infrastructure customers. We believe that innovation and security should go hand in hand. Through the incorporation of the Intelligent Enterprise, we leverage emerging technologies to enable customers to focus on high-value outcomes.



## ABOUT GOVLOOP

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GovLoop's mission is to “connect government to improve government.” We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 300,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

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