

Leading Edge Technologies Market Report

February 2022

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ITVMO Leading Edge Technologies Report



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Overview of Report

ITVMO Technology Portfolio Objectives

Support identification, categorization, and optimization of IT products and services within the public sector.

Provide advisory services to enable more efficient adoption of modernization, emerging technology, and cost-cutting solutions.

Promote better long-term technology planning to strengthen governmentwide interoperability and collaboration across agencies.

Partner with other government groups to make government procurement data more accessible and available to agencies.

Market Report Purpose

This report presents an overview of leading-edge technology segments to spur dialogue and information exchange among federal IT buyers. The report identifies emerging technology and procurement trends that could impact agencies' IT strategies in 2022 and beyond. The ITVMO seeks feedback from agencies on these trends to help inform actions needed to achieve the above listed Objectives. If you have feedback, questions, or comments, please send those to the IT Vendor Management Office (ITVMO) at ITVMO@gsa.gov.



FY22 Leading Edge Technologies

This report explores the challenges, opportunities, and vendors for the following **Areas of Focus**:



- Cybersecurity
- Cloud Computing
- Robotic Process Automation
- Artificial Intelligence
- Machine Learning
- Network Performance Management
- Big Data and Advanced Analytics
- Blockchain

Cybersecurity

Cybersecurity Overview

Cybersecurity encompasses technologies, processes, and practices designed to protect networks, computers, and data from attack, damage, or unauthorized access. COVID-19 has introduced new cybersecurity challenges related to securing remote workforces. Heightened geopolitical concerns have also increased the need for agencies to focus on securing their IT assets. A major challenge is balancing security requirements while enabling employees to be collaborative and efficient.

Increased Cybersecurity Risks

- Cloud adoption
- Zero Trust Network access
- Mobile malware attacks
- Ransomware attacks
- 5G and network vulnerabilities
- Advanced Persistent Threat attacks, especially in the cloud



Gartner's Recommended Security Solution Trends

Cybersecurity Mesh	Privacy-Enhancing Computing Techniques
Identity-First Security	Managing Machine Identities
Breach and Attack Simulations	Vendor Consolidation

Solutions may include other leading-edge technologies, such as AI and machine learning) to predict and analyze potential threats better than previous generations of cybersecurity tools.



Cybersecurity Government Use Cases

There are several ongoing Governmentwide Programs and Initiatives aimed at tackling the most pressing challenges facing federal agencies.

Relevant Government Use Cases

Description and Use Case

Executive Order on Improving the Nation's Cybersecurity (EO 14028)

The White House issued [EO 14028](#) on May 12, 2021. The executive order names prevention, detection, assessment, and remediation of cyber incidents as a top priority and essential to national and economic security.

Zero Trust Architecture (ZTA)

EO 14028 instructs federal agencies to adopt a Zero Trust architecture. GSA has assembled a [Buyers Guide](#) to assist agencies in implementing a Zero Trust framework. There is no single solution that can achieve Zero Trust, rather, agencies must develop an overall strategy to move toward Zero Trust, and should follow [NIST SP 800-207](#), which guides agencies in updating network security to account for large-scale remote work.

Endpoint Detection and Response

Implementing Zero Trust requires strong endpoint detection and response capabilities, which the EO addresses in Section 7, requiring agencies to deploy EDR tools to detect security incidents proactively, contain incidents at the endpoint, and provide quick remediation and incident response.

Cybersecurity Vendors and Products



The following is a list of vendors and products that are intended to highlight some of industry leaders in cybersecurity within the federal government. The list is neither exhaustive nor intended as a recommendation of any specific vendor or product. Rather, the ITVMO hopes this list can serve as a starting place for agencies interested identify the right vendor and product to meet their mission requirements.

- AT&T Cyber_AlienVault Unified Security Management Anywhere
- Bitdefender Gravityzone Enterprise Security
- Check Point
- Cisco Secure Endpoint
- Comodo Advanced Endpoint Protection
- Cortex XDR
- Cynet 360
- Elastic SIEM
- ESET Endpoint Security
- Exabeam Fusion
- Falcon Crowdstrike
- FireEye Endpoint Security
- FortiSIEM
- IBM SIEM
- LogRhythm NextGen SIEM Platform
- Malwarebytes Endpoint Protection
- McAfee Endpoint Security
- Microfocus ArcSight
- Microsoft Sentinel
- Netsurion Eventtracker
- Okta
- Palo Alto Networks
- QRadar
- Seceon Open Threat Management Platform
- Rapid7 InsightIDR
- Securonix
- SentinelOne Endpoint Protection Platform
- Solarwinds Security Event Manager
- Sophos Intercept X
- Splunk Enterprise Security
- Sumo Logic Cloud SIEM
- Symantec Advanced Threat Protection
- Trend Micro Apex One
- Vipre
- VMware Carbon Black EDR

Cybersecurity Trends

Endpoint Detection and Response (EDR) and **Extended Detection and Response (XDR)** are emerging endpoint security technologies that provide greater visibility, threat detection, and response across all endpoints.

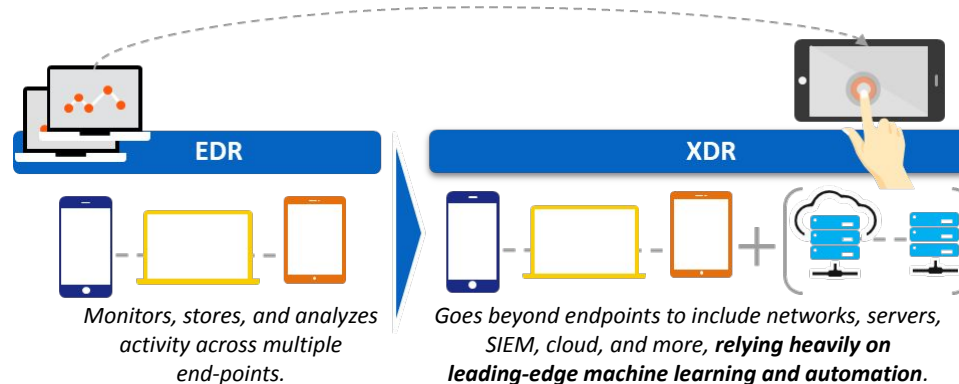
XDR Definition

XDR is a SaaS-based, vendor-specific, security threat detection and incident response tool that natively integrates multiple security products into a cohesive security operations system that unifies all licensed components. XDR offers improved threat prevention, detection, and response. - Gartner

EDR and XDR Advantage

- Predictive, identifying advanced persistent threats and new malware designed to evade legacy security measures.
- Improved protection and detection response capabilities.
- Improved productivity of operational security personnel.
- Lower total cost of ownership for effective detection and response of security threats.

XDR is an evolution of EDR solutions into a primary incident response tool, consolidating multiple products into a **cohesive, unified security incident detection and response platform.**



Cloud Computing

Cloud Computing Overview



The cloud offers faster innovation, flexible resources, and economies of scale. Customers typically pay only for cloud services they use, helping to lower operating costs, run their infrastructure more efficiently, and scale as priorities change. The 4 types of cloud services are Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), and Serverless.

Edge Computing	Serverless Computing	Kubernetes	AI in the Cloud	Hybrid and Multi-Cloud
<ul style="list-style-type: none">Emerging cloud trend that involves building localized data centers for at or near where data is gathered, rather than centralized.Advantages include increased processing speed, minimal latency, great connectivity, enhanced security, and decreased data transmission volumes.	<ul style="list-style-type: none">Uses a pay-as-you-go model that lets organizations pay only for services used. Infrastructure can then scale based on the application requirements without significant capital investment.Helps eliminate the risk of back-end failures and provides safe sandboxes to implement code.	<ul style="list-style-type: none">Helps to rapidly scale environments and ensure high availability using multiple containers for key services.Enables cohesion between organizations that are architected differently.Simplifies deployments and upgrades.	<ul style="list-style-type: none">Combining AI with cloud services enables organizations to get the most out of both applications in a cost-effective way.AI helps the cloud manage data and gain insights whereas the cloud provides a constant data backup and recovery in a virtual environment.	<ul style="list-style-type: none">Helps companies choose different cloud offerings best suited to their individual application environments, business requirements, and availability needs.More organizations will develop entirely cloud-native applications with no dependencies on any specific cloud provider.

Cloud Computing Government Use Cases



Every federal agency uses cloud computing to delivery mission services to the American people. Below are some additional use cases of government implementation of cloud-based services

Relevant Government Use Cases

Description and Use Case

Storage Capabilities

The State of Maine deployed Oracle Analytics Cloud to create an autonomous data warehouse, giving leaders access to real-time data and ability to create their own dashboards.

Smart Cities

The city of Chattanooga used Google's Government Cloud and Workspace to decrease costs and improve collaboration. Resources were available across devices and productivity doubled.

Pay-Per-Use Model and High Availability

Seat Pleasant, MD improved security, safety, and reliance by using IBM Intelligent Operations Center (IOC) and IBM Watson Analytics. This resulted in reduced crime rates and 24/7 services.

Security Compliance Capabilities

The CDC employed AWS GovCloud for managing sensitive data in a secure and compliant environment.

Sensitive Data and Regulated Workload

MITA, a Maltese gov. agency adopted Microsoft Azure for enhancing its detection of protection capabilities, through AI-reinforced prediction and real-time cyberthreat prevention.

Cloud Computing Vendors and Products



The following is a list of vendors and products that are intended to highlight some of industry leaders in cloud computing within the federal government. The list is neither exhaustive nor intended as a recommendation of any specific vendor or product. Rather, the ITVMO hopes this list can serve as a starting place for agencies interested identify the right vendor and product to meet their mission requirements.

Cloud Infrastructure and Platform Services	Cloud ERP for Product-Centric Enterprises	Cloud AI Developer Services	Cloud Database Management Systems
<ul style="list-style-type: none">• Amazon Web Services• Microsoft• Google	<ul style="list-style-type: none">• Microsoft• Oracle (Fusion Cloud ERP)• Infor	<ul style="list-style-type: none">• Microsoft• Google• IBM• Amazon Web Services	<ul style="list-style-type: none">• IBM• Snowflake• Google• Oracle• Databricks

Those interested in a more comprehensive list of cloud products and services should visit FedRAMP, which provides a standardized approach to security authorizations for Cloud Service Offerings.



Robotic Process Automation



Robotic Process Automation Overview

Robotic Process Automation (RPA) uses software scripts that emulate human activities to automate repetitive tasks normally completed by people, such as extracting data, entering data into forms, and moving files. Leading edge RPA can also integrate with Artificial Intelligence/ Machine Learning.

How can RPA help your agency?

Data Entry

Data Migration

Report Generation

App Processing and Review

Key Success Factors

Federal agencies are using RPA to speed up and connect financial systems, process HR requests faster, and perform thousands of acquisition functions with the click of a button. For the federal workforce, RPA means being able to focus on decision making and to do more for federal employees and citizens. InfoTech recommends selecting processes for RPA that have the following characteristics:

- Changes frequently and process outcomes suffer from poor change adoption.
- Involves multiple data sources which is challenging to integrate.
- Process failure due to human error is costly
- Involves structured data that does not require subjective interpretation
- Clear, established, and documented rules (e.g., flowcharts)
- Repetitive, time-consuming

RPA Government Use Cases



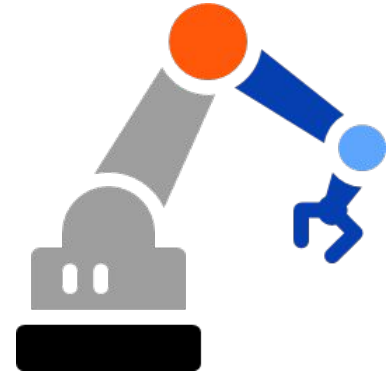
Government use cases for RPA have expanded considerably in recent years. Below are government use cases and information related to the Government-wide RPA Community of Practice.

<u>Relevant Government Use Cases</u>	<u>Description and Use Case</u>
Chatbots	GSA has been doing RPA for 4 years. RPA has enabled chatbot functionality to more efficiently interface with GSA stakeholders.
Innovation	Department of Transportation is hosting a “bot-a-thon” to encourage employees and contractors to build their own RPAs.
<u>State of Federal RPA</u>	The State of Federal RPA provides a comprehensive and insightful analysis of the adoption and impact of RPA in the Federal Government.
<u>RPA Community of Practice</u>	Helps agencies overcome the technical, management, and operational challenges that arise in designing and deploying an effective RPA program.
<u>RPA Use Case Inventory</u>	The Federal RPA CoP developed the “RPA Use Case Inventory (UCI)”, which provides detailed information on over 300 RPA Use Cases across the federal government.

RPA Vendors and Products

The following is a list of vendors and products that are intended to highlight some of industry leaders in RPA within the federal government. The list is neither exhaustive nor intended as a recommendation of any specific vendor or product. Rather, the ITVMO hopes this list can serve as a starting place for agencies interested identify the right vendor and product to meet their mission requirements.

- Blue Prism Intelligent RPA Platform
- UiPath
- Automation Anywhere
- Appian RPA
- Automation 360
- Microsoft Power Automate
- ElectroNeek
- Kofax Robotic Process Automation
- NICE Robotic Process Automation
- SAP Intelligent Robotic Process Automation
- Automai Robotic Process Automation
- G1ANT
- AutomationEdge
- Datamatics TruBot
- OnviSource Automata
- ThinkAutomation
- Aiwozo



Artificial Intelligence

Artificial Intelligence Overview



Artificial Intelligence (AI) is a broad term that represents any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data. In computer software, AI is designed to achieve goals using perception, planning, reasoning, learning, communicating, decision making, and acting.

Deltek's AI Key Findings

50% Increase Spending

Federal spending on AI increased to **\$1B (50%)** from FY18-FY20, making it one of the fastest growing emerging technology investment areas.

177% Increase in Small Businesses

AI-related small business obligations increased by from **\$129M to \$357M (177%)** from FY18-FY20.

New Legislation and Policy

Recognizing the need for U.S. competitiveness in AI, a government-wide initiative was developed to encourage the implementation of AI capabilities.

AI Government Use Cases



There are several ongoing initiatives and communities focused on sharing best practices related to artificial intelligence in the federal government.

Relevant Government Use Cases

Description and Use Case

Executive Order 13960, Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government

Establishes principles for use of AI in government. Issues a data call for AI use cases, due end of February 2022 – includes planned initiatives as well as those currently deployed

National Artificial Intelligence Initiative

Created by the National Artificial Intelligence Initiative Act of 2020, provides for a coordinated, government-wide program to accelerate AI research and application to meet economic and national security needs for the nation.

Artificial Intelligence (AI) Community of Practice (CoP)

Units federal employees who are active in, or interested in AI policy, technology, standards, and programs to accelerate the thoughtful adoption of AI across the federal government.

AI Vendors and Products

The following is a list of vendors and products that are intended to highlight some of industry leaders in AI within the federal government. The list is neither exhaustive nor intended as a recommendation of any specific vendor or product. Rather, the ITVMO hopes this list can serve as a starting place for agencies interested identify the right vendor and product to meet their mission requirements.

- Amazon AWS AI Services
 - Polly – text-to-speech
 - Transcribe – speech-to-text
 - SageMaker – managed service allowing developers and data scientists to build, train, and deploy machine learning models
 - Lex – conversational AI for chatbots
 - Rekognition – image and video analysis
 - Comprehend – natural language processing
 - Translate – language translation
- Pega Platform
- Pachyderm
- Idiomatic
- Forethought
- Microsoft AI Platform
- Google Vertex AI



AI Trends



As artificial intelligence technology continues to mature, AI will become a more integral part of other essential and emerging technologies, including cybersecurity, robotic process automation, network performance management, and data wrangling and related tasks associated with Big Data and Advanced Analytics. AI platforms increasingly allow for low-code and no-code innovation, while leading-edge solutions in cybersecurity, RPA, etc. will increasingly provide integrated AI functionality.

FY 2022 Trends in Government

Most federal spend is focused on research and development, but AI-based RPA is rapidly transitioning the technology into real-world operational settings within the federal government, such as:

Chatbots	Fraud Detection	Image and Video Analysis	Big Data Visualization	Workflow and Process Automation
Predictive Analytics and Forecasting	Cloud Infrastructure Optimization	Natural Language Processing	Optical Character Recognition	Virtual Customer Service

Machine Learning



Machine Learning Overview

Machine Learning (ML) is a subset of Artificial Intelligence that enables machines to develop problem-solving models by identifying patterns in data instead of leveraging explicit programming. The “learning” refers to the training process — the algorithms identify patterns in data and then use those patterns to tweak the model, aiming to provide a more accurate output each time. Machine Learning can be supervised, unsupervised or reinforced.

ML Categories

Supervised Learning

Used to make predictions, recognize data or classify it. Known historical input and output data is fed into algorithms. The algorithm alters the model to create an output that is as close as possible to the desired result.

Unsupervised Learning

Used to develop predictive models from data that consists of input data without historical labeled responses. The most common applications are clustering and association problems. **Clustering** groups objects based on certain properties and **Association** takes those clusters and identifies rules that exist between them.

Reinforcement Learning

Based on rewarding desired or punishing undesired behaviors. An algorithm produces many outputs and is trained to select the right one based on certain variables. Currently, it is possible only in areas that can be fully simulated, mostly stationary, or where mass amounts of data are available.

Agency Use Cases

- Fraud Detection
- Image Classification
- Forecasting
- Process Optimization

- Big Data Visualization
- Recommender Systems
- Targeted Marketing
- Customer Segmentation

- Real Time Decision Making
- Learning Tasks
- Robot Navigation
- Skill Acquisition



ML Government Use Cases

There are several ongoing initiatives and programs focused on machine learning in the federal government.

Relevant Government Use Cases

Description and Use Case

Naval Air Systems
Command

At Naval Air Systems Command, the legacy approach to maintenance scheduling has been **prescriptive**, based on hours flown and similar data. But maintenance based on **predictive analytics** helps more accurately identify wear and tear on parts of jets and airframes before they break, allowing for data-driven maintenance cycles and more strategically viable downtimes. U.S. naval aviators are using ML-based predictive analytics to track and manage aircraft maintenance.

NASA

ML improves NASA's capabilities for spotting future trends, improving modeling and simulation, monitoring spacecraft health, planning future missions, linking solar storms to sea life events, and tackling wildfires and flooding.

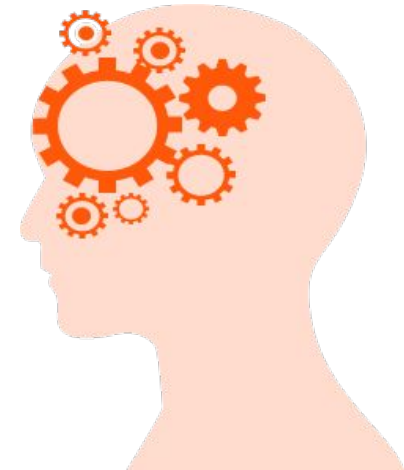
Census Bureau

ML is helping researchers and analysts to use the agency's troves of data more efficiently to estimate survey response levels, categorize businesses more effectively, and estimate populations based on satellite imagery.

ML Vendors and Products

The following is a list of vendors and products that are intended to highlight some of industry leaders in ML within the federal government. The list is neither exhaustive nor intended as a recommendation of any specific vendor or product. Rather, the ITVMO hopes this list can serve as a starting place for agencies interested identify the right vendor and product to meet their mission requirements.

- Algorithmia
- Alibaba Cloud
- Altair
- Alteryx Designer
- Amazon Web Services
- Anaconda Enterprise
- Cloudera Machine Learning
- Databricks Lakehouse Platform
- Dataiku
- DataRobot
- Domino
- Google
- H2O.ai
- IBM Watson Studio
- KNIME
- MathWorks
- RapidMiner
- Rstudio Team
- Base SAS
- SAS Visual Data Mining and Machine Learning
- SAS Visual Statistics
- TIBCO Software





Network Performance Management

Network Performance Management Overview



Network Performance Management encompasses the latest tools and techniques for monitoring, managing, and optimizing the performance of an IT network. Leading-edge solutions allow for greater visibility and optimization of today's complex IT environments that combine on-premise, cloud, and multi-cloud systems. Many leading-edge network performance management solutions can be deployed on premise or in the cloud and can be an integral part of an agency's infrastructure and operations strategy.

Key Trends in 2022

Network performance management became even more important during the Covid pandemic, as mass remote work strained IT networks that were architected for primarily on-premise work. Many federal agencies and private companies experienced bottlenecks with VPNs and overall network bandwidth.

As agencies prepare for the future of hybrid work environments, now is the time to evaluate network performance management capabilities to ensure that IT departments are prepared to monitor and optimize network performance to provide a seamless work environment for users both on premise and remote.

What can network performance management do for your agency?

Network Analytics and Visibility

Identify Capacity Issues

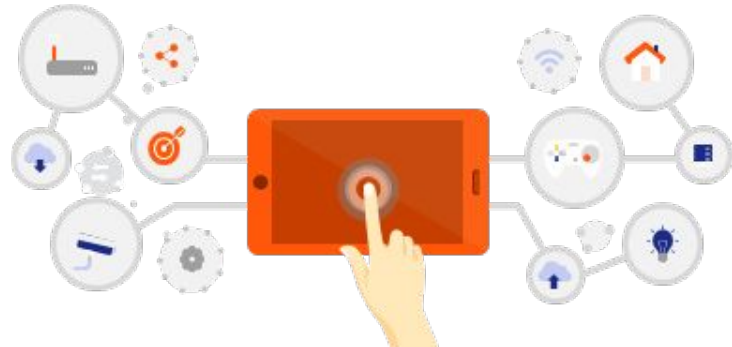
Identify Security Risks

Flow Data Monitoring

Network Performance Vendors and Products

The following is a list of vendors and products that are intended to highlight some of industry leaders in Network Performance Management within the federal government. The list is neither exhaustive nor intended as a recommendation of any specific vendor or product. Rather, the ITVMO hopes this list can serve as a starting place for agencies interested identify the right vendor and product to meet their mission requirements.

- Algorithmia
- Broadcom CA Spectrum
- Catchpoint
- Cisco Prime Infrastructure and Thousand Eyes
- Riverbed Network Performance Management
- Azure Network Watcher
- Nagios
- OpManager Plus
- Paessler PRTG Network Monitor
- Splunk
- ExtraHop Reveal
- Kentik
- ManageEngine OpManager Plus and Netflow Analyzer
- Micro Focus Network Operations Management
- SolarWinds
- Microsoft Azure Monitor



Big Data/Advanced Analytics

Big Data/Advanced Analytics Overview



Big Data/Advanced Analytics works on very large sets of data to recognize patterns, provide insights, spot anomalies, and predict trends autonomously using software tools that exceed the capabilities of traditional business intelligence. Key trends in big data and advanced analytics are new platforms and storage solutions that work unstructured and semi-structured data and integrate with other advanced analytics solutions.

Common Barriers to Implementing Effective Big Data and Advanced Analytics Solutions

- Data architects have limited experience with big data and feel overwhelmed by the number of options available.
- Attempting to implement big data onto legacy data architecture risks system failure that can compromise the entire environment.
- Selecting solutions ad hoc, without proper evaluation, analyses of alternatives, etc. can cause incompatibility issues later.



The GSA IT Modernization Centers of Excellence defines big data/advanced analytics as “Using tools and technologies to predict future trends (i.e., predictive data analytics, data mining, and artificial intelligence efforts.”

What can Big Data/Advanced Analytics do for your agency?

Sentiment Analysis

Financial Forecasting

Combating Cyber Crime

Workforce Effectiveness



Big Data/Advanced Analytics Use Cases

There are several ongoing initiatives and programs focused on machine learning in the federal government.

Relevant Government Use Cases

Description and Use Case

Federal Data Strategy

All agency initiatives for Big Data and Advanced Analytics should comply with the Federal Data Strategy, which expresses a 10-year plan for how the federal government will accelerate the use of data to deliver on mission, serve the public, and steward resources while protecting security, privacy, and confidentiality.

GSA Data Analytics Center of Excellence (CoE)

GSA's Data and Analytics CoE provided a [Data Playbook](#) to help agencies develop effective strategies for leveraging data as a strategic asset and enable data-driven decision making.

Memorandum M-19-18

“Use of data resources includes practices related to data documentation, emerging technologies for protecting confidential data, and federal data expertise.” – Memorandum M-19-18

Data/Advanced Analytics Vendors and Products

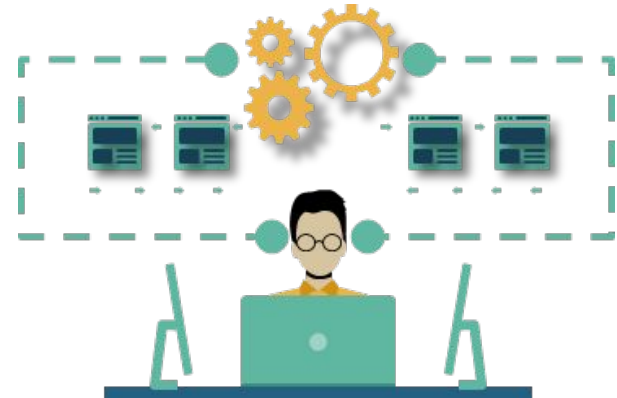
The following is a list of vendors and products that are intended to highlight some of industry leaders in Big Data/Advanced Analytics within the federal government. The list is neither exhaustive nor intended as a recommendation of any specific vendor or product. Rather, the ITVMO hopes this list can serve as a starting place for agencies interested identify the right vendor and product to meet their mission requirements.

Big Data

- Apache Hadoop
- Apache Spark
- AWS
- Hortonworks Data Platform
- Teradata Unified Data Architecture
- Vertica Advanced

Advanced Analytics

- Domo
- Google Looker
- IBM Digital Insights
- Microsoft Azure Synapse Analytics
- MicroStrategy
- Oracle
- PowerBI
- Qlik
- SAP
- SAS Big Data Analytics
- Sisense
- Tableau
- ThoughtSpot
- TIBCO Software
- Yellowfin



Blockchain

Blockchain Overview

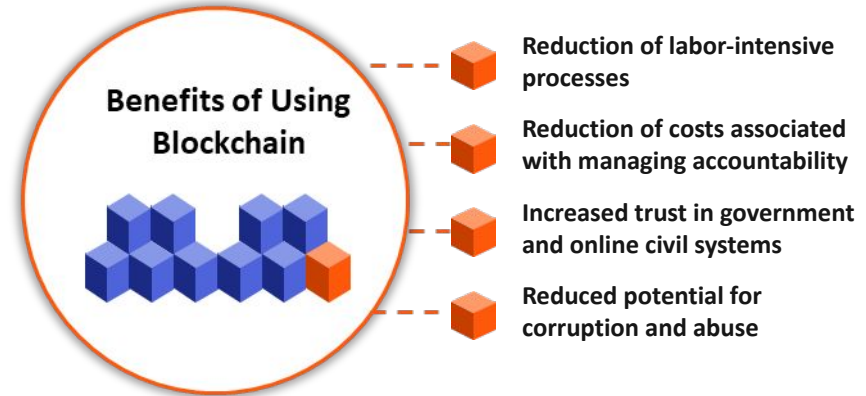
Blockchain is a type of digital distributed ledger using cryptography to provide an irrevocable record of transactions to users across a network. During the pandemic, organizations slowed blockchain investments in favor of investments in business continuity, remote and hybrid work, cybersecurity, and digital transformation. Now, however, as we emerge from the pandemic, organizations are showing renewed interest in blockchain, especially around new use cases in the medical supply chain, healthcare surveillance, and procurement optimization.

Recommendations

- **Take a measured approach.** *Initial use cases frequently change, and emerging technologies evolve rapidly and often in unexpected ways*
- **Think big.** *Explore government use cases, and evaluate your agency's readiness against other agencies*
- **Stay up to date.** *Create a structured plan to stay up to date on new developments in the technology.*

Key Questions

- Is a business network involved?
- Is consensus used to validate transactions?
- Is an audit trail required?
- Must the record of transactions be immutable and tamper-proof?
- Should dispute resolution be final?





Blockchain Government Use Cases

There are several ongoing initiatives and programs focused on machine learning in the federal government.

Relevant Government Use Cases

Description and Use Case

Department of Homeland Security

DHS published a detailed analysis of blockchain technology and its applicability to government: [Blockchain and Suitability for Government Applications](#)

Information Exchange and Data Transformation (INFORMED) Project

Blockchain-based health data exchange, allowing participants to access health data through the internet, with built-in data use restrictions. Data controls and data exchanges are executed through smart contracts posted to the blockchain. Enables patients to control data about their health conditions and treatments, allowing them to give or sell their data to researchers or to refrain from doing so.

Grant Solutions (HHS)

Standardizes grant information, storing data elements on the blockchain for greater transparency and easier re-use of data elements.

Mobile Device Tracking (Treas.)

Automates the organization's mobile phone inventory. Removes much of the labor burden of manually tracking physical equipment. Real-time inventory of unused assets - greater information security by automating the process of verifying that equipment remains in control of assigned employees.

Blockchain Vendors and Products

The following is a list of vendors and products that are intended to highlight some of industry leaders in Blockchain within the federal government. The list is neither exhaustive nor intended as a recommendation of any specific vendor or product. Rather, the ITVMO hopes this list can serve as a starting place for agencies interested identify the right vendor and product to meet their mission requirements.

- AION Blockchain
- Amazon Quantum Ledger Database
- Azure Blockchain Workbench
- BigChainDB Platform
- Chain Sequence Blockchain
- Corda Platform
- HydraChain Platform
- IBM Blockchain platform
- Lisk Platform
- NEO Platform
- Oracle Autonomous Blockchain Cloud Service
- POA Blockchain Platform
- Salesforce Blockchain
- SAP Leonardo
- Stratis
- WAVES Blockchain Platform



Appendix

Citations



Area	Citation (Link or Artifact)
Cybersecurity	<ul style="list-style-type: none"> • https://www.infotech.com/research/ss/cybersecurity-priorities-in-times-of-pandemic • https://www.govtech.com/blogs/lohrmann-on-cybersecurity/the-top-22-security-predictions-for-2022 • https://www.gartner.com/smarterwithgartner/gartner-top-security-and-risk-trends-for-2021 • Federal Register: Improving the Nation's Cybersecurity • EDR, XDR And MDR: Understanding The Differences Behind The Acronyms (forbes.com) • What Is XDR? Extended Detection and Response McAfee • Gartner Survey Finds the Evolving Threat Landscape is Top Priority for Security and Risk Management Leaders
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Robotic Process Automation	<ul style="list-style-type: none"> • Assessing the State of Federal Robotic Process Automation (RPA) – Digital.gov • State of Federal RPA Report – Digital.gov • Robotic Process Automation (RPA) – Digital.gov • RPA Use Case Inventory – Digital.gov

Citations Continued



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Machine Learning	<ul style="list-style-type: none"> • https://www.gartner.com/smarterwithgartner/understand-3-key-types-of-machine-learning • GSA ITC Phase 1 Deliverable • https://www.gartner.com/reviews/market/data-science-machine-learning-platforms • Cloudera: Machine learning in government: Saving Time, Money and Maybe Even the World
Network Performance Management	<ul style="list-style-type: none"> • Effective Performance Management in a Mass Work-From-Home Scenario Info-Tech Research Group (infotech.com)
Big Data/ Advanced Analytics	<ul style="list-style-type: none"> • MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES (whitehouse.gov) • Data Playbook-October2020.pdf (gsa.gov) • Welcome - Federal Data Strategy • Create a Customized Big Data Architecture and Implementation Plan Info-Tech Research Group (infotech.com)
Blockchain	<ul style="list-style-type: none"> • Blockchain and Suitability for Government Applications (dhs.gov) • SoftwareReviews Blockchain Basics Make Better IT Decisions (infotech.com) • https://consensys.net/blockchain-use-cases/government-and-the-public-sector/