KPMG

DIGITAL SUPPLY CHAIN
Improving Efficiency, Security and Visibility for the Public Sector

Effectively setting up and managing supply chains is crucial for any public sector agency serving the public. And whether defending the nation or serving constituents, government leaders simply can't allow missing parts or compromised software to jeopardize their mission.

But as vital as supply chain management might be, it's often lacking, says Viral Chawda, principal advisory, head of AI, Engg & Technology for Government and global lead for AI & Engg for Government & Infrastructure at KPMG.

"Amid COVID-19, some inefficient and ineffective supply chain strategies and operations became more evident when the delay of essential supplies, like Personal Protective Equipment, put lives at risk," he says. What's causing these gaps in supply chain management? Operational and regulatory disruptions, cyberattacks and more make it difficult to ensure each contractor can deliver on time and in full. And as the world becomes more interconnected, the global supply chains gets exposed to new risks.

The ever-growing complexity of tracking products and monitoring the supply chain health makes it difficult to secure the supply chain and ensure mission success.

"When the products or critical parts are domestic-sourced, the required materials and components are sourced from the third, fourth or lower-tier contractors who might be owned, controlled or influenced by foreign entities," Chawda says.

What agencies need to manage this new reality, Chawda says, is to ensure the supply chain is efficient, secure and visible. That means looking beyond many of the legacy systems and practices agencies use today.

A Data-Driven, Digital Supply Chain

While the pandemic exposed many holes in the supply chain, it also helped lay the groundwork agencies need to tackle these issues: widespread digitization.

"The COVID-19 pandemic has accelerated digital innovation across the government sector, particularly for the supply chain," Chawda says.

Today, digital government is an expectation, and constituents want to interact with agencies with the same ease as they do with commercial services.

This expectation also means agencies need to set up and manage a **digital supply chain** — or one that makes use of modern-day tools and strategies to improve efficiency and decision-making.

A digital supply chain doesn't look any one specific way, nor is it simply a software that can be purchased. Instead, it's about creating a strategy that is driven by data, fueled by a suite of modern technologies, such as advanced data and analytics, artificial intelligence, internet of things, cloud and blockchain. The end goal is to transform critical business functions.

"A digital supply chain can help government agencies gain greater insight into their operations, which in turn can help them optimize operations and improve trust," Chawda says.

Modernizing Data

As the supply chain becomes more digital it generates large volumes of disparate, real-time operational data that flows between nodes in a supply chain network, such as those related to each shelf or individual product moving around in the regional warehouse.

Leveraging modern technologies to manage the supply chain data isn't just beneficial for the public sector; it's crucial. Simply put, government entities risk falling on the wrong side of a digital divide if they continue to rely on outdated systems and approaches to store, process and make sense of it.

"The digital divide between government supply chain practitioners and the competitors — tech-savvy supply chain giants — or adversaries — foreign entities — could be enlarged if we don't act now," Chawda says.

To lay the foundation for the digital supply chain, agencies will need to modernize their data capabilities first. Moving data from legacy systems into modern data platforms enables storing and processing data in the form and volume that cannot be handled otherwise, such as images, product descriptions and web server logs, among others.

Additionally, employing the latest and best data management and governance practices is critical to secure data and ensure the appropriate collection and use.

Complex IT environments, legacy architecture and disparate systems mean that supply chain-related

> "
>
> A digital supply chain can help government agencies gain greater insight into their operations, which in turn can help them optimize operations and improve trust.
>
> **VIRAL CHAWDA**
>
> Principal – Advisory
> AI, Engg & Technology Leader - Government
> Global lead - AI & Engg. for Government & Infrastructure
> **KPMG**

information resides in multiple sources across an entire organization. With technologies like data virtualization and application programming interfaces, agencies can unlock data to create a cohesive view of supply chain status without physically moving them into a centralized location.

"Modernizing the data capability makes the complex supply chain data ready for modeling and other analytics services in the digital platform," Chawda says.

Tapping AI and Advanced Analytics

Agencies looking to close the digital divide and move away from manual processes can tap AI and advanced analytics to store and process greater volumes of data faster than ever before.

"There's more data available these days than any one person can process and comprehend," Chawda says. "We need capabilities like data modernization, advanced analytics and AI to ensure we're getting the full picture."

Moreover, advanced analytics and AI don't just help agencies better understand information in the present, it can provide visibility into what the future might look like.

"AI can create accurate forecasts automatically through machine learning in a faster and less costly way," Chawda says. "The more precise forecasting results feed supply and demand planning, driving readiness, efficiency and service level."

KPMG, for example, has helped a defense agency develop a predictive demand model to forecast procurement prices for over 250,000 products. With a more accurate product-pricing forecast updated more frequently, the agency can detect preferred prices by competitive vendors, resulting in a billion-dollar savings and an enhanced procurement strategy.

But that's not all AI can do. Agencies can also use it to better manage stock of warehouse inventory via Internet of Things-connected smart warehouses.

For example, data gathered from sensors can be fed through machine learning algorithms to detect patterns and suggest actions aimed at improving processes, such as dynamic replenishment policies, shorter order picking routes, optimal slotting recommendations and ways to remove bottlenecks.

Moreover, tapping into cameras placed around the warehouse or on wearable devices, agencies can use computer vision algorithms to identify and track products throughout in an automated way.

Finally, advanced simulation and optimization modeling enable scenario planning and supply chain network

redesign, supporting agencies' decoupling strategy to improve resilience and security.

Gaining Trust Through Better Visibility and Risk Management

When implemented via a thoughtful digital strategy, a digital supply chain can enhance operations in several ways, first and foremost by improving visibility.

KPMG has already developed and implemented an innovative solution for a defense agency, tapping data-driven components from multi-channel information retrieval functionality to AI, enabling supply chain practitioners to identify, track and quantify risk in different layers of the supply chain network.

"By improving supply chain visibility and asset tracking, agencies can determine multidimensional risks associated with each part, supplier and manufacturer," Chawda says.

Additionally, agencies can begin the process of planning, designing and testing the supply chain in a risk-free digital environment as opposed to trialing new processes or contractors in the real world. Doing so can help agencies spot potential vulnerabilities early on in the process.

"

By improving supply chain visibility and asset tracking, agencies can determine multidimensional risks associated with each part, supplier and manufacture.

VIRAL CHAWDA

Principal – Advisory
AI, Engg & Technology Leader - Government
Global lead - AI & Engg. for Government & Infrastructure
KPMG

4

Boosting Efficiency and Agility

A digital supply chain transforms business functions to improve operational efficiencies and expedite reaction to changes.

Working with a defense agency, KPMG developed a Deep Edge compute learning model and Android App with workflows enabling inventory, receipt, and issue activities and integrating it directly with the client's ERP system. Utilizing this solution, the new business process results in a 65% reduction in labor hours required to complete inventory and serialization activities with 20% improvement to overall serialization process accuracy.

"It improves the efficiency and accuracy of inventory levels at the warehouse valued at 14.7B in inventory cost," Chawda says.

In addition, cloud-based digital supply chain products and services could be deployed quickly and auto-scaled based on demands and market conditions, similar to the surge in need of PPEs amid COVID.

Acting Now

As agencies look to improve supply chain efficiency, security and visibility, trusted vendor partners like KPMG can give them the tools, insights and expertise they need to make the digital supply chain a reality.

"Underlying data analytics and AI can bring a digital supply chain to life in a disruptive timeline," Chawda says. "It can give you an edge compared to adversaries and competitors. Our expertise is in bringing it all together to make that happen."

Curious how KPMG can help your agency improve supply chain operations through data?

Learn more ›

KPMG