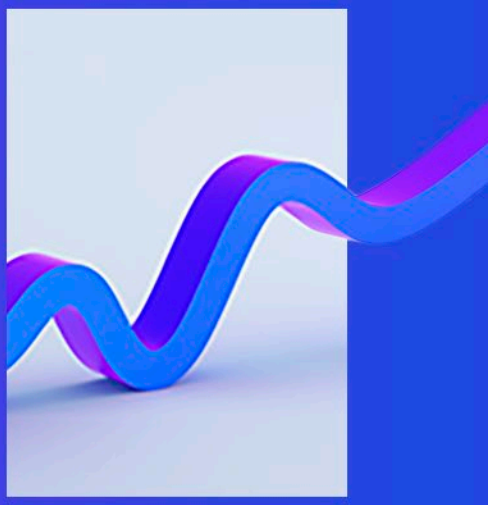
Key considerations to capitalize on smart technologies



Now more than ever the opportunity to capitalize on smart technologies to manage cost and service in operations and networks in the federal space is upon us. Smart technologies are applied in retail supply chains and, as consumers, we experience this capability daily. Updating government and quasi-government agencies with **smart technologies** includes leveraging these new technologies in all aspects of operations and networks, to capitalize on advanced analytics, to be open to (re)design of System of Systems (SoS), and to look for measurable return on investment.

First, leverage **Internet of Things (IoT)** to ensure **assets** such as plant, property, and equipment are made visible across systems and processes. Continue to apply IoT at the piece or product item level and include the equipment that moves items through operations. In the transportation network, trucks, trailers, and delivery vehicles become **visible** with mission status, location, and not just utilization but also **traceability** to all contents in the truck.

In addition to **IoT,** deploying and integrating **automated robotic conveyance**, and the **radio frequency identification (RFID)** monitoring into a secure **artificial intelligence platform** for large-scale operations and networks can **simplify and standardize** your activity. This brings a higher degree of **stabilization** to operational activity. Manual repetitive tasks become **mistake proofed** or **eliminated** altogether. This frees up people to focus on **exceptions and issue resolution across** the operation or network to fulfill mission. This also enables a short staff organization to fulfill its mission.

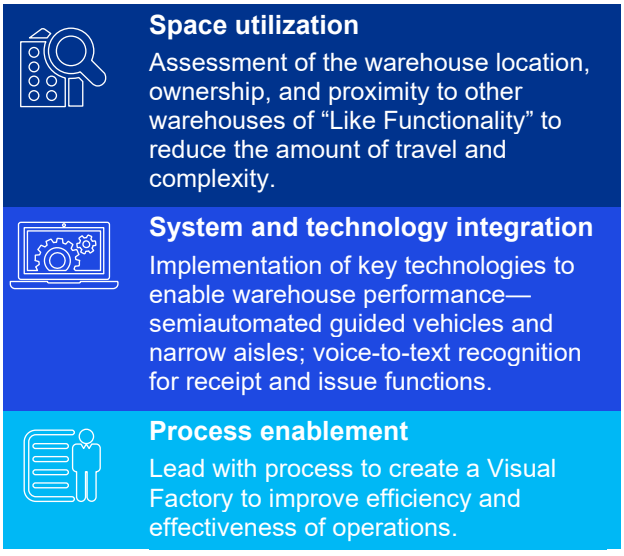
When smart technologies fill in or **eliminate unnecessary activity** between the docks, storage locations, or large-scale automated machines doing **value-added** work, the possibility to **continuously operate** emerges. Based upon **demand**, operations and networks can **flow continuously or pulse products and services**. **Prescriptive analytics**, fed with **data** from every part of operations, can provide visibility across the network identifying non-mission-capable nodes or work centers, and then **reroute accordingly.**

One challenge faced in many large-scale operations with heavy equipment, is that of creating flow between the machines. **Simulation** of a new operating model can be employed in the design efforts. **Smart technologies** have the potential to prompt a rethink on the entire **architecture** of the enterprise to **cope with the scope and scale** of System of Systems **(SoS)**. Working with this level of complexity through design models to simulation is now possible using **Model Based System Engineering (MBSE)**.

Perhaps the greatest opportunity is to release the **collaboration of** people and systems across functional boundaries. Clearer expectation and recognition of customer, legal, or regulatory requirements prompts change to the **operating models** to address compliance, organizational resilience, and simply a broader planning capability in an increasingly complex environment. The **risk** of functional silos **not communicating or version control not under control** can have significant impact to transformation efforts from a **cost** perspective.

Applying smart technologies to **upgrade** your **existing operating architecture** is **an investment, not a cost**. The **return on investment** should be measurable in reducing the infrastructure footprint. Storage or processing space reductions can reduce **overhead costs** of real property and the ensuing utility or energy consumption-related costs. **Exception costs** can be avoided as smart technology's robust processing will ultimately **reduce exceptions**. When work is **level loaded** across a continuously operating facility or network, **productivity is released from the constraints of labor-based availability**. A steady flow and output generate greater **overhead absorption** and **revenue potential** than batch and queue efforts or even expediting. These costs are eliminated or distributed more effectively.

For example, KPMG, as the ***prime*** contractor, was engaged to execute the strategy and plan for reengineering the asset management approach to warehousing, and is responsible for the development, planning, piloting, and implementing a series of transformational initiatives in three multigenerational areas:



Warehouse modernization is implementing and transforming the methodology in which items are receipted, stored, and issued through various means of enabling processes and technology. This capability develops an integrated and responsive supply chain that delivers improved performance and customer satisfaction. Along with this, well-engineered physical layouts, lean work processes, task-appropriate handling equipment, and robust warehouse management systems deliver optimized inventory levels and appropriate response times.

Primary components of the modernization effort include:

Space utilization

i. *Warehouse defragmentation* – Assessment of the warehouse location, ownership, and proximity to other warehouses of "Like Functionality" to reduce the amount of travel and complexity

ii. *Military equipment divestment* – Through usage analysis, requirement/demand, and business direction, reduced the quantity and end items to balance to the needs of the Warfighter

System and technology integration

i. *Wi-Fi* – Installation of Wi-Fi throughout the warehouses to reduce manual tasking and recording, system integration across platforms, and enable new technologies for ease of installation and use

ii. *Optical character recognition* (OCR) – Multistep process of pattern recognition involving creation of the ability to digitally read serial numbers on weapons and military equipment using deep learning and advanced OCR

iii. *Enterprise management systems* – Migrated from a "Manual record and entry" process to a digitized and automated processing (*warehouse management system*) of gear

iv. *Modeling and simulation* – Implemented a simulation model for weapons processing to create a capability to simulate and model client processes to support real-time and rapid feedback to client "what-ifs"; outcomes include:

a. Two- and three-dimensional modeling of the process and layout

b. Interactive, live feedback at user-controlled inputs and speed for real-time depiction of results as the model is processing

c. Numerical and quantitative feedback, real-time to understand key performance indicators – Process speed, bottlenecks, yield, etc.

d. Scenario modeling with the client – Adjustment of "Dials and Levers" by the client and immediate feedback as the model is tuned with the new parameters

Process enablement

i. *Work instructions* – Identified and mapped all processes into standard work instructions

ii. *Pulsed moving line* – Installed a pulsed moving line designed to efficiently move gear through the process

KPMG impact summary

- ***Cost:*** Reduced cost to date for operations ***by >32%.*** Additionally, divestment has removed billions of dollars' worth of inventories
- ***Speed:*** Products move through the process at rates (Dock to Stock to Issue) that have improved by ***over 30%***
- ***Quality:*** Accuracy within stores and pick accuracy have improved trending to goal of meeting ***99% desired level***
- ***Risk:*** Improved overall mission capability rates by a ***factor of 10***
- ***Controls:*** Improving operational and financial discipline, created transparency for tighter capacity to manage risk
- ***Process standardization:*** Aligned and standardized processes and established asset management metrics to provide transparency to operational performance

Efficiency: Leveraged Defense Logistics Agency (DLA) and deployed units to operate in a smarter, faster, and lower cost way. Helped enable the battalions to focus on driving and improving inventory accuracy

- ***Continuous improvement and innovation:*** Assessed how services could be delivered better and more proactively to identify areas of improvement and innovation
- ***Employee satisfaction:*** Leveraged resources efficiently based on a cultural change model aligning people, processes, and business
- ***Operational performance:*** Improved customer satisfaction by delivering in a consistent, reliable, and timely manner
- ***Customer Service:*** Delivered process and experience to meet expectations for needed business services

Smart technologies, advanced analytics, (re)design of SoS, and measuring return on investment are critical pursuits to modernizing operations and networks. The task can be daunting to go it alone, but ***with KPMG, we bring over 100 years of experience and trust in navigating strategic change.*** Smart technology to government and quasi-government agencies is the newest challenge, and KPMG is at the forefront.

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