KPMG

Smart Warehouse Transformation and Modernization

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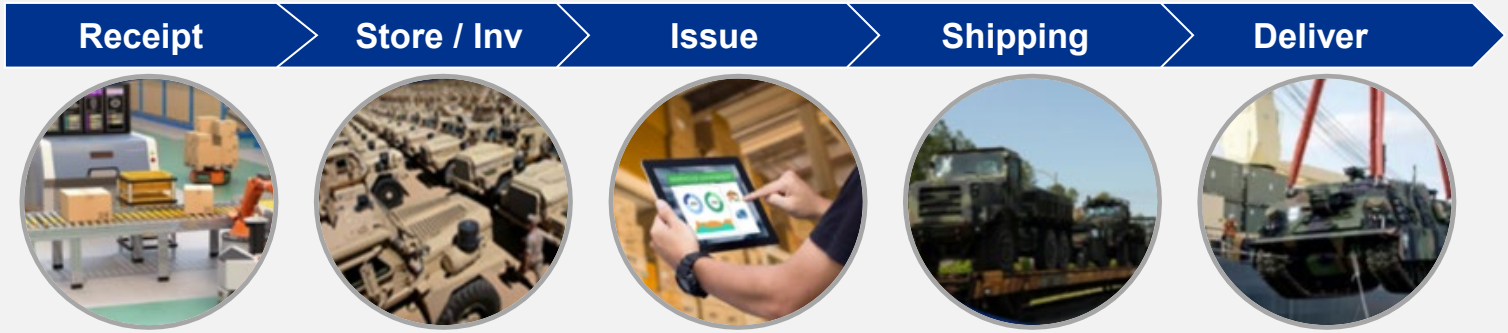
Scope, purpose, intent

Current legacy warehouse systems and processes yield many logistical inefficiencies like:

- **Supply chain visibility**
- **Challenging inventory management**
- **Inefficient operations**
- **Highly manual operations– Excess labor**

KPMG's Smart Warehouse solution provides a secure, scalable, and production-ready enhanced warehousing system that is easily transitioned as a modular set of enablers to advance your accountability while improving speed of gear in stores and reducing the overall cost



Advanced Smart Warehousing capabilities will exponentially transform logistical operations within the DoD to help ensure the Federal Govt. can consistently exceed the service level expectations and mission readiness requirements of the warfighter

Objectives

Increased accuracy	Space optimization	Process	Manageability	Data analytics	Integrated safety	Cost savings
• Inventory • Location						

Application components

A Smart Warehouse will seamlessly incorporate new and emerging technology to improve mission readiness; facilitate plug and play of people, process, and technology; and anticipate receiving and shipping processes and gear

High-density robotics storage solution

Layout of applications

Operations and solutions development

IOT connected sensors

Space intelligence/machine learning

Life cycle support

Safety

Monitoring and control tech

Integrated warehouse storage system

- Storage and retrieval manual/automated or both data-driven solution

Robotic storage and inventory

- Scan, Weigh, Dimension

Conveyance and sortation

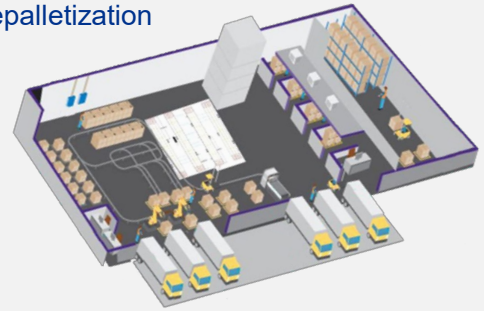
- Robotic material handling
- Barcode scanners and mobile computing
- Voice picking
- Robotic palletization/ depalletization
- Mobility, printing, scanning, RFID read

Infrastructure

- Azure
- Azure HCI
- Wi-Fi
- Stack hub

Software

- Warehouse control
- Connected sensors
- Mobile sensors
- Mobility computing
- Labor management



The future of the automated receipt, storage and issue

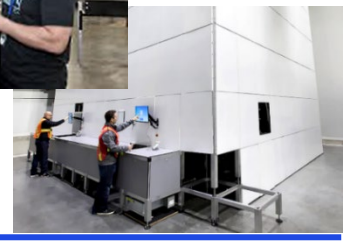
The cost-effectiveness of smart warehouses has significantly improved over the past decade, such that retrofitting existing facilities or buildings should be a real consideration for defense leaders.

Enable a Smart Warehouse by creating an integrated, automated, and digitized environment in which gear and product move efficiently through the warehouse to support the mission.

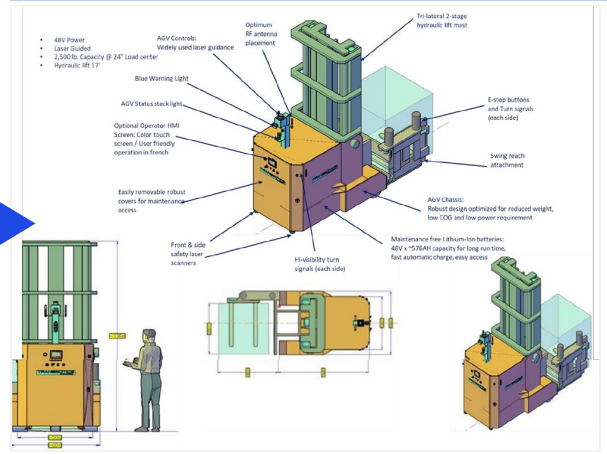
The four primary goals:

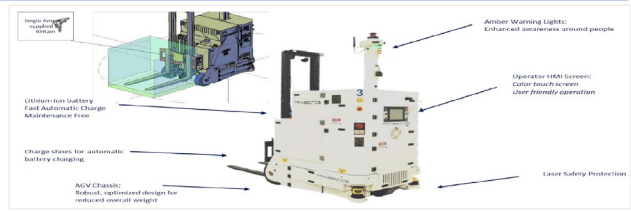
- Innovation
- Usability
- Accuracy
- Accountability (auditability)

High-density Robotic Storage System (HDRSS)

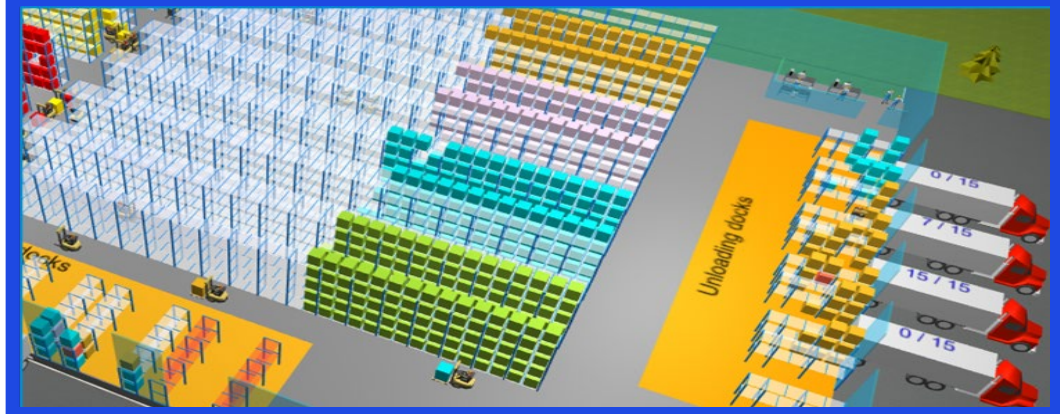


Automated conveyance and tracking

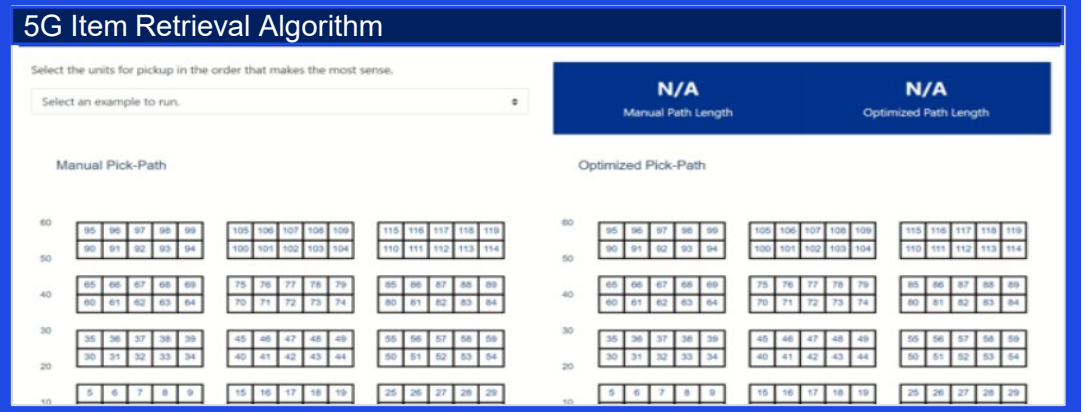




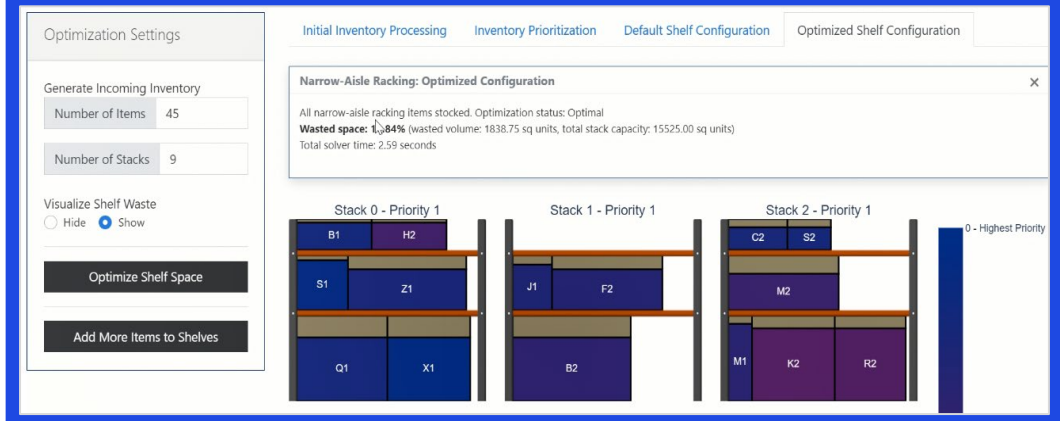
Analytics and optimization engines



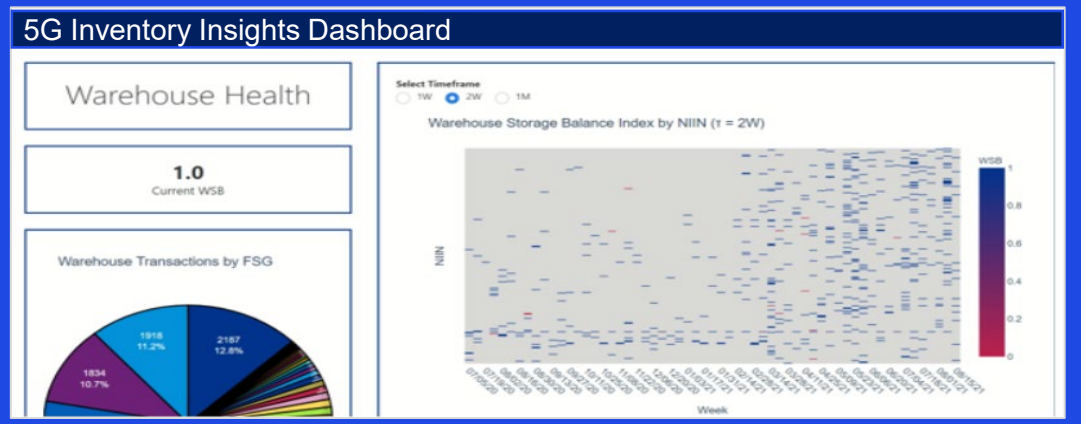
Model/simulation of the warehouse



Gear retrieval algorithm [shortest path]



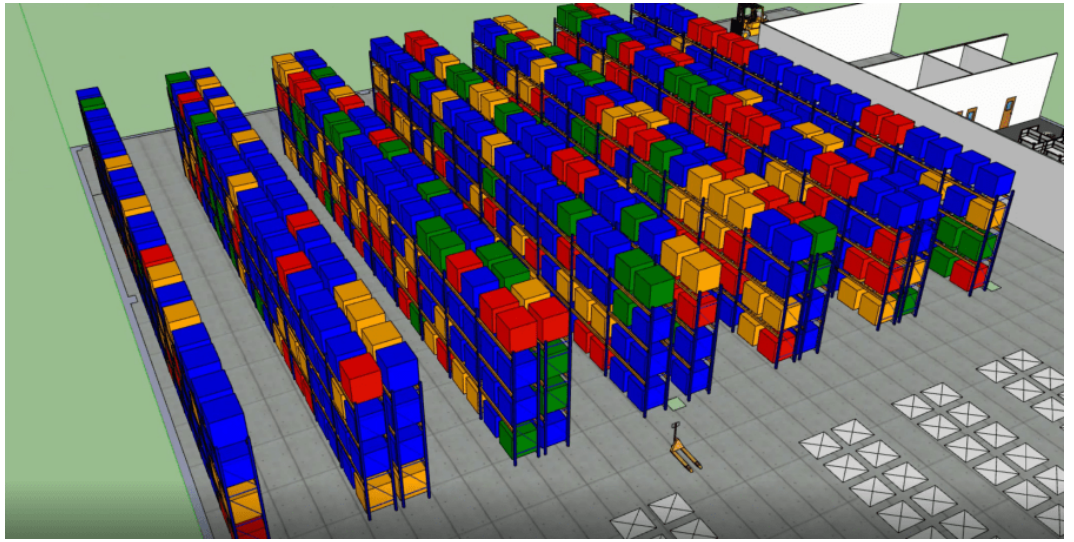
Automated/dynamic slotting

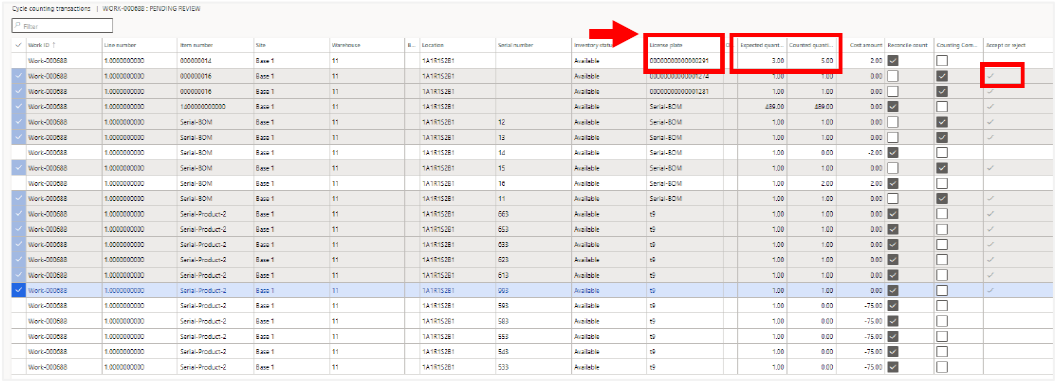


Inventory insights dashboard

Design of the visual inventory

- Generate a warehouse **heatmap in three dimensions** with volume frequency data and dynamic storage locations
- Determine **inventory path of operators** with inventory location list and count list information
- Operations will **visualize the locations** of the National Item Identification Number (NIINs) and easily perform the inventory
- Enable the **calculation of the time required** to inventory NIINs at different storage locations
- Create the ability to demonstrate the difference in time **comparing as-is to to-be situations**
- Inventory will be easily **auditable, traceable, under a level of control**, and induce efficiencies and security. An electronic trail will be developed for digitization of processes





Mobile application

WMS aligned through an API or BOT for real-time communication and causative research

Smart Warehouse projected improvements

Game-changing outcomes projected to include:

>55%
reduced labor costs

65%
increased velocity of gear

98%
or greater accuracy levels in improved accountability of gear in storage

Transformational capabilities:

Empowers workforce with:

- 100% processing visibility
- Ability to monitor everything
- Intelligent decision support and simulation-informed decision making
- Actionable utilization insights

- Real-time performance views

Gives your organization:

- Start to finish digitized supply management
- Automate, everything

- Interoperability of the entire solution
- Every asset, digitized
- Automated reporting for enhanced inventory and labor management

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