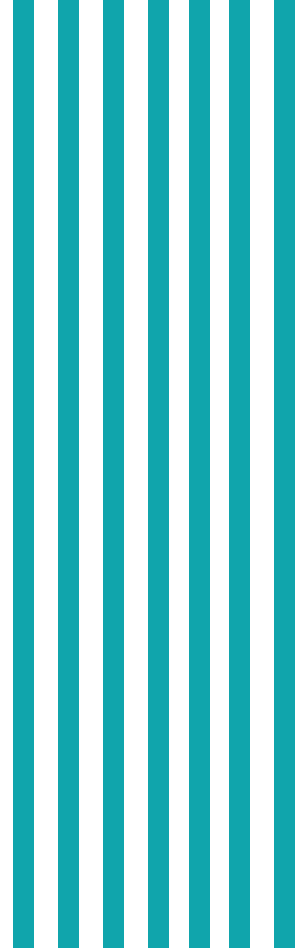# Modernizing the supply chain: The time is now for digital prescriptive maintenance

PEGA

Introduction

While strategy and tactics may provide goals and maneuvers for any military force, logistics deliver the means. And while the needs of the warfighter have changed in recent years, the fundamental priorities of supply chain excellence have not – from providing transparency across and within the enterprise to improving readiness and reducing costs.

Detailed insights about force readiness, made available through the operational state of assets, are central to mission success. Digital capabilities like robotic automation, artificial intelligence (AI), and connected products combine to create a new opportunity to drive even greater impact – especially when it applies to supply chain management, maintenance policies, processes, and procedures.

The readiness challenge: How to transform the defense supply chain

Supply chain excellence is a fundamental priority of the Department of Defense (DOD) and critical to supporting readiness targets and controlling sustainment costs. Years of budget uncertainty combined with decades of wartime operational tempos have led to investment initiatives being undermatched with depot and field service modernization needs – leaving commands without the digital automation necessary to achieve the operational outcomes they desire.

It's no longer enough to use descriptive analytics to explain the past or predict machine and process failures. **Defense agencies need to be more prescriptive and more adaptable.** They need a way to access and interpret supplier information before a disruption ripples through the chain – so they can understand how one could impact readiness and the overall mission. And they need a way to analyze supply and operational alternatives for mission success. This requires a level of integration best achieved with intelligent automation that combines the agility and power of low code *and* AI.

The intelligent solution: Digital prescriptive maintenance

Digital prescriptive maintenance (DPM) leverages technology to triage and troubleshoot problems, diagnose next steps, and take corrective and preventive actions. The core components of DPM include:

- Total productive maintenance
- Prescriptive data analytics
- Automated maintenance case management

The fourth wave of supply chain management

Total productive maintenance

Total productive maintenance (TPM) refers to the practice of maintaining equipment and systems to avoid breakdowns, slowdowns, and defects. TPM has its roots in the Toyota Production System and has historically focused on improving overall equipment effectiveness. In the commercial world, a team environment would engage manufacturers and operators to work together to prevent breakdowns – leading to improvements in product quality and customer satisfaction.

This has significant relevance for the DOD because of its unique customer position. The DOD has a robust and structured product requirements process, yet is still significantly disconnected from its industry supplier partners due to data silos and outdated systems. An intelligent automation platform can provide the ability to access both operational and inventory data in real time – providing a holistic view of the entire mission operations chain. Armed with this insight, maintainers can communicate fixes or view technical specs with the touch of a button on a mobile device. This input can then be shared immediately within the chain to reduce repair time and with suppliers to accelerate product improvements and recertifications.

Harnessing the power of data

Prescriptive data analytics

Connected devices generate enormous amounts of information. Computers and sensors in equipment can continuously record and stream data about their status, behavior, and performance. IDC predicts that there will be 55.7 billion connected devices worldwide by 2025, 75% of which will be connected to an internet of things (IoT) platform. The data generated from connected IoT devices is predicted to be 73.1 zettabytes by 2025.[i] This creates exponentially more data than people or standalone applications. But data is nothing without analysis. The real value comes from analyzing the data to make effective, actionable decisions.

In DPM, data analysis goes beyond description to prescription. Because of this distinction, systems integration is critical; applications, databases, enterprise resource planning systems, connected device platforms, and other tools must talk to each other. This allows organizations to perform advanced analytics based on a holistic view of the entire supply chain.

With this level of visibility, service materiel/system commands can better forecast demand – all while connecting supply and driving agility into the chain. Suppliers can better consolidate shipments in accordance with demand, reducing transportation costs to the DOD and improving time-to-delivery. Additionally, service materiel/system commands can improve how they work with depot maintenance, the Defense Logistics Agency, and financial and operational planners – reducing the need for repairable item inventory and new buys. All for

the purpose of reducing logistics response time and order fulfillment. Finally, accurate and real-time data that reflects the entire supply chain enables depots to improve accuracy of maintenance scheduling and increase the efficiency of field maintenance. All of these benefits have a direct influence on readiness levels.

It all starts with case management

Automated maintenance case management

To effectively deliver the benefits of DPM, the underlying structure must be grounded in case management.

The word "case" refers to a piece of work being conducted to achieve an intended outcome. A maintenance case involves multiple roles that can be assigned to it. In some situations, equipment maintenance or repair may be done remotely using software. In most situations, however, a technician is engaged. In either instance, an effective case management system will arm maintainers with information about the problem, and the right parts and tools to fix it.

Case management is essential for DPM. It gives end-to-end visibility into processes, ensuring appropriate responses and resolutions. By focusing on individual cases, process performance data is captured and analyzed, providing a plan of action and framework for continuous improvement. Tracking and resolution data direct cases throughout the supply chain system to additional opportunities to eliminate bottlenecks and streamline and simplify processes.

Most importantly, processes are no longer static or reactive. Case management allows optimized, dynamic processes to be built directly into automated systems to drive improvements. In short, suppliers can improve cycle times, quality, and productivity – all at the same time. Additionally, with improved asset visibility, depots and field activities can improve efficiency and response time effectiveness – ensuring the right part at the right time, while reducing not-mission-capable rates and improving readiness.

The end-to-end DPM strategy

Capturing business rules

Business rules guide decisioning and policies across organizations so that end users and customers are effectively served. By using low-code application development, anyone inside or outside of IT – including business and operations analysts – can define and build these rules into the system. The processes and procedures that drive these objectives may be derived from many sources throughout the organization. Capturing them directly ensures they won't be forgotten. Ultimately, case management enables insight to become actionable.

Collaboration and continuous improvement

Effective DPM involves continuous collaboration – and case management fosters this. Planners, maintainers, and suppliers across the entire supply chain enterprise can use discussions and sync chats – all within the context of shared mission objectives. Maintenance continuously improves from innovative idea exchanges and queries, while knowledge about the product or service is aggregated for reference and analysis.

Simply connecting equipment and capturing massive amounts of data won't unlock new opportunities for suppliers or the DOD. **Value is created by taking the right actions at the right time.** They need a shift in strategy to stay ahead of the curve.

Intelligent automation and low-code platforms make collaboration easier through a visual development interface. This allows defense agencies to upskill talent while reducing training overhead, as well as empower maintainers, planners, and supply chain managers to rapidly create and maintain applications in real time. This approach will also generate a common library of components that enable reuse to accelerate future application deployment. This enables agencies to rapidly respond to policy or mission changes through a simple visual reconfiguration in real time, while automatically generating an audit trail to master and manage all changes for future reference.

Conclusion

Now is the time to modernize your supply chain. Agile development methodologies combined with a low-code approach increase rapid delivery of new software capability – especially compared to traditional software development.

Collaboration using visual development and real-time data sets the stage for the DOD to achieve digital transformation – across the logistics enterprise. Predict potential issues and fix them before they impact the mission. Respond instantly when things go wrong. Dispatch a field team with the skills, tools, and insights needed to fix things fast.

The new standard of digital prescriptive maintenance powered by an agile, low-code platform can enable the DOD to rapidly deploy tailored logistics solutions that support military readiness and foster a whole-of-government approach to national security.

Learn more

Click **here** to learn more about how
Pega is helping defense agencies automate
their supply chain management.

Pega delivers innovative software that crushes business complexity. From maximizing customer lifetime value to streamlining service to boosting efficiency, we help the world's leading brands solve problems fast and transform for tomorrow. Pega clients make better decisions and get work done with real-time AI and intelligent automation. And, since 1983, we've built our scalable architecture and low-code platform to stay ahead of rapid change. Our solutions save people time, so our clients' employees and customers can get back to what matters most.

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