# Accelerate your journey to high-performance defense manufacturing

# New demands require more cohesive manufacturing operations

Over the last few years, defense manufacturers have faced massive swings in demand for their services. After scaling back operations due to fewer orders during the COVID-19 pandemic, many are now struggling to meet renewed and expanded demand.

Multiple challenges are hindering defense manufacturers' ability to smoothly accelerate production. Some of those challenges are beyond the manufacturers' control. Supply chain disruptions, higher costs for materials, materials shortages, and skilled labor shortages all increase production risks, but are largely driven by external forces. Other, internal forces, such as disparate manufacturing systems and inconsistent sources of information–which fragment operations and slow production–are within their control.

## Strategic digital transformation drives growth and efficiency

To overcome these challenges and drive growth in a profitable way, defense manufacturers must increase agility while reducing complexity, costs, and risks. They must also ensure everyone in the organization can work at maximum efficiency and effectiveness. These business imperatives drive the need to accelerate digital transformation and modernization. Embracing digital technologies and innovation is considered so important that Deloitte has identified digital transformation as a key method for aerospace and defense companies to unlock growth and efficiency.[1]

While it may seem contradictory to aim for higher efficiency while growing the business, both can be achieved with the right technologies and strategy. By using digital technologies to address the challenges that are within their control, defense manufacturers can better manage those that are out of their control.

The first step is to move away from siloed systems and inconsistent sources of information to a single, fully integrated management platform that provides all operational and IT software–from the manufacturing execution system (MES) and enterprise asset management (EAM) system to the customer relationship management (CRM) system and enterprise resource planning (ERP) system–and a single version of the truth.

With a company-wide, cohesive approach to software and information, production systems, people, and shop floor assets can all operate in more efficient and informed ways to increase production speed, precision, and agility. As a result, defense manufacturers can expand production of high-quality solutions without hiring additional staff or investing in additional assets, and they can maintain lean operations as they grow to mitigate financial and operational risks.

[1] 2024 aerospace and defense industry outlook. Deloitte.

# Fully integrated operations deliver business-changing benefits

Successful evolution to high-performance manufacturing relies on more than tactical technology implementations, though. A strategic approach is essential to ensure the integrated management platform can deliver its full value across the organization and become a competitive advantage that drives customer satisfaction and trust while enhancing profitability.

To extract maximum value from the investment and accelerate returns, defense manufacturers must also transform their business processes to align with new technologies, capabilities, and ways of working.

Together, these tactical and strategic initiatives empower defense manufacturers to provide the right, real-time data to the right people and systems at the right time. They have new agility to adapt faster and to make informed decisions in the moment to make the best use of all available resources.

Here are just a few examples of how an integrated management platform and integrated processes help defense manufacturers evolve to high-performance manufacturing.

## Production predictability augments and re-risks lean operations

Pre-pandemic, most defense manufacturers followed lean and just-in-time principles that relied on stable demand and minimal variations in material availability. With predictable production requirements and a low-risk supply chain, there was a strong tendency to keep inventory levels extremely low.

Post-pandemic, inventory strategies have reversed. In a bid to guarantee they have adequate inventory to maintain production, many defense manufacturers have over-stocked parts and materials. While these


inventory buffers have helped to contain production risks, the costs to purchase, store, and track high inventories have significantly increased financial risks such as liquidated damages from missed contractual obligations.

With integrated operations, defense manufacturers can take advantage of demand-driven material requirements planning (DDMRP) to right-size inventory levels based on demand levels and supply chain variability to better balance risks. Unlike traditional bill of materials (BOM)-based planning and scheduling, DDMRP looks at actual usage to determine if a part is sufficiently stocked to cover potential demand. As a result, it's more sensitive and responsive to the variations in demand and supply that can cause shortages, production disruptions, and chaos in manufacturing facilities.

## Integrated management platforms increase efficiency and cut costs

A fully integrated management platform and processes allow defense manufacturers to leverage powerful new capabilities in every aspect of their operations. The resulting speed, awareness, and insight provide numerous opportunities to save time and money.

**For example, defense manufacturers can:**

- **Optimize production schedules** with intelligent scheduling that goes well beyond the automated scheduling typically used today. Real-time data from across the organization can be used to create production schedules that make the most effective use of systems, people, assets, and processes. Production schedules can also be dynamically updated to reflect new criteria, changes in demand, urgent customer requests, and resource availability so time and effort are not wasted due to lack of insight.
- **Find quality issues earlier in the process** by using real-time statistical process control to reveal issues that could have remained undetected for much longer. Issues can be resolved before they result in costly production changes or product recalls, both of which negatively affect customer perception of the organization and its products.
- **Avoid production downtime and early parts replacements** by upgrading from preventive maintenance to predictive maintenance. The operational health and performance of production-critical equipment can be automatically monitored in real time, so weaknesses and deterioration can be identified and addressed at the right point in time, rather than based on a set schedule.
- **Reduce energy consumption** by using predictive maintenance data to monitor energy usage trends across equipment, machines, and facilities. With the right data, it's easier to spot areas where increased energy consumption is a symptom of a bigger problem, as well as opportunities to cut energy costs and strengthen environmental sustainability initiatives.

## Robust business intelligence increases visibility throughout the organization

As real-time information flows end-to-end through the organization, every staff member from the shop floor to the top floor has the operational visibility they need to work in more efficient, productive, and effective ways.

The benefits are far greater than those that can be achieved with a data aggregator or business intelligence report. While these systems provide a certain level of insight, an integrated platform that provides data to everyone who needs it democratizes data, significantly increasing the opportunities to put vital insights to work everywhere.

Organization-wide access to data also encourages people to more actively communicate and collaborate across departments and up and down hierarchies. This natural evolution of relationships highlights opportunities to enhance and simplify organizational structures.

## Real-time data improves compliance and regulatory reporting

Defense manufacturers must comply with a wide variety of regulations that cover everything from supply chain and cybersecurity to equal employment and the environment. As a result, their operations and processes must be fully traceable, available for audits at all times, and they must generate milestone reports to ensure timely payments.

With the inflexible, disjointed systems in use today, it's extremely difficult for defense manufacturers to meet all of these requirements. Bottlenecks and inconsistencies across systems restrict transparency, slow data compilation, and increase the risk that information will be inaccurate, out-of-date, or both.

A single source of truth that is always up-to-date with the latest information reduces these risks. It's faster, easier, and less costly to generate comprehensive proof that the appropriate processes are being followed and all regulations and requirements have been met.

# Key capabilities for achieving optimal business outcomes

To deliver the operational advantages and business benefits just described, the integrated management platform must provide advanced and comprehensive features and functionality. While some offerings may include a subset of the required features and functions, all are required to extract maximum operational value and return on investment from the chosen platform.

## ISA-95 compliance increases data accuracy, reduces complexity and costs

Platforms that comply with the ISA-95 standard from the International Society of Automation (ISA) use a standardized data model and communications protocols to enable consistent and accurate data exchanges between business systems, such as an ERP system, and control systems, such as an MES.

An ISA-95-compliant platform that natively integrates an MES, an ERP system, and product life cycle management (PLM) is the best choice because it provides a complete manufacturing operations management (MOM) solution with lower complexity and costs than segregated solutions:

- There's no need to source or integrate solutions from multiple vendors.
- There's less need to integrate with other existing systems in the organization.
- There's only one solution to maintain and manage.
- It's faster and easier to integrate and automate manufacturing processes.
- Staff have only one system and user interface to learn, and one login to remember.

## AI accelerates problem detection organization-wide

Every technology vendor is touting the AI advances in their solutions these days, but it's important to understand how the AI techniques implemented lead to business improvements. For example, to work smarter to increase efficiency and cut costs, the platform must combine advanced anomaly detection and pattern recognition with real-time data correlation.

Anomaly detection, which is also referred to as time series AI, looks at data and how it changes over time to automatically identify points at which data goes above or below pre-defined thresholds. Pattern recognition determines the problem behind the deviation, and real-time data correlation provides insights into trends that may not have become apparent through human or non-AI software analysis.

Together, these AI techniques dramatically accelerate and improve problem detection in all areas of the organization, from product quality and asset performance to energy consumption, purchasing, and supply chain. This early detection means remedial actions can be taken before problems escalate into complex and costly ordeals. Because the monitoring task is fully automated, quality engineers and other staff are free to focus on higher level strategic tasks.

## Integrated project management unifies planning and production

Platforms that integrate project management software eliminate the disconnects that inevitably occur when project management is isolated from manufacturing activities that are managed through ERP software.

The integration means the project plan drives manufacturing activities. All input and changes to the project plan automatically flow through to manufacturing in real time so people and systems are always working to the latest schedule and requirements.

This visibility is particularly beneficial in large and complex defense manufacturing projects with multiple production lines and intricate assembly requirements. Manufacturing teams can instantly pivot to focus on new priorities and immediately start implementing new requirements to avoid wasted time, effort, and money. They can also better coordinate how and when human and machine resources are used so all can work at maximum efficiency and capacity.

## Automated workflows trigger the right activity at the right time

The most advanced and complete manufacturing platforms integrate a workflow engine that automatically initiates activities based on data flows between people and systems throughout the organization.

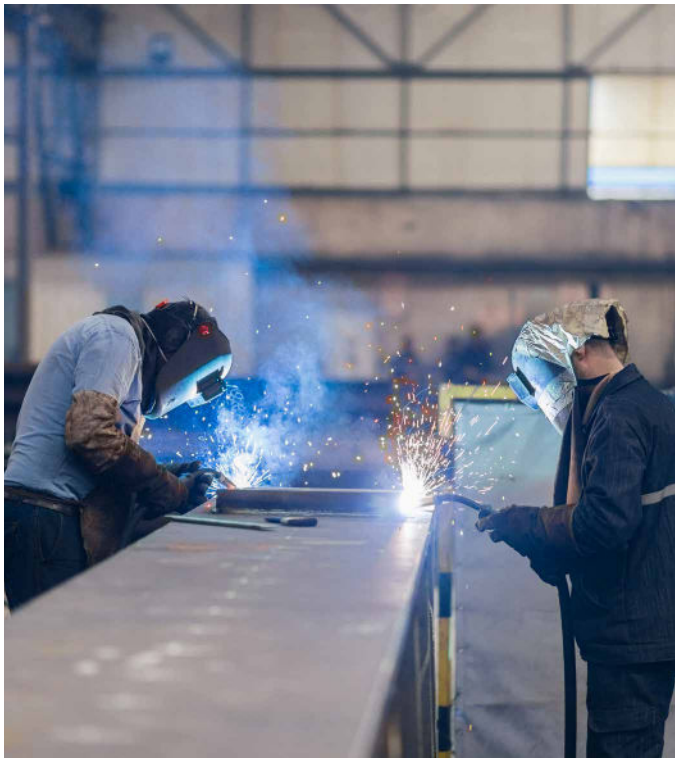
The workflow engine makes it fast and easy to create workflows for manufacturing as well as for non-production activities, such as purchasing, human resources, and facilities maintenance. These clear, pre-defined workflows accelerate tasks, reduce the risk of human error, and free staff from repetitive and mundane tasks.

With an intuitive, visual workflow designer, workflows for any group can be created and changed in hours, instead of weeks, with minimal training. And defense manufacturers can avoid the extensive time and costs required to customize workflows in typical ERP systems.

## Defense-specific solutions streamline reporting, ensure compliance

When the management platform includes integrated and automated reporting templates that are ready to use out-of-the-box, defense manufacturers can create accurate and compliant reports in far less time with no risk that imprecise or incorrect data will be inadvertently included.

Templates for mandatory government reports are particularly important, as they ensure report contents comply fully with government reporting criteria for traceability and proof of activities that are tied to milestone payments.



## A strategic partner delivers long-term benefits

Some technology partners are just that. However, others have the depth of expertise and experience required to become a strategic partner that supports the business and contributes to its long-term success.

A strategic technology partner helps defense manufacturers achieve their operational and financial goals today and tomorrow by providing:

- **Integrated software** that helps the organization efficiently deliver on increased demands today and smoothly evolve as needs change over time.
- **Flexibility** to integrate the platform with third-party systems when and where required so the business can get more from existing investments.
- **Outstanding service and support** from the evaluation phase through platform implementation, roll out, ongoing use, and upgrades.
- **Customer success programs** that help the organization assess and quantify the benefits of what can be achieved and extract maximum value from the platform at each stage of its life cycle.

# Taking high-performance manufacturing from vision to reality

IFS understands the challenges defense manufacturers face and the integrated software they need to better manage business challenges, optimize operations, and increase customer trust and satisfaction. The company's IFS Cloud platform empowers defense manufacturers to accelerate innovation, automation, and insight, whether they specialize in components, systems, or the largest platforms for land, air, or sea.

With IFS as their strategic technology partner, defense organizations gain the operational speed, agility, and precision that are essential to develop and deliver solutions that are trusted to perform at crucial times – at the moment of service™.

**IFS offers:**

- **A single, fully integrated platform** that provides all of the enterprise and manufacturing software needed to keep projects on time, on spec, and on budget with lower costs and fewer risks. The user interface is intuitive and easy to learn, and key innovations, such as AI, are woven throughout the software so their benefits can be realized across the organization.
- **Complete flexibility** to mix and match software capabilities to address today's most urgent challenges, and to deploy software in the cloud or on-premises as required. Capabilities can be easily extended and scaled to meet new demands and maintain alignment with business goals, operational priorities, and budget realities.
- **A global team** that's located in more than 80 countries and brings depth and experience that are unique in the industry. Every customer is treated as a valued, long-term partner and as a collaborative stakeholder that can use their real-world experiences to provide valuable input to platform evolution.
- **An extensive track record as a proven, strategic partner** that has earned the trust of thousands of customers across industries, which is why the five largest defense contractors in the world run IFS software.

## Learn more

To learn more about what IFS can do for your operations, visit ifs.com, explore the benefits of IFS Cloud for A&D Manufacturers, or book a demo.

## About IFS

IFS develops and delivers cloud enterprise software for companies around the world who manufacture and distribute goods, build and maintain assets, and manage service-focused operations. Within our single platform, our industry specific products are innately connected to a single data model and use embedded digital innovation so that our customers can be their best when it really matters to their customers – at the Moment of Service™.

The industry expertise of our people and of our growing ecosystem, together with a commitment to deliver value at every single step, has made IFS a recognized leader and the most recommended supplier in our sector. Our global team of over 6000 employees every day live our values of agility, trustworthiness and collaboration in how we support thousands of customers.

Learn more about how our enterprise software solutions can help your business today at ifs.com.

**#MomentOfService**



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