Enabling A&D Manufacturing transformation

IFS

How your ERP choice can prevent bottlenecks to success

Aerospace & defense manufacturing in particular is subject to fast-changing geopolitical and market climates, ever-moving security requirements and the need to modernize business processes to offer competitive solutions. Failure to react can quickly shift a leader to a laggard.

There are some key scenarios where A&D manufacturers have to adapt quickly—which might mean taking advantage of new technology, diversifying their business model, ensuring compliance with security mandates or reacting to global changes and market volatility:

- Unforeseen events can impact A&D manufacturers in a manner which is out of their control as in the case with the early 2020 global impact of the COVID-19 pandemic. This vastly altered demand for goods and led to countries such as the United States to begin invoking the Defense Production Act (DPA) to acquire some 60,000 test kits. There are countless global examples of A&D manufacturing responsiveness at work: BAE Systems, quickly shifted production to design over 100,000 face shields and work on developing a ventilator from scratch. North America based manufacturer CAE Inc. shifted its focus from manufacturing flight simulation systems to developing an easy-to-build ventilator in less than 11 days to help mass produce equipment to combat the COVID-19 crisis.

- There is a pressing need for A&D manufacturers to adopt new technology such as AI and IoT, not just to make their factory operations smarter but to gather data on the products they have deployed. Deloitte states that, as Industry 4.0 hits A&D manufacturing, the combination of these technologies–deployed to improve efficiency, develop new products and roll-out new services–could be key to unlocking future competitiveness.

Its industry experts argue that there is a clear and compelling case for aerospace and defense companies to leverage these technologies and incorporate digital transformation throughout their organizations.

- There continues a progressive movement among A&D manufacturers towards an aftermarket model that is unlocking new revenue streams. This is something large OEMs such as Rolls-Royce and GE have had in place to support aircraft engines in the field for a while, but is a valuable business and revenue option for many other A&D manufacturers.

- In such a complex and highly regulated industry there are key cybersecurity concerns to be dealt with–cloud vs. on premise deployment, International Traffic in Arms Regulations (ITAR) and the U.S. DoD Cybersecurity Maturity Model Certification (CMMC) Version 1.0 among others.

The fallout from any or all of these scenarios is a level of business disruption of course, but how much will depend on an A&D manufacturing organization's ability to be agile in their operations and flexible to meet changing market demands. Those who can't adapt won't–and the Achilles heel or strategic enabler of this change will be underlying enterprise software. In a recent IFS webinar, 46.16 percent of A&D manufacturers felt that their current ERP solution was an impediment to improving their A&D manufacturing agility in operations and flexibility to meet changing market demands.

The inflexibility of legacy Enterprise Resource Planning implementations can leave organizations hamstrung when trying to diversify their business, take advantage of new technology, remain secure or react to global changes and market volatility.

Businesses should be able to set their own progressive agenda, not follow the software vendor's

An Accenture survey of CIOs undertaken in the UK, found that 53 percent said that their current ERP system was inflexible and that they wanted to extend it using intelligent technology. A&D manufacturers need total assurance their underlying systems infrastructure supports their specific business and industry needs now and into the future—not be tied into a particular development route pushed by their software provider. Witness the constantly evolving end-of-support deadline amid the move to SAP S/4HANA—which has been extended again from 2025 to 2027 in response to customer pushback.

To support the latest batch of technologies and benefit from the financial, operational and security enhancements of business transformation, A&D manufacturers must have a progressive enterprise software platform.

The roadmap to A&D manufacturing flexibility

When selecting the most appropriate enterprise software to support their operations, A&D manufacturers face some critical choices. Recent statistics estimate that the average budget for an ERP project is USD $7,200 per user. Looking at a per user cost alone only tells a partial story and doesn't take into account the true costs when license fees, implementation consulting and customizations are all factored in. Ultimately, the selection of an ERP is best served with a sound business case that has clearly defined cost and revenue predictions, with payback period and ROI. Finding out after the fact that an implementation does not adequately support A&D manufacturing operations can prove an expensive failure—especially if lengthy customizations involve ongoing business disruption.

In order to avoid making this error, A&D manufacturers need to make an informed judgement when deciding if a particular ERP system meets their needs. Here are four critical ERP 'stress tests' A&D manufacturers should keep top of mind when looking to transform their business operations.

> **"**
>
> ## Specific needs
>
> Enterprise software cannot be all things to all people."

One – fit for industry purpose, straight out of the box

Enterprise software cannot be all things to all people. The baseline ERP functionality delivered by large incumbent providers–who develop a single platform to appeal to as many industries as possible–may well be good for operations such as finance, HR and payroll. But running A&D manufacturing operations is not the same as managing the day-to-day processes of a retail business.

Far too regularly, A&D manufacturers set out on an implementation strategy and find that costly, complex and confusing customizations must be made to their software infrastructure to accommodate critical A&D manufacturing processes such as precision part engineering and intensive quality control. A&D manufacturers need to be confident their underlying systems infrastructure supports the specific business needs of their industry now and into the future, not have to dance to the tune of their software supplier–as has been the case with customers who have been mandated to move according to SAP upgrade plans with little consultation.
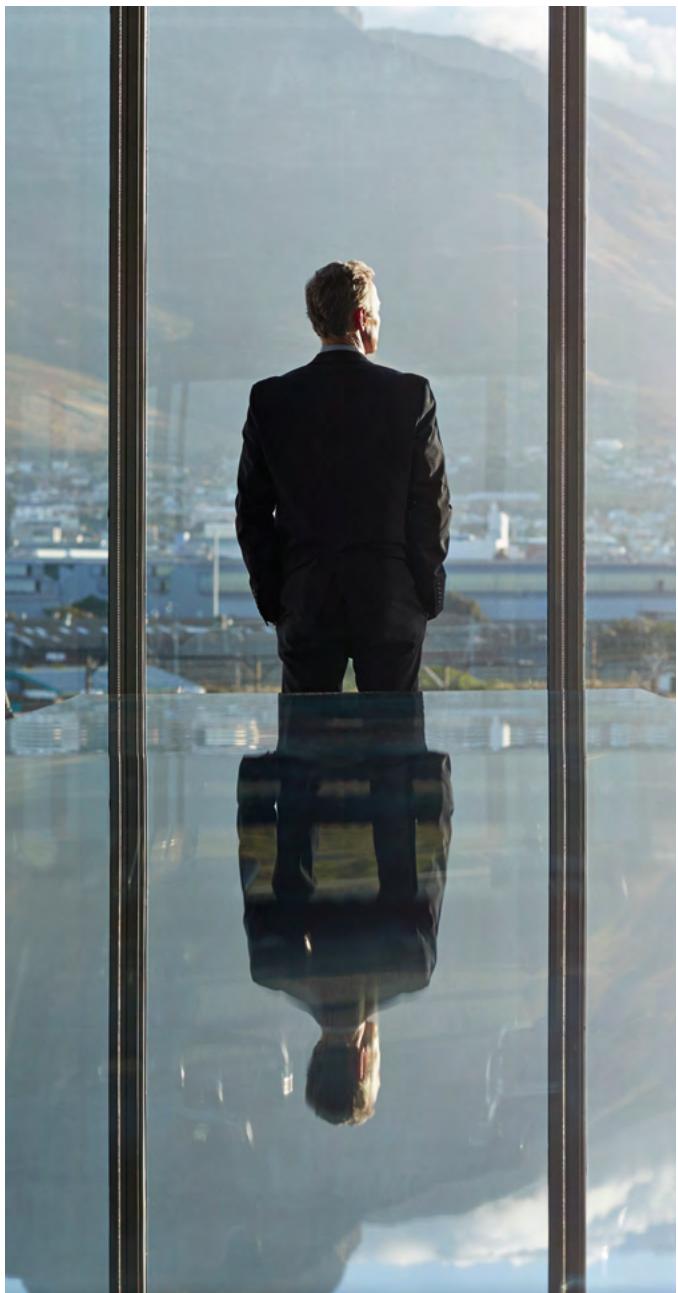
Clear up cloud confusion

This even applies to the deployment model for enterprise software. Many ERP vendors are pushing their customers to the cloud as a prerequisite which, again, may seem like a sensible choice for industries with less heightened security requirements. But A&D manufacturers are involved in a sensitive supply chain, where they must prove compliance with strict military security requirements. When researching the challenges of cloud adoption in A&D organizations, Tech-Clarity found that two-thirds of A&D companies highlighted security as a "significant risk". When looking specifically at OEM respondents, that figure rises to almost three-quarters. IFS recently asked a group of A&D manufacturers about ERP software deployment and not surprisingly, due to this data sensitivity, only 4 percent of the respondents said they were exclusively using a cloud deployment, with the majority of using on-premise, which is even outpacing a hybrid on-premise and cloud deployment model. ERP vendors that are exclusively pushing a cloud only mandate clearly have their heads in the clouds rather than their A&D manufacturers' data.

IFS Cloud has been designed with the A&D sector as a core vertical and is a well-rounded and well-supported cloud ERP software suite. But IFS understands A&D manufacturers need to have full control over how they decide to deploy supporting enterprise software, and is not pushing its customer base down a particular roadmap for deployment. Where business processes dictate, IFS ERP could be a physically secure on-premise installation, a full SaaS-based deployment or a hybrid environment spanning both.

Two – plug into smart manufacturing

A recent Deloitte study highlighted how leveraging advanced technologies to introduce new and differentiated products and services in the marketplace will help A&D companies grow both their top and bottom lines, as these products and services typically carry higher margins.

But A&D manufacturers are behind some of their peers on the Industry 4.0 or smart manufacturing curve. During a recent webinar, which zeroed in on the impact of Industry 4.0 for A&D manufacturers, IFS asked A&D decision makers to respond to a number of polling questions to gauge views on Industry 4.0 adoption. Only 20 percent of participants were actively looking to leverage 4.0 technology, identifying it as an enterprise-wide priority. The majority—68 percent—were still researching how these technology advances can help achieve their digital transformation goals, with 35 percent expressing a desire to improve their capability to onboard new technology such as IoT and artificial intelligence to enhance their manufacturing operations.

Put connectivity concerns to rest with restful APIs

Small wonder. If you look under the hood of many ERP suites, you will find multiple software products are comprised of disparate applications, developed separately and lashed together with a common user interface. No software can exchange data with every sensor, and those A&D manufacturing organizations with inflexible deployments will need to customize and add to their existing implementation in order to gather information from every available sensor.

Smart factories and intelligent assets deployed in the field will generate many terabytes of data. Simply extracting this data—let alone mining it to truly inform business decisions and better take advantage of aftermarket service revenue—is something A&D manufacturing is still trying to master.

This can be avoided though, by deploying industry-specific manufacturing ERP software built on API-driven architecture. To a certain extent, A&D manufacturers and services companies today are becoming software companies themselves. They may have developers who write software to do things such as introduce data from the IoT and enable other systems to interact with enterprise software. RESTful APIs, which is a software architectural style for designing networked applications, make it that much easier for them to link valuable data streams into the core ERP system.

By prioritizing open applications, IFS supports customer innovation while decisively turning away from platform coercion and lock-in. As a member of the OpenAPI Initiative (OAI), IFS is helping to shape the industry by promoting open applications that guarantee A&D manufacturers total freedom to develop and connect data sources to drive the best value for their circumstances.

> **" Intelligent enterprise software should bring together solutions that visualize information to support decision making at both strategic and tactical levels."**

Three – breaking down silos to make more informed decisions

Half the battle is won once data is introduced into a supporting enterprise solution, but to ensure victory the next stage means analyzing that information to gain insights into operational and business performance. A&D manufacturers are moving data analytics from a tool for observation to a tool for optimization, from proactive to predictive intelligence and to help meet the demands of rapid industry changes.

By actively monitoring the performance of assets and processes, A&D manufacturers can make faster and better-informed decisions, which would ultimately lead to productivity improvements, cost savings and added maintenance predictions. But this is moot if data exists in a heavily customized and fragmented enterprise software implementation—something which has been heavily criticized by customers moving over to SAP S/4HANA. Siloed sources cannot be harnessed to paint a full 360-degree view of manufacturing operations and back-end business processes.

Intelligent software drives intelligent actions

Intelligent enterprise software should bring together solutions that visualize information to support decision making at both strategic and tactical levels, providing insight and context when and where it is needed. This includes integration with other programs vital to A&D manufacturing, such as Manufacturing Execution Systems (MES) which drive execution of shop-floor operations, and Customer Relationship Management (CRM) to record customer-specific information.

Fully integrated IFS ERP functionality enables A&D manufacturers to manage projects from design to through-life support and phase out, while controlling contract costs and increasing supply chain efficiencies. By combining enterprise architecture, business activity monitoring, intelligent business process management, business intelligence and reporting capabilities, IFS creates a unified ERP platform which allows for an end-to-end picture to be built in line with the organization's business objectives.

With a comprehensive dashboard of overall business intelligence extracted from all available sources, A&D manufacturers can comprehensively analyze performance and make informed business decisions. With complete visibility and traceability across all operations, A&D manufacturers can quickly move to eradicate inefficiencies, improve productivity or tweak things when implementing a new strategy.

> **" A&D manufacturers can comprehensively analyze performance and make informed business decisions."**

> **"Enterprise software holds the key to transforming A&D manufacturing operations–from capitalizing on new technology and reacting to industry challenges, to ensuring compliance and upholding cybersecurity requirements."**

Four – a hyper-secure industry requires unprecedented compliance levels

Being an A&D manufacturer means meeting more stringent security needs than any other sector and evolving regulatory oversight and compliance requirements are a constant pain point.

This security sophistication applies not only to the physical products A&D manufacturers deliver, but also their digital presence. Witness the security mandates required by defense operators, such as ITAR and the newly released U.S. DoD CMMC Version 1.0.

The U.S. Government explains that "the CMMC is intended to serve as a verification mechanism to ensure appropriate levels of cybersecurity practices and processes are in place to ensure basic cyber hygiene as well as protect controlled unclassified information (CUI) that resides on the Department's industry partners' networks." Failing to adhere means A&D manufacturers are shut out of valuable military RFPs and bid situations.

## Cutting through compliance complexity requires a helping hand

Enterprise software plays a key role in meeting digital security requirements–and it's here where 'one-size-fits-all' ERP systems do not contain the industry-specificity to keep A&D manufacturers compliant. An ERP designed with A&D requirements in mind will keep a heavy focus on regulatory and security functionality–with native traceability and audit management features that will ensure A&D manufacturing organizations meet stringent regulations and prove compliance across their operations.

Without a fully integrated application suite allowing data to flow seamlessly between different functions such as supply chain management, manufacturing, engineering and CRM, it is difficult to know which products, parts or transactions may put an A&D manufacturer in jeopardy.

It will become increasingly important to ensure any ERP solution used for A&D manufacturing has functionality specifically designed for export control and cybersecurity regulations. A business dealing in regulated materials or involved in sensitive military contracts must be able to quickly and efficiently marshal this information from within their ERP system and combine it with external regulatory data to ensure compliance as they process orders, share information and conduct other transactions. They also must be able to share it with overseas partner companies in a frictionless environment.

IFS offers full support for International Traffic in Arms Regulations (ITAR) compliance as standard, and can seamlessly support initiatives in the cloud. A&D manufacturers operating in or trading with the U.S. aerospace, defense or government sectors, can confidently deploy and use IFS software to support their ITAR compliant business needs, in an independently validated environment hosted in the Microsoft Azure Government Cloud, fully managed by IFS.
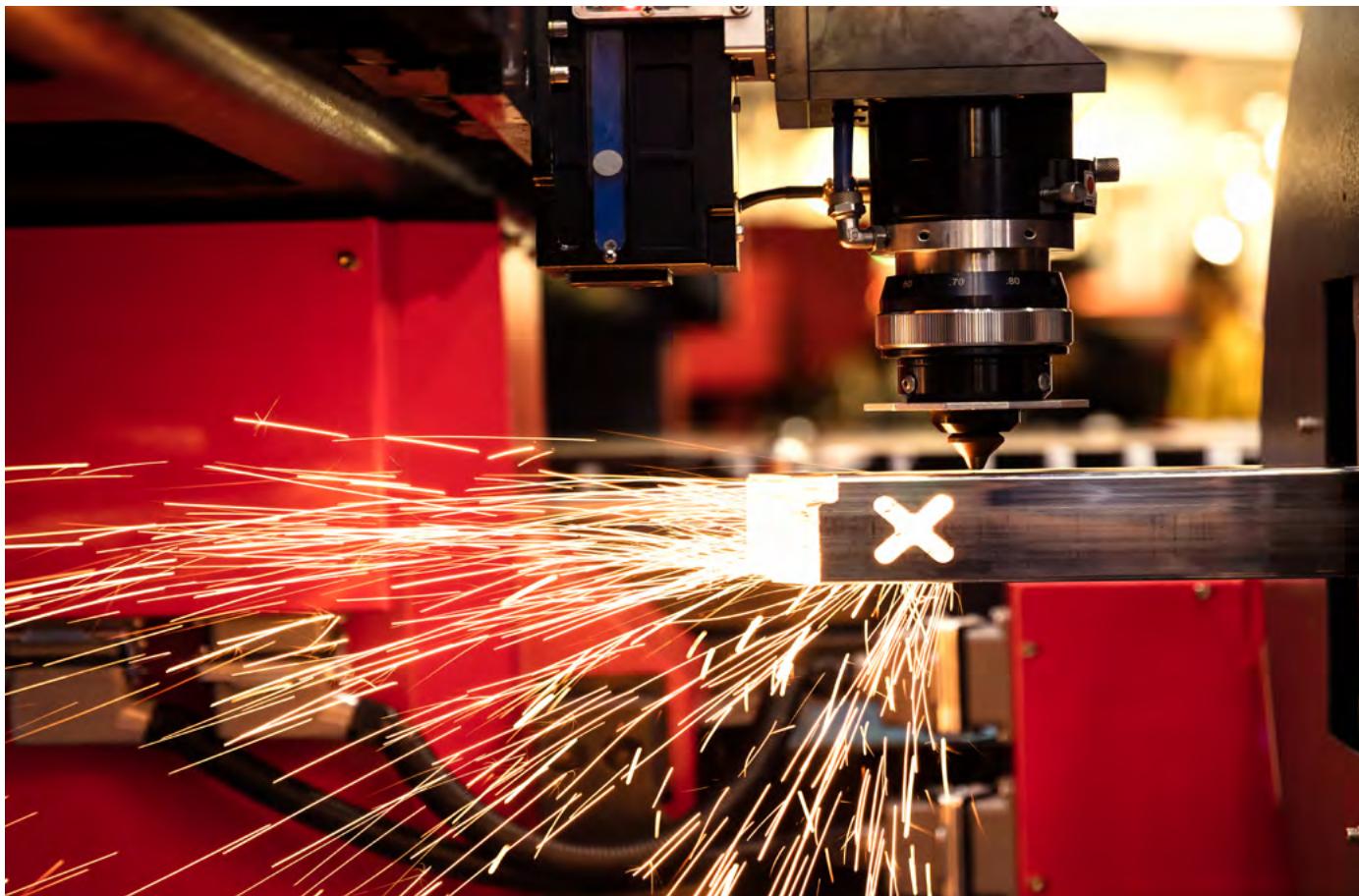
Enterprise software is the catalyst for business change

A&D manufacturers will soon have to make a definitive choice in how they move forward over the next decade–standing still is not an option. Each will have their own individual approaches to drive new revenue, weather external market forces, or stay secure and take advantage of new technology opportunities.

Statistics show more and more A&D organizations are realizing this. The previously referenced Deloitte study, which involved 1,600 responses from manufacturing CEOs shows that, in order to remain competitive now and in the future, A&D companies are focusing on some key capabilities including:

- Advanced technologies to develop new ways of manufacturing products

- Smart manufacturing to improve existing products and develop new products and processes

- Protecting intellectual assets

But an individual strategy must come from solely the manufacturer themselves, not be framed by the limited capabilities of supporting enterprise software and a particular vendor's development path. Industry-specific and flexible enterprise software will be key to supporting business transformation, not just for the here and now, but into the future–helping A&D manufacturers capitalize on technology which hasn't even been developed yet or security mandates which haven't yet been drawn up.

When taking the step to select the most appropriate enterprise software, A&D manufacturers need to be confident that the step they take supports their manufacturing operations and their business agenda. Those who think ahead can get ahead, and stay there–whatever the industry throws their way.

About IFS

IFS develops and delivers 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 team of 4,000 employees every day live our values of agility, trustworthiness and collaboration in how we support our 10,000+ customers.

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

#MomentOfService

WHERE WE ARE

Americas
+1 888 437 4968

Asia Pacific
+65 63 33 33 00

Europe east
+48 22 577 45 00

Europe Central
+49 9131 77 340

Uk & Ireland
+44 1784 278222

France, Benelux and Iberica
+33 3 89 50 72 72

Middle East and Africa
+971 4390 0888

Nordics
+46 13 460 4000