5 ERP Partner Selection Criteria for Aerospace/Defense Manufacturers

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Aerospace and defense manufacturers, even those that also perform work in other sectors, must meet commercial and regulatory requirements unique to the industry. As a system of record, enterprise resource planning (ERP) software for aerospace and defense manufacturers, from tier one all the way down the supply chain, must take into consideration:

- Defense Federal Acquisition Regulation Supplement (DFARS) which outlines cybersecurity requirements along the lines of NIST SP 800-171/CMMC International Traffic in Arms Regulations (ITAR): Ensuring that ERP systems can handle restrictions related to the handling and sharing of defense-related information.
- Cost accounting and progress billing: Work on federal contracts, either directly for a branch of the government or for a top-tier government contractor, means a manufacturer should be able to handle Earned Value Management-driven progress billing and contract vehicles based on cost-plus or time-and-materials.
- Supply chain management and vendor management: Aerospace and defense manufacturers must manage multi-tiered supply chains with rigorous tracking and reporting requirements, often in a program-centric environment where suppliers collaborate on product design during the new product development process.
- Contract management: A business system should be able to operationalize the contract, triggering processes required to execute against it and then tracking completion to then apply for payment for liquidity events and ensuring terms and conditions are met.

Some elements of these requirements also cut across other disciplines like construction or other engineer-to-order manufacturing. A software product may address aerospace and defense as one of a number of vertical industries that rely

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on these capabilities. Not many software products will be exclusive to aerospace and defense because to the cost of developing a software product is easier to bear with a larger addressable market that includes multiple industries.

1. Understand What an ERP Partner Can Contribute.

This somewhat generic approach to software places a premium on the domain-specific capabilities of a software implementation partner. Even if the ERP software product has an extension to handle industry-specific requirements, the consulting team they bring to the table may not fully understand the industry and its unique business processes as they too may be spread across multiple sectors. Even the manufacturer themself will usually have skills deficits because they are not standing up new software or processes in a software environment on a regular basis. Sometimes, they are attempting to address this deficit by adopting a software product specifically to standardize on an auditable solution that formalizes their processes to reliably conform with regulatory and customer requirements.

When it comes to regulatory requirements, even software used broadly in aerospace and defense environments does not implement itself in a compliant fashion. Differences between individual organizations in structure and process are partially responsible for this disconnect. The configurability of modern enterprise software is another cause, and even a software application capable of meeting aerospace and defense needs will require the vendor or their partner to conform the application to the regulatory and business process needs of an individual aerospace and defense manufacturer, their different charts of accounts, product mix and corporate structure.

Often we are called into projects to fix ITAR compliance issues because the customer's original project team included foreign nationals, either inside or outside their company, that still had access to protected data after implementation. A defense manufacturer may also find out they are not thorough enough in classifying materials and parts as dual-use items, or that classification is not visible in ways that would prevent unauthorized transactions.

Business process requirements like earned value management (EVM), contract management, supply chain management and vendor management are not met automatically by software either. This is particularly the case with EVM and milestone-based billing. EVM is tricky because each branch of the military will have its own approach for EVM. Manufacturers serving multiple branches of service or multiple agencies may need to configure the software around the EVM mandates of each one. Program rules will also include requirements for supply chain management, including provisions for vendor-owned inventory or inventory that

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cannot be borrowed for other programs, impacting supply chain and inventory management.

Where can you go to ensure your software is in fact delivering on these regulatory and contractual requirements—particularly when these needs may change based on government entity, or may apply to parts of your business but not others?

Ideally, you can go to your software partner for this capability, at least if they have the extensive, demonstrated, domain-specific knowledge of aerospace and defense manufacturing required. Beyond federal regulation this knowledge a partener should, depending on your business model, encompass disciplines like:

- Program-centric manufacturing, new product development and fulfillment
- Mission-critical quality management, assurance and control
- Serial and batch traceability
- Customer-owned inventory and vendor-owned inventory
- Customer and program-specific rules for borrow-payback
- Servitization delivery systems like power-by-the-hour and more basic recurring revenue models like annual maintenance and sustainment contracts

2. **Why The Partner Matters More Than the Software.**

Some enterprise software, out of the box, will have more baked-in functionality for the regulatory and program manufacturing requirements common in aerospace and defense than competing products. Some things to keep in mind when selecting software will be:

- Partners with deeper aerospace and defense experience likely work closely with software vendors with more mature aerospace and defense functionality.
- Seeking a scripted rather than standard demo is important to ensure out-of-the-box software functionality is performant. A live demo is mandatory, but unless the exact functionality you need can be demoed, it may be time to look elsewhere or work with your partner on a custom configuration through a paid consulting project and trial.
- A partner steeped in the software and more importantly in your transactional and process requirements can help ensure critical functionality is proven to be included in the software and will probe to ensure demoed functionality is currently in production at other customers and did not require customization of the source code.
- The software vendor should come ready with a number of case studies that, if not exactly like your use case, are similar enough to mitigate your risk of a

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failed or years-long implementation. And reference calls are critical. For each case study and reference call, ask questions about who implemented and delivered the solution.

Even software vendors steeped in aerospace and defense manufacturing will resist the idea of a paid trial of standard functionality because it prolongs their sales process and may violate certain guidelines from your sales representative's higher ups. A qualified partner can help you ask for one anyway, and in cases where the software must be extended or modified to meet specific needs, the paid trial and service project will be the best way to go.

3. **Avoid a Failed Selection and Implementation With the Right Internal Team.**

Following a rigorous comparison and selection process with the vendor is a must. But just as important to success as the process are the people involved in the process.

Two critical factors should be top of mind.

This is not a job to assign whoever is light on work. Your core project team needs to include stakeholders from the different parts of the organization affected. The person running the project should have a unique set of expertise. Specifically, they must be high up enough in the organization to have a broad perspective on the business, its goals, how success is measured and how value flows through the company. They also must be close enough to hands-on work processes to understand them as well.

The executive sponsor's role is critical because they are responsible for the financial and people resources to devote to the project. They must also have the wisdom to get out of the way as the process unfolds. But too often, aerospace and defense ERP projects are derailed when the executive sponsor overrules the recommendations of the project team when it comes to software or partner selection. Why does this happen? Sometimes, it is a lack of trust or an inability to do more than gopher delegation. Other times, there is a personal relationship between the executive sponsor and the software vendor organization or services partner. This is not to suggest any impropriety, but rather an over-reliance on a personal network, fraternity or sorority bonds or the charms of a persuasive senior executive at a high-power consulting firm or global technology brand.

The Highest Paid Person's Opinion (HIPPO) problem can happen with partner selection as well as software selection. That top tier consulting organization may have panache and present a proposal suggesting a deep bench. An A&D manufacturer will want to ask hard questions however not only about the percentage of time each consultant included in a pitch deck will spend on the project, but the tooling that household name vendor or consulting firm uses. Is it secure enough to prevent unauthorized disclosure of protected data to foreign nationals?

4. **Prepare for the Hidden Risk From Your ERP Software Implementation.**

Tooling, or the digital systems and processes a software vendor or consultant uses in data migration can expose an aerospace and defense manufacturer to risk. A consulting organization like Tsunami Tsolutions will have migration tools that can handle the complexity of data involved in aftermarket business models up to and including power-by-the-hour and ongoing support and sustainment contracts. But as the data is moved into a new ERP system, the systems that touch the data must also comply with regulations including DFARS and ITAR/EAR.

For data migrations, Tsunami Tsolutions relies on its proprietary and standardized WAVES Data Management Toolset. WAVES is an acronym for Wash, Analyze, Verify, Enhance, Store). Many of the tools WAVES relies on are in production environments that feature NIST SP 800-171 compliant security group access up to and including the underlying database. Data is managed by a program portfolio and assigned a security group with access restricted through a rigorous employee assignment process. External access is governed through dedicated user tunnels with sign-ons.

Without such a specialized tool, an aerospace and defense manufacturer may be exposing themselves to undue regulatory risk before they are even live on their new ERP software.
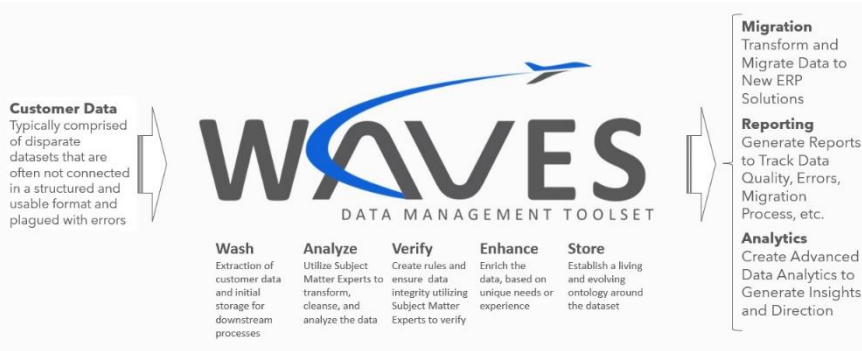
5. **Understand A&D ERP Partner Models.**

As an aerospace and defense manufacturer selects a new ERP software product, or decides to upgrade, reconfigure or add value to their existing software, they may work directly with the vendor's implementation team.

This may be a reliable option if that implementation team has deep enough experience in similar operations with similar business models, customer mix and regulatory exposure. Even a specialized ERP vendor selling implementation, upgrade or consulting services directly to their aerospace and defense

5

manufacturing customer may still involve a specialist team like Tsunami Tsolutions in the project at various stages.

A top-tier consulting organization will often do the same to shore up their resources and ensure success for their client.

Other times, Tsunami Tsolutions will be pulled into a project already underway, often when the project hits a snag. To quote Thomas Fullmer's adage later popularized by Benjamin Frankin, "a stitch in time saves nine." Earlier involvement will reduce or avoid cost or disruption stemming from inadequate skill sets of a software vendor or top tier consulting firm.