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How to optimize every facet of supply chain relationships with Supplier Collaboration and Management

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The expectation for aerospace and defense companies to deliver increasingly higher performing, safer, greener and technologically advanced products – and to do it quickly – has pushed OEMs to rely more heavily than ever on their suppliers and other external alliances. Shifting demands have also led to spikes in the number and complexity of supply chain partnerships.

At any given point during a program, OEMs are engaging with potentially hundreds of suppliers worldwide. Without a uniform approach to managing these relationships, there could be just as many processes to communicate, collaborate and execute with external stakeholders. Ironically, this inefficient approach could introduce risk into a relationship intended to reduce risk.

Companies must rethink their approach to safeguard against bottlenecks, delays and errors. Transparency must serve as a cornerstone of the OEM-supplier relationship, which is complicated with document-based, ad-hoc methods and siloed management of the partnerships. What is needed is an enterprise-wide, standardized system with a holistic approach to administering external partnerships. That is why Siemens developed its Supplier Collaboration and Management digital thread.

Trend #1

Pressure to reduce program costs and schedule

Trend #2

Increasing program complexity and integration

Trend #3

Move toward electrification for decarbonization

Trend #4

Heavy reliance on global supply chain partners

Key Drivers

- Increasing competition pushes companies to reduce time to market to stay ahead
- As regulatory standards become stricter, OEMs must demonstrate compliance or risk fines and penalties
- The need to improve reliability and maintainability of products is driving increased electrification
- Sustainability is also key for electrification
- Partnering with multiple, global suppliers increases the need to improve data protection

What is the Supplier Collaboration and Management digital thread?

The Supplier Collaboration and Management digital thread drives a unique method and toolset for initiating and executing supplier relationships to ease the complexity and reduce errors associated with working in an intricate global supply chain. By replacing document-driven processes with ones based on models and bidirectional transparency, the digital thread fosters better collaboration and fewer roadblocks typical of inefficient supplier management techniques.

The digital thread systematically transforms every aspect of the OEM-supplier relationship from the initial internal make vs. buy decision through the execution of the contract and beyond and makes managing many partners simultaneously a more achievable task. The cloud-based solutions that compose the thread make access, collaboration and real-time status visibility possible from anywhere.

When business partners connect their people and processes beyond their internal domains and organizations, they can more fully realize the benefits of automation and digitalization. Read on to understand better where the Supplier Collaboration and Management digital thread fits in at every phase of the OEM-supplier relationship.

Buy it or build it? The digital thread will guide you

The digital thread establishes the foundation for successful partnerships as early as the concept phase of a new program – well before a contract is even drawn up. Applying technical and business considerations to drive a decision-making process, OEMs gain the powerful ability to methodically determine which parts can be produced in-house and which would be better purchased from an outside firm.

Leveraging a comprehensive digital twin, data from bills of material (BOMs), preliminary design models, and internal manufacturing capability and capacity, the methodology supported by the digital thread yields the insights needed to arrive at an informed make vs. buy decision. Assigning weight to various evaluation criteria helps guide the entire process. The results from a detailed analysis of cost, risk, schedule and supplier ratings help determine which components, systems and subsystems should be built and which should be outsourced.

When the decision is to buy, the information needed to start the RFP (request for proposal) has already been procured. An approved supplier list is generated using criteria such as location, certifications, ratings, and past performance that best match the RFP requirements.

Contract with suppliers and partners

Choosing the right supplier is a painless process with the Supplier Collaboration and Management digital thread. One common platform enforces an enterprise-wide workflow to collect text, graphics and technical program requirements from all relevant departments and create the initial RFP.

Fed by a single source of truth, the same platform used to author the RFP is leveraged to communicate with and receive feedback from potential suppliers on the approved vendor list created during the make vs. buy process. Suppliers' comments and change requests are used to shape the final RFP package, which is then shared with the most well-suited vendors via the secure supplier portal.

Companies that have already adopted a model-based systems engineering (MBSE) approach will see the greatest accuracy of the RFP because of their ability to provide granular details for buy and build-to-print parts.

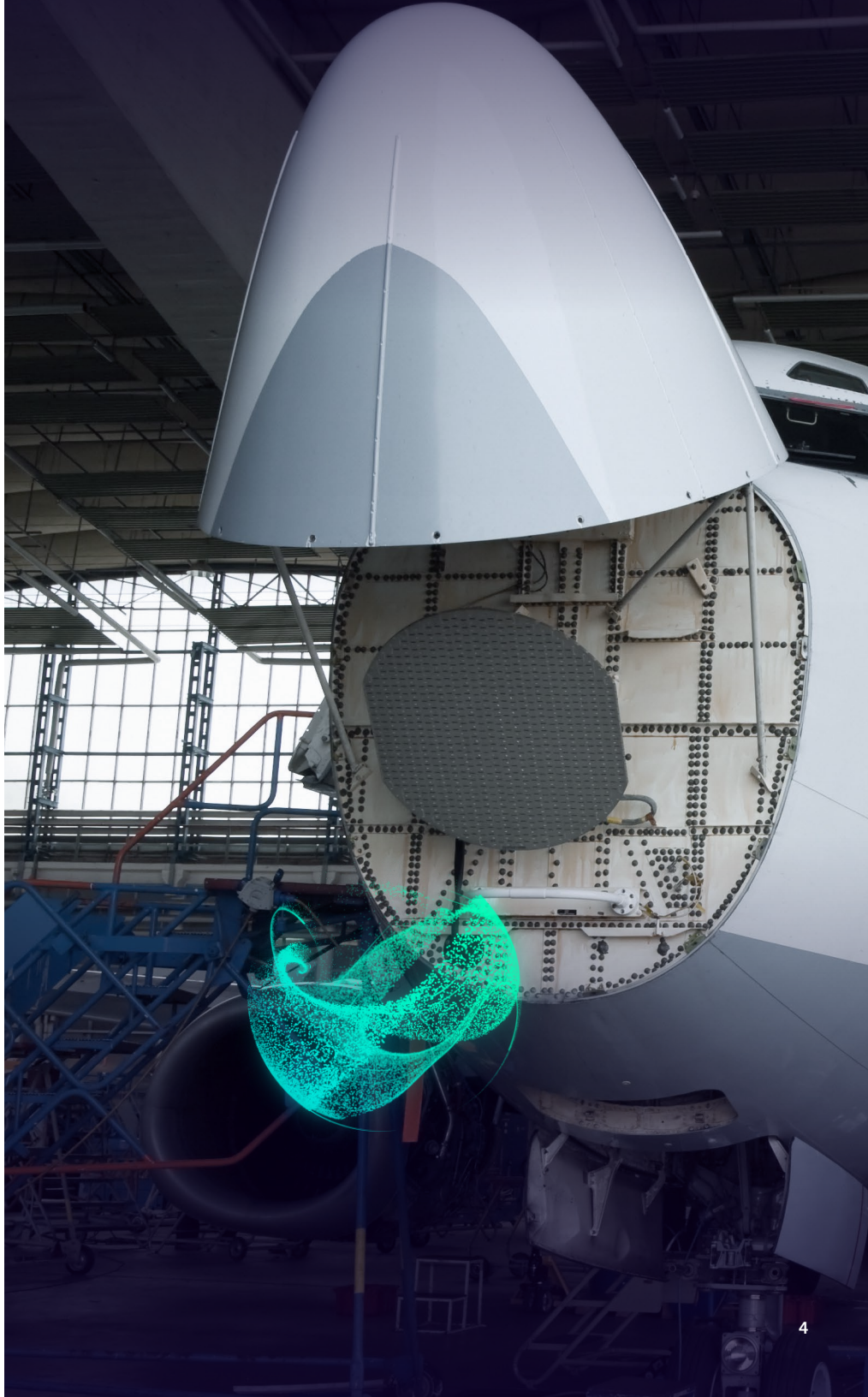
Once the approved suppliers submit feedback, the Supplier Collaboration and Management digital thread tools use a requirements-based process to provide a quick and accurate evaluation of their responses, making the final choice an easy one.

Onboard seamlessly

Selecting a supplier and awarding the contract is often just the beginning of the relationship. Historically, bringing a new supplier onboard meant adopting an individualized approach to managing the partnership, each with its own unique communication and collaboration processes and preferences. As supply chains become increasingly diverse and global, this is not a sustainable approach.

Companies adopting the tools and approach supported by the Supplier Collaboration and Management digital thread standardize all their supplier partnerships. The digital thread ensures key points of contact, contract requirements and deliverable schedules from each supplier are integrated into the overall program schedule. Harnessing the digital thread, OEMs can generate work packages specific to each supplier task, including all data necessary for the supplier to execute the work.

Sensitive and protected data is programmatically protected during exchanges within the Supplier Collaboration and Management approach, ensuring compliance with International Traffic in Arms Regulations (ITAR), data rights management, intellectual property protection and other applicable provisions. Specify who can view and interact with data by granting permissions as needed, so data is never mishandled or in front of the wrong eyes.



Collaborate to tame complexity

Lack of visibility creates many hurdles when working with partners halfway around the globe. The clarity gained through the methodology behind the Supplier Collaboration and Management digital thread eliminates many of those unseen challenges. Because the models, requirements and technical data packages are managed within a single source of truth – which is used to create a comprehensive digital twin of products and processes – both sides have real-time status visibility. They can be proactive in avoiding potential roadblocks, such as those related to integration issues and requirement changes.

The complexity of emerging aerospace products largely stems from the need to integrate hundreds of systems – each consisting of mechanical, electrical and software components – to function in perfect unison. Tackling integration issues is challenging enough for internal teams, let alone with outside partners. However, working within the digital thread's open ecosystem of cloud-based solutions with precisely defined, enforceable workflows facilitates the level of collaboration needed to seamlessly integrate components, systems and subsystems developed by external entities with those produced in-house. Both sides of the relationship can improve decision-making by harnessing real, actionable data and improve first-time-right efforts in the process.

Be consistent through change

Change is inevitable. In the context of an OEM-supplier partnership, how those changes are communicated and managed during a program can make or break the success of a program schedule. However, with the Supplier Collaboration and Management approach both sides work from a single source of truth. When design or requirements changes are made by either the OEM or supplier, the changes are communicated instantaneously and bidirectionally, drastically limiting the effect on in-work tasks.

When paired with an MBSE approach, the effect of proposed changes can be evaluated by both the OEM and supplier before any action is taken. Potential integration conflicts can be identified before they exist when change is understood in the digital world, instead of the physical.

Once changes are approved, the change to the scope of work or requirements will affect the contract. The Siemens digital thread allows either the buyer or supplier to initiate a contract change for the other side to evaluate and accept. The program schedule and work breakdown structure (WBS) are also automatically updated to reflect the agreed upon terms.

About Siemens Supplier Collaboration and Management:

Supplier Collaboration and Management helps OEMs transform their supply chain relationships to improve engineering collaboration, proactively address supplier progress issues and reduce time-to-market to deliver products on time and within budget.

The digital thread extends across the supply chain and partners to provide an open, flexible ecosystem to boost collaboration. Automate data sharing, facilitate source selection processes, and contract execution, gain real-time oversight into supplier progress, protect IP, and enforce export controls and ITAR with a model-based approach to organizing communication and collaboration.

For more information on Siemens Supplier Collaboration and Management, visit siemens.com/plm/scm or follow us on LinkedIn and Twitter.

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Americas: **+1 314 264 8499**
EMEA: **+44 (0) 1276 413200**
Asia-Pacific: **+852 2230 3333**