Four Criteria for Selecting an MES Implementation Partner for a Successful Industry 4.0 Journey

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While the value proposition of a manufacturing execution system (MES) is very promising, poor implementation can prevent enterprises from taking advantage of it. In this context, selecting the right MES implementation partner is essential. This PoV discusses four decision-making criteria that enterprises can use to evaluate and selecting an MES implementation partner. It also lists questions which enterprises can ask to separate doers versus talkers among implementation partners.

Successful MES implementation will require best practices derived from industry knowledge, product experience, business outcome, and technology integration.

MES is an enterprise software which helps in the process of producing manufactured goods on the shop floor. It also helps in the Industry 4.0 journey by enabling digitalization of critical manufacturing processes. If implemented properly, MES can enable a step-change in efficiency, productivity, and flexibility in manufacturing operations. The challenges that enterprises often face during MES implementation are long

implementation cycles, the risk of business interruption, the reliability of services, the risk of implementation failure, and ambiguity about implementation benefits. There are many MES software packages available in the market. No matter which software is chosen, successful implementation will depend on best practices being followed with respect to four factors:

- **Industry and manufacturing knowledge.** MES is all about managing manufacturing operations; hence, a practical understanding of the manufacturing environment is essential. It might mean knowledge of industry-specific operational technology (OT). Sometimes, upgrading of OT is required for MES implementation to work. There are several ways in which an implementation partner can gain manufacturing knowledge. The first way is by being a part of a group company in the manufacturing space, wherein the service provider has implemented an MES package in a group company and manufacturing SMEs from the group company are available for consultation in engagements. An example is a British CPG firm which gave MES implementation work to ITC Infotech mainly because of it possessed industry knowledge as it was a part of the ITC group, one of the largest CPG groups in India. Similarly, TCS, Wipro, Tech Mahindra, and L&T leverage the domain and manufacturing knowledge of their group firms. The second method is to leverage the learnings from engagement experience and create industry-specific templates and knowledge banks supplemented by hiring manufacturing industry experts. The third way is to either acquire or partner with firms which have manufacturing expertise. For example, many service providers including Accenture and Cognizant have recently acquired firms with industry knowledge and expertise in the MES industry.

- **Product-specific experience and knowledge.** Even though MES software products are designed with most customer requirements in mind, some customization or adoption is still required for customer-specific processes. So, service providers who have better product-specific knowledge and experience are in a better position to address customer-specific requirement challenges. There are three ways to check product-specific expertise and knowledge. First, note the number of product-specific consultants for each MES product. Enterprises should double-check the claims of service providers using other sources. For example, a quick search of Apriso on LinkedIn shows Accenture, ITC Infotech, TCS, and Capgemini among the top five firms. Second, look for 360 degrees or product development partnerships between service providers and MES software providers. For example, Geometric (acquired by HCL) had a development partnership with Dassault, and Siemens has a development partnership with Atos. Third, look at product-specific solutions and accelerators developed by MES service providers.

- **Business outcome.** The primary function of MES is the management of manufacturing activity. But, the real value will come when MES can help in delivering business outcomes. For business outcomes, MES service providers should have experience in measure and improving KPIs, standardizing processes across multi-country, multi-factory one MES implementation, and improving processes by leveraging manufacturing analytics. Most of the large service providers and some mid-tier service providers have experience in delivering business outcomes using MES. For example, ITC Infotech is

working with a large elevator manufacturer and standardizing its processes in a multi-plant MES implementation. The key for enterprises is to check specific and relevant service provider examples of KPI improvement, multi-plant implementation, and manufacturing analytics.

- **Technical integration.** MES doesn't work in isolation. It is part of the manufacturing application stack and must interface with other enterprise applications for effective functioning. Also, enterprises are opting to develop a digital thread to enable themselves for Industry 4.0. The digital thread is the integration of enterprise applications across design, manufacturing, supply chain, and services for one integrated view and quick traceability of products, components, and processes. In enterprise application terms, this might mean the integration of PLM, MES, SCM, Aftermarket, and IoT applications. It may be a good idea to select an implementation partner who has expertise in these enterprise applications as well. Most of the large service providers and a few of the mid-size ones will have expertise in manufacturing enterprise applications. If other factors are equal, enterprises should prefer service providers who have expertise in the manufacturing stack.

The previously discussed four criteria and the corresponding metric are summarized in the exhibit below. Also, a few questions are listed for each criterion which enterprises can use to check and asses the depth of an MES service provider's capabilities.

Exhibit 1: MES Implementation Partners Selection Matrix

Criteria	Details	Metrics	Questions
Industry & Manufacturing Knowledge	- Knowledge from group companies - Learning curve and experience in past engagements - Alliances and acquisitions	- Implementation in group companies - Availability of SME - Templates/industry-specific solutions	- What are some of the challenges faced by the service provider in past MES implementations? - What was the role of industry SMEs in past engagements? - How did industry-specific solutions and accelerators create value in past engagements?
Product Experience & Knowledge	- Product-specific consultants - Relationship with MES software providers - Product capability	- Number of product-specific MES consultants - Product development partnership with MES software providers - Templates/product-specific solutions	- What are some of the product-specific challenges faced by the service provider in past MES implementations? - How did the product development partnership become handy in MES implementations?

			• How did product-specific solutions and accelerators create value in past engagements? • How does the service provider train and create product-specific capabilities?
Business Outcome	• Measurement and delivery of business value • Processes standardization • One MES • Analytics capability	• KPIs example • Multi-plant implementation examples • Analytics examples • Templates/specific solutions	• Which KPIs are impacted by MES implementation and how? • What are some of the challenges faced by the service provider in multi-country implementations? • How is value from manufacturing analytics created?
Technical Integration	• Capability across the Industry 4.0 technology stack	• Specific examples of PLM, SCM, and IoT implementation • Example of digital thread implementation	• What are some challenges faced by the service provider in digital thread implementations? • What precautions in MES implementation should be taken which could smoothen digital thread implementation later?

Source: EIIRTrends

Enterprises should not use these criteria to simply tick off the boxes but as a starting point for a more in-depth conversation about service provider capability.

Bottom line: Enterprises should consider MES implementation as an essential step for Industry 4.0 and select an MES implementation specialist diligently.

MES is essential for digitalizing manufacturing processes for Industry 4.0. Our discussion with enterprises revealed that most enterprises select MES software and then they narrow down the choices to select an MES implementation partner. Some MES software providers have their own implementation team. Sometimes, MES software providers recommend their partners for implementation. Sometimes, enterprises select one of their incumbent service providers for MES as well. We recommend that a more

comprehensive search be performed and specialist service providers in the MES industry with the desired industry capability, product experience, business outcome orientation, and digital thread integration capability be chosen. Whether selecting an incumbent service provider or a new one, the framework discussed in this PoV will be helpful. The right effort now is better than dealing with roadblocks in Industry 4.0 later.

About the Author

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EIIRTrends.com is a neutral platform to discover emerging engineering, IoT, Industry 4.0 and R&D (EIIR) trends across 12 industry verticals. Pareekh Consulting is a focused analyst and advisory firm for EIIR.

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