

DMES: Deloitte's Preconfigured MES Solution

Accelerating time to value on your digital manufacturing journey

Digital manufacturing—perception vs. reality

Eighty percent of US manufacturers surveyed last year believe that smart factories will transform the way products are made and become the main driver of competition by 2025. Yet only 5 percent of them reported full conversion of at least one factory to “smart” status, and only 30 percent report having smart factory initiatives currently underway at all.¹

That gap between *perceived importance* and *real action* can be caused due to the distractions emerging from the shop floor, including:

- Ineffective, antiquated planning approaches
- Insufficient material and labor traceability
- Missed throughput goals due to time-consuming manual activities
- Inability to troubleshoot quality issues
- Lack of visibility into key performance indicators
- Unplanned maintenance leading to unnecessary downtime

The biggest challenge—where to start?

Many companies have invested in manufacturing execution systems (MES) over the past 20 years. But each plant's MES solution is often unique—some are homegrown, while others have been purchased from software providers. As a result:

- The capability maturity of individual plants often varies, sometimes widely.
- Plants may not be able to define a transformation path on their own.
- Replication across the plant network may be impeded by lack of standardization and willingness to compromise.
- Executive buy-in may be withheld due to a poorly defined business case for transforming all plants.
- The path to integration may be impeded by siloed and decentralized system development.

¹ Paul Wellener et al., *2019 Deloitte and MAPI Smart Factory Study: Capturing value through the digital journey*, Deloitte Insights and MAPI, September 2019.

So many choices, so little time (and budget)

The good news? In the past five years, significant consolidation and growth have occurred in the MES software market. Several major players have become leaders in the space. Technologies are integrating more easily. Digital innovations are emerging, including:

- Automation
- Workflow tools
- Advanced analytics
- Artificial intelligence (AI)
- Internet of Things (IoT) solutions

But now, manufacturers need to decide which capabilities to pursue and how to transition from their current operations to more modern capabilities before competitors.

Deloitte can help.

DMES: Deloitte's Preconfigured MES Solution

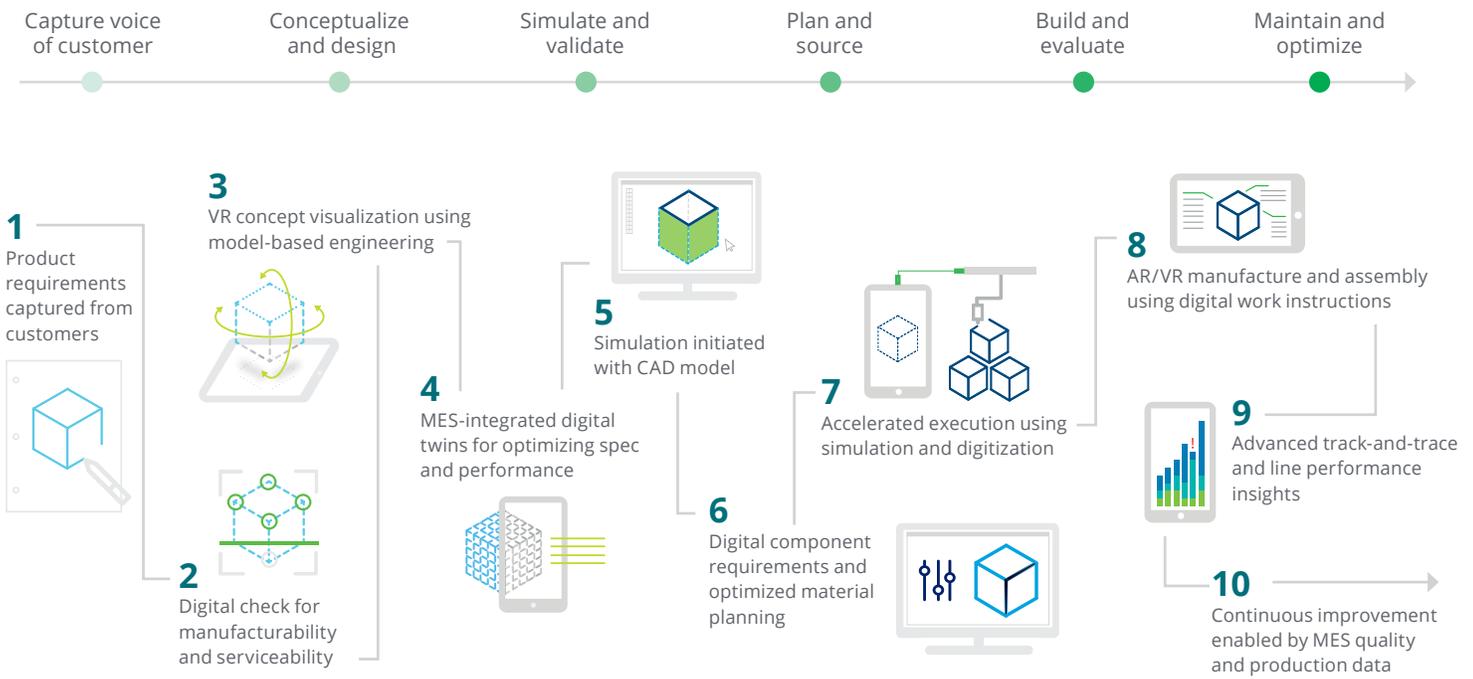
DMES is a process-led, turnkey approach to MES implementation that focuses on seven key MES capabilities:

- Manufacturing process definition
- Production scheduling
- Production execution
- Tracking and traceability
- Production quality management
- Closing production unit
- Data collection and reporting

DMES is an important enabler of the product life cycle digital thread, with prebuilt process and data integration connections to other end-to-end digital product development and real-time IoT production monitoring capabilities (figure 1).

Figure 1. A holistic view of the value stream

At Deloitte, we look at problems through the lens of the end-to-end “digital thread” that connects product development and manufacturing to the field.



Core enablers of the digital thread

Digital engineering
Manage the design, development, and testing of product. Create process documentation and requirements.

Industrial simulation
Dynamically represent and validate processes. Plan and optimize against hypothetical production parameters.

Manufacturing execution
Build, execute, and track to tactical work plans. Integrate with production systems to manage quality and report metrics.

Real-time monitoring
Collect, synthesize, and display live data and performance insights. Alert for issues and predict upcoming events.

Accelerating time to value

Deloitte combines strong manufacturing operations capabilities, industry knowledge, extensive experience, and relationships with the major MES vendors, as well as many tools and accelerators to jumpstart and enable your MES transformation journey. Based on years of experience in manufacturing shop floor redesign, we have developed preconfigured tools and templates to help speed your path to value with MES, including:

- A proprietary capability maturity model for assessing existing people, process, and technology capabilities and determining business needs
- Business case and quantifiable return on investment (ROI) development
- Scenario development for vendor demonstrations
- Methodology for comparing software capabilities
- Strategy for prioritizing and sequencing solution roll-out using preconfigured templates
- Common, repeatable business processes embedded with industry standards and lean manufacturing principles
- Out-of-the-box system configurations aligned to standard business processes and data models

- Transformation program governance models based on our experience with leading companies in many industries
- Outsource support for MES maintenance and support to reduce IT/OT expenses and focus on core competencies

DMES can include IoT integration, low-code application development, and AR/VR (augmented reality/virtual reality) capabilities. We can also share industry-specific MES leading practices and many lessons learned in other industries to add value to your implementation.

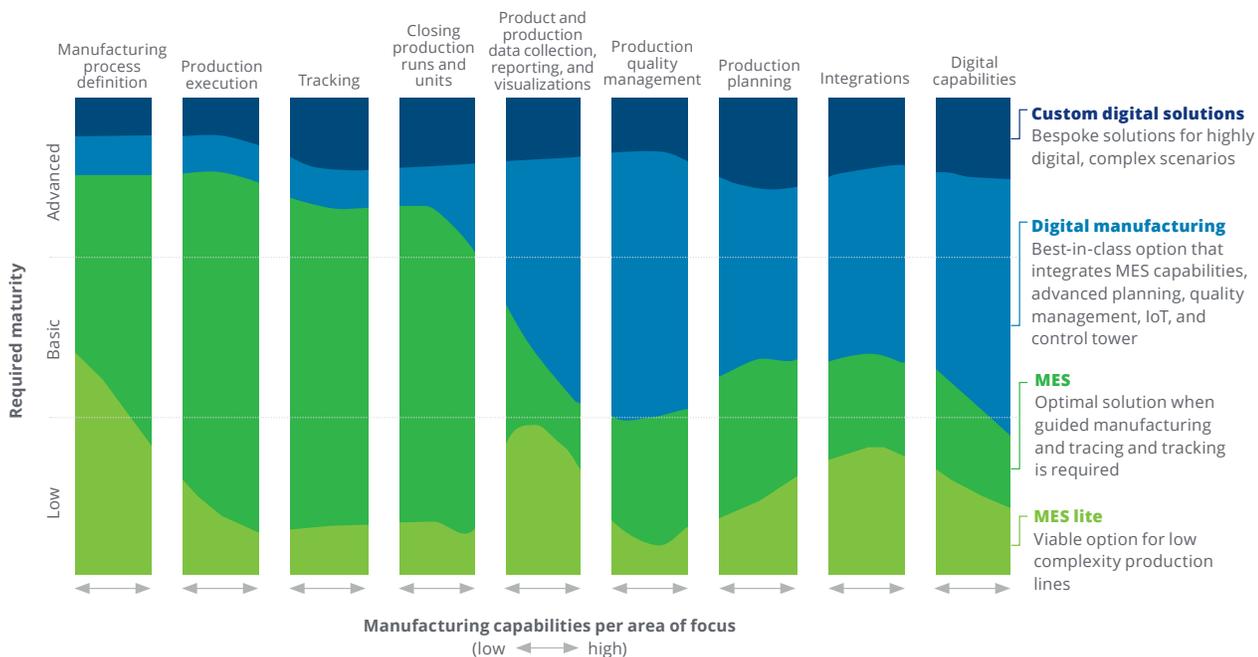
Potential benefits

A DMES implementation can provide the following potential benefits:

- Overall project cost reduction
- Shortest time to value due to accelerated implementation
- Simplified and globally harmonized processes
- Improved digital integration with product life cycle management and operational systems and processes
- Strengthened regulatory compliance through improved digital traceability
- Lower annual maintenance cost using out-of-the-box functions

Figure 2. Flexible and scalable to match your transformation objectives

DMES is available through a wide range of engagement options to help you tailor the implementation to your organization's needs, culture, time frame, and budget as you progress in your digital maturity.



Let's talk

By choosing Deloitte's DMES solution, you can jump start intelligent and timely transformation toward smart factory capabilities that align with your organization's broader goals. It all starts with a process-led, turnkey approach that leverages many years of digital transformation, manufacturing operations, and systems implementation experience.

Contact us to learn more about DMES or to discuss a specific challenge your organization is facing in its digital transformation journey.

Vijay Santhanam

Managing Director
Deloitte Consulting LLP
visanathanam@deloitte.com

Brian Meeker

Principal
Deloitte Consulting LLP
bmeeker@deloitte.com

Stephen Laaper

Principal
Deloitte Consulting LLP
slaaper@deloitte.com

Kenneth Norton

Senior Manager
Deloitte Consulting LLP
kennorton@deloitte.com

Ilya Bondarenko

Senior Manager
Deloitte Consulting LLP
ilbondarenko@deloitte.com

About Deloitte

As used in this document, "Deloitte" means Deloitte Consulting LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte USA LLP, Deloitte LLP and their respective subsidiaries. Certain services may not be available to attest clients under the rules and regulations of public accounting.

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms or their related entities (collectively, the "Deloitte organization") is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

No representations, warranties or undertakings (express or implied) are given as to the accuracy or completeness of the information in this communication, and none of DTTL, its member firms, related entities, employees or agents shall be liable or responsible for any loss or damage whatsoever arising directly or indirectly in connection with any person relying on this communication. DTTL and each of its member firms, and their related entities, are legally separate and independent entities.