



E-Manufacturing

A Preface to E-Manufacturing

Information Technology (IT), particularly the Internet, has increased pressure on businesses to meet the demands of technology-equipped customers for higher levels of responsive, personalized service and higher levels of product quality. The Internet has completely changed the way that manufacturing organizations do business. E-Manufacturing (e-mfg) can play a key role in improving the **efficiency, throughput and responsiveness**, all of which can lead to increased **customer-satisfaction**.

What is E-mfg ?

E-mfg is the use of (web-based) information technology tools to enhance manufacturing and related processes through intelligent sensing, analysis and use of real-time, manufacturing-plant data.

E-mfg represents the culmination of evolutionary developments in the management and control of manufacturing systems. It is a milestone that **aids an easy information flow between the customer, manufacturing operations and suppliers**. E-mfg is driven by the new prominence of the customer, who is the king, having far more powers and requiring greater responsiveness from the production floor. For example, there's got to be some way of determining instantly, ability to fulfill an order profitably. In e-manufacturing, capacity and inventories need to be visible to the supply chain. The emphasis is, however, on the aspect that decisions made in implementing e-mfg will affect the supply chain and other elements of e-business and it must always be made to benefit an entire company, not just an individual manufacturing plant.

The **scope** of e-mfg extends to the utilization of IT for the **intelligent sensing and analysis of real-time data** from manufacturing plants and the intelligent use of this data to maximize productivity, efficiency, product quality and safety, to



References

- [The Dawn Of E-Manufacturing](#)
- [E-Manufacturing - The Shrinking World of Business](#)
- [E-Manufacturing - What is it ?](#)
- [E-manufacturing breaks down the factory walls](#)
- [Manufacturing online](#)

About DecisionCraft Analytics

We provide decision-making solutions to improve operational efficiency and business responsiveness. Our consulting services employ our strengths in industry knowledge, conceptual rigor, and information technologies. Developed using concepts from decision theory; our solutions use robust optimization, simulation, and statistical engines adapted to our client's focus areas.

optimize energy usage, and to minimize down time, maintenance costs, and the time required for **product changeover** and ramp-up. Many analysts believe that e-mfg could fabricate **product gains** that equal or surpass those obtained through the introduction of steam and electricity on plant floors.

Key Applications

When fully implemented, e-mfg uses electronically transmitted knowledge, which can be utilized to:

- Design products
- Transmit orders
- Procure components
- Schedule production machines

Additionally, e-mfg aids in finest use of mechanizing plant facilities while maintaining quality, and meeting promised delivery dates. Moreover, it makes plausible the organization of **production scheduling, in-plant sequencing** and creating **delivery loads**. A serious component of e-mfg is the use of sensors to scrutinize function of in-plant machines and propel information to the software that controls machine procedure during the manufacturing course.

Further on, e-mfg also:

- Links factories to one another and links to their supply chains
- Connects customers to dealers
- Responds to customer demands so as to mass customize items in quantities as small as one
- Deliver the product faster than ever with the highest possible quality
- Increase flexibility
- Pace up the growth of machine and process control systems
- Balances workloads among employees

E-mfg is not intended to replace humans in the manufacturing process, but to **empower** them to be much more **productive** and **effective** than they currently are. The tools of e-mfg can eliminate obstacles and **extend human capabilities** to swift and accurate accomplishment of work. This, further on, enables the workers to focus on the innovation and creativity that are the precepts of the **competitive edge**.

Next Issue: [Decision making and Influence diagrams](#)

Previous Issue: [What to measure in Supply Chain?](#)

DecisionCraft Services

Business Diagnostics

We analyze business processes and transactional data to identify underlying patterns, unravel hidden relationships and recommend areas for improvement that can improve ROI and reduce costs.

Predictive Analytics

We use historical data intelligently to develop a view of future market trends and help our clients focus on the right audiences thereby developing their competitive edge.

Forecasting

We use advanced time-series and regression techniques for forecasting behavior of critical business variables that allows our clients to plan for their resources intelligently.