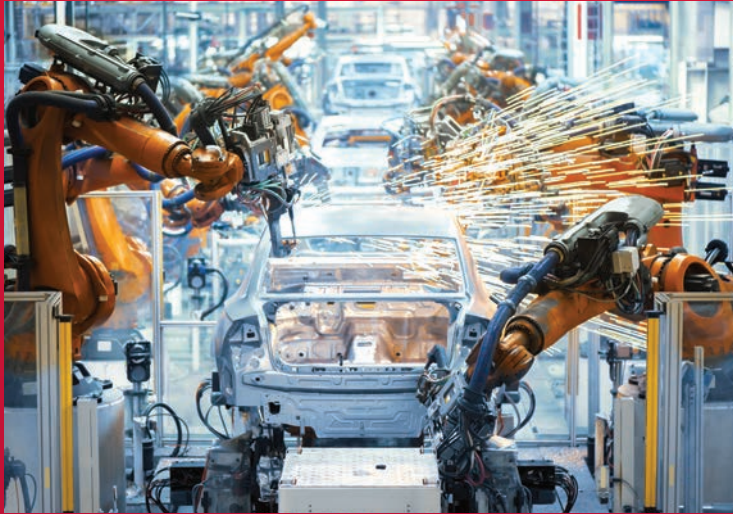




Experience the commitment®



Manufacturing Execution Systems (MES) Services

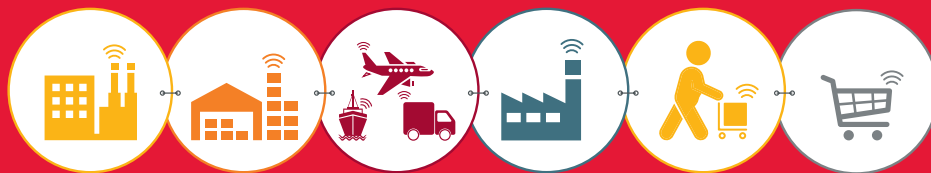
An overview of CGI's capabilities and ready-to-buy services

Manufacturing Execution Systems (MES)

Better processes, information flow and decision making

Manufacturers that lead in operations and supply chain performance outperform the competition and deliver higher shareholder returns. These organizations regard methods such as Value Stream Mapping, Lean, Kanban, Total Cost of Ownership (TCO), Six Sigma and Total Productive Maintenance (TPM), as essential tools to achieve excellence in manufacturing operations and supply chain performance. What ties these methods together is that they all focus on optimizing core business processes and the flow of materials as well as improving performance, quality and the availability of assets.

Often though, related information streams are overlooked. This is surprising, given that to optimize performance, the right people need to get the right information at the right time. In other words, it is critical to have access to the right information and insight to make the best possible business decisions and improve performance levels across the supply chain.





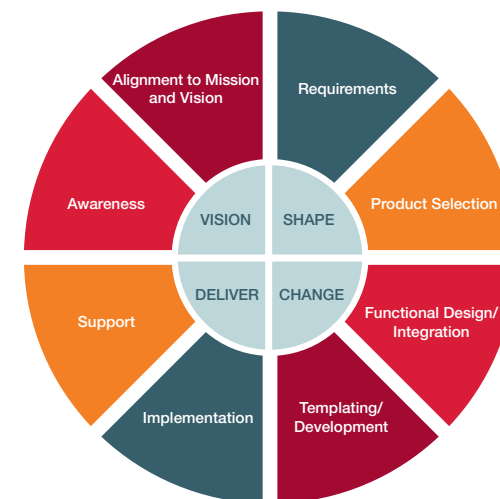
What we offer

A manufacturing plant is a complex and fast-paced environment, and running a super-efficient plant is the ultimate goal of every manufacturer. To maximize efficiencies and enable continuous improvement, you need to have information about what is happening in every part of your plant in order to drill-down to root causes. This empowers you to make better, faster decisions.

CGI designs, builds and deploys manufacturing execution systems (MES) based on your unique industry, technology and business needs, using leading technologies like Aspentech, Camstar, OSIsoft, Siemens, Wonderware and Progress, among others. These systems help you to manage every aspect of production—from planning jobs and controlling production lines to managing raw materials and ensuring quality control.

CGI's MES capabilities offer manufacturers the following benefits:

- ▶ Quicker identification and implementation of changes to the production process, based on evolving market, customer and other business needs
- ▶ Optimal use of all plant assets
- ▶ Reduced manufacturing time and costs
- ▶ Faster and higher return on investment
- ▶ Increased profitability
- ▶ Improved visibility and transparency



Our value-based approach

At CGI, we view implementing MES and becoming a best-in-class production facility as an incremental, well-planned journey. CGI's Manufacturing Atlas approach is a proven methodology through which we deliver best practices and technologies to help you streamline and optimize your supply chain end to end with offerings suitable to whichever stage of the journey you're in. We help you to transform your MES environment into a powerful decision-making system that improves efficiency, reduces costs and enables you to gain the competitive advantages of Industry 4.0. As your partner in this journey, we will:

- ▶ Help to build your vision, discover your improvement potential, and assess the feasibility of investing in an MES
- ▶ Provide an exclusive methodology to choose the right solution (from the many broadly similar ones available) more quickly, objectively and reliably
- ▶ Support the successful, customized implementation of an MES and ensure adoption by your staff. This is based on:
 - More than 35 years of experience in these domains, including validation
 - Applying methodologies based on world standards like SCOR, ISA-95, GAMP and CGI best practices
 - Aligning your operational processes and IT support
- ▶ Apply our strong domain expertise, backed by more than 1300 MES specialists—one of the largest dedicated practices
- ▶ Deliver SLA-based 24/7 maintenance and support of mission-critical applications for your operations around the world





In all our projects, we focus on:



Products and services



Organization



People and culture



Processes and information



Applications



Data



Infrastructure

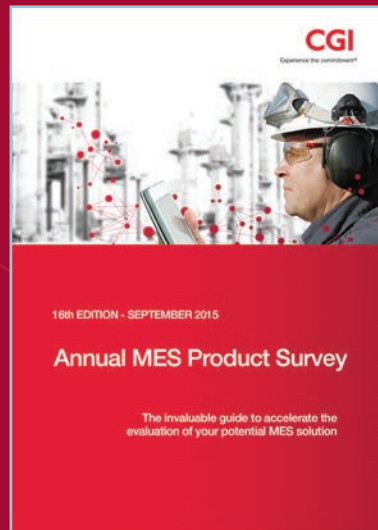
Our MES solutions help you to achieve the following benefits:

- ▶ Improved perfect order delivery and embedded valorization:
Right product, right quality, right place, right time, and right profit margin
- ▶ Better insight into causes of waste/losses
- ▶ Improved overall efficiency effectiveness (OEE) by up to 20%
- ▶ Increased output from available resources
- ▶ Lower production costs driven by:
 - Increased throughput
 - Better rework efficiency
 - Lower regulatory costs
 - Shorter cycle times
 - Improved changeover times
 - Higher yield
 - More accurate product quality
 - Lesser waste
- ▶ Lower inventory level of raw materials, work in progress (WIP) and finished goods
- ▶ Better decision making, based on consistent and reliable real-time information (dashboards) with root cause capabilities for detailed analysis

CGI's annual MES Product Survey

For almost two decades, CGI has published an annual MES Product Survey to help our clients navigate the complex market of manufacturing execution systems. An invaluable guide for evaluating MES solutions, our clients and business partners rely on the survey for detailed product overviews and insights into MES trends and best practices. With more MES solutions available today than ever before, the report helps companies shortlist and select the right solutions from among the multitude of MES suppliers.

Our latest MES Product Survey, provides extensive and detailed information about 74 MES products and solutions. Sixty-six suppliers from around the world told us about their services, products, technologies, quality efforts and key focus areas. Notably, this is the highest response rate since the survey was instituted.



1750

1800

1850

1900



Industry 4.0



- Integration of **digital and physical systems**
- Internet of Things
 - Big data analytics
 - Robotics and 3D printing

Industry 3.0



- Manufacturing with IT to **automate production**
- Electronics
 - IT

Industry 2.0

- Manufacturing with the **help of electricity (mass production)**
- Electricity
 - Conveyor belts
 - Assembly lines

Industry 1.0

- Introduction of **mechanical production** facilities
- Spinning wheel
 - Water wheel
 - Steam engine

1950

2000

2050

CGI IN MANUFACTURING

As our manufacturing clients embark on their journey to Industry 4.0, we have the talent, scale and in-depth industry expertise to help them transform from product-centric to customer-centric businesses, bringing forth innovative strategies and technologies to enable their transformation end to end.

- ▶ We serve 700+ manufacturing clients in a wide range of sectors, including automotive, aerospace, high tech, mining, metals, pulp and paper, and chemicals.
- ▶ Our 2,800 supply chain experts help clients drive down costs and increase productivity and agility to transform and grow.
- ▶ CGI's Manufacturing Atlas methodology has helped hundreds of clients optimize manufacturing IT, drive operational excellence and enable greater personalization.
- ▶ We are a member of the board of the Manufacturing Enterprise Solutions Association (MESA) and provider of MESA C-level training.
- ▶ We support the supply chain optimization and transformation journeys for leading manufacturers worldwide, including market leaders such as Airbus, Michelin, Rio Tinto, ArcelorMittal, Bombardier, Volvo, BMW, Shell and Phillips.
- ▶ We offer outsourcing capabilities that extend across the globe and include the management and operation of company-wide infrastructure, application suites and business processes.

MANUFACTURING 4.0: ENABLING THE DIGITAL CONTINUUM

The “digital continuum” is the backbone that enables manufacturing organizations to become more competitive through efficient internal and external collaboration, facilitated by data.

CGI's portfolio of solutions, services and innovations helps manufacturing organizations optimize their supply chain and focus on building additional business value by combining industry knowledge with business intelligence, data management expertise and integration skills. We help our clients modernize legacy systems, optimize operations and digitize processes by driving cross-functional collaboration and data continuity across traditional silos and throughout the ecosystem. Thus enabling the “digital continuum.”

ABOUT CGI

Founded in 1976, CGI is one of the world's largest IT and business process services providers. We help clients transform into customer-centric digital enterprises end to end through high-end business and IT consulting, systems integration and transformational outsourcing services combined with a unique client proximity and best-fit global delivery model.

For more information about CGI, visit www.cginederland.nl/manufacturing-4.0 or email us at info.nl@cgi.com.

