CM NavigoMES

MANUFACTURING EXECUTION SYSTEM

Critical Manufacturing MES unifies the global enterprise: it improves decision-making, increases efficiency and, ultimately, helps manufacturers to compete.

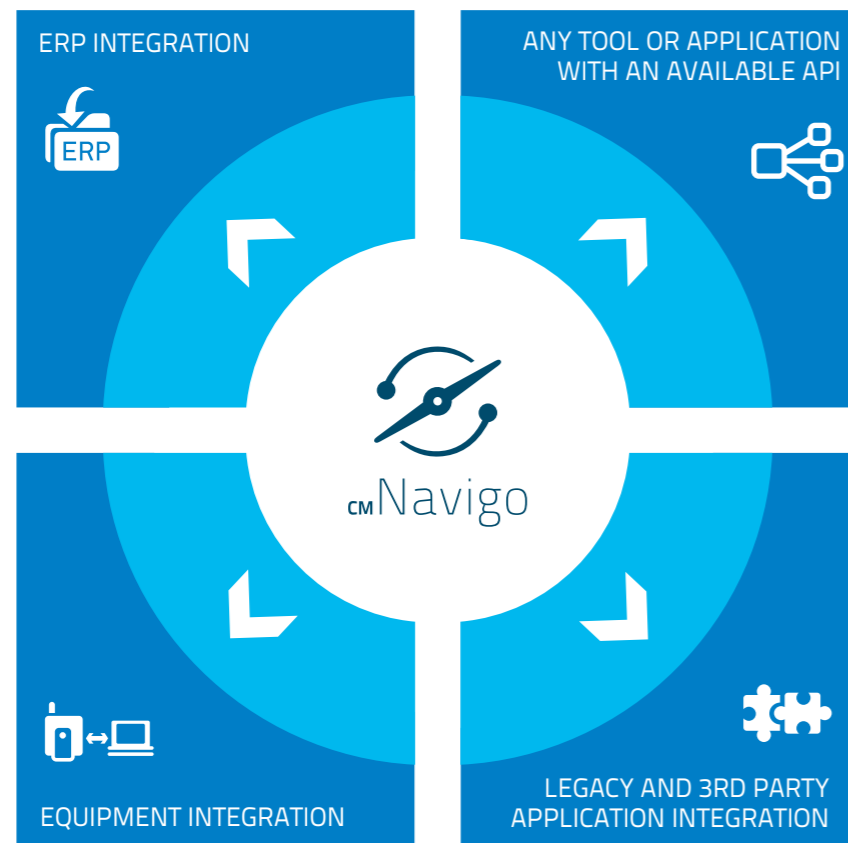EMPOWERING OPERATIONS

CRITICAL
MANUFACTURING

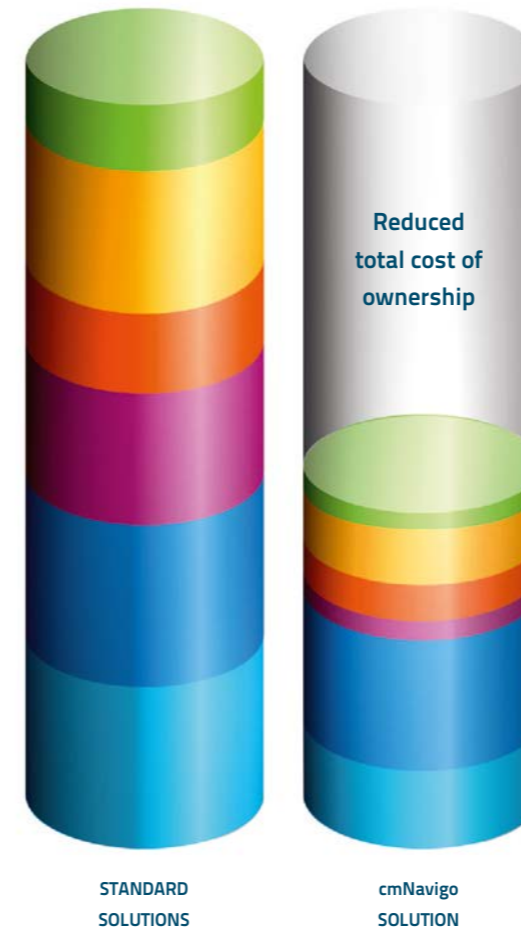# MANUFACTURING EXECUTION SYSTEM

Why MES?

Implementing a manufacturing execution and intelligence system provides users with a single, integrated view of enterprise data, improving decision-making around critical business and production processes. Coordinating enterprise systems like ERP, quality, and R&D with an MES enables manufacturers to reduce risk, simplify and automate processes and support continuous improvement.

Why Critical Manufacturing?

CRITICAL Manufacturing provides manufacturers of complex, high tech discrete products, a manufacturing execution and intelligence system that empowers the organization to achieve its goals. It scales to mirror growing operational needs, drives visibility of production and costs across the supply chain, and is easy to implement on an existing infrastructure. As a result, our state-of-the-art products and services enable our customers to drive down cost, flexibly meet market demands, and ultimately achieve greater agility, visibility and reliability.

ERP INTEGRATION

ANY TOOL OR APPLICATION WITH AN AVAILABLE API

cmNavigo

EQUIPMENT INTEGRATION

LEGACY AND 3RD PARTY APPLICATION INTEGRATION

Low Total Cost of Ownership
Through reduction of all cost factors

Reduced total cost of ownership

STANDARD SOLUTIONS

cmNavigo SOLUTION

ADMINISTRATION
Single IT stack, with powerful admin tools
Application admin through a unified GUI

MODELING
Rich, pre-customized object model
Modeling through the same GUI
Empowered end-users

INSTALLATION
Server side full installer ready in minutes
No client installation

3RD PARTY LICENSES
100% Microsoft Technology
No hidden costs

SOFTWARE
Scalable pricing model, based on size
Modular functionality

HARDWARE
Scalable HW based on needs
From single server to full fault-tolerant, high-available configuration

FROST & SULLIVAN

Critical Manufacturing is proud of its designation by Frost & Sullivan as a global value leader in the MES industry leader for its low total cost of ownership, features and ease of use.

Global Price Performance
Value Leadership Award Report

ENSURE A MODULAR, YET FULLY INTEGRATED
MANAGEMENT OF SHOP-FLOOR RESOURCES

ADVANCED MODULES FOR GRAPHICAL ONLINE VISIBILITY
AND FULL DATA TRACEABILITY

OPTIMIZATION AND EFFICIENCY
INCREASE SHOP-FLOOR MODULES

MATERIALS & CONTAINERS
Bill of materials and container models for flexible, highly-granular traceability.

RESOURCE AND DURABLES TRACKING
Resource and durables Management. Integration with Recipe Management, Maintenance, Exceptions and Data Collection.

DATA COLLECTION
Flexible, scalable and automated data collection that is fully integrated with Statistical Process Control and Exceptions Management.

ORDER MANAGEMENT
Provides the means to manage the fulfillment of production orders from a shop-floor perspective.

WAREHOUSE MANAGEMENT
Manage request and return of materials between Shop-floor and Warehouse.

SHIFT MANAGEMENT
Management and balancing of users, teams and shifts.

FABLIVE
Fab layout tool with overview and zoom-in capabilities for historical and real-time trending and analytical reports.

DASHBOARDS
Graphically access material, resource or other user defined query to chart and report on process data enabling users to fulfill custom business requirements.
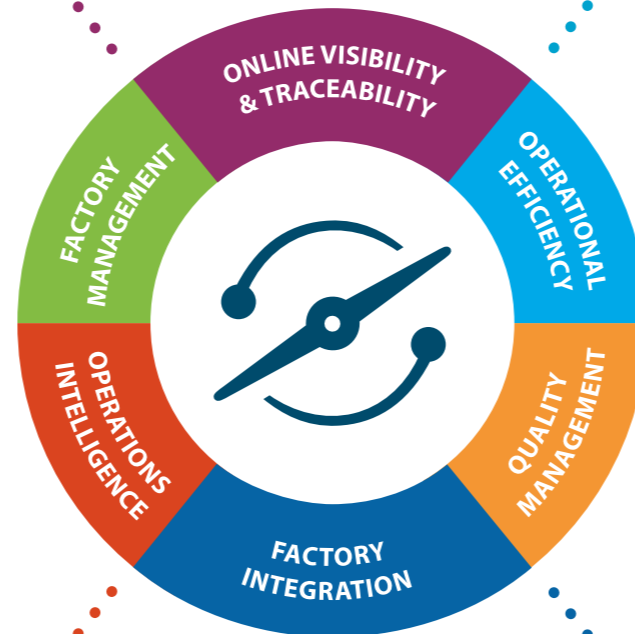
MATERIAL GENEALOGY
Easily access the full or filtered history information of any object with a full list of descendants or ascendants of any material.

ADVANCED LAYOUT & PRINTING
Design, preview and print labels and lot travelers with context driven information for text, images or barcodes.

MOBILE
Visualize in real time fab layouts, dashboards and other information from mobile devices

SCHEDULING
Integrated scheduling optimization & execution.

ROUTING AND DISPATCHING
Service-oriented, hierarchical resource and material dispatching with customizable rework paths.

MAINTENANCE MANAGEMENT
Ad-hoc time and usage based maintenance management integrated with Material and Resource management, bill of parts and checklists.

RECIPE MANAGEMENT
Recipe parameters and context resolution integrated with resource and material tracking and equipment integration.

COSTING
Real-time shop-floor costing control through cost absorption (labor, equipment, materials, etc.)

SHIFT LOGBOOK
Exchange of critical information between shifts.

ONLINE VISIBILITY & TRACEABILITY
OPERATIONAL EFFICIENCY
FACTORY MANAGEMENT
QUALITY MANAGEMENT
OPERATIONS INTELLIGENCE
FACTORY INTEGRATION

ADVANCED REPORTS
Create, edit and publish highly-granular reports based on the online database, the operational data store or other external database.

OPERATIONAL DATA STORE
Fast and feature-rich data extraction and archiving tool for integration with external heterogeneous data sources.

DATA ANALYSIS
Intelligent, automated multi-source data extraction and analysis capabilities.

OLAP OPERATIONS
Multi-dimensional data warehouse, with advanced slicing and dicing OLAP operations.

DATA MINING
Advanced data mining algorithms and analysis, including time series, decision trees and neural networks.

ERP INTEGRATION
Flexible ERP integration (SAP, MS, etc.) for production orders, inventory status updates, master data and maintenance operation data with Synchronous or Asynchronous communication in the event of ERP downtime.

FOUNDATION
Integration and productivity platform with presentation meta-data based business and analytics layers.

CONNECT
Full point-and-click equipment integration platform connecting enterprise software (SECS/GEM, OPC, PLC, File, Database, LIMS) with Navigo or other MES, including service and message mapping.

STATISTICAL PROCESS CONTROL
Variable and attribute charts, integrated with data collection, exceptions, resource and material tracking. Western Electric and user defined rules.

EXCEPTIONS MANAGEMENT
Manual or automatic user defined exception protocols linked to EDC limits and SPC rules and linked to process checklists.

CHECKLISTS
Mandatory or optional, sequential or floating multi-step checklists with defined parameters and tracking integrated with manual or automatic rules.

DOCUMENT MANAGEMENT
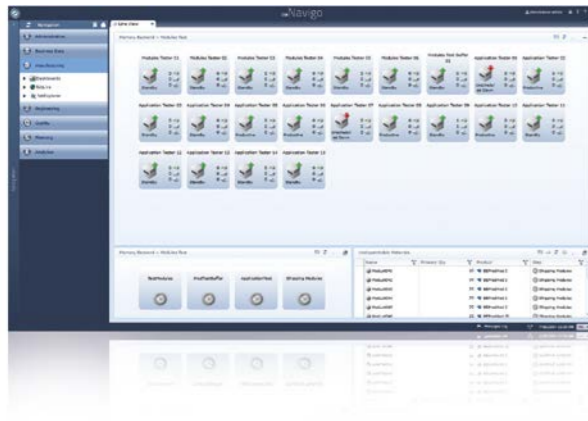Visualize, control and approve shop-floor related documents within MES context and at the right operation.

SAMPLING
Define and execute time and counter based sampling based on flexible contexts.

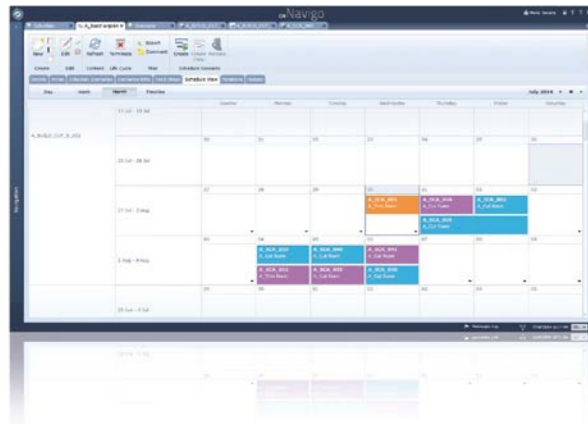ENGINEERING MULTI-SOURCE EXTRACTION, REPORTING
AND DATA MANIPULATION AND AGGREGATION

META-DATA BASED INTEGRATION AND PRODUCTIVITY PLATFORM,
EQUIPMENT AND ERP INTEGRATION

PRODUCT LIFE-CYCLE MANAGEMENT, PROCESS
CONTROL AND QUALITY IMPROVEMENT MODULES
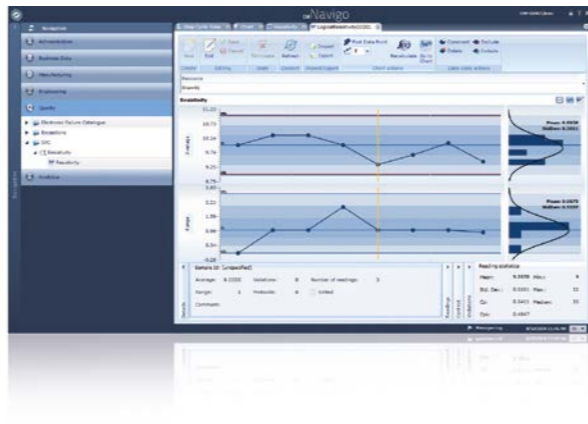
Empowered end-users
Next generation user experience

FACTORY MANAGEMENT

ONLINE VISIBILITY & TRACEABILITY
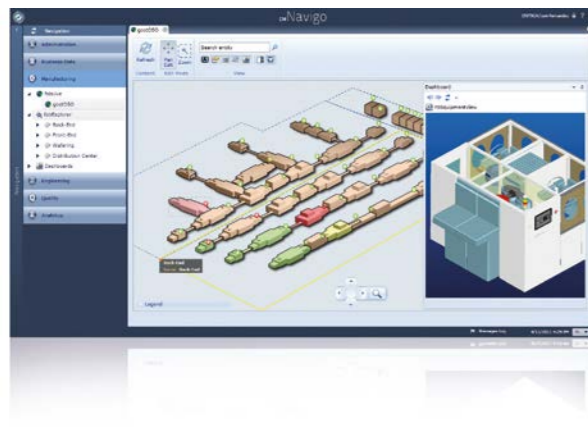
OPERATIONAL EFFICIENCY

QUALITY MANAGEMENT

FACTORY INTEGRATION
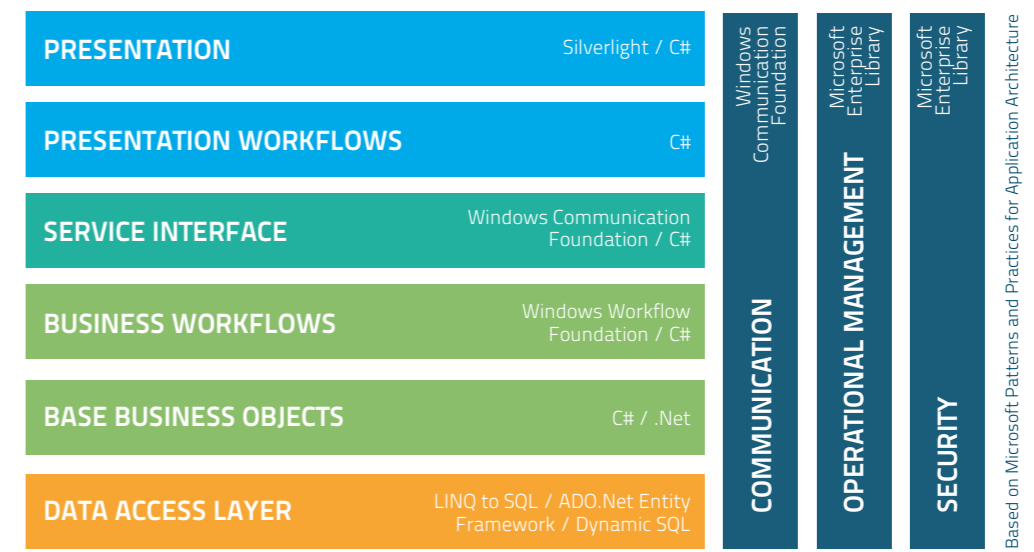

OPERATIONS INTELLIGENCE

Fully integrated modular system
Flexible, scalable and extensible to all tiers

PRESENTATION	Silverlight / C#
PRESENTATION WORKFLOWS	C#
SERVICE INTERFACE	Windows Communication Foundation / C#
BUSINESS WORKFLOWS	Windows Workflow Foundation / C#
BASE BUSINESS OBJECTS	C# / .Net
DATA ACCESS LAYER	LINQ to SQL / ADO.Net Entity Framework / Dynamic SQL

Windows Communication Foundation

Microsoft Enterprise Library

Microsoft Enterprise Library

COMMUNICATION

OPERATIONAL MANAGEMENT

SECURITY

Based on Microsoft Patterns and Practices for Application Architecture

SQL SERVER

Online Database(s)

SQL Server Replication

OPERATIONAL DATA STORE (ODS)

SQL Server Integration Services

DATA WAREHOUSE

SQL Server Reporting Services

SQL Server Analysis Services (SSAS)

Microsoft Partner
Gold Application Development

REPORTS

OLAP BUSINESS INTELLIGENCE

Hardware Reliability, Scalability and Performance

NBL CLUSTER

Application Server Farm

MSCS CLUSTER

Database Servers

Extensibility
At all tiers

■ PRESENTATION TIER

Add ribbon actions
Create addins
New gui's

■ BUSINESS TIER

Dynamic business rules
Custom entities
Custom services

■ ANALYTICS TIER

Reports
Cubes
Data sources

Manufacturing & R&D
America, Europe and Asia

Dresden Germany
Porto Portugal
Austin USA
SuZhou China
Hsinchu Taiwan

Critical Group

Provides business critical solutions across industries such as aerospace, defense and telecommunications, under stringent quality certifications like NATO and CMMI Level 5

Experience

Our engineers provide solutions for some of the most challenging MES green-field and migration projects world-wide. Their experience is at your service

Innovation

Our solutions address the most important industry challenges through cutting-edge innovative products and technologies

Reference Customers

- Semiconductors
- Solar
- Electronics
- Medical Devices
- Other industries

COMPETE
PROGRAMA OPERACIONAL FACTORES DE COMPETITIVIDADE

QREN
QUADRO
DE REFERÊNCIA
ESTRATÉGICO
NACIONAL

UNIÃO EUROPEIA
Fundo Europeu
de Desenvolvimento Regional