

# Effective Manufacturing with Integrated ERP & MES Solutions

# Content

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- Global CyberSoft (GCS) introduction
- Glossary
- Today's manufacturing industries
- Enterprise-Control System Integration
  - Level 4: Enterprise Resource Planning (ERP)
  - Level 3: Manufacturing Execution System (MES)
  - Fully integrated ERP/MES
- Facts: Adoption & Performance
- Available solutions:
  - SAP & InSite
  - SAP & SIMATIC IT

# GCS Introduction



- Global CyberSoft (GCS) is a US company with headquarters located in Silicon Valley, two development centers in Ho Chi Minh city, and sales representative offices in Tokyo, Paris and Singapore.
- Factory Automation (FA) and ERP Business Solutions (EBS) are two main business lines of GCS.
  - FA division provides control and management solutions for manufacturing industries.
  - EBS division provides SAP ERP solutions : from consulting to implementation, maintenance & support.
- With the combination of FA and EBS, GCS can confidently provide total solutions for enterprises in Vietnam.



# Glossary

Abbr.	Description
MES	Manufacturing Execution System
ERP	Enterprise Resource Planning
EMI	Enterprise Manufacturing Intelligence
B2MML	Business to Manufacturing Markup Language
SAP xMII	SAP xApp Manufacturing Integration and Intelligence
ISA	The Instrumentation, Systems, and Automation Society
WIP	Work In Progress
FGI	Finished Goods Inventory
NPI	New Production Introduction
TTM	Time To Market
DMUV	Direct Material Usage Variance

# Today's manufacturing industries

## Challenges

- Highly competitive market
- Cost reduction
- Market demanding high quality, innovative products
- Customer demands constantly changing
- Shorter delivery cycles
- More dynamic supply networks
- Regulatory compliance

## Strategies

- Improve efficiency & reduce overall manufacturing costs
- Increase the visibility and control of manufacturing execution.
- Coordinate manufacturing execution processes across the enterprise.
- Become more responsive and agile

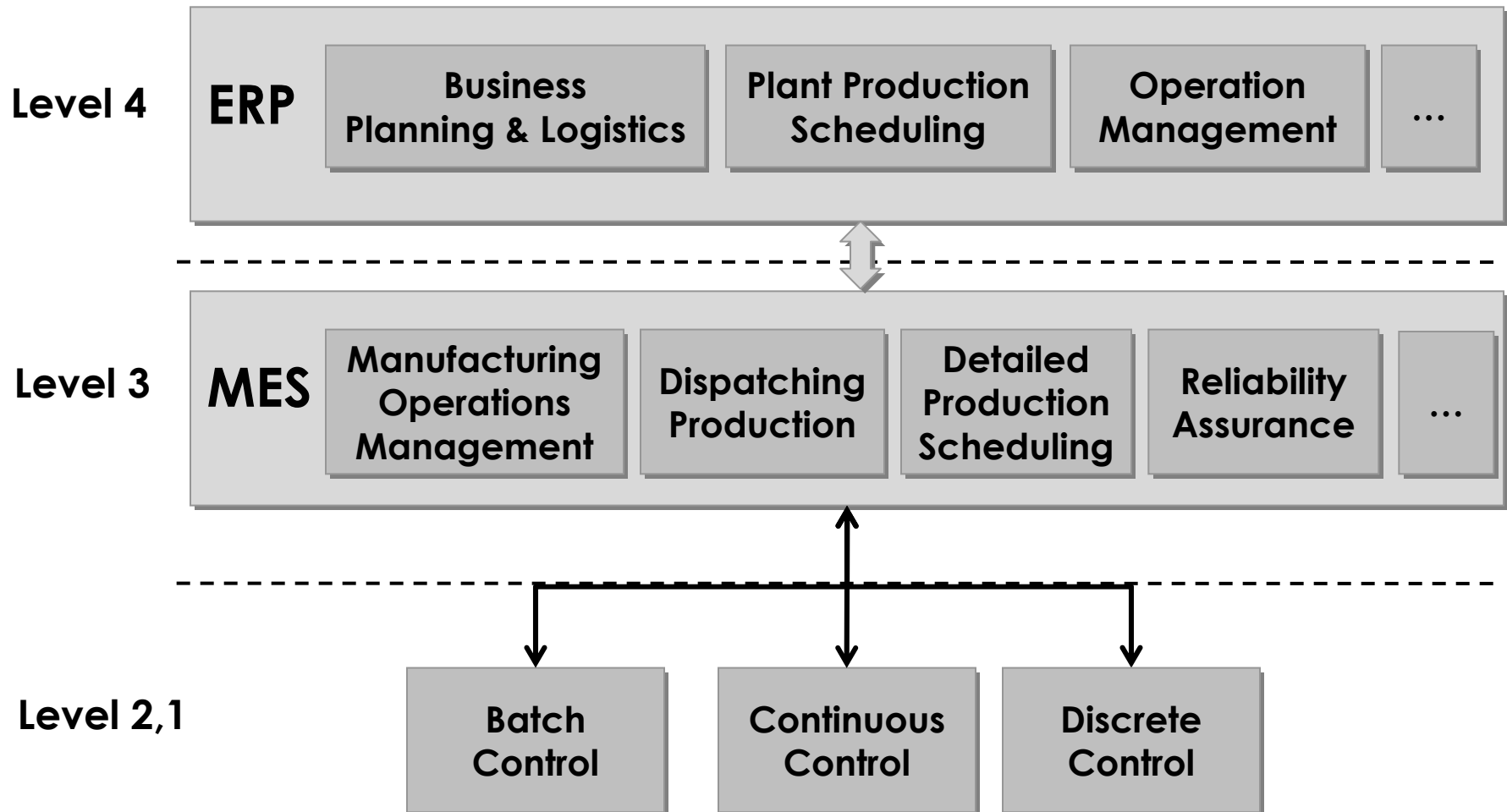
Require

Integrated  
ERP & MES

Enable

Manufacturing Integration  
Manufacturing Intelligence

# Enterprise-Control System Integration



ISA SP-95 model: business to plant floor operations

# Level 4: Enterprise Resource Planning (ERP)

## Raw material & Spare parts

- Usage
- Inventory
- Procurement

## Energy:

- Usage
- Inventory
- Procurement

Overall goods in process.  
Production inventory

## Machinery & Equipment

- Usage
- History
- Preventive & Predictive maintenance planning

Man power usage

Quality control data  
management

## Basic Plant Production Schedule:

- Establishment
- Modification/Adjustment

## Optimization:

- Optimal preventive maintenance & equipment renovation schedule
- Optimal inventory level

Capacity planning

ISA SP-95 specification: activities of Level 4

# Level 3: Manufacturing Execution System (MES)

Resource allocation & Control

Process management:

- Production monitoring
- Corrections: automatic & manual

Dispatching : jobs, orders, batches, lots, work orders

Operations and detailed scheduling

Quality management:

- Real time measurement
- SPC/SQC functionalities

Production planning & tracking

Labor management

Performance analysis:

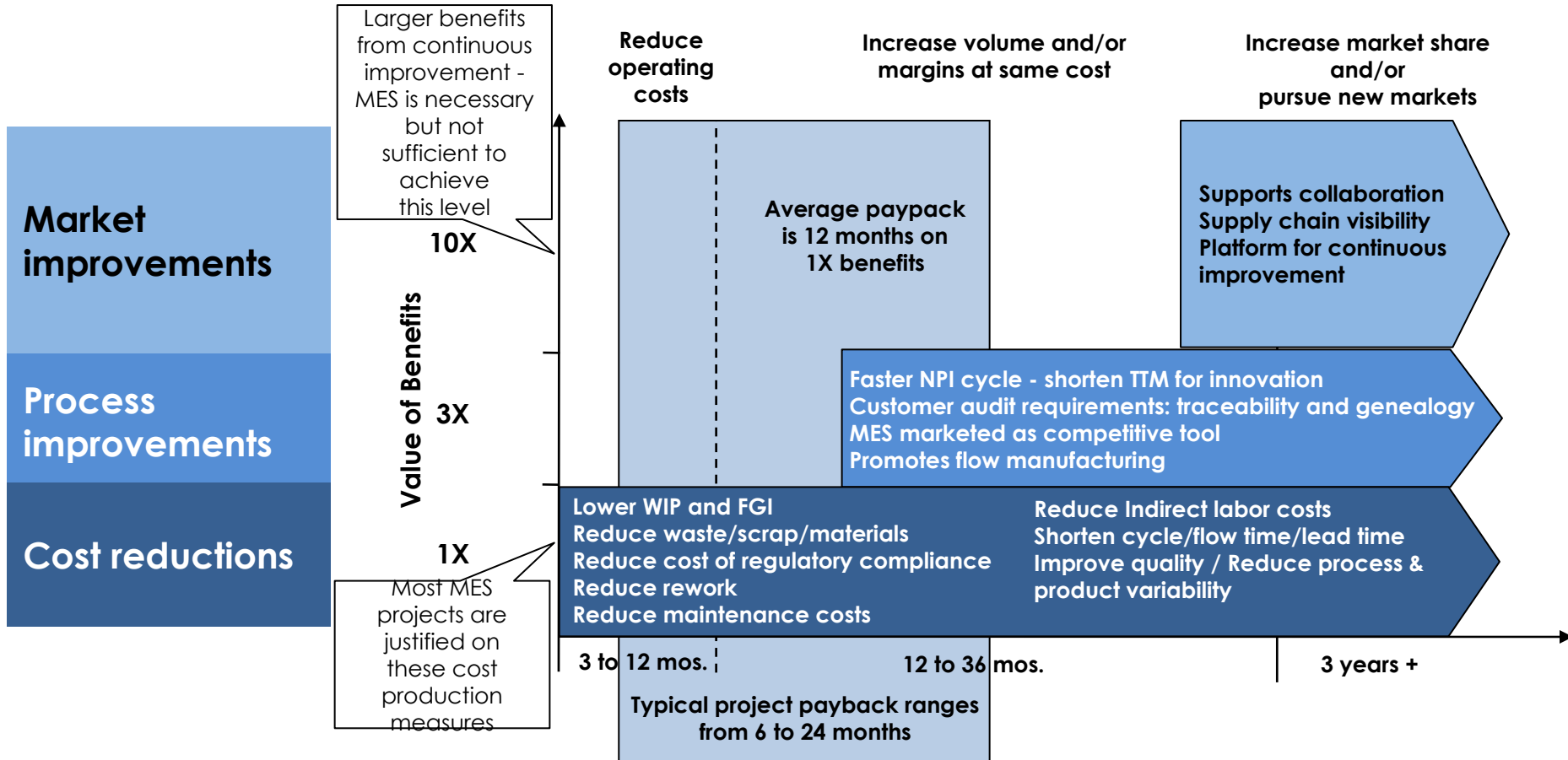
- Resource utilization & availability
- Product unit cycle time

Document control

ISA SP-95 specification: activities of Level 3

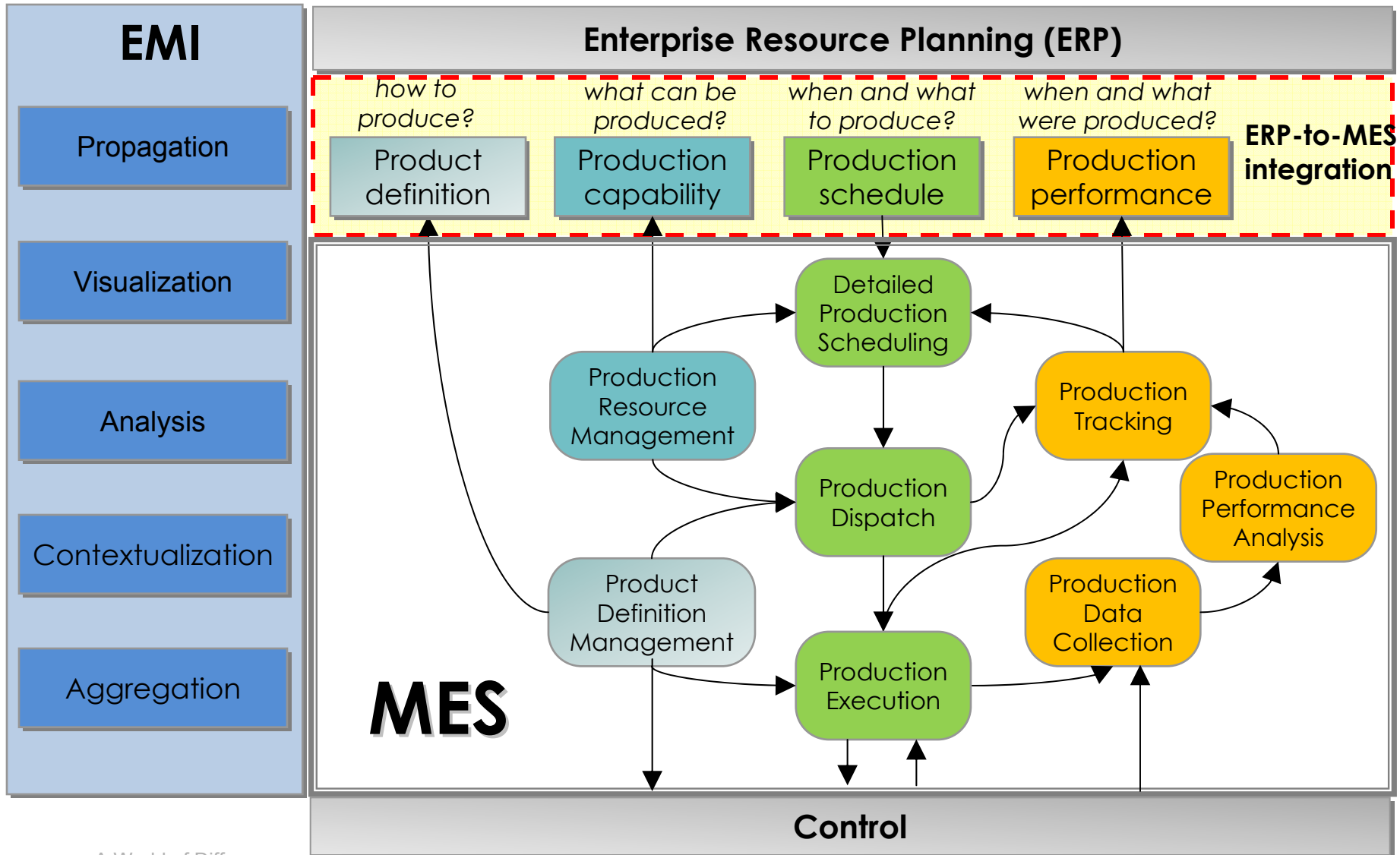
# MES benefits

## MES benefits



Source: AMR Research

# Fully integrated ERP/MES: model

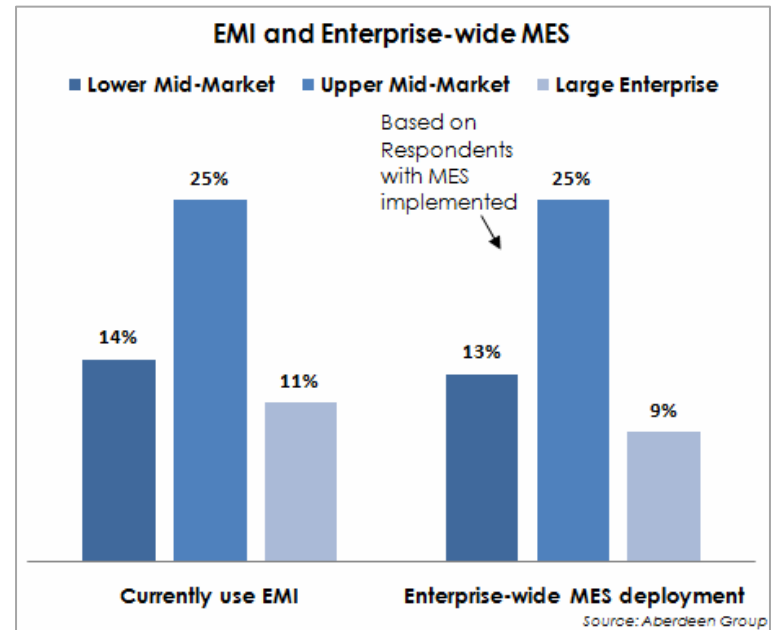
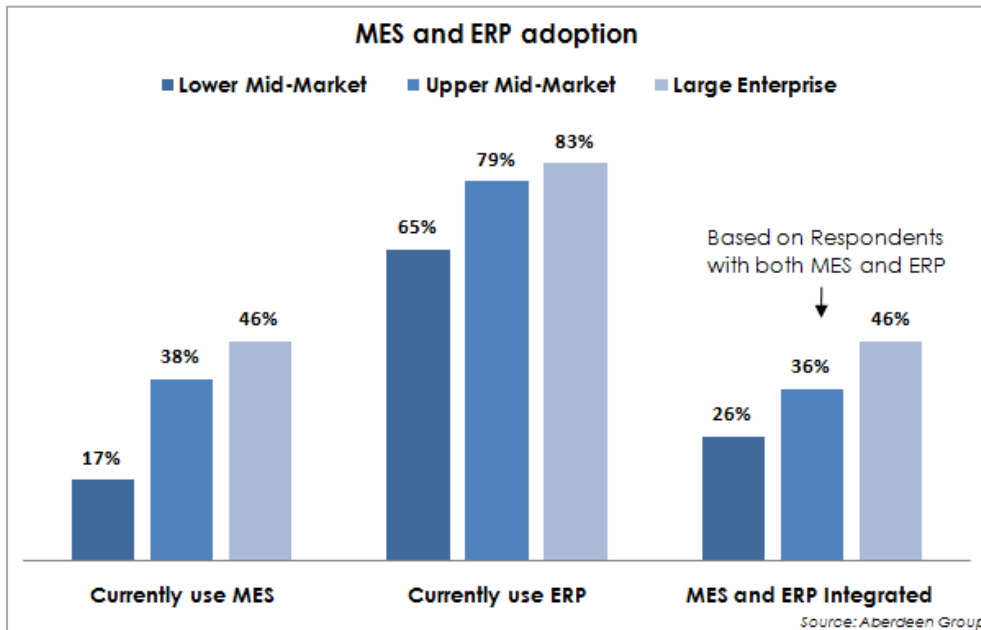


## Fully integrated ERP/MES: benefits

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- Provides enterprise-wide visibility of manufacturing operations  
→ more agile and responsive.
- Improves business decision-making
  - based on real-time information
  - foreseeing the impacts of those decisions and knowing viable alternatives.
- Presents business and production processes as a single workflow.
- Enables real-time monitoring of KPIs on productivity, quality, yields and throughput.

# Facts: Adoption & Performance



## KPI performance

Market Segment	On time delivery	DMUV	WIP reduction
Large Enterprise	93%	4.6%	30%
<b>Upper Mid-Market</b>	<b>94%</b>	<b>2.0%</b>	<b>52%</b>
Lower Mid-Market	90%	4.1%	40%
Industry average	91%	4.1%	34%

These statistics are based on Discrete Manufacturers  
Source: Aberdeen Group

# Fully integrated ERP/MES: available solutions

Enterprise Resource Planning (ERP)



Manufacturing Integration & Intelligence



Manufacturing Execution Systems (MES)



Control

Leveraging in-house expertise and industry experiences, GCS can provide the most suitable fully integrated ERP/MES solutions:

- ERP: SAP
- Manufacturing Integration & Intelligence: SAP xMII
- MES: InSite (Camstar) or SIMATIC IT (Siemens).

## Solutions: SAP & InSite

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- **InSite:** MES solution from Camstar.
- Recommended for high-tech industries such as
  - Assembly & Test
  - Solar Cell manufacturing
  - Electronics
- With InSite, manufacturers can achieve new levels of responsiveness across global networks through:
  - Effective inventory management
  - Order tracking and customization
  - Optimized yields
  - Accelerated decision-making
  - Shortened production cycles

# Solutions: SAP & SIMATIC IT



- **SIMATIC IT:** MES solution from Siemens.
- Recommended for process industries such as
  - Food & Beverages
  - Chemicals
  - Pharmaceuticals
- SIMATIC IT brings Excellence to the Manufacturing Enterprise:
  - Interoperability with Business Level
  - Visibility for fast decision making
  - Time-to-Market support
  - Total Quality Management
  - Full flexibility in production
  - Complete integration with the Supply Chain
  - A complete solution for Plant Operations

## References

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- *Competitive Advantages Abound for Discrete Mid-Market Manufacturers*, Aberdeen Group, 2007
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# We welcome your questions

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## Thank you!

