DELMIA

OPTIMIZING MANUFACTURING with CENTERS OF EXCELLENCE and DELMIA'S GLOBAL PROCESS MANAGER

DASSAULT SYSTEMES

Introduction

In the rapidly evolving global manufacturing landscape, staying ahead requires adapting to and anticipating future trends and challenges. Integrating digital technologies into manufacturing processes has become essential as industries embrace the fourth industrial revolution. At the heart of this transformation are Manufacturing Execution Systems (MES) and Manufacturing Operations Management (MOM), which serve as the backbone for operational efficiency, product quality, and market responsiveness.

However, deploying and managing MES/MOM solutions across multiple global sites presents a complex challenge that requires a strategic and cohesive approach. This is where the concept of a Center of Excellence (CoE) comes into play. A CoE acts as a catalyst for enhancing global manufacturing operations, providing a centralized framework for standardizing processes, fostering innovation, and driving continuous improvement. A well-structured CoE can significantly amplify the benefits of MES/MOM solutions, driving operational excellence and competitive advantage on a global scale. By establishing a CoE, companies can leverage their collective knowledge and resources to achieve and sustain operational excellence across all their manufacturing sites.

Amidst this backdrop, DELMIA's Global Process Manager (GPM) emerges as a pivotal tool for managing the complexities of a CoE. GPM offers a unique blend of centralized control and localized flexibility, enabling organizations to harmonize their manufacturing operations while catering to site-specific needs. This e-book delves into the strategic imperatives of establishing a CoE, the transformative role of DELMIA's GPM, and the pathway to achieving sustainable manufacturing excellence.

As we navigate through the chapters, we will explore the foundational principles of CoE and GPM, practical insights from successful deployments, and the forward-looking strategies that ensure long-term success. Join us on this journey to unlock the full potential of your global manufacturing operations through the power of CoE and DELMIA's GPM.

The Evolution of Manufacturing in the Digital Age

CHAPTER

1

The manufacturing industry is undergoing a profound transformation as companies adapt to Industry 4.0 technologies and begin considering Industry 5.0. This technological (r)evolution reveals how agility, flexibility, and scalability have become essential traits for global manufacturing operations. Moreover, it underscores the pivotal role of Manufacturing Operations Management (MOM) solutions – which encompass Manufacturing Execution Systems (MES) and other capabilities – in navigating this complex landscape, laying the groundwork for unprecedented efficiency and innovation.

The Catalysts of Change

Industry 4.0 has led to a revolutionary shift in manufacturing, characterized by integrating digital technologies into all aspects of production. This digital transformation is not merely about automation but creating a more agile, flexible, and scalable manufacturing ecosystem. The ability to rapidly adapt to market changes, customize products on demand, and scale operations globally is no longer a luxury but a necessity in today's fast-paced, consumer-driven world.

The importance of agility cannot be overstated. In an environment where consumer preferences evolve at breakneck speed, manufacturers must pivot quickly to remain competitive. Flexibility, too, is paramount, as it allows production lines to be reconfigured with minimal downtime, enabling a swift response to changing demands. Scalability ensures manufacturers can expand their operations seamlessly, whether that expansion crosses plants or borders, leveraging global markets while optimizing costs.

The Foundation of Modern Manufacturing

At the heart of this transformative journey are MOM solutions, which have emerged as the foundation of modern manufacturing strategies. These sophisticated systems enable manufacturers to orchestrate and optimize their operations, ensuring that every component of the production process is in perfect harmony.

The core functionalities of MOM include:

1

Real-time visibility empowering decision-makers with information for agile decisions.

2

Broad functional capabilities, including Production (traditional MES), Quality, Maintenance, and Material Logistics (warehouse management), all fully integrated on a single platform.

3

Powerful capabilities for integration with business systems such as ERP and PLM, as well as devices and equipment such as IIoT devices, shop floor equipment, testing devices, etc.

4

Global process governance and standardized processes across multiple sites.

The Strategic Imperative of a Center of Excellence (CoE)

CHAPTER

2

A Center of Excellence (CoE) is a centralized unit within an organization that focuses on developing and disseminating best practices, standards, and methodologies. In the context of manufacturing, a CoE aims to drive operational excellence by standardizing processes, fostering innovation, and ensuring continuous improvement across all manufacturing sites.

The primary objectives of a CoE include:

- **Standardization**
  Establishing and maintaining standardized processes and best practices to ensure consistency and efficiency.

- **Innovation**
  Promoting the adoption of new technologies and methodologies to drive continuous improvement and stay competitive.

- **Knowledge Sharing**
  Facilitating the exchange of knowledge and expertise across the organization to enhance overall performance.

- **Continuous Improvement**
  Implementing a culture of continuous improvement, where processes are regularly evaluated and optimized for better outcomes.

The Powerhouse for Process Standardization, Innovation, and Continuous Improvement

A Center of Excellence (CoE) plays a critical role in standardizing processes across an organization. By establishing common standards and best practices, a CoE ensures consistency in process execution, which leads to improved quality and efficiency. The CoE also fosters innovation by identifying and implementing new technologies and methodologies that can enhance manufacturing operations. By regularly monitoring performance and gathering feedback, the CoE can continuously identify areas for improvement and implement changes to drive better outcomes.

An effective CoE facilitates the standardization of an enterprise-wide Manufacturing Operations Management (MOM) solution that can be deployed across multiple plants while being managed and updated from a central location. It empowers manufacturers to transform global production operations, driving and sustaining operational excellence, and serves as a centralized hub where best practices are developed, leveraging knowledge and data from across the enterprise. Users can define and enhance business process modeling for continuous improvement and measure and optimize production performance. By streamlining processes and maximizing efficiency, the CoE helps organizations meet increasing market demands while reducing costs.

Real-World Triumphs: The Transformative Power of CoEs

To illustrate the transformative power of CoEs, let us consider a few real-world scenarios:

Case Study 1

Global Auto Manufacturer

A leading global auto manufacturer established a CoE to standardize its manufacturing operations across 20+ sites worldwide. The CoE focused on implementing MOM solutions, resulting in a 30% reduction in operational costs and a 25% increase in production efficiency. The standardized processes also facilitated seamless global rollouts of new models, significantly reducing time-to-market.

Case Study 2

Industrial Equipment Maker

An industrial equipment maker leveraged its CoE to drive continuous improvement and innovation across its manufacturing sites. By adopting agile methodologies and fostering a culture of innovation, the CoE enabled the company to rapidly prototype and deploy new manufacturing technologies, leading to a 40% improvement in product quality and a 20% reduction in manufacturing lead times.

Building a Successful CoE with DELMIA's GPM

CHAPTER

3

Key factors to consider include:

People
Ensure that the CoE is staffed with individuals with the expertise and experience needed to drive excellence. This includes cross-functional teams with knowledge in areas such as process engineering, quality control, and technology implementation.

Processes
Develop standardized processes and best practices that can be implemented across all sites. This includes defining clear procedures for process execution, quality control, and performance monitoring.

Technology
Implement the right technologies to support the CoE's objectives. This includes tools for process monitoring, data analysis, and continuous improvement. DELMIA's GPM is a critical technology that can enhance the CoE's capabilities.

The Phased Rollout Approach for Global Deployment

A phased rollout involves implementing the CoE in stages, starting with a pilot phase and gradually expanding to additional sites.

Key steps in the phased rollout approach include:

- **Pilot Phase**
  Implement the CoE at a single site to test the processes, technologies, and methodologies. This phase allows for the identification and resolution of any issues before expanding to additional sites.

- **Initial Rollout**
  Expand the CoE to a small number of additional sites. This phase allows for further refinement of processes and technologies based on feedback from the initial rollout.

- **Full Deployment**
  Roll out the CoE to all remaining sites. By this stage, the processes and technologies should be well-established and proven effective.

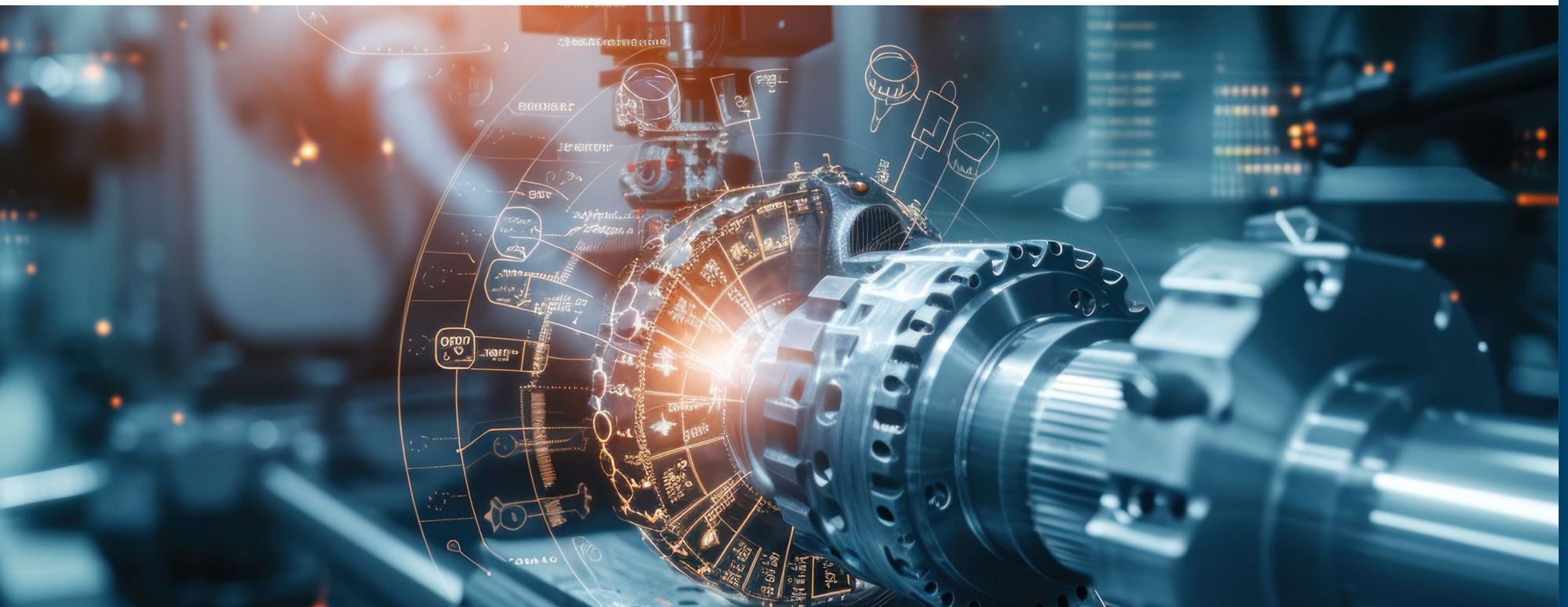
2 Integrating GPM into Existing IT Landscapes for Enhanced Efficiency

Key considerations for integration include:

- **Data Integration**
  Ensure that processes deployed from GPM can seamlessly integrate with shop floor equipment and other enterprise systems, such as ERP and PLM, to provide a comprehensive view of manufacturing operations.

- **System Compatibility**
  Verify that GPM is compatible with existing IT infrastructure and can be easily integrated without significant disruptions.

- **Training and Support**
  Provide training and support to ensure all users are proficient in GPM and can leverage its full capabilities.



Governance, Strategy, and Continuous Improvement

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4

Governance is a critical component of a successful CoE. It involves establishing clear roles, responsibilities, and processes to ensure that the CoE operates effectively.

Key elements of governance include:

- **Leadership**
  Designate a leadership team to oversee the CoE's activities and provide strategic direction.

- **Policies and Procedures**
  Develop and implement policies and procedures to guide the CoE's operations. This includes defining standards for process execution, quality control, and performance monitoring.

- **Accountability**
  Establish mechanisms for accountability, ensuring that all team members are responsible for their roles and contribute to the CoE's success.

- **Process Management Policies**
  Define standards for centralized control and localized flexibility of business processes. Who can define new processes? How are they shared? How much flexibility do plants have to make site-specific changes? These policies can be governed by DELMIA GPM, but it is important that they be clearly defined and communicated.

Setting Up a Manufacturing Governance Council for Strategic Direction

A Manufacturing Governance Council (MGC) can provide strategic direction and oversight for the CoE. The MGC should include representatives from key functions, such as manufacturing, quality, materials, IT, and finance.

The council's responsibilities include:

1

Strategic Planning
Develop and oversee the implementation of the CoE's strategic plan.

2

Performance Monitoring
Monitor the CoE's performance and provide guidance on areas for improvement.

3

Resource Allocation
Ensure that the CoE has the resources needed to achieve its objectives, including funding, personnel, and technology.

Utilizing Feedback Channels, Enhancement Requests, and Prioritization for Continuous Improvement

Continuous improvement is a key focus of the CoE. To achieve this, the CoE should establish feedback channels to gather input from stakeholders, including employees, customers, and partners.

Key elements of the continuous improvement process include:

- **Feedback Channels**
  Create mechanisms for collecting feedback, such as surveys, suggestion boxes, and regular meetings.
- **Enhancement Requests**
  Develop a process for submitting and prioritizing enhancement requests. This includes evaluating the potential impact of proposed changes and determining the resources required for implementation.
- **Prioritization**
  Establish criteria for prioritizing enhancement requests based on factors such as impact, feasibility, and alignment with strategic goals.

Sustainable Success with CoE and GPM

Standardization is an ongoing process that requires continuous effort and attention. It is important to view standardization as a journey rather than a destination. This means regularly reviewing and updating processes, technologies, and best practices to ensure that they remain effective and relevant.

CHAPTER

5

Key strategies for maintaining standardization include:

1 Regular Audits

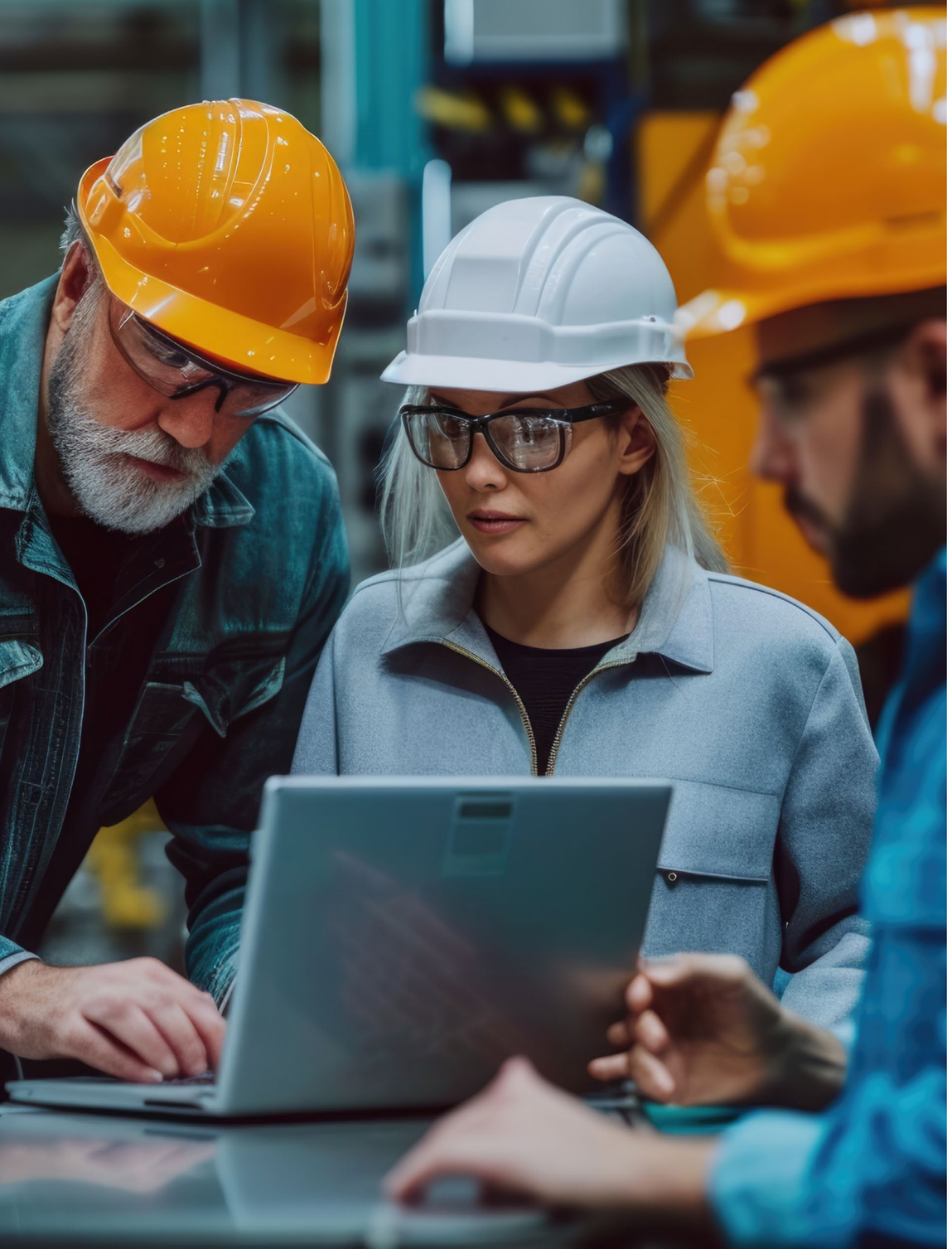
Conduct regular audits to assess the effectiveness of standardized processes and identify areas for improvement.

2 Continuous Training

Provide ongoing training to ensure all team members are proficient in standardized processes and technologies.

3 Feedback and Improvement

Gather feedback from stakeholders and use it to drive continuous improvement in standardized processes.



Sustaining Success: The Power of Continuous, Common Measures, and Unified Goals

Continuous oversight is essential for sustaining the success of the CoE and GPM. This involves regularly monitoring performance, setting common measures and goals, and ensuring all team members align with the CoE's objectives.

Key strategies for continuous oversight include:

- **Performance Monitoring**
  Use GPM and other tools to monitor process performance and identify areas for improvement regularly.
- **Common Measures**
  Establish common measures and goals for all sites to ensure consistency and alignment with the CoE's objectives.
- **Regular Reviews**
  Conduct regular reviews to assess progress, identify challenges, and develop action plans for addressing issues.

Long-Term Gains: Companies Thriving with CoEs and GPMs

L'Oréal's Journey to Industry 4.0

L'Oréal, a global cosmetics and personal care products manufacturer, sought to improve operational efficiency and visibility across its factories worldwide. To achieve this, they implemented DELMIA's MOM and MES solutions for a unified manufacturing operations platform.

Key Benefits

Enhanced operational consistency
Standardized processes for production, quality, and inventory management

Improved traceability
Full visibility into product lifecycle from raw materials to finished goods

Increased efficiency
Improved first-time-right rate to 94.4%

Global best practices sharing
Centralized platform for capturing and disseminating best practices

Key Metrics

Right First Time (RFT) Metric
Increased to 94.4%

Product Traceability Improvement
10x faster traceability of products

Global Deployment
DELMIA Apriso was deployed across 30+ plants worldwide

Process Efficiency
Efficiency in weighing operations improved by 100%

Quality Management
Full global traceability achieved across the organization

L'Oréal's success with DELMIA highlights the importance of CoE and GPM in achieving seamless, enterprise-wide integration and continuous improvement. The CoE facilitated the standardization of best practices across all 30+ plants worldwide, ensuring that the knowledge and processes developed at one site could be efficiently replicated and scaled globally in order to maintain consistent production quality and operational efficiency across diverse manufacturing environments. On the other hand, GPM facilitated global process synchronization, allowing L'Oréal to monitor, manage, and optimize operations across multiple sites in real time. The combined power improved operational responsiveness and future-proofed L'Oréal's manufacturing platform, ensuring the company remains at the forefront of technological advancements and Industry 4.0 initiatives.

> "We can manage and monitor all the operational activities … to optimize product quality and traceability, contributing to increasing our Right First Time from **93.5% to 94.4%**, and allowing us to have full traceability of products 10 times faster than before."
>
> ***Plant Manager at a European Manufacturing Plant***

To find out more: *L'Oreal: https://www.3ds.com/insights/customer-stories/loreal-and-delmia-apriso*

Autoliv's ACE System: Driving Global Excellence

Autoliv, a leading automotive safety systems supplier, faced challenges in managing quality, material flows, and traceability across its global manufacturing plants. To address these issues, they implemented the ACE system, combining SAP ERP and DELMIA MES.

Key Benefits

Improved visibility
The system provides real-time insights into materials, workflows, and processes, enhancing productivity and traceability

Standardized processes
ACE harmonizes operational and commercial business processes, ensuring consistency across all plants

Lean manufacturing
DELMIA Apriso supports lean manufacturing principles, reducing waste and improving efficiency

Global traceability
The system enables end-to-end tracking of products and processes, facilitating quality control and issue resolution

Paperless operations
ACE automates many manual tasks, streamlining processes and reducing errors

Key Metrics

Global Deployment
The ACE system is being rolled out to 30 manufacturing plants across multiple countries

Zero Defects
A key quality standard in Autoliv's market, particularly emphasized due to the critical nature of their safety products

Paperless Processes
The ACE system has introduced paperless operations, replacing physical Kanban cards with digital production sequences and automating financial processes like self-billing

Autoliv's implementation of the ACE (Autoliv Consolidated ERP) system, integrating DELMIA Apriso with SAP ERP, underscores the significance of CoE and GPM in achieving consistent, lean operations across global manufacturing plants. The CoE is crucial in harmonizing and standardizing processes, ensuring best practices are shared and implemented across multiple sites. This centralization enables Autoliv to streamline material management, enhance global traceability, and maintain high-quality standards essential in the automotive safety industry. The GPM ensures that all plants operate under a unified system, providing real-time visibility into operations, enabling quick identification and resolution of issues, and driving continuous improvement. The ACE system's global rollout across 30 plants is equipping Autoliv to achieve operational excellence and positioning it for future success in a competitive automotive market.

> "The quality advantage (with ACE) is we have better access to traceability data and batch tracing at the line. A big advantage of this ACE project for the plant is that we have integrated, real-time information flow. Reaction time has been cut short very much. Data transference is much better than we had before."

Bernhard Herrmann
Plant Manager ASG, Autoliv

Autoliv: https://www.3ds.com/insights/customer-stories/autoliv

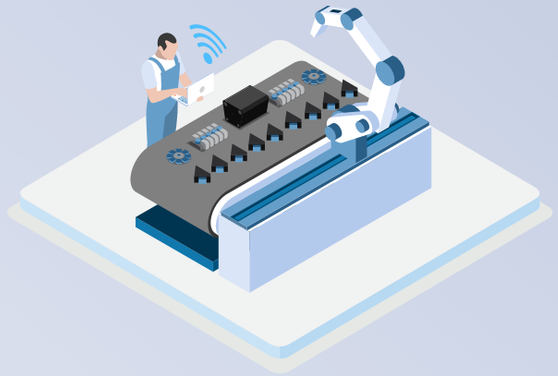
DELMIA's Global Process Manager (GPM): A Game-Changer for CoE Management

CHAPTER

6

DELMIA's GPM is a comprehensive solution designed to act as a technical backbone supporting numerous activities of CoEs, providing a centralized platform for managing and optimizing manufacturing processes across multiple sites. It allows for the implementation of standardized manufacturing processes and the management of best practices across the enterprise, ensuring continuous improvement in response to shifting market conditions, quality demands, and supplier challenges.

Process Standardization
Standardization of processes and best practices, ensuring consistency in process execution.



Centralized Monitoring
Real-time monitoring of manufacturing processes across all sites, providing visibility into performance and identifying areas for improvement.

Key functionalities of GPM

Deployment Management
Deployment of new processes and technologies across multiple sites, ensuring a seamless transition and minimizing disruptions.

Data Integration
Integration with other enterprise systems, providing a holistic view of manufacturing operations and enabling data-driven decision-making.

Revolutionizing Multi-Site Operations with GPM: Centralized Monitoring, Management, and Deployment

One key benefit of GPM is its ability to provide centralized monitoring and management of manufacturing processes. This centralized approach allows CoEs to oversee operations at multiple sites from a single platform. GPM offers real-time data on process performance, enabling CoEs to identify issues and implement corrective actions quickly. Additionally, GPM streamlines the deployment of new processes and technologies, ensuring that all sites are aligned and operating efficiently.

GPM and CoE Synergy: Consistency, Lower TCO, Faster Deployments, and Business Continuity

Implementing GPM within a CoE framework offers several benefits:

- **Consistency**
  Ensures that processes and best practices are standardized across all sites, leading to consistent quality and performance.

- **Lower Total Cost of Ownership (TCO)**
  By centralizing process management and standardization, GPM reduces the costs associated with maintaining disparate systems and processes.

- **Faster Deployments**
  Streamlines the deployment of new processes and technologies, reducing the time and effort required to implement changes across multiple sites.

- **Business Continuity**
  Enhances business continuity by providing a centralized platform for managing manufacturing operations, ensuring that disruptions are minimized and operations can continue smoothly.

Conclusion

The implementation of a **Center of Excellence (CoE)** using **DELMIA's Global Process Manager (GPM)** has the potential to transform global manufacturing operations. A CoE can enhance efficiency, quality, and compliance across an organization by standardizing processes, fostering innovation, and driving continuous improvement, and DELMIA GPM provides the tools and capabilities needed to support the CoE's objectives, enabling centralized monitoring, management, and deployment of manufacturing processes.

The Next Frontier: Manufacturing Excellence with Technological and Process Innovation

The future of manufacturing excellence lies in the continued integration of advanced technologies and innovative processes. Industry 4.0 technologies, such as IoT, big data analytics, and artificial intelligence, will continue to play a vital role in driving efficiency and effectiveness in manufacturing operations. Organizations that embrace these technologies and continuously innovate their processes will be well-positioned to achieve long-term success.

Winning with CoE and GPM: Strategies for a Market Advantage

Embracing a CoE and GPM provides organizations with a strategic advantage in the competitive global manufacturing landscape. By leveraging the expertise and capabilities of a CoE, organizations can standardize processes, drive innovation, and ensure continuous improvement. GPM enhances the CoE's capabilities by providing a centralized platform for managing and optimizing manufacturing processes. Together, these solutions enable organizations to achieve higher levels of efficiency, quality, and compliance, positioning them for long-term success.

Appendix

Glossary of Terms

Center of Excellence (CoE)
A centralized unit within an organization focused on driving excellence in specific areas of the business.

Manufacturing Execution System (MES)
A system that provides real-time visibility and control over manufacturing processes.

Manufacturing Operations Management (MOM)
A comprehensive approach to managing and optimizing manufacturing operations.

Global Process Manager (GPM)
A centralized platform for monitoring, managing, and deploying manufacturing processes across multiple sites.

Industry 4.0
The integration of cyber-physical systems, the Internet of Things (IoT), and big data analytics in manufacturing.

Additional Resources for Further Reading

- Industry 4.0's Impact on Design to Manufacturing Workflows by Ramon Busboom
- Smart Manufacturing: A Unified Ecosystem for the Next Normal by Prashanth Mysore
- The Future of Operations
- Business Process Management - Center of Excellence

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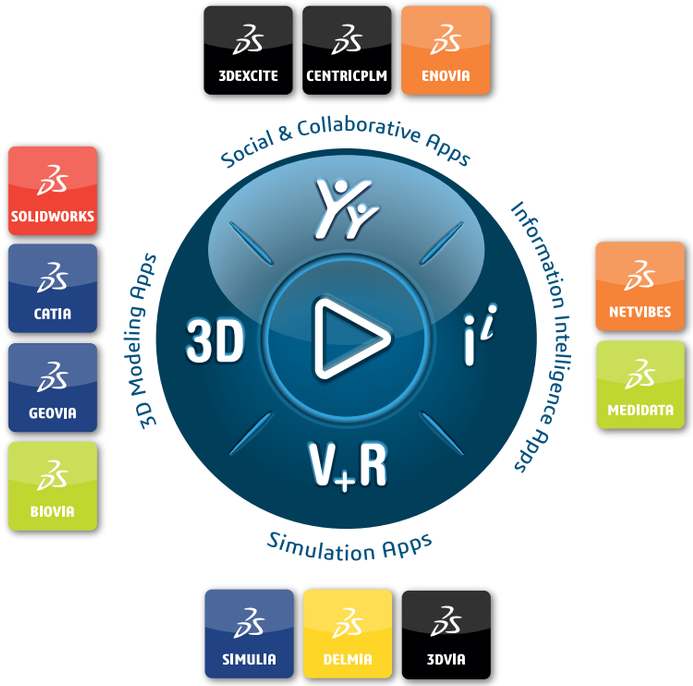

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