SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution coimbatore-35)

19MEE404 - PRODUCT LIFE CYCLE MANAGEMENT

Weaving the threads into PLM

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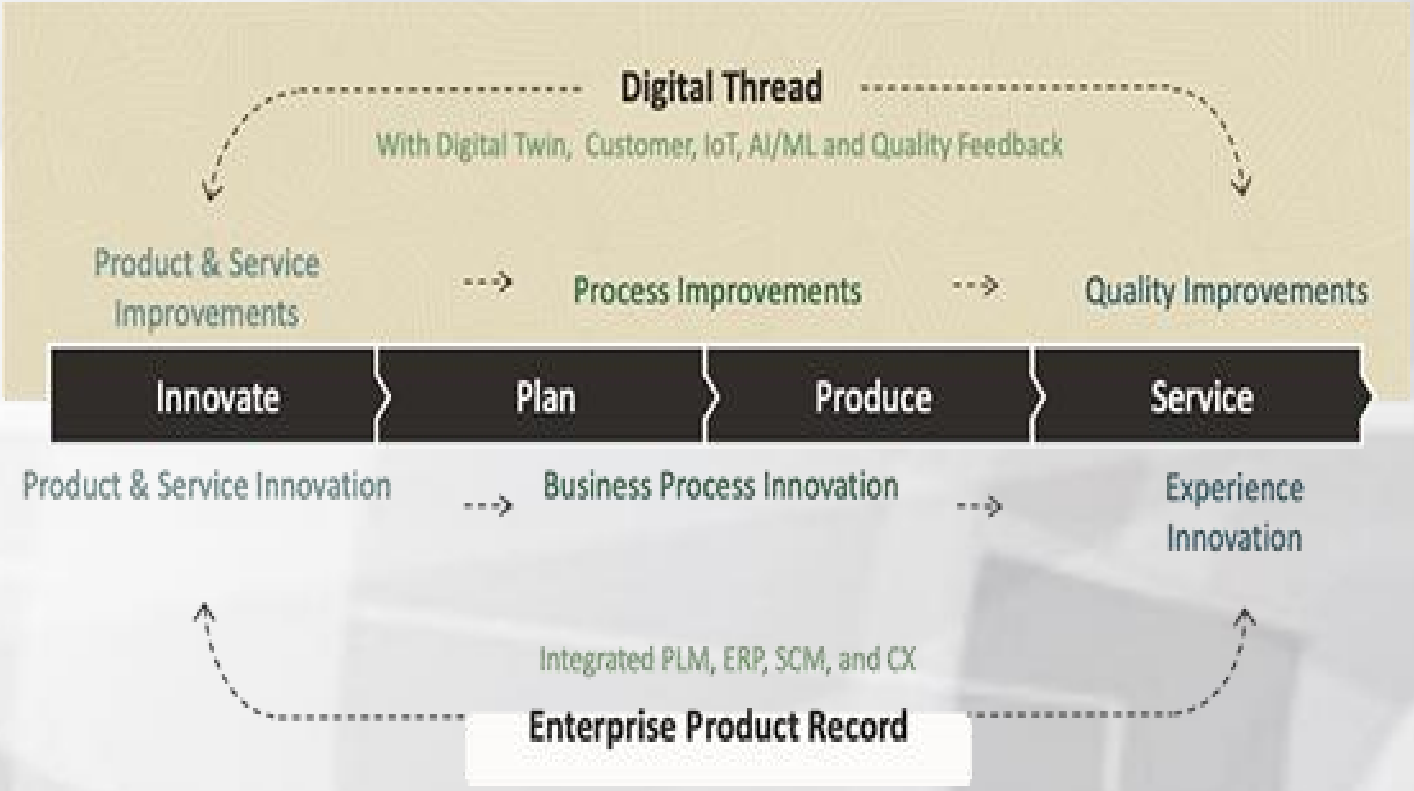
Across the bulk of the evolving manufacturing landscape, the need for automated quality processes tops the list as the most sought-after capability of today's product lifecycle management (PLM) technology platforms.Companies looking to enhance and extend governance and traceability initiatives while driving tangible business results also seek to sustain a Best-in-Class level of quality management regardless of its challenges. By placing quality at the forefront of a digital thread implementation, manufacturers can reduce complexity while advancing further on their journey of digital transformation

Digital Thread Is Critical in Manufacturing

As manufacturers continue down the path of digital transformation,building a digital thread of product related data has become the key enabler of cross-domain speed and agility. In this context, digital thread can be defined as the connection of related upstream and downstream product and process information from heterogenous systems across the enterprise. The foundation of the digital thread is Product Lifecycle Management (PLM).

PLM creates the part centric governance and data associativity necessary to bring together the tools, processes, and methodologies for 24X7 global collaboration. The outcomes resulting from a holistic digital thread are vast and cut across smart connected products, operations and service initiatives. Quality programs implemented across the entire enterprise tend to be the first to benefit. Manufacturers witness these results clearly during verification and testing, but the impact of quality reaches far beyond one step in the course of production quality is connected to time to market, product cost, capital and operating expenses, and overall customer satisfaction.


Digital Thread
With Digital Twin, Customer, IoT, AI/ML and Quality Feedback
Product & Service Improvements
Process Improvements
Quality Improvements
Innovate
Plan
Produce
Service
Product & Service Innovation
Business Process Innovation
Experience Innovation
Integrated PLM, ERP, SCM, and CX
Enterprise Product Record

Quality Takes Center Stage

Delivering high-quality products while bolstering operations with more efficient machinery and software is vital. For this reason, quality is top-ofmind for many manufacturers. A recent Aberdeen survey of 100 senior executives within large discrete manufacturing organizations revealed that automated quality services are most commonly cited as critical features of PLM systems.The ability to house and centralize access to engineering data is important, as is the ability to create specific tailored views for different roles and disciplines. However, regardless of industry or job title, the automation of quality services takes center stage as most critically important. In fact, it has proven to be the most important PLM feature among all survey respondents, with the priority intensifying even more when looking at specific industries

The Inextricable Link Between Cost and Quality

To truly be leaders in new product development, executives understand that customer satisfaction equals success. By focusing on quality, they can improve performance and lower costs. In a prior study of PLM digitization, Aberdeen's results revealed that top performing companies share several key characteristics which help support elevated performance. Chief among those characteristics is their insistence on weaving aspects of their quality initiative throughout the product lifecycle. This recognition of quality as a major value driver in their product environment leads to several improvements in key areas: lower warranty costs, less scrap and rework, and fewer defects per unit.

Quality Capabilities Underutilized in the Digital Thread

As companies build more robust processes and capabilities leveraging the digital thread and PLM, there is an increasing number of technology modules that can have an impact. From project management and collaboration, to configuration management and many others, organizations have key decisions tomake as they extend and enhance their product lifecycle.Ironically, despite the self-reported importance of quality management described previously, companies as a whole are less likely to take advantage of automated quality and reliability management tools the research demonstrating that only half of all respondents have currently implemented these capabilities.

Building Quality into the Process – The Roadblocks

Strategic quality measures come at a premium, in large part due to the challenges inherent in today's product development processes and culture. Most prevalent for Best-in-Class companies is thedisconnected nature of their systems and processes, and the insulated nature of their various internal teams.As many products continue to evolve from interconnected electromechanical systems to electronic and largely software-controlled entities, companies need to place more emphasis on reducing the heterogeneity in their environment and the all important concept of data quality

Best Practices for Closed-Loop Quality

Successful quality initiatives hinge on stability, flexibility, and communication across key departments. Companies will survive and thrive based on their agility in handling the multiple required changes to the product specifications and associated processes. One method for improving product quality is weaving quality data management processes into IoT. A modern PLM environment bolstered by smart, connected IoT devices is a target objective of most manufacturing organizations today. Whether just embarking on their IoT journey or refining and continually improving their strategy, 86% of companies envision a variety of benefits, with quality near the top of the list


Portfolio & Program Management
Service Management
System Ideation
Multi-Disciplinary
Data & Process Management Backbone
Quality & Compliance
System Realization
Lifecycle Optimization
Profitability Management

Key Takeaways

Quality plays a large role in increasing customer satisfaction, decreasing costs, and improving performance thus, continuous access to quality data within PLM systems is ideal for optimizing the entire product development cycle. When reflecting on the importance of quality and the impact it has on PLM, there are three aspects to highlight.

- Senior executives view automation of quality services as a critical value driver.
- Top companies see major improvements in waste and cost reduction with a focus on quality.
- Technology and process maturity stand our as critical best practices driving performance.

Related Research

- The Role of MES for Smart Manufacturing in Electronics; October 2018
- Connected Product Lifecycle Management Meets (and Beats) Product Complexity; March 2018
- Integrated Product Lifecycle Management in the Era of IoT; June 2017


Thank
you