



T E C H N O L O G Y S P O T L I G H T

Optimizing Decision Making in Product Lifecycle Management and Innovation

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Today's whirling market speed requires companies to take faster and more effective product-related decisions to deliver innovative, high-quality new products to market.

As manufacturers are trying to become more efficient, the practice of making locally optimized decisions — meeting the specific goals of a single product lifecycle phase — have to be wiped out in favor of decisions that optimize the whole process.

However, the complexity of interdepartmental and multidisciplinary collaboration exposes the limits of current applications supporting new product design and introduction processes.

The ability to manage, analyze, and classify heterogeneous data will be crucial in the future. Manufacturers need proper technologies to consolidate heterogeneous product-related data into actionable information and deliver it to the most relevant person in an intuitive and consumable format through appropriate devices.

This paper examines the role of advanced analytics in supporting companies in taking better product-related decisions. It also looks at the role of analytics vendor Qlik in this strategically important discipline.

I. Introduction

Market dynamics are placing increasing pressure on manufacturers to design, make, and launch new products faster than ever. A significant problem in meeting these requirements is manufacturers' inability to take efficient and effective cross-disciplinary decisions.

The usual product lifecycle decision making process follows a linear and delimited pathway in which decisions are taken inside functional silos — design, engineering, production, maintenance and support, and end-of-life management departments.

In most cases poor visibility into downstream processes or lack of understanding of the strategic, business-level goals achievable through decisions made in the proper context cause problems when put in the broader context. Even optimal decisions — when considered within a specific business unit, geography, or subject matter — may ultimately threaten the ability of a downstream group to achieve its targets and may sometimes negatively impact them.

As manufacturers try to become more efficient, the practice of making locally optimized decisions — meeting the specific goals of a single product lifecycle phase (e.g., product engineers focusing on identifying components that maximize product features, but lacking insight into the supply chain and operational requirements for low-cost suppliers that meet high quality and delivery expectations) — has to be wiped out in favor of decisions that optimize the whole process.

Manufacturers need to create a decision-making environment in which the impact of early product design decisions on subsequent development and production steps is anticipated. To do so they have to gather and filter an enormous amount of different data from multiple sources and transform it into in-context information for decision makers across multiple business lines.

This can provide the capabilities and cross-functional collaboration structure to enable the entire organization to develop an engaged, efficient decision-making process.

II. Benefits

Business success now depends considerably on the speed and quality of product-related decisions. When (good) products fail to meet market expectations, companies often have no clue about the actual cause. This is because they do not excel in managing product lifecycle decisions — and the information that is used to drive correct decisions.

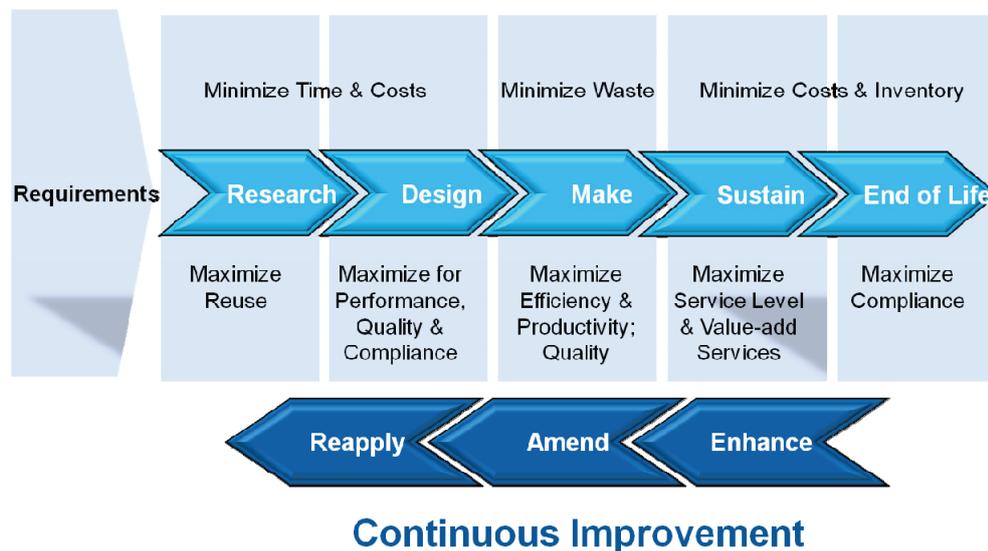
Most organizations acknowledge that key decisions concerning downstream processes must be incorporated into early design phases, for fear that late changes become prohibitive. Nevertheless, many organizations do not possess the required technology and tools to incorporate multidisciplinary decisions early in the product lifecycle and downstream (see Figure 1).

By definition, multidisciplinary decisions involve a number of stakeholders and critical decision takers along the entire product lifecycle. These individuals not only have diverse — and sometimes conflicting — business targets but also often have different backgrounds, training, and skills. Moreover, as manufacturers become more global, targeting new geographies and capitalizing on resource pools in lower-cost regions, language and cultural differences further inhibit effective and consistent decision making.

Another decision complexity driver that escapes even leading organizations is that experienced workforces in developed regions are nearing retirement. Organizations that have typically relied on their employees' experience — even if it is expressed in an "ad-hoc" and unstructured process — will need to find alternate and more formal ways to foster effective product-related decisions.

Figure 1

Cross-Functional Product Lifecycle Decision Making Process



Source: IDC Manufacturing Insights, 2014

The Role of IT

Manufacturers today are facing two main sets of problems in cross-functional product lifecycle decision making process:

- **Number and heterogeneity of people and business functions involved in the decision making process.** Collaboration difficulty explodes as participants, tools and data involved increases. Rapid access to and sharing of product data, regardless of source, format, or

location is therefore essential to avoid unwanted complications in product lifecycle management.

- **Critical information is stored in too many different IT systems that aren't properly integrated.** The multifaceted and iterative nature of cross-functional decision making requires workflow and information that are hard to achieve using the scattered IT environment in place at most manufacturers. Many producers have in place a heterogeneous set of applications and databases to support their product lifecycle processes and related decisions (e.g., CAD, PDM, ERP, and CRM applications), along with task-specific tools such as simulation and analytics, as well as countless individual documents and spreadsheets. Managing and retrieving this data is typically highly inefficient and often requires manual activity, creating slow and error-prone processes.

The ability to manage, analyze, and classify heterogeneous data will be crucial in the future. Manufacturers need proper technologies to consolidate heterogeneous product-related data into actionable information and deliver it to the most relevant person in an intuitive and consumable format through appropriate devices.

Going beyond mere traditional business applications, manufacturers will need to equip their workforce with an enhanced IT platform that creates visibility and offers real-time insights of product and service-related information along the entire lifecycle. This will provide consistent processes, informed staff, and open lines of communication along the product lifecycle. The ability to identify a problem and isolate the root causes upfront, to understand the effect of early decisions on the customer experience, and to enable corrective actions as quickly as possible, will therefore be essential to reap the following benefits:

- Capture and validate decisions upfront to ensure a more complete impact assessment and make decisions sooner with a higher level of confidence
- Accelerate business processes and approval cycles to reduce time to market and reduce costs
- Improve total lifecycle quality, costs, and customer satisfaction, which in turn enhances brand image and market position
- Improve speed and accuracy of decision making, especially in processes that today lack reliable context or are reactionary and created under time pressure

III. Trends

IDC predicts that the amount of data created and replicated will double every two years between now and 2020, reaching 40ZB by 2020. Today automatic data collection tools produce higher quantities of data than human beings themselves; so it is no surprise that this trend is heavily affecting the manufacturing business as well. And today, R&D, innovation and engineering processes are felt by manufacturers to be the major contributors to document and data proliferation in their organizations. IDC Manufacturing Insights research confirms that one of the most pressing needs for companies is to manage the data explosion and translate this into information.

About 36% of manufacturers in Europe are adopting or will soon adopt big data analytics tools to support product innovation (3D search and part reuse and crowd-sourcing), and to augment concurrent engineering and product lifecycle management processes. Manufacturers are keen to leverage a new knowledge-based approach to "innovation management" to convert this wealth of information into profitable cases on the market. In fact, ultimately grasping data value opportunities is the biggest driver of big data management technology in manufacturing, more than solving contingent issues such as data volume, variety, and velocity.

IV. Considering Qlik

About Qlik

Headquartered in Radnor, PA, Qlik (NASDAQ: QLIK) was founded in Sweden in 1993 and now serves more than 30,000 customers, most through a network of 1,500 partners, in more than 100 countries.

Qlik is a mature software platform that provides a self-service environment for line-of-business managers to explore their companies' data assets with analytical and visualization tools — user-driven business intelligence. The Qlik user experience is powered by an in-memory engine that maintains associations in data and calculates aggregations rapidly, as needed, allowing users to explore information freely rather than being confined to a predefined path of questions. The software platform is designed to give customers significant improvements in usability, flexibility, and performance at lower costs compared with traditional BI solutions. The app-driven model works with existing BI solutions, and leverages mobile and social technologies to provide end-users with a more immersive and dynamic environment.

Qlik describes its approach to business intelligence as Natural Analytics, something akin to the way our human curiosity searches and processes information, reveals insights, and enables decisions.

Challenges

Any concerns that prospective customers might have when evaluating Qlik as a provider of business intelligence software concerning the company's breadth of business across more than 100 countries and more than 20 vertical industries are addressed through Qlik's network of partners who manage the geographical issue.

In IDC Manufacturing Insights' view, Qlik's Customer Success Framework is an effort to manage the vertical industry risk by leveraging the very diversity that poses the risk into a source of innovation and narrow industry solutions. The approach is a proven one, successfully pursued by companies of Qlik's size or smaller. Community governance and software curation in QlikMarket are the linchpins of that strategy's success. Those efforts are nascent and bear watching. In the end though, however well Qlik's ecosystem strategy performs, manufacturers need to see Qlik continue to enhance its own manufacturing industry and process assets in terms of talent, services, and software.

V. Conclusion

IDC Manufacturing Insights recommends that manufacturers implement an enterprise product information strategy to improve interdepartmental and multidisciplinary collaboration and decision making. This has to be supported by a software platform that links the different applications and data repositories. This decision-making platform will facilitate effective and secure access, making product information available and understandable to all participants in product lifecycle decisions, including professionals outside R&D departments.

Manufacturers will gain the significant benefit of optimizing decision-making in product lifecycle management and innovation, including capturing and validating decisions against the appropriate rationale to ensure a more complete impact assessment and make decisions sooner with a higher level of confidence.

IDC Manufacturing Insights research shows that manufacturers are gradually adopting analytical tools to augment their product lifecycle processes. As these practices become widespread, this is a golden opportunity for the market to continue following these leaders' steps before losing competitive momentum.

About IDC

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