



THE VALUE OF DIGITAL TRANSFORMATION

HOW SMART, CREATIVE MANUFACTURING HELPS YOU ENGAGE MORE CLOSELY WITH YOUR CUSTOMERS TO ENSURE THEY GET WHAT THEY WANT

Consumers today are increasingly empowered. They can search for information; comparison shop by item, price, vendor, and other criteria; consult opinion polls, family members and friends; and receive personal answers to all of their questions without leaving their couch. And if that isn't enough, they receive a barrage of product information from companies online and off. More and more, they can order and receive what they want when they want. Clearly, in this hyperconnected world, companies need to stay in sync with their customers in order to provide them not only the products and services they want, but to anticipate their needs, offering them increasingly innovative and personalized products that exceed their expectations and maximize their experiences.

Consumers are also business professionals. Similar to their consumer lives, in the workplace they place orders and expect, even demand, increasingly customized products from their suppliers. And they realize the value of providing their customers with what they as consumers expect: convenient product experiences they want when they want them. Otherwise, they risk being left behind. But how can companies satisfy these demands?

INDUSTRY RENAISSANCE

The empowered consumer/customer is one of the primary drivers of the emerging Industry Renaissance worldwide. With the invention of the printing press during the Renaissance, people became capable of communicating around the globe. Like this life-changing era, today's Industry Renaissance is profoundly transforming the way the world does business, bringing new ways, real and virtual, of collaborating, inventing, learning, producing and trading.

According to Dassault Systèmes Vice Chairman and Chief Executive Officer Bernard Charlès, "In potentiating virtual experiences, augmented reality and realistic simulation, digital technology revolutionizes our relationship with knowledge...In the 21st century, game-changers will not be those with the most automated production systems, but those that empower the workforce of the future and their value networks with knowledge and know-how to deliver new categories of sustainable solutions."

Seismic waves are rippling around the globe as companies integrate these new technologies, combining the real and the virtual worlds to deliver products and experiences with greater levels of customization and personalization to exceed their customers' needs.

DIGITAL TRANSFORMATION

So what kinds of technologies available today can help companies keep their finger on the pulse of their customers in order to delight them with unique and memorable experiences? Stephane Declee, Chief Executive Officer of the ENOVIA brand, explains that one of the primary technologies is "digitalization from design to production...IoT, artificial intelligence, advanced robotics, and augmented reality/virtual reality for factory workers are still others. Collectively, they are influencing two things: the way companies are working internally, i.e., within their own organizations, and the way they interact within their external ecosystems and value networks, including, of course, the means of production."

According to its "Worldwide Semiannual Digital Transformation Spending Guide", International Data Corporation ([IDC](#)) estimates that "Worldwide spending on the technologies and services that enable the digital transformation (DX) of business practices, products, and organizations is forecast to be more than \$1.1 trillion in 2018, an increase of 16.8% over the \$958 billion spent in 2017. DX spending will be led by the discrete and process manufacturing industries, which will not only spend the most on DX solutions but also set the agenda for many DX priorities, programs, and use cases...This represents nearly 30% of all DX spending worldwide this year. From a technology perspective, the largest categories of spending will be applications, connectivity services, and IT services as manufacturers build out their digital platforms to compete in the digital economy."

Further supporting that the Industry Renaissance is in its infancy, Research Manager Craig Simpson of IDC's Customer Insights & Analysis Group indicates "that many organizations are still in the early stages of their DX journey, internally focused on improving existing processes and efficiency. As they move into the later stages of development, we expect to see these priorities, and spending, shift toward the use of digital information to further improve operations and to create new products and services."

OPTIMIZED PRODUCTION

Let's look at how digital technology helps our customers connect with their customers. During the June 2018 Paris Air Forum, Guillaume Faury, President of Airbus Commercial Aircraft, emphasized that "Digitalization is at the heart of our strategy, and this movement touches all levels of the enterprise: the design office and manufacturing, product and customer support services and maintenance." Philippe Petitcolin, Managing Director of Safran, agreed that "It has become an essential tool of competitiveness, a rupture that's profoundly transforming our business model."

Digitalization, and the continuity it brings, enables creating new possibilities from ideation to design, engineering, and manufacturing. It provides the capability to quickly optimize all data and demonstrate to a customer what is possible in the virtual world before making it real. On the **3DEXPERIENCE®** platform, customers can visualize a three-dimensional virtual representation of a plant in operation, allowing all those involved in product design and production to share the same view and perspective on the product. Customers can test 'what-if' scenarios virtually to provide optimal designs immediately for their customers at lower cost.



Morgan Zimmermann, Chief Executive Officer of the NETVIBES-EXALEAD brand, describes how "manufacturing has gone from siloed optimization—local optimization at the factory level—to enterprise optimization to being at the core of the convergence of engineering—manufacturing engineering, supply chain, quality, logistics, manufacturing

operations. And because manufacturing is now at the heart of these ecosystems, it can make companies infinitely elastic and agile. That is what is not only driving topline revenues for companies, but more importantly, it gives them the agility to transform towards new business models or develop new types of offers." Clearly, both customer and end-user also benefit from faster time-to-market of more personalized products.

DATA INSIGHTS

In this connected Industry Renaissance, digitalization generates more data than ever before. But thanks to new technology, companies now have the ability to capture far more insight from data, whether from a machine in a factory or a manufacturing line or an entire plant. The combination of advanced analytics and predictive capabilities, spanning project, issue and change intelligence, means that problems can be anticipated and mitigated.

"In the **3DEXPERIENCE** platform, we have positioned three engines: a data science engine, a modeling and simulation engine, and a collaboration engine" says Zimmermann. "We do not project the data on a virtual representation of a physical product; instead we map the data that we get on a model-based virtual product. That makes a very big difference. With traditional predictive and digital twin, you can only predict what will happen and mitigate the impact on your future. But when you have modeling and simulation capabilities, you can play and actually shape your future, driving continuous improvement."

For example, a large automotive manufacturing customer made the decision to digitally connect the analytics. Now, when management want to know the status of a car program, they log

onto the **3DEXPERIENCE** platform and access the real-time data from all of the underlying systems, from PLM to ERP. They can customize user-friendly dashboards to visualize, collaborate on and interpret the KPIs most relevant to their global product development program.

When analytics become digitally connected, people start to update the data in the systems rather quickly. As the platform is the only place to visualize the data and there is no way to manipulate it, the single source of truth is a reality. In addition, managers no longer need to “massage” the data to make it more presentable and/or “palatable”. Their management sees the data exactly as it “lives” in the system, so the organization is far more effective, basing decisions on accurate information.

As Philippe Bartissol, Vice President of Industrial Equipment Industry, explains, “Because the data is configured, it’s difficult to extract analytics from PLM systems. All related field and internal data can be accessed and compared on dashboards thanks to the **3DEXPERIENCE** platform, so there’s no longer any need to go into systems. You start from the dashboard, deep dive and analyze the data, make some modifications, trigger an action which triggers an action in the applications in the background, which then updates the dashboard. For years, I said dashboards are great for managers. Yes, but that’s not the point! They’re great for the day-to-day operations. It’s much more efficient for users, from operations to management, to take action based on a single source of truth directly on the platform without cumbersome Excel spreadsheets, or even email messages, that are quickly outdated.”

From resource allocation on programs to cost and logistics management, everything that exists in the systems is digital. In that context, analytics and smart analytics for manufacturing are being used in the same manner as in the digital mockup, the enabler of multidiscipline collaboration, providing every decision-maker with the ability to make informed decisions in the full context of what is occurring around the program, pricing, costs, logistics, resources, or timing.

When professionals begin to understand that the data can enhance their professional performance and that of the company, sharing that data changes their perception of the impact of a decision. Equipping everyone with smart analytics, and giving them the full context for any decision that they have to make, allows management to understand the global impact of local decisions. It’s easier for everyone to align around the enterprise’s KPI or performance target, wringing the most value out of their data.

CONCLUSION

Growing technology trends—automation, IoT, Artificial Intelligence, big data, cloud computing and more—are re-shaping how customer relationships can be further cultivated. Digital experience platforms are the infrastructure of today’s Industry Renaissance. They have revolutionized retail (like Amazon and Alibaba), transportation (like Uber) and tourism (like Airbnb) and are transforming industry as well, creating new ways for industries and technologies to interact.

Savvy manufacturers across all industries are riding the wave of these trends. Using these new technologies helps you innovate because they free up time and money, providing customers more of what they want. Connecting with, listening and collaborating keeps you closer to your customers. Which in turn boosts their satisfaction and encourages loyalty, leading to word-of-mouth referrals and increased sales.

The **3DEXPERIENCE** platform enables manufacturers and their customers to go from ideation to final delivery in one virtual environment, transforming the way they work. This integrated digital experience is driven by customer specifications to facilitate the way products are designed, produced, delivered and serviced. Ultimately helping customers bring to market personalized experiences for their customers, inventing the industry of tomorrow.

[For more information, visit ifwe.3ds.com/industrial-equipment/intelligent-connected-systems](http://ifwe.3ds.com/industrial-equipment/intelligent-connected-systems)

Sources

“Beyond Big Data: Making Fabrication Operations Smarter”, Industry Week interview of Morgan Zimmermann, November 2017.

“Creating a Customer-Responsive Manufacturing Industry”, Industry Week interview of Stephane Declee, November 2017.

Lecompte-Boinet, Guillaume, “L’IA et le big data au coeur de la transformation d’Airbus et de Safran”, La Tribune, June 29, 2018.

“Worldwide Semiannual Digital Transformation Spending Guide”, International Data Corporation, June 2018.

About Dassault Systèmes Dassault Systèmes, the **3DEXPERIENCE** Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced and supported. Dassault Systèmes’ collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 220,000 customers of all sizes, in all industries, in more than 140 countries.

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