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Ingenuity for life

Digitalization – unlocking unlimited potential for consumer products companies

Siemens Digital Industries Software



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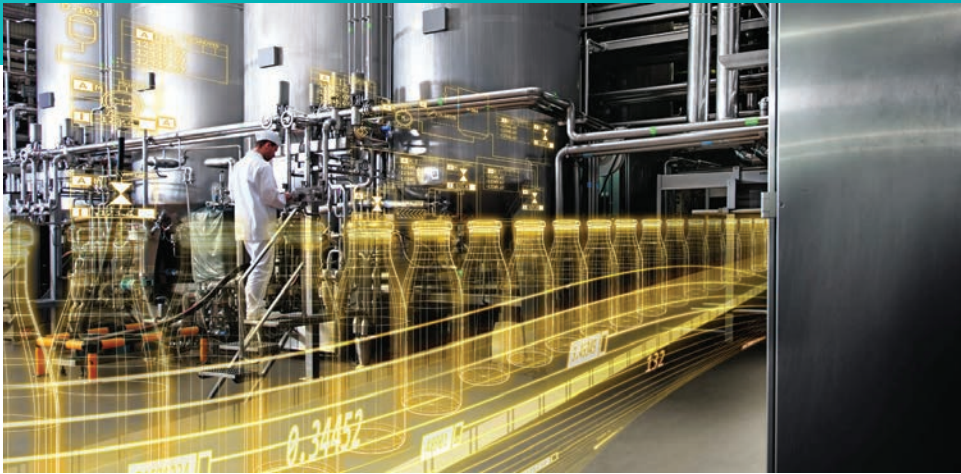
Increased challenges in the consumer products industry are creating dramatic shifts in what companies need to do to stay competitive in the marketplace. The growing demands of globalization are adding complexity to all parts of the supply chain, including ensuring a product's quality and timely delivery. Increased demands of consumers for personalization and one-day delivery are requiring companies to operate in new and innovative ways, and at warp speed. Consumer products companies must work on a global scale, while maintaining flexibility, speed, quality and innovation within their businesses. The most innovative of these companies are using the power of digitalization – i.e. the integration and information sharing among multiple digital technologies – to transform their businesses and better connect to consumers to drive innovation. Leveraging IT software technologies that have been boosting productivity for discreet manufacturers for years – such as product lifecycle management (PLM), advanced simulation and big-data analytics – these companies are beginning to reap the same benefits. Digitalization can unlock unlimited potential for consumer products companies by enabling them to deliver consumer preferred innovation, at a speed they never thought possible, with productivity and profit that deliver top and bottom line results.

External forces create challenges and opportunities

The consumer products industry is going through more change than it has seen in the last 50 years. From food to cosmetics to household cleaners, there are 30 times as many new product lines launched each year as there were in the 1960s, with the numbers rising sharply since 2000. Whether these new companies are growing to support Asia's increasing population or introducing new products to satisfy the personalized demands of consumers and retailers, there are more consumer packaged goods than ever before. As an example, Mintel adds 33,000 new products each month to its global database. Companies must manufacture billions of each new product, in hundreds of different manufacturing environments around the world, and for thousands of global customers. This level of scale and complexity is exacting a toll. Many consumer products companies are seeing the complex needs for supporting current business, drain the innovation capacity of research and development organizations, just at the time when consumer demand for innovation is increasing.

Today's consumers demand more of brands, including integrity and authenticity. The rapidly growing millennial generation looks beyond obvious features and

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benefits of a product, and is now also looking for ethically sourced ingredients, formulas that aren't tested on animals, sustainable manufacturing which doesn't involve child labor, and recycled or recyclable materials. To get a product into consumers' shopping baskets, companies must pay strict attention to everything from the recipes for their products and where materials are sourced, to working conditions and purpose driven marketing, all while introducing new consumer preferred products to the market faster than ever before.

And it's not only consumers who are paying attention to ingredients. Over the last five years, regulatory agencies have been demanding more and more product documentation. Companies must ensure they meet the ever increasing regulatory demands, such as the new Food Safety Modernization Act. Companies must be responsive enough to quickly bring new products to market to win consumers, but precise enough and with the high quality necessary to satisfy regulators.

And they must do this on a global scale. Global multi-location operations mean original product formulas and their manufacturing processes must be adapted for the materials and equipment available, in compliance with local regulations, all while maintaining the consistent product quality consumers demand. Controlling product quality is essential to maintaining brand integrity, which is more and more important to today's buyers.

Finally, the massive scale of production presents a unique challenge for consumer products companies. When you make billions of units of a product, it's the efficiency of development, manufacturing and distribution that dictates whether you make a profit on your innovation. That's a very different problem from what is seen within discreet industrial manufacturing companies, where a bill of materials may contain millions of items, but products are made in only a few facilities. Consumer Packaged Goods is truly an industry of a different scale and complexity.

Yet, just as the industrial manufacturing industry segments have turned to digitalization as a solution to many of the



complexities faced in their businesses, consumer product industries now have the opportunity to embrace these same solutions to meet changing needs within their business. The business is very different, but many of the tools and process changes that have reaped rewards for more mature users of PLM systems are very relevant to solve the challenges consumer products companies face today.

Hidden data limits productivity and innovation

External market forces aren't the only challenges facing many consumer products companies. Today, few consumer products companies have a common data structure or a shared information platform for information used in the different phases of design and manufacturing. This means that there's no single source of truth even for a single product. Often the most valuable information and insights are difficult to share within a project or transfer to other projects, limiting re-use of critical information and causing non-value added replication of work already done. Single data items can be re-entered more than 10 times across different systems in the value chain, creating dozens of opportunities to make a mistake, not to mention the wasted productivity.

A compelling example: individual ingredients are often used in multiple different products; changing just one ingredient used in 20 products manufactured across the globe, can easily mean updating 2,000



different specifications and more than 100,000 data items. Far too much non-value added work at a time when 'speed to market' is essential for survival.

From digital to digitalization – unlock your data and unleash your productivity

The good news is that all the data you need to supercharge productivity, enhance customer value and unleash innovation is probably already available inside your company, and already digital. What's needed is a common software platform that turns all that data into useful information that is not only secure, but also easy to find, understand, act on and re-use. And that is the essence of digitalization. Discreet manufacturers have been using Siemens solutions for years to establish a digital enterprise backbone that serves as the single source of truth for all product information. And now more and more consumer product companies are starting to do the same thing.

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An advanced PLM system creates a broad, transparent view across all the stages of a product lifecycle, making business planning much easier. It can help consumer products companies make smart decisions and respond to change more quickly. Having transparency of data allows for both descriptive and prescriptive analytics, bringing insight to issues, and helping determine what the impact of a decision can be and how to optimize the solution. Over time, PLM systems that are initially adopted for efficiency can generate new levels of insight, helping turn existing assets, processes and products into an effective innovation portfolio driving growth.

Digitalization can create the 'agility with precision' needed to win market share in this dynamic and demanding environment. Consumer products companies can digitalize their entire product line and processes into a single collaborative environment. Instead of relying upon data silos or on employee's hard drives, companies can now connect their systems together via a single platform. This 'digital thread' can run from the consumer trend that sparks an idea, through recipe formulation, batch and filling instructions, lab tests and results, supplier networking, quality control inspections and even the labelling, packaging and artwork design used to launch the product. Modern PLM

software solutions allow companies to optimize their innovation process, entering information once and enabling it to automatically flow throughout the entire company, the supply chain, and distribution facilities.

Using a digital thread of information enables companies to track projects from research and development to production, optimize the process and design of products and improve the re-use of knowledge and assets far more efficiently. Take the overall packaging process as an example; if a department wants to utilize the same artwork in multiple markets, the marketing team in each country can leverage the original artwork design file and the data from the formulation and product definition. Instead of needing to design and approve new artwork, they can access the original art file and begin adapting it to the needs of their specific market. More than 75 percent of transactional work can be eliminated by re-using data, automating tasks and maintaining the relationships of the data across the portfolio of relevant products.

More advanced consumer products companies are moving on to building digital models in their PLM system which encapsulate the global knowledge of the company for each and every product. These 'digital twins' represent everything about each product and its lifecycle such as the definition,

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composition and design, as well as information on market requirements, manufacturability, performance, suppliers, retailers, sustainability and more. When companies combine these digital twin models with advanced simulation capabilities they have the ability to virtually model and simulate what used to require physical models. This means more analysis can be performed in a shorter period, helping companies to learn more quickly. These digital models can help reduce the cost of commissioning manufacturing facilities for new products by bringing together all the information to qualify them effectively. A plant manager or technician is able to predict crucial maintenance needs and plan for them when they least disrupt production, maximizing line utilization and profitability. More broadly, they give companies more control over their product portfolios and the way they are introduced and retired from the market.

Today's most sophisticated companies are adopting advanced analytics and automated data collection to present real-time dashboards to assist in responsiveness, agility and the ability to execute with precision. The ability to automate insight from product and production data to create actionable plans closes the loop between design, production and actual product performance. As companies mature in their use of big-data analytics, processes and insights gleaned will mature as well. Insights move from being descriptive, to diagnostic, to predictive, to prescriptive. Predictive analytics based on big data collected externally, from the market and social media, as well as internally, covering product performance from different teams and divisions, help identify which projects should be fast-tracked, which ones require

more resources or testing, and when it is time to involve the senior management team to avoid missing the window of opportunity.

Prescriptive analytics are all about taking action. Companies are driving both top-line revenue growth and operational cost savings with analytics. Consumer products companies have leveraged analytics in the market measurement space for years. The difference now is the ability to search and analyze contextualized big-data from multiple data sources, in seconds – from a cloud based, software-as-a-service solution.

If all this sounds a world away from the ad hoc systems and processes most businesses use now, remember that there's no need to change everything all at once. Digitalization through the use of a PLM system to deliver an integrated, single source of truth isn't reserved for large companies; it is something every business needs to consider and put in place. If you're already using PLM, it's crucial to connect the many different functions within the organization, from the executive suite to the planning and marketing teams, to manufacturing and the supply chain. Digitalization, supported by a digital thread, digital twins, simulation and analytics can reinvigorate companies whose growth has been lagging. A seamless digital thread benefits every department, leading every part of the organization to the key information they need to bring the right products to the right market at the right time. Digitalization is not about technology, it is a strategy to grow your business. It can free up capacity to allow innovators to innovate again – leading to the next breakthrough product that the world is waiting for.

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