

CONSUMER PACKAGED GOODS & RETAIL

# BEYOND SKIN-DEEP: THE DIGITAL EDGE FOR BEAUTY AND PERSONAL CARE COMPANIES



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# MEET OUR EXPERTS



## DR. LALITHA SUBRAMANIAN

BIOVIA Science Fellow and Global Head of Outcome-Based Research, Dassault Systèmes

Dr. Lalitha leads strategic research collaborations with different industries to solve scientific challenges using 3D modeling, simulation, machine learning (ML) and artificial intelligence (AI). For over 25 years, she has successfully delivered energy savings, enabled sustainable solutions, remediated product and process failures and driven product innovation for her customers. Such collaborations have resulted in awards. She has a Ph.D. in Chemistry from IIT (Chennai, India) and a post-doctorate from Cornell University with Prof. Roald Hoffmann (Nobel Laureate).



## WALID DARGHOUTH

Solution Experience Director, CPG & Retail Industry, Dassault Systèmes

Walid has more than 20 years of consulting experience in the consumer goods industry, with expertise in customer engagement for transformation and deploying innovation projects through product development. For the last five years, he has led the consumer packaged goods and retail industry team, specializing in formulated goods solutions to address specific industry challenges for product and formula development, in silico formula optimization, lab digitalization and manufacturing.



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# DIGITAL TRANSFORMATION MAKEOVER: THE NEED FOR SPEED AND EFFICIENCY

To keep pace with a growing market size projected to reach [USD716.6 billion](#) by 2025, beauty and personal care companies must implement an end-to-end digital transformation strategy to improve efficiency and capitalize on shifting market trends.

Demand is growing for products that merge beauty and health benefits. In response, companies now focus on holistic products

that incorporate green and clean ingredients and address specific health issues.

The industry must also meet personalization trends, clean beauty objectives, conscious beauty consumerism and preference for responsible sourcing and sustainable supply chains.



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To gain a competitive advantage, companies must prioritize an enterprise-wide digital solution that enables them to overcome the following challenges:

- Connect disparate data sources
- Improve agility to meet product personalization demands
- Build expertise in artificial intelligence and machine learning
- Implement best practices across the organization from plant to plant
- Manage supply disruptions and shifting distribution channels efficiently

Dassault Systèmes is committed to helping beauty and personal care companies innovate faster, smarter and more sustainably through the **3DEXPERIENCE®** platform.

In this ebook, learn how the **3DEXPERIENCE** platform helps companies execute a data-driven, digital approach to:



**Innovate better with advanced science**



**Achieve sustainable designs and processes**



**Integrate quality and regulatory management**



**Boost operational efficiency**



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**INNOVATE BETTER WITH  
ADVANCED SCIENCE**



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# ADOPT DIGITAL CAPABILITIES FOR DATA-DRIVEN DECISIONS

Gaining access to the correct information at the right time is integral to making informed business decisions. To turn data into actionable insights, companies must shift to a platform that automates data analysis from different sources in one digital environment.

Here's where the **3DEXPERIENCE** platform delivers value. It can help companies tap into real-time intelligence and harness data-driven insights to execute strategic decision-making.

“Can the **3DEXPERIENCE** platform handle all of your data? The answer is yes. It is designed to handle all forms of data – and handle them well. This includes structured and unstructured data, static and dynamic image data, proteomics data and even polymeric structural data.”

– **Dr. Lalitha Subramanian**  
BIOVIA Science Fellow and Global Head of  
Outcome-Based Research, Dassault Systèmes



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Global clients are leveraging Dassault Systèmes' digital solutions to great effect.

For example, an industry leader, L'Oréal, uses a Dassault Systèmes solution to integrate over 30 plants worldwide, improving the visibility of global operations and facilitating data-driven decision-making.

With the platform, the company can forecast its production requirements accurately, streamline expanded operations, better utilize existing production capacities and optimize its entire operations from start to finish.

## ACHIEVE LAB EFFICIENCY

The right digital solutions help companies better manage lab procedures, task planning and resource scheduling. Imagine accelerating the scientific discoveries in biology to achieve more with the same or even fewer resources at the lab.

A leading beauty and personal care company uses Dassault Systèmes' Perfect Lab solution on the **3DEXPERIENCE** platform to improve productivity and rapidly bring products to market faster.

With data management support, the company can minimize compliance and safety issues and focus on scientific innovation at the molecular level. Through the platform, they can:

- Collaborate and improve decision-making
- Automate the scientific analysis of data from different research areas
- Rapidly explore, visualize and report research results in one digital environment



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“Perfect Lab functions as the hub to assemble real data from the lab and simulation data. Once you have that single repository, you can continue with data slicing, dicing and mining to build your machine learning models.”

– Dr. Lalitha Subramanian  
BIOVIA Science Fellow and Global Head of  
Outcome-Based Research, Dassault Systèmes



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## INNOVATE THROUGH A MODEL-FIRST APPROACH

Adapting to changing trends calls for faster and better innovation for new formulations, products, and packaging based on naturally derived and bio-friendly building blocks.

The **3DEXPERIENCE** platform offers deep science modeling and simulation capabilities that can deliver these competitive advantages:

- Accelerate the search for bio-friendly and naturally derived ingredients
- Optimize multiple critical properties through generative materials and formulation design
- Focus experiments towards the most successful ingredients, formulations and process conditions
- Create innovative products and packaging that enhance consumer experience and fulfill sustainability goals

“Multidisciplinary expertise is essential to enhance consumer experience and meet sustainability goals. Through the **3DEXPERIENCE** platform, companies without internal expertise can connect with Dassault Systèmes' Outcome-Based Contract Research experts in skin biology, reaction chemistry, process modeling, fluid dynamics, formulation science, data science and many more capabilities as needed.”

– **Dr. Lalitha Subramanian**  
BIOVIA Science Fellow and Global Head of  
Outcome-Based Research, Dassault Systèmes



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# CONNECT BEAUTY WITH TECHNOLOGY

The **3DEXPERIENCE** platform ties product information, decisions and history together to provide an integrated view of a product's complete lifecycle.

The platform can also be used to analyze consumer trends and convert them into information for research and development.

By combining simulation technology (based on 3D biology, chemistry and physics) and formulation design capabilities that leverage AI and ML, the **3DEXPERIENCE** platform provides companies with democratized tools that predict different

properties such as skin irritation, penetration, discoloration and moisture retention. They can also predict product shelf life and transport and mechanical properties.

**"The 3DEXPERIENCE platform offers a unique AI and ML experience as it marries deep-science and engineering capabilities with cutting-edge data science methods on a single software platform. With Dassault Systèmes' extensive experience of working with industry leaders worldwide, the 3DEXPERIENCE platform is continually enhanced to improve usage experience,"** said Dr. Lalitha.



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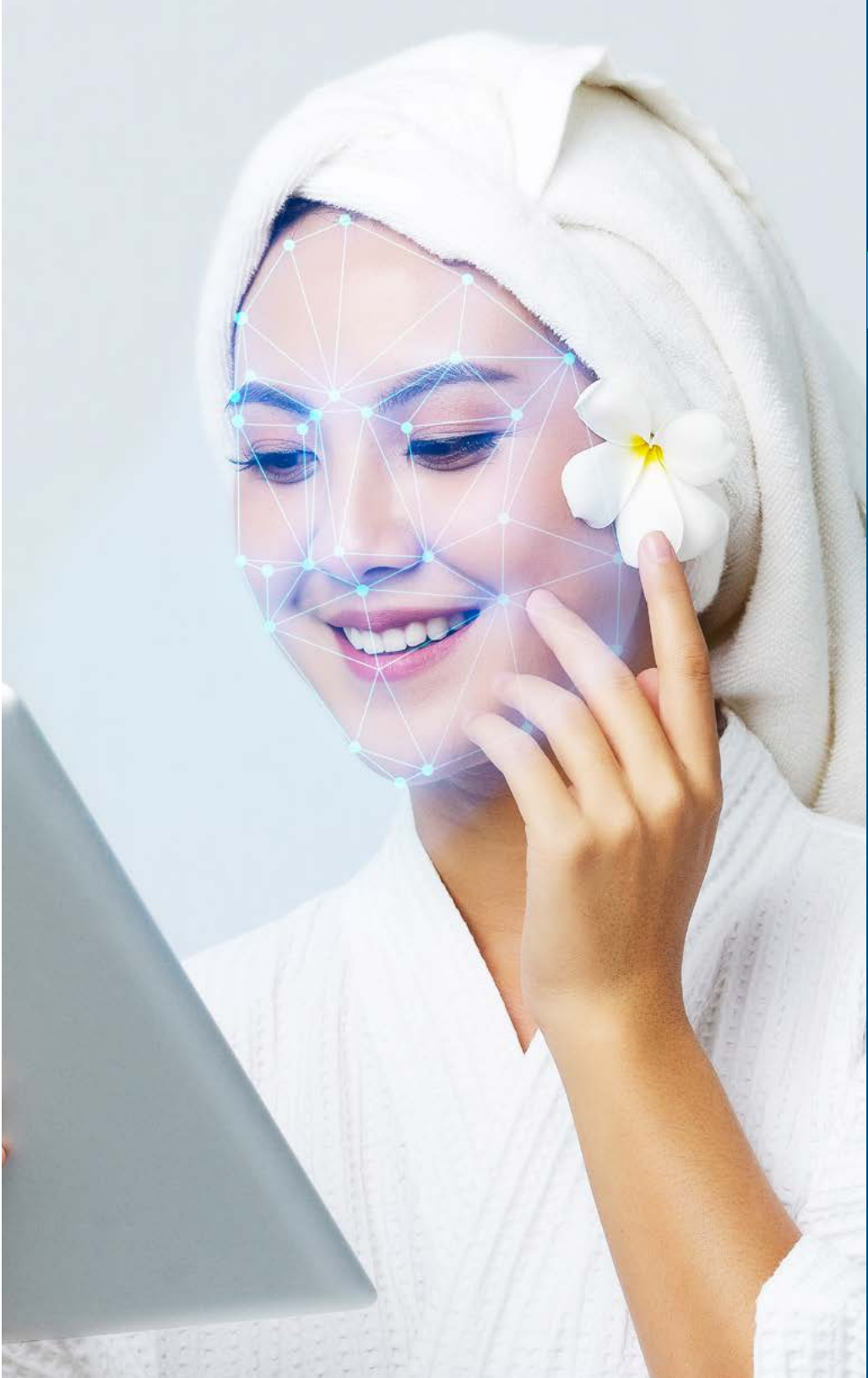
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She added, "The platform also incorporates various algorithms to build highly predictive machine learning models. You can pull data from patents, research publications and consumer feedback on social media. By combining this with formulation and 3D simulation data as well as experimentally measured properties, you can create powerful and unique models. The 3DEXPERIENCE platform may be the single source of truth that you will ever need."

“A connected beauty system is one way to merge beauty products, health and technology. Imagine developing an app where a skin photo can be submitted to an AI model that will suggest the best moisturizing skincare product, not only based on the specific skin condition but also the humidity and temperature at that location.”

– Dr. Lalitha Subramanian  
BIOVIA Science Fellow and Global Head of  
Outcome-Based Research, Dassault Systèmes



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# DEVELOP GREEN INGREDIENTS AND FORMULATIONS

Today's sustainability-minded consumers prefer products containing more eco-friendly ingredients and formulations.

Companies can respond effectively by digitalizing the reformulation process in product development. This enables them to utilize lab informatics to swiftly identify new green ingredients and materials for formulation testing.

A leading beauty and personal care company uses Dassault Systèmes' digital reformulation solution to manage formulations across the product lifecycle and benefit from real-time access to all existing formulations.

The digital reformulation solution enables the company to:

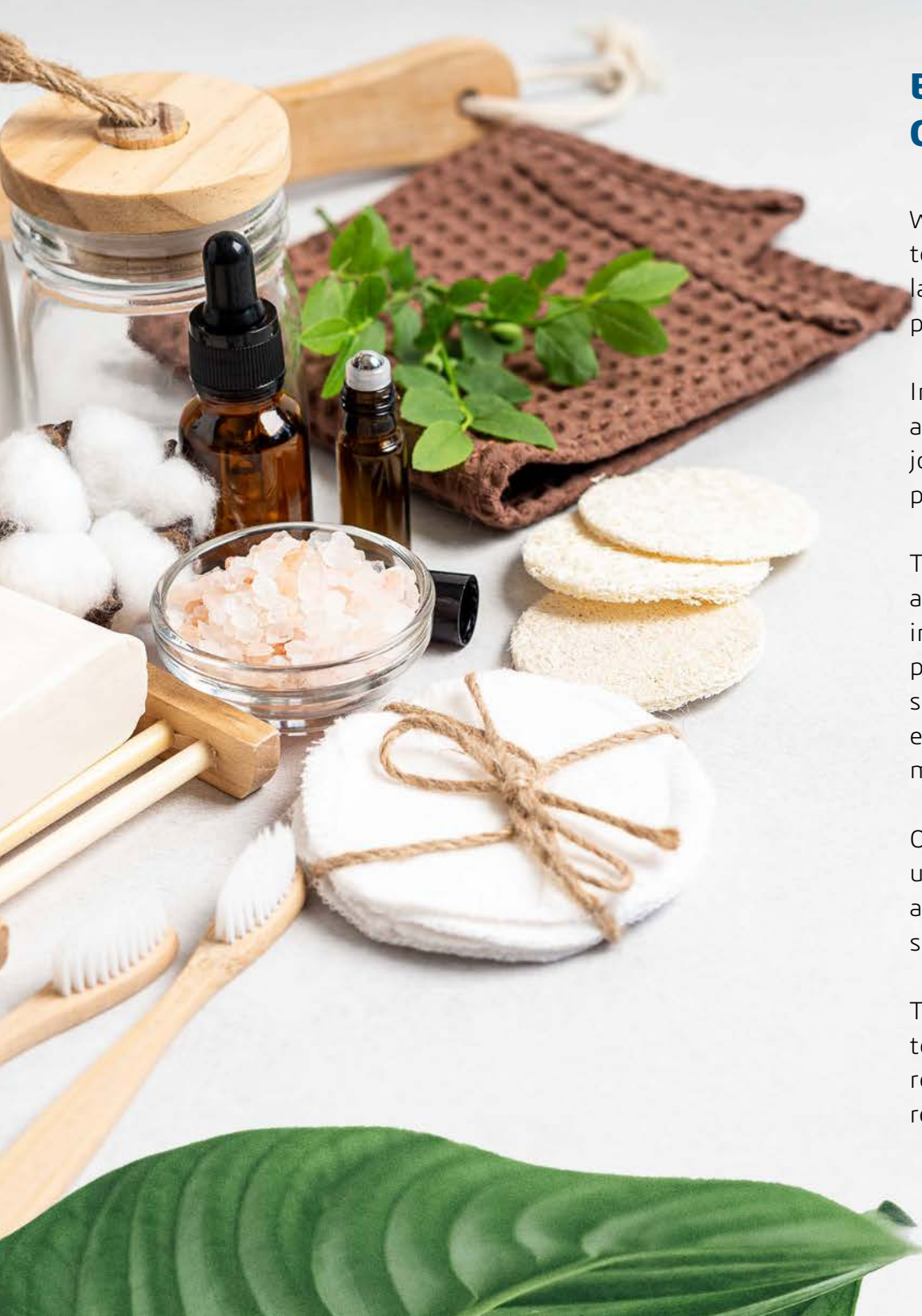
- Quickly develop and test products against specifications
- Utilize molecular modeling and simulation to optimize stability testing
- Help formulators identify product characteristics
- Pinpoint the impact of specific ingredients to design more sustainable formulas

The company continuously transforms lab processes, improves productivity and brings new green ingredient formulations to market faster.



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# ENSURE TRANSPARENT SUPPLY CHAINS OF CLEAN BEAUTY PRODUCTS

While there's no legal or official definition of 'clean beauty,' today's consumers expect products and websites to include labels with accurate insights on ingredients, supply origins and packaging materials.

In response, companies must improve ingredient sourcing and supply chain transparency by mapping the entire product journey and streamlining the information on an integrated platform that provides end-to-end visibility.

The **3DEXPERIENCE** platform enables companies to collaborate and standardize multiple product specifications such as new ingredients and formulations, raw materials, consumer units, packaging methods and production practices. By ensuring a single source of truth across the value chain, companies are empowered to bring high quality products to market faster and more profitably.

One of the world's largest beauty and personal care companies uses Dassault Systèmes' digital solutions to increase transparency and support its circular economy-based strategy to deliver safe, sustainable and high-quality consumer products.

The company has set a future target to leverage simulation technology to validate its product formulas. This will support regulatory compliance, boost clean product innovation and reduce carbon footprint.



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## IMPROVE TRACEABILITY

Simply put, without ingredient traceability, there is no sustainability. Traceability is growing increasingly critical in the beauty and personal care industry and companies need to meet the demands of both industry regulators and health-conscious consumers.

Adopting Dassault Systèmes' digital **3DEXPERIENCE** platform can help companies improve traceability by streamlining processes to enable company-wide cooperation.

The platform creates a reliable foundation for a digital transformation by supporting data capture and consolidating detailed product, genealogy and event data from multiple plans and systems into one global repository.

Full traceability is a major goal for L'Oréal, a market leader with high quality standards. With increased visibility on the **3DEXPERIENCE** platform, L'Oréal gains a complete view of its production operations.

The company's full global traceability program is now in effect across the entire organization. This enables quick tracing of operational issues and continuous process improvement for long-term quality management.

A plant director at one of L'Oréal's European manufacturing plants said, **"We can manage and monitor all the operational activities to optimize product quality and traceability, 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."**



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# INTEGRATE QUALITY AND REGULATORY MANAGEMENT



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# ESTABLISH A CLOSED-LOOP QUALITY MANAGEMENT SYSTEM

Consumer demand for safer and higher-quality products is rising. Without effective quality management, isolated events can quickly escalate into massive product recalls or huge profit losses.

Working with disconnected systems that are document-and process-centric means there is no complete audit trail and quality issues cannot be rectified automatically.

To implement a comprehensive enterprise-wide quality management strategy, stakeholders need to collaborate on a digital platform that manages the quality process and product record in one closed-loop system from start to finish.

With Dassault Systèmes' quality management capability, companies can easily identify and record non-conformance for processes and products that fail to meet quality benchmarks.

Laboratoires M&L, the manufacturing division of L'Occitane Group, uses the **3DEXPERIENCE** platform to manage on-site production, quality, product data and material movement in the same closed-loop system to gain end-to-end product traceability and quality assurance.



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Richard Vinardi, Laboratoires M&L's Industrial Director, shared, **"We control the entire raw material process from reception to selecting and analyzing samples to weighing and labeling each raw material. A quality control engineer who detects a problem with raw material will now block it from being used in all products, thereby reducing waste due to rejected batches."**

With complete visibility on the real-time output of KPIs and reports of actual on-site activities, the company can also better manage quality processes and audit activities.

**"In the past, we had to stop production when we had an audit. This is no longer required,"** Vinardi said.

In all, the **3DEXPERIENCE** platform connects operations in a single place so that companies can experience the following benefits:

- Manage quality more efficiently to accelerate product innovation
- React quickly to quality events with corrective action
- Respond swiftly and thoroughly to compliance audits
- Lower the cost of managing quality with a streamlined approach



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# MAINTAIN HIGH STANDARDS ACROSS PLANTS

By digitalizing their operations, companies can streamline processes across different plants to ensure quality assurance.

Through Dassault Systèmes' digital solutions, Laboratoires M&L is empowered to capture best practices, share knowledge and implement them from plant to plant across 20 production lines for consistent product quality.

“ L'Occitane commercializes six international brands and our products are identical regardless of where they are sold. We control the entire value chain.”

– Richard Vinardi  
Industrial Director of Laboratoires M&L,  
L'Occitane Group

Richard added, **“Our industrial performance improved by more than two digits per year for the first three years since implementing the solution. We have slashed the rate of non-quality and waste by 50%.”**

Using the **3DEXPERIENCE** platform, Laboratoires M&L benefits from gaining the foresight and flexibility to optimize its quality management system across plants to anticipate global production issues that can adversely affect product quality.



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## ADHERE TO REGULATIONS MORE EASILY

Competing in globally regulated markets that are constantly changing, companies need to efficiently manage the risk and cost impact of compliance for speed to market.

The 2021 introduction of the European Substances of Concern In Products (SCIP) database contains a new set of reporting requirements and data elements, particularly product packaging, that companies must submit to continue selling products in European markets.

With many legacy product lifecycle management (PLM) solutions lacking regulatory and compliance management capabilities, it has become more critical than ever for companies to digitalize PLM. This enables them to:

- Detect and resolve potential compliance issues early in the product development process
- Manage compliance across the entire value chain
- Gain visibility of ingredient and material selections

By implementing digital PLM on the **3DEXPERIENCE** platform, companies are equipped with a holistic global regulatory framework that continuously evaluates product formulas for material compliance. Formulators will receive alerts in real time about any potential regulatory violations before the formula is made, which means only compliant formulas will be used for lab testing and manufacturability.



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# INTEGRATE FUNCTIONS AND FOSTER COLLABORATION

An effective digital transformation strategy can't be carried out through standalone initiatives. Instead, all stakeholders need to come together in a connected environment from start to finish.

**"Within an organization, every function is dependent on several others. And all of them are critical to operational efficiency,"** said Dr. Lalitha.

She added, **"The 3DEXPERIENCE platform brings together the entire organization to increase collaboration, accelerate innovation and improve execution. That's why it's such a powerful platform."**

The world's largest beauty franchise, Boticário Group, relies on the **3DEXPERIENCE** platform to improve its manufacturing operations management and accelerate processes at its two production plants in Brazil.

Utilizing digital solutions on the platform has helped Boticário Group create long-term value throughout its operations.

With a single, integrated software environment for design and simulation, stakeholders can access consolidated data and validate decisions together before executing them. This helps accelerate product development and strengthen market advantage.



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“The first step in our growth strategy is to integrate manufacturing processes and improve operations with real-time monitoring and traceability. We saw Dassault Systèmes' success with other companies in our industry and the broader value that the **3DEXPERIENCE** platform could bring to our business as our strategy matures, and made the right choice.”

– **Leandro Balena**  
Industrial Director, Boticário Group



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# ADOPT AN AGILE MANUFACTURING STRATEGY

Global disruptions have accelerated the need for an agile manufacturing strategy with KPI-based planning and optimal machine maintenance.

Companies can boost agility with predictive maintenance (PdM), but a successful implementation is challenging when silos exist.

This is where the cloud-based **3DEXPERIENCE** platform stands out. Analyzed data can be fed to a PdM system anywhere and anytime. Companies can use algorithms to predict potential problems and monitor machine performance.

With a digital approach to asset maintenance, companies can:

- Gain better visibility to predict when an asset needs maintenance
- Analyze what-if scenarios to anticipate issues and bottlenecks
- Reduce downtime and maintenance cost
- Ensure on-time delivery with integrated, streamlined and automated workflows



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# STAY AHEAD WITH A DIGITAL TRANSFORMATION

The time for a digital transformation is now.

With the beauty and personal care industry moving at full speed, companies must keep up and optimize the way they work.

Start your journey with Dassault Systèmes. Let the **3DEXPERIENCE** platform support your digital transformation with its advanced, end-to-end capabilities.

With a proven track record of successful partnerships with global beauty and personal care clients, Dassault Systèmes is uniquely positioned to help you implement a data-driven strategy and increase your competitive advantage.

With the platform, you can experience enterprise-wide digitalization to:

- Adopt front-end innovation
- Optimize design and manufacturing without physical prototypes
- Streamline operations for quicker time to market
- Deliver safe, effective products with a low environmental footprint

Are you ready to step toward a bright future in the beauty and personal care industry? Find out more [here](#).



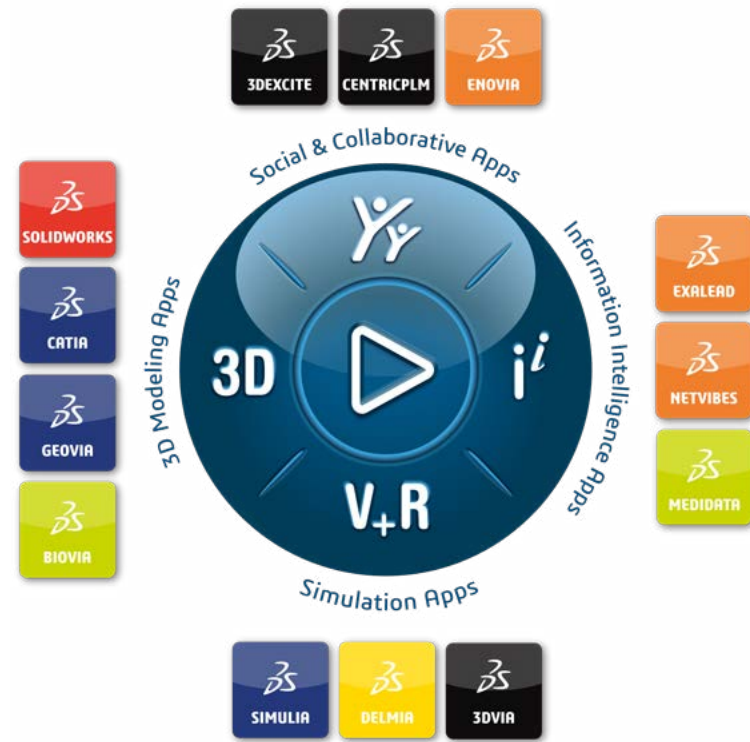
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Our **3DEXPERIENCE®** platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3DEXPERIENCE** Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating ‘virtual experience twins’ of the real world with our **3DEXPERIENCE** platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes’ 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit [www.3ds.com](http://www.3ds.com).



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