

# CPG COMPANY DEMOCRATIZES VIRTUAL PRODUCT DEVELOPMENT with 3DEXPERIENCE BIOVIA

Use Case



### Challenge:

Lack of connectivity, multiple versions of information, reinventing the wheel, too much paperwork, lengthy compliance processes, IP protection.

### Solution:

BIOVIA ONE Lab and the **3DEXPERIENCE®** platform.

### Results:

- User-friendly environment for virtual product development
- Improved data/model-driven innovation
- Democratized product and packaging simulations
- Model-first strategy
- Structured data capture
- Rapidly growing knowledgebase
- Consumer opinion prediction
- Recipe performance prediction

### CUSTOMER: ONE OF THE WORLD'S LARGEST CONSUMER PACKAGED GOODS COMPANIES

This Dassault Systèmes customer is a large, multinational Consumer Packaged Goods (CPG) company specializing in beauty/personal care, food/beverage and household products. Worldwide consumer goods is a tremendously fast moving and complex sector extending across different countries with different languages, regulations and taste preferences.

### CHALLENGE: EFFECTIVELY MANAGE INNOVATION, GROWTH AND OPERATIONAL EXCELLENCE

This customer's vision was to accelerate business growth while also reducing their environmental footprint and having a positive social impact. These goals created a major innovation challenge for the organization, especially as they were operating in a fast moving and complex CPG sector. The "need for speed" in CPG product development to meet continuously and rapidly evolving market needs and consumer behaviours required an integrated, end-to-end approach across geographies and categories with increased reliance on predictive, in silico modelling. Additional challenges included poor R&D connectivity, multiple versions of information, excessive non-standardized paperwork, lengthy compliance cycles, lost intellectual property and project decelerations. The constant need to "reinvent the wheel" while addressing rapid product lifecycles was also a recurring challenge. These multiple, interlinked challenges turned digitalization and innovation into business-critical initiatives. Most importantly, they needed to manage their ongoing digitalization and innovation projects against strict sustainability and productivity targets.

### SOLUTION: BIOVIA ONE LAB AND THE 3DEXPERIENCE PLATFORM

This company's R&D organization has replaced their paper notebooks with a BIOVIA ELN, a flexible, easy-to-use, low-cost-of-ownership Electronic Laboratory Notebook (ELN) which is part of BIOVIA ONE Lab. The BIOVIA ELN is used to capture unstructured experimental data. In cases where experiments are highly structured with data required to build predictive models, they leverage BIOVIA's ONE Lab solution, which captures the structure and context of experimental data, supporting Machine Learning & Artificial Intelligence techniques. ONE Lab allows their scientists to document all experiments, while also capturing structured data to drive a Model-First strategy. ONE Lab serves as a single source of truth that is easy to search, use, re-purpose and share to drive virtual product innovation.

Dassault Systèmes' AI-enabled **3DEXPERIENCE** platform is a system of operations that allows all of this customer's employees who are involved in innovation projects—from the research lab to the factory—to interact and work together. The platform is also a business model that transforms relationships and roles across the customer's business network by removing intermediaries between sellers and buyers, purchasers and subcontractors, service providers and end-customers. The platform makes it possible for this customer's R&D teams to think about the end-customer experience at all stages of product or service creation, allowing them to test ideas and products before actually producing them. Their R&D teams are now inventing new usages and the products supporting them with the help of a single data-driven and model-based platform, putting the company well on the road to more sustainable innovation.

"We're on a journey to democratize virtual simulation, and Dassault Systèmes is our partner in this. We leverage BIOVIA ONE Lab for capturing structure data and the 3DEXPERIENCE platform for product and packaging simulations."

— Virtual Product Simulation Lead  
Multinational CPG Company

## RESULTS: MODEL-FIRST STRATEGY, NEW INNOVATION POTENTIAL, FASTER TIME TO MARKET

Building on this strong technology foundation, the company has invested in adding content and exploring the many capabilities of the **3DEXPERIENCE** platform including the following capabilities:

**Unstructured Data Capture:** Now with over 2,000 users, the BIOVIA ELN has enjoyed unprecedented adoption across the company's global R&D organization. Their regulatory and product approval processes all connect to the ELN, providing clear traceability supporting enhanced quality and compliance.

**Structured Data Capture (SDC):** Improved knowledge and model management, along with the ability to leverage historical data, means less experimentation. With their unified digital lab fostering greater speed and accuracy, project teams are capturing data in a structured way—accurately, reliably and with appropriate metadata, creating a scientific knowledgebase for data scientists and model builders alike.

**Virtual Product Simulation:** The customer has collaborated with BIOVIA on a program encompassing Structured Data Capture and Virtual Product Simulation. The program provides a set of multi-scale predictive models that lets designers and developers use a "model-first" approach to predict product performance throughout the product lifecycle. The company leverages technologies from BIOVIA and other Dassault Systèmes brands including SIMULIA and ENOVIA to build **3DEXPERIENCE** twins of products encompassing design, development, production, selling, consumer desirability and use. BIOVIA and SIMULIA provide the parametric modeling environment. ENOVIA provides the underpinning database for the Simulation Suite along with the project management framework used to organize work within the suite. The **3DEXPERIENCE** platform drives role-based collaboration across the company.

**Finite Element Analysis:** Native applications on the **3DEXPERIENCE** platform such as Finite Element Analysis (FEA) allow company packaging engineers to reduce plastic mass in containers while maintaining bottle strength.

**Simulation Suite:** Developed on the **3DEXPERIENCE** platform, this customer's Simulation Suite provides a common user interface for all simulation tools used across the organization. For example, one tool helps to reduce the amount of sugar in an ice cream recipe without reducing its sweetness. Another tool helps to predict the shelf life of ice cream cones. Yet another one makes it possible to calculate what weight of nuts an ice cream cone can pick up and how quickly depending on the temperature of the melted chocolate.

**Consumer Opinion Prediction:** BIOVIA has helped to "democratize" virtual product development at the company by putting a suite of existing, easy-to-use in-house models for predicting consumer opinions into the Simulation Suite. Using data from physical panel tests, researchers can now predict customer opinions, even in specific geographies, thereby accelerating opinion assessment. In addition, SDC data continuously feeds into the people who build new models. These tools significantly reduce the cost of consumer opinion prediction, while also providing the opportunity to ask many more questions of the system than would be possible with physical methods.

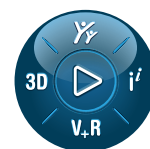
**Recipe Performance Prediction:** BIOVIA has also populated the Simulation Suite with the company's predictive models for recipes. Using these tools, scientists can optimize recipes and predict a wide range of attributes without resorting to onerous and time-consuming physical testing in the lab. Instead, automatic optimizers set up the targets and constraints, and the computer does the rest, running thousands, or tens of thousands, of recipe iterations—predicting them all and selecting the best.

**Summary:** In this customer's continuing journey to democratize virtual product and packaging simulations, the company is collaborating with BIOVIA and Dassault Systèmes to advance a multifaceted, holistic **3DEXPERIENCE** strategy that combines intuitive digital tools, trusted data and digitally skilled/empowered people working together on a common platform to model first, improve innovation potential and speed products to market.

## 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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