

INTEGRATED LIFECYCLE MANAGEMENT

# Launch Complex Home & Personal Care Faster

Develop products faster and more sustainably with  
Integrated Lifecycle Management

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# Introduction

What are the trends driving innovation in Home & Personal Care? It's more than the latest fashions and looks. Consumers are curious about how products are made – from where they are sourced to how they reach store shelves – and even whether the packaging or excess products will harm the environment. It's driving a trend toward sustainability and traceability across the entire lifecycle and giving companies the opportunity to adopt the technology to integrate the entire lifecycle.

This trend also includes greater scrutiny toward logistics and how companies can deliver and maintain quality products regardless of where in the world they're manufactured, even if it involves the use of different materials, equipment and plants.

## The challenge of scale

Imagine developing a product or formula and then scaling up from the research and development lab to 100s of manufacturing points around the world. But then you discover – after months of the scale-up process – that you can't manufacture the product or fill the package at the plant you want. Not only is there considerable raw material waste and increased costs, but how will this impact your time-to-market?

Minimizing or eliminating product design and production process challenges comes down to finding a solution that takes a holistic view of the lifecycle. An end-to-end data management approach – one that connects ecosystems and integrates product development with the production process and logistics – is key to maximizing efficiency, sustainability and ROI.





## Accelerating your digital journey

Today's Consumer Packaged Goods companies face a very complex environment and an ever-changing market in which to operate. Demanding customers ask for more connected products that can be personalized and traced from their source to their home; and are willing to use their powerful voices to fuel a brand, or damage it.

The Home & Personal Care industry is shifting, and consumers want to be celebrated not patronized with artificial beauty. They want authenticity, not false promises. In response, both big brands and niche companies are delivering more variants of their products to market.

With the shift in consumer sentiment, how can you deliver on sustainability promises, ensure traceability from the source to store, and use advanced integrated lifecycle management technology to merge product and process, transparency, and the alignment of fragmented segments of the business?

# Integrated Lifecycle Management

Integrated Lifecycle Management (ILM) takes a digital approach to flexible program execution. It helps accelerate the product lifecycle from design through production while ensuring consistent quality regardless of the manufacturing location. This is accomplished through asset re-use and concurrent design, which enhances collaboration capabilities and allows engineering teams to operate at the same time on a single platform – there is no need to save and share.

## Main capabilities of ILM

- **Integration of brand, program, and product**  
The combination of project management with product lifecycle management fosters collaboration across the entire ecosystem while maintaining brand equity.
- **Re-use innovation assets**  
By eliminating redundant activities, you can speed up innovation across new and existing product development and upgrades.
- **Efficient, flexible, and sustainable execution**  
Taking an adaptative planning approach instead of a top-down approach enables a more efficient and flexible program execution giving you the ability to launch products within weeks, instead of months, and adapt to changing trends.

Siemens' ILM solution offers flexible initiative management capabilities that integrates portfolio, program, project and lifecycle management. It's a unique solution that brings organizations and processes together with the ability to adapt to the various levels of a project's complexity.

50%



Increase in product variant capacity

40%



Reduction in need for asset creation due to asset re-use

3x



Faster project initialization



# Sustainability solutions for the Home & Personal Care industry

Sustainability is not just part of the final product. It's now defined by how the product will be recycled and prepared for a second life and how companies operate within their factories, supply chains and logistics.

## Consider this:

- Over **130 countries**, including **12 U.S. states** and over **500 cities** have complete or partial bans on single-use plastic.<sup>1</sup>
- **Sustainability** now drives innovation in every part of the value chain.
- **Consumers** are not only looking for zero impact, but for companies to have a positive impact on the environment.

After conducting more than 30 interviews, we discovered that most companies in any number of industries face several of the same issues holding them back from increasing their sustainability initiatives:

- **Lack of tools** to help to optimize the CO<sub>2</sub> during design process
- **Difficult to simulate/optimize** due to lack of continuous feedback loop
- **No reliable data** across their value chain or proper guidelines to follow

However, through automation, digitalization and the intelligent use of data, as well as the Industrial Internet of Things (IIoT), Home & Personal Care companies can:

- Manufacture products which are more sustainable
- Make production smarter and thus more resource-efficient
- Ensure greater transparency of a product's CO<sub>2</sub> footprint across the supply chain

When **80%** of a product's environmental impact is determined at the design phase, digitalization across the product lifecycle is key.

## Traceability

Key to sustainable practices and building consumer trust is the ability of Home & Personal Care companies to track the product throughout its lifecycle – from where and how ingredients are sourced, to how the finished product arrives at their customer's door, to responsible disposal. It requires visibility (having real-time insight into their operations) and transparency (disclosing provenance of components and production practices to customers and stakeholders).

Visibility makes real-time pivots on production easier, more efficient and reliable. It means confidence that you can change to different equipment at a different plant and know the product will maintain its quality.



# Reimagine your operations

With Integrated Lifecycle Management, you can take a whole view of the lifecycle and connecting ecosystems. From there, you can determine the KPIs you'll use to improve sustainability in keeping with cost, quality and time requirements. Supported by digitalization and automation, you'll experience a seamless flow of data from both the real and digital worlds and use that information to optimize design, product and process for better performance.

It begins with a comprehensive digital twin of the product and production with a continuous improvement loop so that real-world feedback can inform and improve the product. You'll also be able to consider the providers attached to the ecosystem, making it easier to manage factors like raw material input, energy, transportation and logistics.

If you must reformulate to either reduce cost or replace materials classified as hazardous or non-compliant with regulatory requirements, the digital twin can help you optimize designs and formulas without compromising time or brand quality.



## Sustainable packaging

An aesthetically pleasing package is no longer sufficient. Today, packages must also be sustainable with less or no use of plastic.

Adopting new ways to produce sustainable packages creates challenges for brands:

- Durability and strength of new materials and packages
- Ability to meet new regulatory requirements
- Artwork changes, recycling options and new ink types
- Noticeable packaging but practical to dispense
- Sturdy, light containers with little waste material

One of the critical components of creating a viable solution to construct sustainable packaging is to develop all these concepts concurrently.

Concurrent development provides seamless collaboration between departments, helping to make the process of content and artwork development, simulation, and validation work together. It also ensures that quality, regulatory compliance and package performance standards are not compromised.

## Enhancing production capabilities

The digital twin of production represents the virtual model of the shop floor with a realistic simulation of machines, lines and complete plants – it's the foundation for flexible and efficient manufacturing.

By monitoring the performance of products and processes and feeding the data back into product design and production planning, the consumption of resources and the ecological footprint of products is constantly scrutinized and optimized across the entire lifecycle.

Siemens' IoT solutions enable data transparency and analysis that helps reduce water and energy consumption and ensures efficient quality control with less waste and rework.

These digitally optimized production processes, data analysis and virtual commissioning are helping companies design and produce more cost effectively by saving up to 40% on energy with less CO<sub>2</sub> emissions being released.

## Sustainable Supply Chain

Making the supply chain more reliable and sustainable involves end-to-end visibility and traceability – this means companies must look beyond what they create.

Consumers want to know who is making their beauty products and that it is being produced using sustainable practices. Unfortunately, today's supply chain lacks visibility on where products have been and where they will go.

Regulators also want to know the source of products. Traceability technologies can reduce product and materials waste and verify sustainable sourcing. When it comes to harvesting certain raw materials, traceability is critical to ensure ethical and sustainable sourcing. For example, proof that companies are following fair labor practices or that they are not sourcing from a fragile ecosystem.

**60%** of executives have no visibility into their supply chain beyond first-tier suppliers



# Integrated Lifecycle Management in the Home & Personal Care industry

Sustainability isn't the only reason a Home & Personal Care company makes changes. As competitors boost their digital transformation initiatives, it's imperative to implement the right technology solutions or risk falling behind.

Siemens Integrated Lifecycle Management solutions will help these organizations reduce time-to-market, produce at any plant in any location, and apply cost reduction measures from source to shelf. By connecting the design of products and formulas to the entire lifecycle, Home & Personal Care companies can enhance operations and consistently improve product performance, thus operating more sustainably, increasing transparency and launching complex products faster.



## Why choose Siemens Integrated Lifecycle Management

- **Integrated enterprise solution**
  - Seamlessly integrates with the entire Teamcenter PLM ecosystem
  - Provides end-to-end data management within a single platform
  - Eliminates the need for third-party integrations
- **Advanced classification capabilities**
  - Sophisticated metadata management
  - Automated classification using AI/ML algorithms
  - Flexible taxonomy structures that adapt to business needs
- **Comprehensive lifecycle control**
  - Automated policy enforcement
  - Configurable retention schedules
  - Secure data archiving and disposal
  - Audit trail and compliance documentation
- **Cost optimization**
  - Reduced storage costs through intelligent data tiering
  - Optimized system performance
  - Minimized administrative overhead
  - ROI through automated data management
- **Security & Compliance**
  - Built-in security features
  - Regulatory compliance (GDPR, ITAR, etc.)
  - Complete audit capabilities
  - Access control at multiple levels
- **Scalability**
  - Handles large data volumes efficiently
  - Enterprise-wide deployment capability
  - Flexible architecture that grows with your needs
- **User experience**
  - Intuitive interface
  - Seamless integration with familiar Teamcenter environment
  - Reduced training requirements
  - Enhanced productivity tools



**Implementing advanced product design and process technologies can provide the following results**

**Design phase**

Imagine the time and cost savings of bringing manufacturing, serviceability and performance into the design phase. With a digital twin, you can evaluate more design options, which means building fewer prototypes, using fewer resources and improving collaboration throughout the entire lifecycle.

**Product**

Integrated Lifecycle Management provides key data regarding the ability to recycle and reuse components, giving you the solutions to design the product for its intended purpose. This information provides a great opportunity to look at modernizing and retrofitting old equipment for immediate performance and compliance improvements. This includes performance analysis using data-driven predictive maintenance to extend equipment life.

**Production**

Flexibility in production allows you to quickly change your production and adapt to factors such as climate-related problems, evolving consumer trends and resource availability, whether you must move to a new facility or change the production mix within a plant. You can also optimize energy productivity across machines and plants and consider using a flexible energy mix to balance supply and demand.



#### References:

1 Source: Solinatra; [Plastic bans around the world](#)

#### About Siemens Digital Industries Software

Siemens Digital Industries Software helps organizations of all sizes digitally transform using software, hardware, and services from the Siemens Xcelerator business platform. Siemens' software and the comprehensive digital twin enable companies to optimize their design, engineering, and manufacturing processes to turn today's ideas into the sustainable products of the future. From chips to entire systems, from product to process, across all industries.

For more information on Siemens Digital Industries Software, visit [siemens.com](https://www.siemens.com) or follow us on [LinkedIn](#) and [X](#).

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