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The 4 key imperatives for **Consumer Goods manufacturers** in the post-pandemic environment

This Market Snapshot is part of Incisiv and Siemens' effort to deliver peer-based learning and thoughtful insights on important topics that will help you navigate today and prepare for tomorrow.

Unless otherwise indicated, all data in this Market Snapshot is from this Incisiv's industry data pool.

Industry Outlook

CPG and Retail companies using simulation have experienced:

- A 30% reduction in time to market and cost
- 25% lower product failure rate at launch
- 18% lower design and testing effort
- 2x the visibility
- 48% more preparedness for unforeseen events

In today's complex environment, consumer goods manufacturers are increasingly adopting the digital product design and simulation strategies of high tech industries.

Leading consumer product and retail brands like P&G, Electrolux, Campagnolo, Decathlon etc. are adopting Product Design and Simulation software to reduce prototyping costs and speed up time to market. "Information is power" and these tools predict future lags, material behavior, product efficiencies and more.

Key imperatives for consumer goods manufacturers in the post-pandemic business environment



Faster time to market

Product design simulation enables visualization and agility saving days of work and delays due to physically prototyping each option before you rule out.



Lower costs

Aiding in identifying potential design flaws, using simulation has helped many manufactures reduce time to market and costs significantly.



Safety and compliance

Factors in safety regulations, quality control and other pressure points that dictate product viability are factored in and can be digitally tested each step of the way.



Enhanced performance

Performance of both product and production process is critical. Simulation has helped brands reduce lags in both with increased visibility across the process.

#1 Faster time to market: Delays in product innovation can impact market positioning

Innovation in almost any product category has historically required additional time and resources (e.g. \$\$) to better their chance for success. The ability for consumer product companies to test and learn through a digital simulation vs. physical prototyping creates many advantages in the product design process. First, the speed by which designs can be created can enable quicker decision making on the final product. Second, digital simulation better enables testing the impact of minor component changes on overall design or performance. Finally, digital simulation vastly reduces the number of physical prototypes needed to finalize a product, therefore speeding up the overall development process.



Samsnite

Challenged to design light and impact-resistant luggage, and evaluate as many design alternatives as possible within a short period of time.

- Created lighter and stronger luggage in shorter time
- Enabled funding for future research and innovation from realized savings

B/S/H/

Recognized innovation as the key to competing successfully in the global market and defined its goal as making BSH the leading innovator in the consumer products industry. Use of digital simulation solutions resulted in:

- 20-30% reduction in implementation cost
- 15% faster time to market
- 360 degree integration: Information availability and Resource Collaboration

“The instant collaboration that Teamcenter provides will support us in reaching a higher level of innovation.”

- Uwe Tontsch
Head of Product Development & Industrial Engineering Solutions
BSH

“Leading manufacturers of the most complex products get to market 158 days earlier with \$1,900,000 lower product development costs.”

- Aberdeen Group

#2 Lower costs: To scale effectively, consumer goods companies must keep costs in check

COVID-19 further emphasized the importance of lean and cost-effective processes. With manufacturing and supply chain disruptions likely to continue for years to come, it is critical to ensure product innovation can happen efficiently and cost effectively. However, the product development process carries with it costs that go way beyond the product itself. This includes packaging, production space requirements and manufacturing processes. Levering simulation technologies for not only the product design but also the manufacturing processes and packaging requirements can take tremendous costs out of the lifecycle of the product. In addition, leveraging simulation technologies can eliminate late stage design or production changes, typically a major cost driver in the design process.



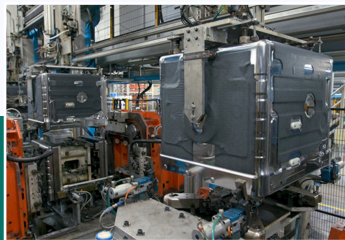
Has implemented digital production simulation in their packaging and has realized a **72% reduction** in machine down time.

“We can move from a reactive past to a proactive future, effectively managing our servicing and call out costs.”

Electrolux

Global competition necessitated maintaining continuous global operational excellence, delivering better quality while achieving cost savings. Electrolux:

- Leveraged digital tools to reduce development time by 20 to 30 percent
- Implemented a modular digital twin of the factory to decrease costs by 15 to 20 % while improving quality
- Shortened time-to-market by 20 to 30%



“The Siemens systems has contributed to a large extent in lowering our development time by about 20 to 30 percent.”

- Jan Brockmann
Chief Operations Officer
Electrolux

“While the actual cost of design in manufacturing is small -- approximately 5% on average -- the results of the design process dictate 50% or more of total manufacturing costs.”

- David Ullman, professor, Oregon State University

#3 Safety and compliance: Getting it right the first time

Digital simulation tools are very effective in anticipating potential safety issues across a broad spectrum of product variables, including construction materials, temperature exposure and stress or pressure issues. From assuring structural integrity with plastic parts to thermal compliance on mechanical parts, simulation technology can identify potential design flaws and save manufacturers potentially millions. These costs for safety issues are not only in re-design but should the product go to market, costs for recalls, product liability suits, government fines and PR costs are astronomical.



Has spent the last decade leveraging simulation to change designs in its plastic products to reduce waste and lower its environmental impact.

Through these efforts, Amcor has:

- Brought down the weight of typical hot-fill beverage bottles by 35-50%
- Reduced its PET resin consumption by more than 100,000,000 pounds annually



Had the challenge of managing an extensive range of products, each with multiple variants and the need to promptly respond to evolving market and industry safety standards. Using digital product simulation achieved:

- 50% reduction of engineering errors
- Total elimination of paper, reducing costs significantly speeding up regulatory compliance



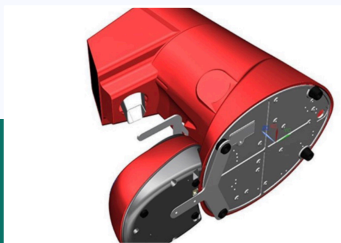
“We can now handle the complexity of our portfolio more effectively, keep control of huge data volumes, and have cut unnecessary work for late modifications or corrections in half.”

- Stefano Garbin
CAD/CAE/PLM Manager
Campagnolo

The Consumer Product Safety Commission can impose fines of up to \$15 million for failing to report potential product safety violations or defects.

#4 Enhanced performance: Create efficiencies throughout the product lifecycle

Performance is a broad term that spans across many aspects of a product's lifecycle. From the production process to the usage (reliability/durability) and environmental impact of a product, the ability to digitally simulate the scenarios and use cases required to ensure a product can be successful in market should be table stakes for consumer goods companies. FEA simulation can ensure structural integrity of parts in heavy use environments while mold flow simulation can come close to eliminating the occurrence of defects in injection molding parts. For companies that produce mechanical products, dynamic simulation mirrors moving parts to uncover any potential problems and thermal simulation tests heat flow in products to avoid overheating or shorting of components.



TREK

Was finding it difficult to discover bicycle designs that satisfied all aerodynamic, comfort and ride quality requirements. Using digital simulation solutions, TREK was able to achieve:

- A bike frame with excellent aerodynamic and ride performance
- Reduce wind tunnel time and infrastructure requirement by 75%

Fiorenzato

Was faced with the challenge to design a new generation of electronic machines in-house and at the same time cut design cycle time and eliminate the typical errors and limitations of 2D. Leveraging digital product and simulation:

- Reduced overall development time by 50 percent
- Facilitated quick, accurate and reliable drafting so drawings could be distributed to the internal workshop and external subcontractors

“With the speed of NX and the large spectrum of options for drafting and drawing configuration, we estimate we have reduced the total product development cycle time by at least 50%.”

- Manuel Oddera
Purchasing Manager
Fiorenzato

“Implementing innovations such as digital twins within the supply chain can help companies to achieve improved business outcomes.”

- Gartner

Quick start recommendations

The benefits of digital simulation have been proven in industries such as high tech and discrete manufacturing. As competitive as the consumer goods industry is, companies should be looking for any advantage they can get. As companies get started we recommend:



Build a cross-functional team - Collaboration is critical. Collect inputs from all the stakeholders throughout the product development ecosystem to ensure all factors are being considered. Seek the expertise of simulation engineers if not already in-house.



Keep the customer at the core of development: Having a pulse on customer preferences is critical to incorporate into any design. New trends like customization, safety and environmental concerns are shaping product and design decisions for leading brands. This should be industry-wide.



Synchronize all efforts and ensure visibility: By leveraging digital simulations, CG brands can better collaborate across teams, creating efficiencies. A business should start with a pilot project using this approach and test & learn to perfect processes.



Future proof your business: The business environment is changing faster than ever so having the ability to adapt products, processes and production in a flexible and agile way will be a requirement for highly competitive spaces like CPG and specialty retail.

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