SIEMENS DIGITAL INDUSTRIES SOFTWARE

Leveling up!

How innovative technologies help sports and sporting goods companies change the game

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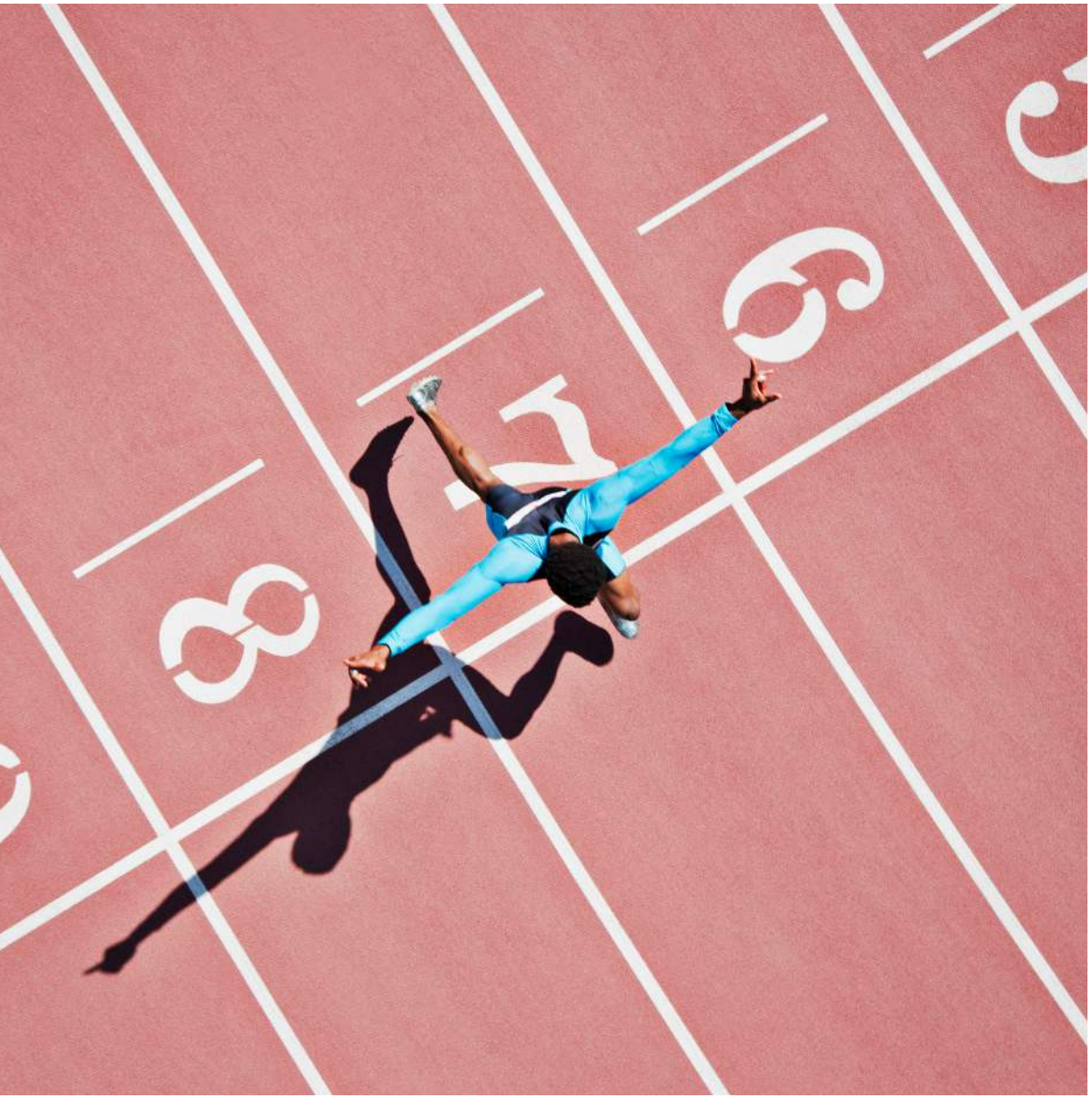
Executive Summary

The Consumer Goods and Retail market is such a dynamic industry that it is vital to keep up with the ever-evolving trends. Furthermore, it may be impossible to foresee the ebbs and flows of consumers' tendencies. Consumer Goods and Retail companies may struggle to meet client expectations. Still, they stand a good chance of success if they maintain a persistent commitment to responding to emerging market trends.

Social media and marketing influencers' can alter the trajectory of a manufactured item with a single post or mention of a product they have freshly tested. This mere remark can soar demand. On a broader scale, the Covid epidemic has been the cause of tremendous disruptions. It exposed the fragility of every industry, particularly CP&R. This disruption made various obstacles evident to brands, including supply chain issues and a shift in consumer behavior, altering how companies design and develop new goods. In addition, the epidemic appears to have shed light on other critical problems that customers worry about, such as having access to sustainable and healthy products and knowing the source of the materials used. Equally, consumers want to purchase from companies with social consciousness.

Despite these numerous obstacles and requirements, buyers continue to want prompt delivery of goods. As a result, the issue of time becomes significant, making rapid product launches a foremost concern coupled with the worry of whether or not there is the technological capacity to get the desired results. Ultimately, what matters is who gets to the finish line first; thus, speed and technology must intersect.



Tapping into potential with digitalization creates unexpected growth.

During the height of the pandemic, the sporting goods industry saw unexpected growth. Demand resilience and secular developments in consumer views around health and wellness and consumer influences have fueled some of the expansion. Still, these factors are not the primary reason for the surge; technology is the main catalyst for the growth.

Technology has been an integral part of sports and the sporting goods industry for many years. What may have begun with instant replay has now evolved to significantly impact virtually every aspect of sports, from coaching to playing, participating to spectatorship.

Connecting the information dots

The habit of analyzing the performance of athletes using highly sophisticated quantitative measurements has grown widespread. With the help of quantitative data, manufacturers can use crucial information to develop high-performing sporting equipment and apparel.

The IoT enables technology and connectivity, hence altering the sports experience on every level. Manufacturers of sporting goods who invest in product development learn how to add value to their present products and create new ones. Athletes, coaches, and weekend sports enthusiasts can gain insights from smart-enabled equipment. These technologies also enable brands to preserve and expand their current market share.

Using simulation and testing to raise the bar for performance and function

Innovation is vital for athletic goods manufacturers and the businesses that assist them in product improvement. Simulation technology can help improve the performance of athletic equipment, which could be the difference between victory and defeat. Nevertheless, simulation is only part of the equation. Testing is vital because simulating provides data on how a product will work but may not give a clear picture of how well it will perform. The testing results illustrate how a product will respond to stressors such as friction, climatic conditions, physical impacts, and natural wear and tear.

Belgium-based design and engineering firm Voxdale understands that sports and technology go hand in hand. With the use of simulation software, they were able to obtain remarkable results. Taking a novel approach to design and engineering, they have opted to utilize CFD (Computational Fluid Dynamics) technologies available through Simcenter™ FLOEFD™ to assist them in attaining marginal improvements. Voxdale has a long history of applying CFD technology with the development of exceptional racing bikes, including one of the quickest bikes in the pro peloton.

Making Olympic Size Stride: technology breakthroughs can result in unanticipated advantages.

Simcenter technology was front and center in last year's Summer Games. In their quest for medals, more and more athletes are adding engineering simulation to their hard work and training. Simulation played an integral part in:

Cycling- Utilized both Simcenter and HEEDS™ to investigate all potential designs before settling on their products' most efficient and effective aerodynamic and structural configurations.

Sailing- Simcenter was used to evaluate unstable sail aerodynamics and calculate the optimal position of a sailor on a competition dinghy in the design of various sailing vessels.

Rowing- The Italian team's competition rowing boats used CFD for their design, and Simcenter also helped to assess the hydrodynamics of the ideal rowing stroke. Simcenter has also been used to study the rivers used for rowing competitions to guarantee that they are fair for all athletes.

It is apparent that simulation assisted athletes in their pursuit of gold. What if the same technology could assist coaches in assembling better teams? Using the data, coaches may assess a player's faults and strengths and even for putting together a team roster.

As an assistant basketball coach at Clark University in Atlanta, GA, Boaz Bivens works to help develop young athletes. When posed with the scenario of having access to basketballs and shoes embedded with simulation software, his quick response was,

"Anything we can do to get better, we want to do."

Bivens continued by stating that such revolutionary technology would assist us in identifying the shortcomings and strengths of our athletes, allowing us to focus on areas that require improvement. It would also help determine which player to put in certain positions, maximizing our team's potential.

Developing new solutions to stay relevant to keep up with emerging trends is essential.

Because CP&R companies do not have the luxury of time, they must grab opportunities posed by technical advancements and developing trends. Notably, sporting goods enterprises must employ time-saving procedures.

So, how is it possible to anticipate trends and move at the speed of social media and market influencers?

Again, it is impossible to foresee which developing trend will drive consumer purchasing patterns but having the appropriate technology will reduce product launch issues.

To mandate the development of innovative goods at the desired speed, combining flexible product and process development with validation is necessary. Doing so will help to launch ready-to-be-manufactured products faster.

Technology is ubiquitous, and consumers expect it in all parts of their lives. Professional and recreational athletes seek safe, creative, practical, attractive, and intelligent products. Competitive pressure is rising, and firms without established processes are sprouting. In the future, competition and technological advances will drive down the prices of athletic goods, placing latecomers under pressure to play catch-up or fall behind.

An ability to deliver innovation through embedded electronics and software technology in new sporting goods products is essential to capitalize on emerging market opportunities. For many manufacturers, this means moving away from disconnected applications to an integrated design platform. Companies need to mature their simulation and testing capabilities to take advantage of the opportunities afforded by digitalization and digital twin technologies. Drawing upon our years of experience helping market-leading companies in this space, we have identified four critical dimensions along which organization capabilities should evolve and mature their capabilities.

An ability to deliver innovation through embedded electronics and software technology in new sporting goods products is essential to capitalize on emerging market opportunities. For many manufacturers, this means moving away from disconnected applications to an integrated design platform that can facilitate the following capabilities:

Model the complexity - Ensuring decision confidence

Innovative sporting goods products' embedded electronics and software pose new packaging issues and complicate product design. Hence one of the first requirements for rapid innovation is the ability to predict/measure behavior/performance in the best possible way. Doing this means capturing all complexity, be it from the geometry, the physics, or the usage environment, which can influence performance. Multidisciplinary design lets mechanical, electrical, and software engineers work concurrently and model physics accurately. Greater accuracy leads to greater confidence in the predictions and, therefore, in the decisions.

Go faster - Achieving speed and agility

The traditional pressures of time, cost, and quality still apply even as complexity increases. And increasing perplexity can slow the organization's ability to make the right decisions. Therefore, companies must find a way to go faster despite working with complexity. They include investment in process capture and workflow automation, cloud, HPC, and others.

Explore the possibilities - Enabling insights

Companies need to leverage those models to run experiments to gain an advantage from investments in modeling complexity fully. Increasing complexity also means increasing the degrees of freedom available for adjustment. They gain tremendous value from the models through a systematic and intelligent design of space exploration. So investments in design exploration are critical.

Stay integrated - Connecting all activities

Smart sports product development involves an expanded supply chain, with multiple partners accountable for different design elements. The platform must protect each partner's data while sharing enough for system integration. Multidisciplinary platforms can give designers a complete engineering toolbox to undertake CAE analysis in the same environment as CAD design. Additionally, immersive 3D visualization: Knowing what a product looks like before manufacturing begins is a tremendous advantage because it makes aesthetics, materials, and marketing decisions possible.

Consumers seek solutions tailored to their specific requirements.

As businesses adopt technology-enhanced equipment, they quickly realize that solutions benefit them and their customers. Companies can keep up with customer demands and trends by implementing innovative and time-saving measures while improving the bottom line.

Loyalty.

Regular interactions with their sports equipment and a more profound experience with information, recommendations, and communities build an ongoing relationship with the company, resulting in loyalty and cross-sell opportunities.

Athlete safety.

Many athletes have endured injuries from participating in their sports, and real-time data can protect the athlete and prevent typical sports injuries.

Information is power.

Apps deliver experiences and collect information about users and personal use of products. In today's world, those who have data have control.

Timing is everything for sporting goods companies, and it's critical that labels make the most of current trends. By incorporating digital technologies, brands can maintain their relevance and competitiveness in the market while fostering customer loyalty and trust. Simulation is unquestionably a game-changer; capitalizing on this innovation can be the key to developing highly desirable products and the path to finishing first.

Change the game by leveling up now!

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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. Siemens Digital Industries Software – For more information on Siemens Digital Industries Software products and services, visit siemens.com/software or follow us on LinkedIn, Twitter, Facebook and Instagram.

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