

**SIEMENS**

*Ingenuity for life*



### Current Run

Heart Rate

**148 bpm**

43 • 44 • 45 • 46 • 47 • 48 • 49 • 50 • 51 • 52 • 53 • 54 • 55



Time / Distance

Time: **54:48**

Cur Pace: **7:45**

Avg Pace: **8:11**

Distance: **6.69mi**

Gear Stats

Shoe life: **52mi**

Watch

Earphone

Bonus Statistics

Calories: **761**

+300 ft  
105%

### Personal Records

1 mi  
**5:58.7**

5 k  
**20:10**

10 k  
**40:54**

13.1 mi  
**1:31:04**

26.2 mi  
**3:18:05**

Siemens PLM Software

# Smart sporting goods 101:

## How manufacturers are getting into the game





Double-digit growth rates are certainly attractive, but smart sporting goods require innovative design methods to deliver:

- The experience consumers want
- Safety features they deserve
- A price point they will pay

A digital enterprise is the secret weapon that can unleash sporting goods manufacturer's opportunities in this new market.





# Promising prospects come with high expectations

As people become increasingly connected, our lives are becoming a web of interconnected information bringing the world amazing new experiences. This use of technology and connectedness is transforming how people experience sports on every level.

Sporting goods manufacturers are recognizing this opportunity and changing up their business models to provide engaging experiences that deliver real-time information and analytics to athletes via smart and connected equipment, clothing and wearables. Phones have become virtual coaches – leading athletes to new levels of performance.

The global market for smart sporting equipment is growing at an annual rate of 51 percent – in contrast to just 3 percent for traditional equipment. By 2022, this market segment is expected to reach beyond \$1.2 billion in sales.

The sports equipment manufacturers neglecting to embrace smart equipment risk losing their ability to compete.

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# The smart sporting goods market revolution has begun



The technology built in these once simple items increase consumer costs, but they also provide exponential value to both athletes and manufacturers.

A number of industry giants, such as Nike, Adidas, Puma, Polar, Under Armour, and Callaway Golf Company are already in the game, while startups such as Jump, ShotTracker, Athos, Lumo and Sensoria are making for a tighter race.

Football, soccer balls, baseballs, baseball bats, helmets, tennis rackets, golf clubs, scooters, bicycles and even horse saddles are now “smart.” The technology built in these once simple items increase consumer costs, but they also provide exponential value to both athletes and manufacturers.

## The revolution delivers 5 points of unexpected value

**Virtual coach.** Real-time analytics delivers improved performance during the game.

**Loyalty.** Regular interactions with their sports equipment and a deeper experience with information, recommendations and communities builds an ongoing relationship with the company, resulting in loyalty and cross-sell opportunities.

**Insurance savings.** Insurance companies including UnitedHealth Group, Humana, Cigna and Highmark, offer discounts to policyholders based on fitness data gathered through the policyholders’ wearable devices. While this is an unexpected value, there is an inherent risk with privacy and security. Gary Davis, chief consumer security evangelist at Intel Security, said, “The information that’s contained on your wearable that’s stored either on your smartphone or stored downstream on a cloud [service] is worth ten times that of a credit card on a black market.” There is value, but privacy is a very large concern.

**Athlete safety.** Many athletes have endured injuries from participating in their sports. Smart helmets and real time data can protect the athlete and prevent common injuries, like concussions.

**Information is power.** Apps deliver experiences, but also collect information about users and personal use of products. In today’s world, those who have data, have power.





## The risks of being late to the game

Companies that don't get in the game risk falling short of consumer expectations, lost revenues and even irrelevance. Kodak, Toys 'R' Us and MySpace are all famous for not keeping up with changing consumer demands and are either out of business or uncompetitive versions of what they once were.

Technology is ubiquitous and consumers expect it in all parts of their lives. As a result, professional and leisure athletes demand products that are reliable, safe, professional grade, innovative, useful, attractive and smart.

More than 100 sports equipment companies are listed on AngelList, a platform for startups to reach investors and recruiting prospects. Competitive pressure is building. Startups unencumbered by established processes are popping up on a continual basis. In the years ahead, this competition, coupled with technological improvements will drive down prices of smart sporting goods, putting further pressure on latecomers to play a costly game of catch-up or fall behind.



# How a modern, integrated design platform can unleash innovation



An ability to deliver innovation through embedded electronics and software technology in new sporting goods products is important 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:

**Collaboration:** Smart sporting goods product design requires collaboration with an expanded supply chain, often with different partners responsible for numerous parts of the design. The platform must ensure the security of each partner's information while sharing enough information to facilitate integration of the systems. The secret is to share the right information – no more, no less – to ensure proper design and deliver a reliable product. The right collaborative platform across a long and complicated supply chain can cut months from the time it takes to deliver a connected sporting goods product to market.

**Multidisciplinary design:** The embedded electronics and software required in smart sporting goods products bring new packaging challenges and significantly raise the complexity of the product design process. Multidisciplinary design enables mechanical, electrical and software engineers to work together simultaneously in one linear path rather than independently, thus waiting until their paths converge at milestone points. This speeds up the entire process by integrating functional requirements and validations into the workflow instead of stopping to test and then reworking prior steps based on test results.

**Product validation:** Advanced products require advanced simulation and test capabilities. Multidisciplinary platforms can provide designers with a complete engineering toolset (multiphysics, 1D, meshing, structural, acoustics, flow, thermal, motion and composites analysis) to perform CAE analysis in the same environment as CAD design, with the same data set. Integrated product validation helps capture and avoid complications early in the design process. All this gives designers the tools they need to arrive at the ideal design and ensure quality from the beginning.

**Immersive 3D visualization:** Knowing what a product will look like before it is manufactured is a huge advantage because decisions can be made about aesthetics, materials and marketing early on. This reduces the need for prototyping crude versions, which could take weeks at a time.



Today, modern design platforms provide a fully immersive 3D design and validation environment that creates a digital twin to enable easy visualization, more efficient and accurate design reviews and a better understanding of the total design. Entire teams can meet in a virtual, immersive 3D environment to review, discuss and provide feedback in real time. This promotes better understanding of setbacks and faster resolution, allowing design in a fraction of the time previously required. In addition, 3D printing lets designers innovate at the “warp speed” consumers’ demand.

## The engine behind ‘connected’

IoT is a critical enabler – the engine – behind “connected.” IoT enables smart sports products to gather data from their surroundings, connect to the internet in real-time, pass data to applications that analyze it and instantaneously interact with the athlete. Without it, the athletes’ experience and the value proposition from smart sporting goods would not fuel the transformation of the industry we’re experiencing. The amount of data being shared across the internet is exploding. The emergence of 5G will generate the next transformation and fuel the value of IoT in the sports industry.

## 5G wireless connectivity will feed smarter products

Because most sports take place beyond the reach of fixed-point wireless networking, increasing mobile bandwidth is crucial to market growth. Meanwhile, the rise of 5G data service will fuel continued innovation in IoT – a boon to all manufacturers. In fact, manufacturers are expected to be among the biggest winners of the 5G transformation, capturing 18 percent of the \$1.3 trillion 5G-related revenues by 2026.

## Level the playing field with modern digital design

Smart sporting goods are changing how athletes of all levels use sports equipment. Producing such equipment requires an end-to-end digital platform that addresses smart-product design challenges in a fast, efficient and reliable way. The right digital platform enables collaboration, multidisciplinary design, modeling, augmented and virtual reality and the Internet of Things (IoT). What’s more, it seamlessly connects consumer requirements to manufacturing and service capabilities.

The sports equipment industry is transforming. Finding the right digital software can help fuel transformation and let manufacturers take advantage of the burgeoning smart sporting goods market.



### About Siemens PLM Software

Siemens PLM Software, a business unit of the Siemens Digital Factory Division, is a leading global provider of software solutions to drive the digital transformation of industry, creating new opportunities for manufacturers to realize innovation. With headquarters in Plano, Texas, and over 140,000 customers worldwide, Siemens PLM Software works with companies of all sizes to transform the way ideas come to life, the way products are realized, and the way products and assets in operation are used and understood. For more information on Siemens PLM Software products and services, visit [www.siemens.com/plm](http://www.siemens.com/plm).

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