



# An integrated vision for the IoT

**Progress has always been about how to make life easier and more convenient, how to make the everyday enjoyable—and modern technologies are doing just that by making the devices around us ‘smart’; with the ability to collect data about their use and send it somewhere for analysis. Analysing this data allows the world around us to be customized to our preferences and needs.**

Smart devices and experiences are starting to become common for consumer electronics. But more traditional industries like fashion are struggling to understand how to put these new technologies into action. After all, fashion has always been about things that are largely intangible such as colour, hand-feel, taste, and fit. How can we gather empirical information about fashion from digital devices, analyse the data, and have it inform the products we make?

To help better understand how this might be possible, let’s use a story of creating a new line of footwear and see how using IoT to gather data to understand consumer preferences, inform design and enhance retail planning might transform the creation process and revolutionize the consumer experience.

Sarah is a runner living in Sydney, Australia,

constantly looking to get more fit and improve her running times.

She recently purchased some running shoes from one of her favourite brands that incorporate sensors in the outsole. She also started using a fitness bracelet that can capture information such as heartrate, steps per minute, exercise habits, and location. Further, she has linked the various devices

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through her favourite exercise app and monitors the information in the evenings before she goes to bed. The information coming from all these devices, apps, and websites has allowed Sarah to build a complete picture of her day, including the best time for her to workout, the exact amount of sleep she needs, and chart her fitness improvement over time. And, although she doesn’t yet realise it, it also lets her favourite brand build her the perfect shoe.

Gabriel is the footwear designer working for Sarah’s favourite brand. He designed her current running shoe and is looking for ways to improve it for next

season. Gabriel works for a technology-forward brand that uses a PLM tool (such as My Collection, from Dassault Systèmes) throughout the development process. This creates a seamless, end-to-end flow of images and data allowing the company to create better products, in less time, and generate more consumer excitement.

Gabriel begins by collecting all the information and inspiration in a collaboration tool like 3DSwYm (part of the Dassault Systèmes’ 3DEXPERIENCE Platform). This allows him to organise in one location: visual inspiration from his recent trip to Australia’s Great Barrier Reef, consumer data from the brand’s running app, sales data from the corporate website and stores, as well as commentary from social networks. He’s able to share this information with his team members and gather their feedback. Analysing all of this, Gabriel comes to several conclusions:

- The current shoe is very popular, but especially in coastal locations because it performs well in packed sand.
- Consumers are unhappy with amount of cushioning.
- Consumers are looking for more colour options.
- Stitching in the upper usually fails before the outsole.

Given these conclusions, Gabriel decides to make the following changes to the shoe for the upcoming season:

- Use a colour palette inspired by beach locations
- Allow the consumer to customise the cushioning in the outsole using the brand’s proprietary new 3D printing process.
- Allow colour customisation
- Replace the stitching in the upper with a new high-pressure bonding method.

To come up with the look for the new shoe’s bonded upper, Gabriel sketches a few ideas in a 3D sketching application (such as SolidWorks Industrial Designer). This allows him to take his 2D sketching skills and apply them in the world of 3D. He can sketch over a “last,” the brand’s footwear shape form, to make sure that proportions are correct and that design lines flow from one side of the shoe to the other. Gabriel posts his designs to his collaborative environment and, while waiting for feedback from his team, starts work on the outsole.

Gabriel hands his sketches to one of his technical designers who models the outsole in a CAD solution (such as Dassault Systèmes CATIA) and preps it for the cushioning customisation process. Using a simulation environment like Dassault Systèmes SIMULIA, Gabriel is able to see simulations of various levels of cushioning applied to different parts of the outsole based on consumer preferences. Using consumer data from the sensors in the current shoe, Gabriel and his technical designer develop three levels of “off the shelf” cushioning for traditional manufacturing as well as a scheme for creating “point of sale” 3D-printed outsoles with custom cushioning that can easily be bonded to the new upper.

Gabriel now turns his attention back to the upper. Feedback from his team is strongest for one particular design. He looks through the materials database for the best options to meet his target price and performance objectives. Gabriel builds all the component of the upper and generates a tech pack that can be shared on-line or emailed to the factory. In the meantime, Gabriel takes the upper design, merges it with the outsole, and creates a 3D print for the team to evaluate.

Gabriel also shares his data with the appropriate members of the team for approval. The feedback from his team, and the company CEO, is overwhelmingly positive and the shoe moves into the commercialisation process.

In the meantime, Suzanne, the merchandiser working on the line, begins the assortment planning process with the retail team. Shopping habits coming from RFID tags, as well as sales data on last season’s shoes, are showing a number of different things:

- Shoes assorted next to apparel tend to sell better
- Certain shoes (including the shoe being redesigned by Gabriel) are being tried on, but not purchased, more than average compared to other shoes.
- Darker colourways do better in colder climates, while brighter colourways do better in coastal climates.

Given this information, Suzanne decides to try some different approaches with merchandising the line and equipping the store. She uses the company’s visual assortment planning tool (such as My Store from Dassault Systèmes) to create a 3D visualisation of the store. She places smaller shoe walls next to coordinating apparel. She also creates one assortment for colder climates and modifies it with different colourways and product for warmer climates. She’s able to analyse profitability and take virtual walkthroughs of the stores in order to validate the consumer experience.

Months later, Sarah’s fitness bracelet alerts her to the fact that there is a new version of her favourite shoe launching next month and that she is part of a select number of customers invited to join a pre-release customisation program due to her loyalty to the brand.

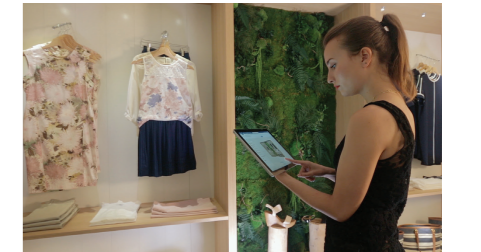
A week before the official launch, Sarah is able to visit the brand’s Sydney flagship store and try the new shoe. When she enters the store, her fitness bracelet informs the store that she has arrived. Video monitors welcome her while a sales associate is sent to escort her to the customization experience. She is asked if she would like to use the data from her current shoe’s sensors, as well as her workout habits, to better inform the customisation process. She excitedly agrees! She then has her foot scanned and analysed while choosing colours for her specific shoe.

She uses a user-friendly application (such as My Retail Theatre from Dassault Systèmes) to customise her 3D shoe, picking colours and fabrics from a digital library, as the shoe is being built onscreen in 3D. Sarah decides to customise her shoe for more support and less cushioning since she tends to run on soft surfaces like hard packed beach sand and the sensors from her existing shoe support this decision. When Sarah’s session is finished, her design goes to a local robotic factory for 3D printing and colour application and she tweets out a 3D model of the finished shoe to her followers.

In a few days, Sarah receives her new shoes along with an invitation to attend a 5K beach run on the day of the product launch. The launch day arrives and Sarah is again greeted personally on the in-store screens—along with a 3D model of her custom shoe. Before the event, she’s able to meet Gabriel, the shoe designer himself, and the two are able to share their love of the beach and the

effectiveness of her shoe customisation. The experience brings an entirely new realisation to both Sarah, the consumer, and Gabriel, the designer; that, over vast distances, they have been able to create a connection that brought Sarah exactly the product she was looking for while Gabriel was given deep consumer insights that he never thought was previously possible.

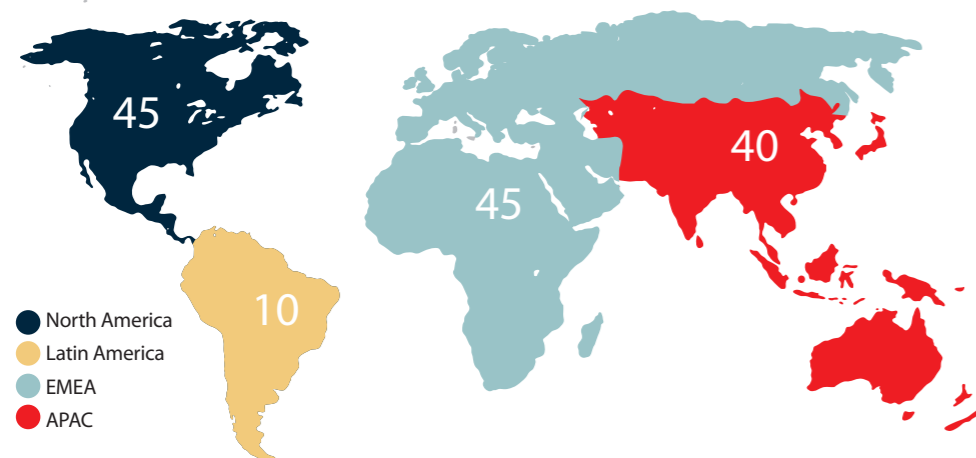
Sarah is thrilled with her new shoes and has one of her best 5K runs of her life. She has a deeper brand loyalty than ever before and is excited to be one of an exclusive group of consumers involved in the company’s product planning group.



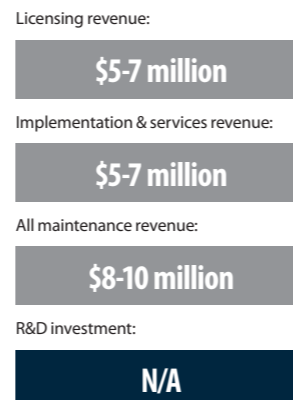
## FINANCIAL YEAR 2015/16



**TOTAL NUMBER OF RESOURCES FOCUSED ON THE RFA INDUSTRY BY REGION:**  
(Excluding those cited as R&D-specific resources above.)



**REVENUE & INVESTMENT INFORMATION**



**TELL US WHAT YOU FEEL HAS CHANGED AND / OR ADVANCED IN YOUR PRODUCT OFFERING THIS YEAR TO DIFFERENTIATE YOUR COMPANY FROM OTHERS IN THE RFA PLM MARKET.**

Dassault Systèmes' continues to enhance its industry leading 2-way integration between core PLM (My Collection) and Adobe Illustrator for extended digital continuity. New features for product briefs and product families make it easy for Designers to work in their preferred environment, while remaining synchronized to PLM.

New 'Configurable Costing' provides predefined Costing Templates OOTB while also offering highly configurable formulas and layouts so companies can tailor their approach by brand, product category, and more. New offline quote capabilities make it easier for vendors to provide timely responses regardless of local bandwidth challenges.

Also new within PLM release R2016x, the Digital Asset Hub manages images and information between extended teams who don't need full PLM capabilities. Designers, Product and Brand Managers, and Marketing teams can share 2D and 3D images, videos, marketing materials, and more through role-based, enterprise-wide libraries with parametric search and comparison, asset usage rights and tracking, collaboration, workflow and approvals.

We've enhanced the connections directly from My Collection PLM into My Store for intuitive 3D Visual Merchandising of store layouts and collection options with robust metrics and scenario capabilities.

There are also continuous improvements to UI, navigation and flexibility with excellent feedback on the latest release.

**TELL US WHAT YOU BELIEVE ARE THE MOST IMPORTANT TRENDS SHAPING THE NEAR-TERM FUTURE OF THE INDUSTRY – EITHER IN TERMS OF TECHNOLOGY OR BROADER MARKET FORCES.**

Leading fashion brands and retailers are continuing to focus on the consumer experience as a way to differentiate themselves. We've seen continued interest in accelerating the development and consumer engagement cycle through innovative use of 3D technologies to design, develop, validate, merchandise and even sell product. And configurable products have moved from novelty to mainstream, providing consumers compelling options to define a personal and unique product. The acceleration of additive manufacturing in footwear and accessories provides even more flexibility as substrates continue to broaden.

Using the growing wealth of consumer data, brand managers can assess not just sales data but product purchase patterns (try versus try and buy), and direct consumer feedback coupled with product performance information from smart devices and smarter products to evolve their product offerings and create new collections.

At Dassault Systèmes we believe this convergence of rich information and 3D digital strategy is part of the new product lifecycle management our customers expect. And it's something we provide through the 3DEXPERIENCE Platform; with digital continuity from product innovation to consumer experience.

# IF WE want exclusive style, can our home become a fashion house?

The 3D virtual shopping experience – a dream our software could bring to life.

Innovative thinkers everywhere use **INDUSTRY SOLUTION EXPERIENCES** from Dassault Systèmes to explore the true impact of their ideas. Insights from the 3D virtual world are unlocking new shopping experiences that bring consumers and designers closer together. How long before the living room and the fitting room become one?



**3DEXPERIENCE**  
It takes a special kind of compass to understand the present and navigate the future.

Our partner: Julien Fournié  
[3DS.COM/CONSUMER-GOODS](http://3DS.COM/CONSUMER-GOODS)