

LiveWorx 2015: How Smart, Connected Products are Changing Business

CIMdata Commentary

Key takeaways:

- *Products are becoming smarter and more connected and can often provide near- or real-time information about each product for analysis and better decision making*
- *The IoT and smart, connected products are providing companies new opportunities to add value to their customers, expand and add new products, and to create new business models*
- *PTC continues to create and expand an ecosystem for defining and managing IoT solutions that can help their customers develop new products and business models*

CIMdata recently attended the PTC LiveWorx event held at the Hynes Convention Center and the Westin Copley hotel May 4 – 7, 2015, in Boston, MA, USA. This event gave PTC's customers the opportunity to not only hear about and explore PTC's solution strategies for the Internet of Things (IoT), but also to showcase their own work, network with peers, share ideas, and discuss how they are addressing their challenges on their IoT journey. PTC claimed over 2,300 attendees at the event, a significant increase from 350 in 2014.

Major topics at PTC LiveWorx were the potential impact of IoT on the manufacturing industry and company business models, new capabilities to support IoT solutions, as well as announcements of new acquisitions and partnerships. CIMdata was impressed with both the interest in and growth of LiveWorx and the increasing variety of companies that participated, especially new ones with IoT-focused solutions.

In his opening keynote, PTC President and CEO Jim Heppelmann emphasized how smart connected devices are redefining the value chain. New technologies are bridging the digital and physical worlds using a "digital twin" that virtually reflects the real world. He emphasized the changes that companies are facing—new, more complex, smarter, connected products that create vastly increased volumes of data (and the need to quickly analyze and respond to that information), the need to effectively design and operate systems of systems, and customer expectations for new ways of acquiring what they need, not just purchasing products. One of his key messages was the need for Actionable Intelligence—the ability to quickly analyze very large volumes of data and make operational decisions in a proactive and predictive manner rather than reacting to after-the-fact information.

As part of how PTC is responding to these challenges, Mr. Heppelmann announced:

1. The acquisition of ColdLight, a solution for big data machine learning and predictive analytics. ColdLight's Neuron platform is designed to use artificial intelligence and machine learning technology to automatically and continuously learn from data, discover patterns, build validated predictive models, and send information to virtually any type of application or technology. Such predictive analytics capabilities should help customers analyze the growing volume of data streaming from connected devices and respond proactively to operational and service needs.

2. A new IoT solution, ThingWorx Converge™, designed to leverage the ThingWorx® platform for connectivity, device management, and rapid application development. ThingWorx Converge extends the ThingWorx platform with pre-built capabilities for companies who create, operate, and service manufactured products as well as application developers and system integrators who deliver solutions for these companies. It will also serve as a data hub for sharing information between IoT devices and solutions and other business systems within the enterprise.
3. A partnership with ServiceMax, a field service management solution. PTC and ServiceMax stated that they would bring together their respective offerings and go-to-market teams to offer a comprehensive and connected solution for service management.

CIMdata believes that these announcements each provide expanded capabilities that will help PTC customers develop better IoT-enabled products and services, and create new business models and products (e.g., data or service as the product), selling a solution versus selling products.

In a keynote session, Mr. Heppelmann and Dr. Michael Porter, Bishop William Lawrence University Professor at Harvard Business School discussed the rise of smart, connected products and how they are driving the third wave of IT-driven innovation. They claimed that the four major characteristics of smart, connected products—monitoring, control, optimization, and autonomy—are going to change how companies organize. New products will have IT embedded in them and new technologies are requiring new solutions. When devices are smart and connected, new capabilities in data management and both reactive and predictive analyses are needed to turn data into insight and make timely, actionable decisions. They also discussed the need for new security models at both the device level as well as the Internet transport level as these connected systems expand in scope and functionality.

Dr. Porter and Mr. Heppelmann described how manufacturing is changing as physical complexity is being reduced while electronics and software are becoming the driving factors (i.e., product differences are driven digitally). These new designs are also creating demands for new skills in the workforce, especially for systems engineers and data scientists. This also impacts automation within the factory. New organizational dynamics are emerging within IT and product development as new capabilities for collaboration, development, and service evolve. For example, what is the best way to update products in service? It is not practical to update a car's systems while it's being driven, yet customers don't want to have to go to the dealer every time an update is available.

As part of this new IT innovation, customer relationships are being redefined. Product responsibility no longer ends with the sale—companies are building long-term relationships and providing extended services. This provides new opportunities for differentiation in product solutions and services. These changes are improving the bargaining power of buyers, a key part of Dr. Porter's models. Manufacturers are challenged with giving away functionality since it can just be turned on digitally and not require a "new" physical product. Additionally, customers can more readily walk away from subscription-based products—they must have value or they will perish or be replaced by competition.

Steve "Woz" Wozniak, co-founder of Apple, led a discussion about the Boston University Hackathon, a 24-hour marathon event where teams were challenged to develop prototype solutions of IoT applications. The winning solutions announced by Mr. Wozniak included:

- Smart City—A solution designed to let emergency first responders know where resources are needed
- Blind—A solution to create smart street signs to help blind people and others cross streets more safely
- Smart Agriculture—A solution to help small-scale farmers optimize yields

CIMdata believes that the ability of the teams to define and develop these solutions within 24 hours illustrates the power of smart, connected products, the IoT, and the tools being developed to help create these solutions. These new approaches could lead to as-yet untapped opportunities to create heretofore unmakeable solutions.

The LiveWorx event included many customer-led sessions that described how using smart, connected products is helping them solve new problems, better address their customers needs, and develop new business models that can carry them forward. The examples covered a wide diversity of industries and business models, and CIMdata believes that this diversity confirms the importance of the IoT and the potential long-term impact it will have on businesses of every size and type. LiveWorx 2015 showed the dramatic increase in interest and use of smart, connected products and the need for tools and solutions to help design, develop, manufacture, service, and operate them.

PTC is investing in and establishing a strong IoT-related product suite and associated platform that companies can use to develop the products and services needed to meet customer demands now and into the future. They are also, as the partnership with ServiceMax illustrates, creating solutions to help their customers expand, or even change, their business models and products to take advantage of this third wave of IT innovation.

About CIMdata

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