

# Physical + Digital: PTC's New Look Revealed at LiveWorx 2016

## *CIMdata Commentary*

### *Key takeaways:*

- *PTC's rebranding emphasizes the yin and yang of "physical" and "digital," encapsulating their strategy to support customers developing smart, connected products*
- *Many of PTC's recent acquisitions brought open solutions, more easily integrated into current offerings, and huge ecosystems of partners and influencers that will be essential to achieving that strategy*
- *PTC's long time strength in industrial equipment design is a good fit for the Industrial Internet requirements of that segment and many others*

Upon entering the Boston Convention and Exposition Center for PTC's LiveWorx 2016 on June 7, one could tell it was a different type of event. The audience, over 4,000 strong, had to pass through the Xtropolis, a hall packed with exhibits from PTC, their partner ecosystem, and even a few competitors (according to PTC), to reach the main stage session. Mr. David Pogue, best known as the former technology writer for the New York Times and Scientific American, acted as the master of ceremonies. While some of his jokes might have fallen flat, one of his opening statements hit the mark: He said that the Internet of Things (IoT) is "the love child of cheap sensors, smartphones and advances in artificial intelligence." Most agree that the IoT has enormous potential for economic impact, and PTC fully intends to ride that wave to market success.

Mr. James Heppelmann, PTC's President and CEO, kicked off the event, stated that the IoT is a "game changing innovation" and highlighted what some had already noticed: PTC has rebranded itself, including a new logo, with several influences. They went on to highlight the yin and yang nature of the "physical" and the "digital" in their strategy to attack the IoT opportunity. In a panel for press and analysts, Mr. Heppelmann stated his belief that IoT is the next generation of PLM. CIMdata agrees that for many companies, visibility of their product historically stopped after their products went out the door. While product development companies and CIMdata may have had a broader view, only limited data on usage came back in the form of warranty claims, complaints, returns, and from other sources. The IoT can provide unprecedented visibility into the use patterns and operating conditions of fielded products, a gold mine of knowledge for product development to improve both their craft and their results.



**PTC's New Logo**

Mr. Heppelmann also highlighted several product announcements including: VuforiaStudio Enterprise, a new offering from their recent acquisition, and ThingWorx Analytics from their ColdLight acquisition, which he claimed was "ColdLight unleashed." Echoing others interested in the notion of the "digital twin," Mr. Heppelmann told the audience it was no longer about apps, "it's about experiences." The focus was entirely on IoT, but statistics revealed by PTC showed that only 35% of attendees came to hear about IoT, with 30% there

to learn more about Windchill, and 30% for Creo information. LiveWorx's wide-ranging agenda had focused sessions on many PTC products. The main stage demonstrations showed that the Windchill and Creo portfolios power many of their more recent offerings, but they were not the focus at this event—IoT was. But to ensure overall business success, PTC cannot lose focus on their core Creo and Windchill offerings. In the PTC executive panel discussion for analysts, Mr. Heppelmann stated that the new businesses are getting a bigger share of PTC's R&D investment of about 17% of revenues. That makes sense, but the core offerings' revenues are funding PTC's expansion, so investment in those portfolios must remain strong.

The agenda included some interesting keynotes from PTC customers, including Caterpillar and Flowserve. These talks included live demos with real "things," in this case full sized industrial products. For Ms. Terri Lewis, Account Executive from Caterpillar, her "thing" was a generator set often hidden behind the walls around most construction sites. PTC's technology was processing sensor data in real time and displaying virtual gages and dials presenting readings from physical sensors on the physical equipment to support use and maintenance actions.

Mr. Eric van Gemeren, Vice President of R&D for Flowserve, spoke about their collaboration with PTC, National Instruments, and ANSYS. According to Mr. van Gemeren, Flowserve makes the industrial foundation for many products, including pumps, valves, seals, and other vital components. Based on their analysis, when a customer identifies a problem it can take 3 maintenance visits to identify and fix the root cause of the problem. They believe that by using IoT and analytics their services can be delivered right the first time. A demo highlighted a new PTC workflow to support these use cases: Kepware technology to link to the shop floor, an integration with National Instruments to get sensor data for ThingWorx Analytics to assess, and an integration with VuforiaStudio to apply augmented reality/virtual reality (AR/VR) to the solution. PTC emphasized that this complete solution—IoT + AR/VR + Analytics—can run on a single device, for example, a dedicated server developed with HP Enterprise (HPE) that can run on the "edge" at the plant. This is going to be an essential part of the solution because several speakers emphasized that it is physically impractical and financially irresponsible to put the huge quantities of sensor data on the cloud.

A talk by Mr. Joe Justice, the President of Scrum in Hardware, provided further evidence that the conference provided another opportunity to take a fresh look at things, which Mr. Heppelmann claimed is the new mantra within PTC and another driver for the rebranding and new logo. Mr. Justice is an evangelist for applying agile/scrum methods from software development to developing physical products. One area of the Xtropolis was dedicated engage scrum teams of conference attendees to develop a car in one day. The car was divided into 8 modules, each with its own team. They had to design and figure out how to make their module from a range of materials and manufacturing processes at their disposal. This included additive manufacturing (AM) capabilities from Stratasys, who brought some large envelope AM machines to the floor, as well as composites manufacturing equipment. During the second day Mr. Pogue informed the crowd that the project was a success, which got a nice ovation. The talk made clear that agile/scrum for hardware requires a modular architecture so that teams can truly work independently. As such, this development approach could be synergistic with the move toward product line engineering in some industries.

The 225+ press and industry analysts in attendance split their time between LiveWorx sessions, the Xtropolis, and a custom track of main stage speakers made up of PTC executives, partners, and other thought leaders. During the panels, PTC often displayed slides with position statements from the panelists on IoT. According to Ms. Lewis from

Caterpillar the “IoT has existed for years, but the technology has only recently become democratized. Now any smart person with a problem to solve can transform industry.” Many at the event cited a focus on a real problem as critical to success. This is important because in the early phases of technology diffusion people do things because they can, not necessarily because they should. For every Nest thermostat we also get instrumented water bottles, egg trays, and many other IoT dreams gone bad.

Deloitte, a leading systems integrator, thinks that IoT is different from its traditional businesses, particularly its scale and potential, and a new approach and organization was required. In response they created Deloitte Digital, which they claim is a unique combination of strategy, creative, and technology. Deloitte believes they need a global presence that can deliver local flavor, so their 5,000 strong team works from 25 studios worldwide. In comparison, IBM has a strong industrial design and creative emphasis in their IoT business unit, but they have not integrated strategy resources from Global Business Services as Deloitte has in this new unit. Another session featured Accenture highlighting their work on digital transformation with the World Economic Forum. They are collaborating on value roadmaps to support digital transformation for sixteen different industries, with six nearly completed.

Getting these innovations out to market is also heavily on the mind of and in the plans of PTC. During an executive panel, PTC claimed they had 12 scrum teams working on IoT Accelerators that will make it easier to deliver these capabilities, making it easier to deploy Windchill, PTC Navigate, and other solutions, and then to add AR/VR capabilities when appropriate. PTC claimed that just including ThingWorx in existing deployments to get feedback from customers (with their permission, of course) has dramatically reduced deployment time around those products. This is consistent with Mr. Heppelmann's claim that in the IoT world the product should be a sensor on the customer (instead of the customer being a sensor on the product), another common practice in software that could be adopted to develop mechanical designs by industrial companies.

While PTC has been working hard to rethink and rebuild their company for the world of smart, connected products, this event made clear that PTC is moving rapidly, but is only at the beginning of their envisioned journey. The product announcements highlighted the rapid integration of their recent acquisitions with other elements of their product portfolio. The fact that all of these acquired tools had to easily work in heterogeneous environments certainly eased this integration process. Mr. Heppelmann emphasized what he described as their unique position and set of assets to compete in this new world. They have built a strong IoT technology platform with Kepware, ThingWorx, ColdLight, and Vuforia, and integrated it with their core Creo, Windchill, and Integrity portfolios. Their platform is supported by a wide-ranging ecosystem of partners and influencers. The agenda highlighted some major partners, including Accenture, Amazon Web Services (AWS), Cognizant, Dell, Deloitte, Flowserve, Glassbeam, Hewlett Packard Enterprise (HPE), Kalypso, National Instruments, SAP and Servicemax.

Will there be a pot of gold at the end of PTC's IoT rainbow, and just how big will it be? Mr. Heppelmann cited Amara's Law, from Mr. Ray Amara, a past president of noted futurist organization Institute for the Future: “We tend to overestimate the effect of a new technology in the short run, and underestimate the effect in the long term.” We are clearly still in the short run of IoT and some of the estimated effects are indeed huge. But it is also clear that the IoT is still an enormous business opportunity because these solutions can indeed help industrial companies expand the reach of their PLM vision through product life, yielding new product insights and entire new business models. Mr. Heppelmann's work with Dr. Michael Porter of

Harvard Business School provides a good roadmap for industrial companies to explore these new business models.

As for success stories, while PTC's strategy enables a broad range of IoT applications, CIMdata believes they are in a sweet spot for the Industrial Internet. Their Kepware acquisition links them with the shop floor, and many of their ~25,000 Creo customers manufacture industrial equipment and/or care deeply about it. PTC's solutions work in heterogeneous, multi-layer environments and can be mixed and matched, or reduced in scope, to allow other existing solutions to assume a particular role. CIMdata thinks it will be interesting to see how their Accelerators and deployment methods succeed at splicing their solutions into complex environments. PTC AgileWorx was created to support agile/scrum for hardware to help industrial companies on their agile journey. Mr. Heppelmann claimed that PTC is the only major PLM player who can really support the breadth of capabilities needed for agile/scrum in hardware. At this time, CIMdata thinks they are definitely leading in this new domain.

The big question, of course, is monetization. The IoT requires PTC to adopt new business practices and it will take some time for them to be worked out. The fact that they are moving their customer base from perpetual licenses to subscriptions will add to the challenge of maintaining revenue and profit goals. PTC will also have to convince their existing and potential customers to join them in taking a new look at solutions, systems of systems, IoT, and on-going business models. The strong customer stories highlighted at LiveWorx 2016 demonstrated solid value and these stories, and others like them, are essential to get customers and prospects to take that new look, buy, implement, and achieve the desired returns.

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