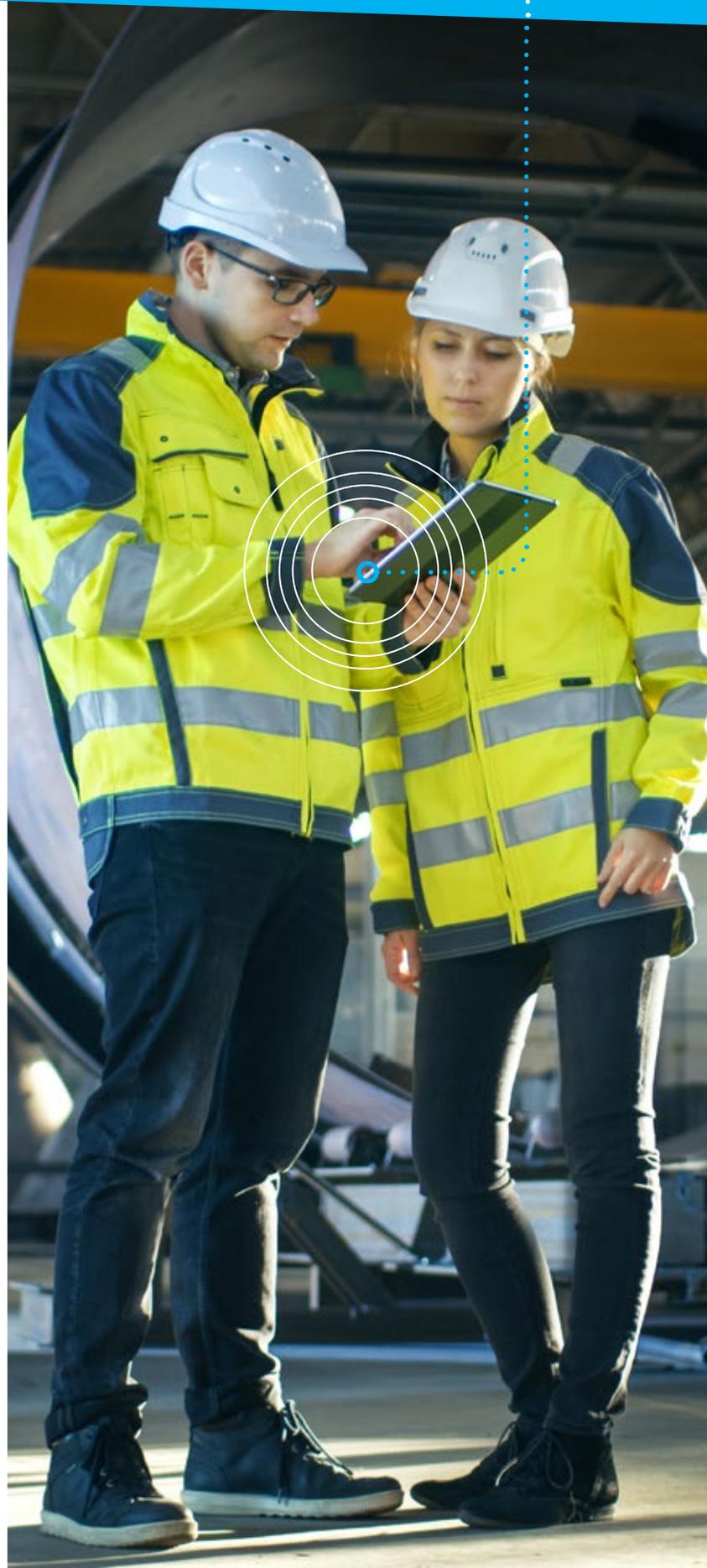# A faster route to Industry 4.0 implementation

As companies strive to move their industrial control systems into the Industry 4.0 era, Capula's partnership with PTC ThingWorx is accelerating the transition.

For industrial companies, the potential benefits of advanced digital technologies are undisputed. New research by consultancy McKinsey and the World Economic Forum (WEF) suggests that Industry 4.0, or the Fourth Industrial Revolution, is set to add $3.7 trillion to the value of the global economy by 2025.

That value will come from a diverse, but interconnected, range of sources. Companies will boost productivity through higher levels of automation, and they'll transform quality with tighter, more responsive control of processes. Industrial assets are gaining the ability to sense their own health, allowing owners and operators to prevent breakdowns and maximise availability. Artificial intelligence and smart data analysis techniques are leading the creation of 'self-driving' production systems, able to sense and predict changes in demand, and to reconfigure themselves in response.

Today, however, the gap between potential and reality remains significant. The WEF report warns that 70 percent of manufacturing companies are only at the initial stages of their Industry 4.0 journey, if they have started at all. The reasons for this relatively slow progress are complex. A digital transformation requires companies to adopt new ways of working and to acquire new skills and capabilities. Industrial supply chains involve multiple businesses and stakeholders, who must change together to capture the full benefits of greater integration and connectivity. Upgrading fleets of high-value, long-lived assets takes time, commitment and investment.

OPUS
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Breaking down the barriers

There are also technological barriers to Industry 4.0 implementation. Companies need assets, from machines on the shop floor to products in the field, that can collect, store and share data. They need the communication infrastructure to stitch those assets together into digital networks. And they need the analytical tools and applications to derive business value from their data.

Those barriers are coming down rapidly. Most industrial control systems already collect large volumes of operational data. The availability of robust, low-cost sensors and communication hardware has dramatically simplified the task of filling any remaining gaps. The widespread adoption of standard communication protocols makes it easier to connect assets and systems.

More recently, the development of extensible, modular platforms, such as PTC's ThingWorx, has given companies the tools they need to tackle the next part of the Industry 4.0 challenge. Such technologies allow organisations to integrate disparate devices, systems and applications into a single digital backbone, laying the foundation for new insights, greater control and more effective decision-making.

From platform to application

Today, the modular approach has taken a further step. Built on the PTC's ThingWorx platform, Capula's new suite of three OPUS manufacturing apps require minimal implementation and configuration effort.

The OPUS apps bring the Industrial Internet of Things (IIoT) to a wide range of industries and asset types, from manufacturing lines to building control systems. From their inception, these solutions have taken full advantage of ThingWorx technologies, whilst offering enhanced reporting and analysis capabilities.

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OPUS can be used to create new perspectives on organisation's operations, or to extend their IIoT capabilities to include new use cases. Each app is designed to address a specific use-case within manufacturing organisations.

- OPUS Controls Advisor is a secure web or mobile device interface for controls engineers, allowing them to monitor and troubleshoot machine connectivity through a secure remote interface. The app provides real-time visibility of asset and device status and instant notification of alerts and connectivity errors. It also incorporates easy-to-use analysis capabilities, allowing engineers to track trends and tag issues for further investigation.
- OPUS Production Advisor gives plant and production managers an integrated perspective on current and historical status of all their assets. The app provides a single-window perspective on critical performance indicators such as asset availability, production quality and overall equipment effectiveness (OEE).
- OPUS Asset Advisor is a real-time digital dashboard for maintenance engineers. It shows the health and status of critical assets and detects errors and anomalies in real time. Advanced data recording and analysis capabilities enable asset trends and troubleshooting, and support the use of condition-based maintenance strategies.

The apps can be tailored to suit any user's own assets and business needs, enabling organisations to benefit from the latest approaches to data visualisation and analysis. Successful experiments can be seamlessly scaled from pilot to organisation-wide roll-out.

In their basic form, the OPUS manufacturing assets can be installed and configured in less than 60 minutes, dramatically accelerating a process that until recently might have taken weeks or months of development effort. That means Industry 4.0 projects cost less and start delivering value faster.

Rapid evolution

The true power of this new generation of Industry 4.0 applications isn't their simplicity, however. It is their flexibility. Like the platform on which they are built, the OPUS apps have been designed with scalability and extensibility in mind. That makes these applications ideal for the rapidly evolving Industry 4.0 environment.

Working closely with PTC, Capula is using its deep experience of industrial control systems design to customise and enhance the applications for specific user situations. For our customers, that's providing more value, faster deployment and a greater return on investment.

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