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The rise of Industry 4.0



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Industry 4.0 and the Internet of Things (IoT) represent a massive transformation that will affect every aspect of our professional and private lives. Millions of structures, including factories, homes, and energy and transport systems, together with all the products and machines they contain, will be interconnected and responsive in real time.

“The cornerstone of all these developments is smart, connected things,” said EY’s Dr Christoph Kilger, speaking at CODE_n. He said it is not the internet that is changing, but the things themselves. For some years now, products such as washing machines have had the sensors and software to gauge how well they are functioning, and when and why they are developing a fault. But the power of such data is only unleashed once products can connect and communicate – a revolution that is now gathering pace.

The “system of systems”

The implications of products being able to “tell” third parties about their activity and performance are enormous. “We will move to a ‘system of systems’,” said Kilger. “So, for example, a tractor might connect to other farming equipment, such as harvesters, to form a system, but then that system might also go on to connect with other systems, such as weather

forecasting, soil analysis, and seed and fertilizer management systems. You end up with a fully connected agriculture ecosystem that causes disruption to traditional business models.”

So how should companies respond to such disruption? Kilger said they have to decide what data is relevant to their business model and what to do with it, prompting a whole string of questions, such as: what additional functions in my product or in the cloud will be useful and relevant to my customers? Do I want the software to be open or closed, i.e., do I want others to connect freely with my system or do I want them to pay to use it? Do I develop software internally or outsource it? Could my business model also include selling data on to other providers? The answers to these questions may end up radically extending existing business models or provoking new partnerships and collaborations.

Who holds the power?

Some very interesting negotiations will result from Industry 4.0. For example, a fertilizer company knows exactly how to fertilize soils and maximize crop production in every part of the world, but a farm machinery manufacturer will have valuable data relating to when, where and how much fertilizer was actually applied in specific situations. "It's not yet clear which party will win out in a situation like that," said Kilger.

Get immediate benefit from your data

What industry needs is not necessarily more data but better use of data. Only then will the benefits of Industry 4.0 materialize: the ability to maximize productivity, predict and prevent machine breakdown, manage product life cycles and design smarter parts.

That's the view of EY's Frank Müller, Executive Director Manufacturing and Maintenance for Germany, Switzerland and Austria. Speaking at CODE_n, he said that some companies are failing to realize the full potential of the Internet of Things because they are capturing huge volumes of data without considering what it is for.

From reactive to predictive mode

"Fifty years ago, you had reactive maintenance, which meant waiting until a machine broke down and then repairing it," he said. "Then we moved into preventative

EY and CODE_n at CeBIT 2015

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maintenance, where you would repair machines after a certain number of kilometers or a set time interval. Today, we are in the era of predictive maintenance, where we can act before problems arise: sensors are cheaper and deliver much more sophisticated information, so you can initiate maintenance before breakdowns occur." However, the sheer volume of data that can now be captured means many companies are unable to interpret and apply the information they are so diligently gathering.

What is data for?

Companies must avoid this pitfall and ensure they capture the benefits of operational efficiency, cost efficiency and lead time, Müller said. EY can help clients identify and gather the data that will be truly useful to them, and focus on short-term sustainable improvements.

"I would advise companies to think about what data to capture, at what frequency and for what purpose: concentrate on the vital few defects that will really make a difference," he explained. "For example, if stoppages cost your company the most money, focus on finding the basic stops, analyze the top three causes and tackle them. Otherwise the danger is that companies sacrifice commonsense for terabytes of data with a purely theoretical value."

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