

Frimley, UK

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GO DIGITAL FOR A COMPETITIVE EDGE

Following 2017's publication of the Government-backed 'Made Smarter' review, Mike Houghton, Managing Director – Process Industries and Drives, Siemens UK & Ireland, outlines some exciting digital technology solutions designed to support process industries as they embark on their digitalisation journey. Mike is also advising the All Party Parliamentary Group for Trade and Investment on topics relating engineering in the process sector.

Digitalisation is the technology focus behind Industry 4.0 and it is coming down the tracks fast.

A highly digitalised industrial landscape promises a data-rich interconnected world, where seamless technology platforms will improve productivity, promote flexible production capability, create high value jobs, aid competitiveness and drive growth to support national economic success.

Central to all such ambitions will be the uptake of transformative digital technologies across our industrial sectors, including process industries, and work is well underway to ensure this happens.

The 'Made Smarter' review, which was led by Siemens CEO Juergen Maier, outlines most of the opportunities the digitalisation of industry offers the economy in terms of supporting growth, high value job creation, skills and improving national productivity.

And making the most of this opportunity is certainly worth it.

The review concludes that if we see the widespread adoption of industrial digitalisation, the next ten years could see a £455bn boost to UK manufacturing, increased sector growth of up to 3% per annum, the creation of 175,000 jobs and the reduction of CO2 emissions by 4.5%, according to consultants Accenture.

If the wide-ranging The 'Made Smarter' recommendations are implemented, the report authors believe Britain can become a world leader in the fourth industrial revolution, improve its current lack lustre productivity levels, generate high value jobs, and, ultimately, support economic prosperity.

With a vision for industrial digital technology adoption now set out, process industries looking to take advantage of what it offers can already access some key digital technology solutions that can pave the way to enhanced performance and future competitiveness.

The digital enterprise and the digital twin

All process companies are under competitive pressures and must find a balancing act between the need for production flexibility to launch products more quickly to market while satisfying individual customer requirements, and at the same time comply with legislative constraints and ensure process safety and high product quality. Meanwhile, productivity and efficiencies need to keep rising to control costs.

To satisfy commercial and operational ambitions to provide individual solutions for customers, a reduction in plant maintenance responsibilities or improve plant availability, the answer lies in the digital enterprise.

The digital enterprise involves the integration of hardware, software and services programmes to record and intelligently leverage the vast quantities of data that processes can create.

Companies can also take a further digitalisation step towards linking the virtual and real production worlds through the simulation of machines and plants courtesy of digital twins. The ability, for example, to respond flexibly to individual customer

requirements with small batch sizes, calls for the use of simulation solutions along the entire value chain.

This is where the digital twin comes into its own, precisely duplicating and simulating the properties and performance features of a physical product, a product line, a process or a complete plant in the virtual world before a single screw needs to be picked up in the real world.

A central data platform and high performance network components are the basis of a digital twin that can be used to map and optimise an entire plant lifecycle. The common data platform enables all of the disciplines involved in a project to generate a common data model. This permits most of the processes usually carried out in sequence to be executed in parallel, thereby saving valuable time and expenses.

Likewise, for plant availability objectives, the digital twin can drive tangible benefit. To increase the availability and reliability of a process plant, the mechanical assets must be monitored since they are often the prime cause of unplanned downtime. Simple communication between the control system and the maintenance tool, plus access to all plant data via the digital twin, accelerates predictive maintenance and repair measures. The result: an optimised plant.

MindSphere

To further support businesses towards a digitalised and connected future, **MindSphere**, provides a cloud-based, open operating system. Created by Siemens, it is a strategic technology platform that allows industrial process customers to connect their machines and physical infrastructure to the digital world, and harness data volumes from intelligent devices to drive operational insight, productivity gains, flexible manufacturing options and upscale efficiencies.

The MindSphere platform provides powerful real time data analytics and connectivity capabilities, tools for developers, applications and services, enabling users to evaluate and use data streams, enhance performance and optimise asset bases.

Not only does MindSphere connect real things to the digital world, it also enables powerful industry applications and digital services to drive business success, including support for an open platform partner ecosystem that can develop and deliver new applications.

In the past ten years, consumers have benefitted greatly from the remarkable productivity leaps in the manner in which they purchase and travel thanks to their own digital journey.

It is now industry's time to reap the rewards of the innovative advancements in cloud connectivity, data storage and computing technology that sit at the heart of the powerful digitalisation offering.

The digital revolution is an exciting time for process industries. It is the foundation that will transform how process companies can plan asset and plant management more intelligently, link together disparate elements of the processing operation to maximum effect, and support ambitions to gain a technology edge over the competition.

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Media contacts

For further information, please contact:

Paul Addison at Siemens paul.addison@siemens.com

Nicola Pittaway at McCann PR nicola.pittaway@mccann.com or 0121 713 3744

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generated revenue of €33.0 billion and net income of €6.2 billion. At the end of September 2017, the company had around 377,000 employees worldwide. Further information is available on the Internet at www.siemens.com.