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The future's in Sync   **Northern Ireland's technology and business home**

How digital can deliver rapid and sustainable energy savings

If you've worked in manufacturing, you'll have heard the phrase 'You can't manage what you don't measure.' You'll also know that measurement is worth nothing if it doesn't lead to insights that either increase revenue, or reduce costs.

While many manufacturers today will be most concerned with the impact of exchange rate fluctuations on their imports or exports, or of increased regulatory pressures in their respective markets, they may not have grappled with reducing some of their more obvious overheads - such as water and energy.

But just as software has disrupted everything from how we buy music, book hotel rooms or hail taxis, so too is it changing the way that companies manage their utilities.

Manufacturing Energy Management Solution (MEMS) is GE Digital and EY's industrial application to help manufacturers transform their utility management capability by providing groundbreaking insight into energy and water consumption.

MEMS is a proven, pre-configured and rapidly deployed application powered by Predix®, GE's cloud-based operating system for the Industrial Internet.

Alex King, GE Digital's Director of Ecosystem & Channel Partners, said: "Software is helping manufacturers to measure - and manage - in ways that had never been possible before. We've seen potential reductions of up to 10% in manufacturers' utility costs - which can deliver millions of euros to the bottom line and help them to meet their sustainability goals."

How it works case study: Global Industrial Manufacturer
A global manufacturer faced issues of high energy and utility consumption at one of its industrial sites. The company also had poor usage visibility / baseline and faced the challenge of limited correlation to manufacturing. The manufacturer engaged the GE Digital and EY team to help.

The team proceeded to implement MEMS, capturing causes for adverse energy /utility events by cost centre and

equipment.

This helped the manufacturer to enable continuous improvement through tracking, visualization and enterprise wide analysis of utility usage metrics. It also helped to drive cost savings and business performance by leveraging data analytics, dashboards and reports to fuel continuous improvement. Finally, the company was able to develop energy awareness and visibility for corporate sustainability goals.

Once in place, the manufacturer was able to identify savings opportunities of 5% - 7% of annual site utility cost within the first three months of deployment - and longer term could see potential of 10% reduction in utility costs.

From the basis of this individual project, the manufacturer adopted MEMS as standard infrastructure for the Global Lean Energy Program & Global Energy Team. The software is currently being rolled out to two new projects in Europe and North America and is in the process of being deployed to 12 further manufacturing sites worldwide.

Manage utility consumption with visibility, knowledge and insight
MEMS connects all energy and water consumption — and the associated costs — to products, equipment and processes and provides a detailed view of energy use, not only at an individual manufacturing site, but scalable up to an entire enterprise.

Put simply, it's software that helps manufacturers to see clearly how they are using water and electricity in the context of their factory's production.

But not only that - it allows managers to take action on that data, as well as factor energy and water usage into planning and execution decisions. This leads to improvements in cost, efficiency, greenhouse gas emissions and water conservation. It's good for a company's bottom line as it is for

meeting sustainability goals.

The EY and GE Digital alliance advantage
GE has built Predix, the operating system for the Industrial Internet, which leverages GE's decades of experience and knowledge in industrial manufacturing.

EY accelerates issue-driven innovation and business transformation through its digital capabilities and domain knowledge across business sectors. EY's relationship with GE Digital and approach to digital operations enables us to bring innovative Industrial Internet of Things services to market to help clients dramatically improve productivity, increase yield, reduce cost and increase revenues.

With MEMS, EY has adapted its on-premises MEMS (built on GE Digital's Plant Applications software formerly called Proficy Plant Applications) for the Industrial Internet of Things. EY brings a full range of consulting and implementation services to support the MEMS-based transformation of a manufacturer's energy program.

We apply leading practices to help assess the current state of energy management and to help develop a roadmap for success. Our implementation services include turnkey MEMS installation, training, rollout and support.

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MEMS by GE Digital and EY

Through MEMS, companies can measure utility usage at each unit and assign it directly to a production bill of materials. Managing energy and water as production materials permits manufacturers to treat utilities as a controllable cost rather than as fixed overhead.

▶ MEMS presents utility consumption data in the context of production, allowing manufacturers to define energy and water as bill of material items and handle utilities as a controllable cost rather than fixed overhead
▶ MEMS provides insights to help reduce utility consumption, enact production decisions to adjust energy usage, and meet regulatory compliance mandates
▶ MEMS provides manufacturers with a tangible way to reduce cost while meeting their sustainability objectives and enhancing their reputations as contributors to a better, greener world.

Analytics for real-time decision making
MEMS analytics give manufacturers the insights they need to make decisions in real time to:

▶ adjust overall energy usage
▶ respond to fluctuations in energy cost or new compliance requirements
▶ understand sources of waste
▶ model performance in support of energy budgeting and contract negotiations
▶ increase energy efficiency by correlating energy patterns to production and process variables
▶ continuously improve performance by analyzing and contrasting plants, departments, production lines, equipment, shifts and crews.