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More4Sustainability

The Netherlands, Belgium, France, and Germany **join forces in the Energy Transition**

Sustainable Asset Management can be a valuable tool in this regard. To achieve this, especially with/by/for the Manufacturing industry, an international Western European consortium has established the MORE4Sustainability project. This collaboration involves the Netherlands (NVDO), Belgium (Bemas), Germany (FVI), and France (EMC2). The project is led by Bemas and coordinated in partnership with Mainnovation.

The project consists of several phases and begins with a unique benchmarking study. At least 200 companies from Western Europe, particularly from the Manufacturing sector, such as Oil and Gas, Paper and Pulp, the Food Industry, and other industries, will participate. As a token of appreciation for their participation in the benchmark, the participants will receive a customized benchmark report tailored to their needs.

The second phase of the project involves developing a roadmap, with the insights from the benchmark study serving as its foundation. The final phase is a training program (available in four languages) focusing on Sustainable Asset Management. This training program will be offered in both physical and online formats.

Expert Board. MORE4Sustainability has, in addition to the steering committee, an Expert Board. This board consists of the following scientists:

- Willem Haanstra, Assistant Professor in Asset Life Cycle Engineering & Management, University of Twente
- Pierre Dehombreux, Professor, Department of Mechanical Engineering - Mechanical Design and Production Engineering, Faculty of Engineering of Mons
- Pierrick Haurant, Assistant Professor at IMT Atlantique
- Lennart Brumby, State University of Baden-Württemberg Mannheim

The primary task of the Expert Board is to ensure the quality of the benchmark study and the roadmap. Finally, the Expert Board will be consulted with the final results.



‘Closer collaboration between universities, technical schools, and organizations should be fostered’

→ **Suggestion for Maintenance.** The question is how Maintenance and Asset Management can contribute to energy efficiency. Haanstra; “Both maintenance and sustainability are important value drivers for Asset Management organizations, especially when the whole life cycle is considered. As many technical systems are operational for multiple decades, the value of maintenance and improved sustainability accumulates over the entire life cycle and is becoming increasingly important for organizations and society alike”.

Maintenance contributes directly to sustainability by increasing the lifespan of assets, increasing production volume, reducing waste and losses, and avoiding preventable outages and repairs. “Continuously improving energy efficiency can lead to sustained cost reduction, higher availability, and reduced environmental impact”, says Haanstra. “In addition to the operational perspective, Asset Management organizations should also look ahead and plan for how their assets will be operated and maintained in the foreseeable future: A future where targets for climate neutrality or the circular economy are becoming more concrete, the way energy is produced and consumed is steadily but surely changing, and new technology provides new and exciting opportunities”.

→ **Manpower Needed.** Reaching climate neutrality by 2050 will be a significant challenge. To achieve this, we need people. To ensure that this required manpower is also professional, training is essential. Dehombreux comments on this; “Achieving climate neutrality by 2050 is a significant challenge that necessitates substantial changes in workforce training. The first challenge is identifying skill gaps in MORE (Maintenance, Overhaul, Repair & Engineering) activities and global asset management. To address this, closer collaboration between universities, technical schools, and organizations should be fostered, as in-depth case studies are needed to convince all stakeholders of the benefits and feasibility of sustainable practices”.

Certifications and short courses promoting lifelong learning must be encouraged and supported with additional financial incentives, according to Dehombreux. “It’s crucial to incorporate distance learning applications to make sustainability education accessible to a broader audience. This approach ensures that technical managers and other key personnel are equipped with the necessary skills and knowledge to implement Sustainable Asset Management practices effectively”.

The MORE4Sustainability project exemplifies this approach by offering comprehensive training programs designed to enhance energy efficiency and reduce greenhouse gas emissions. Insights from a benchmark study involving over 200 companies will guide the development of these training modules, ensuring they address current industry needs and challenges. “Sector-specific training is also crucial. For instance, manufacturing might focus on energy-efficient production processes and eco-friendly materials, while the infrastructure sector could emphasize sustainable construction and maintenance practices”. Dehombreux; “As Rabelais stated nearly five centuries ago, ‘Science without conscience is but the ruin of the soul’. This underscores the importance of a strategic framework guiding all improvements in sustainable development, ensuring that scientific advancements are coupled with ethical and environmental considerations. By addressing skill gaps, fostering educational collaborations, and promoting accessible, lifelong learning, the MORE4Sustainability project is paving the way for achieving climate neutrality by 2050. This holistic approach will not only enhance energy efficiency and reduce emissions but also support a sustainable future for all sectors”.

→ **Low-Hanging Fruit.** The Manufacturing industry can start contributing to energy efficiency right away. Consider using sensors, avoiding unnecessary lighting, and optimizing the use of compressed air, etc. Haurant has more suggestions: interpretation of data can make possible to make substantial energy savings; “Indeed, the digitalization of production in factories, namely Industry 4.0, by the collection and interpretation of data can make possible to make substantial energy savings. Also, an energy management system (EMS) can be established to optimize energy consumption and lead to better energy efficiency. EMS ultimately enable the company in the beneficiary industry to be ISO 50001 certified”. Finally, the recovery of waste heat from industrial processes is a powerful lever for energy efficiency. “The idea is to recover and reuse as much heat as possible in order to reduce the use of other industrial utilities, mainly steam and cooling water”, according to Haurant. This principle can be followed both on the scale of a production plant and an industrial territory. It also can be generalized to any type of co-product of a process: water, material, with a view to the implementation of a territorial industrial symbiosis.

→ **Technical Knowledge.** Improving the performance of assets also requires technical knowledge. This knowledge must fully account for sustainability performance. Prof. Dr. Lennart Brumby, Duale Hochschule Baden-Württemberg Mannheim supports this with a compelling example; “Technical knowledge is the basis for good and modern Maintenance and Asset Management. In addition to knowledge about the assets, technical knowledge also includes knowledge of methods such as e.g. systematic troubleshooting, weak point analysis, FMEA, RCM and the various lean management methods. On the other hand, technical knowledge should also include knowledge of current technologies and their areas of application, such as the various technologies of condition monitoring, but also data analysis and of course AI”.

As a result of the climate crisis and the resulting need to focus on greater sustainability of our production and assets, two further areas of knowledge have been added that cannot be missing from any modern asset management. Brumby; “Firstly, we need comprehensive knowledge of how we can systematically reduce Green House Gas (GHG) emissions. Secondly, how we can continuously improve the energy efficiency of our assets”.

A large production plant for high-precision aircraft parts in Northern Germany was faced with such a challenge. “Not least due to increased energy prices, the management of this plant was forced to significantly reduce energy consumption in production” continues Brumby. “The plant's asset management then started a training program in which employees were made aware of the issue of energy waste and demonstrated many examples of how energy can be saved in production using simple means. An important component was the introduction of ultrasonic location of compressed air leaks. The employees were trained in the operation of these devices and were able to find and eliminate leaks independently. In combination with the knowledge of lean thinking, the employees quickly understood how they could expand the search for Muda to include the energy waste of the assets. In this way, the plant managed to significantly reduce energy costs of their production in six months”.

This example clearly shows how important the technical knowledge of employees in Asset Management is and that this technical knowledge must also include sustainability aspects.

→ **Join Us.** The benchmarking study is open for participation. The MORE4Sustainability partners are inviting you to take part in the survey. Only with the highest number of respondents can we understand how the Manufacturing industry is already working towards energy efficiency and identify areas for improvement. What initiatives have been undertaken by the sector, and what are the outcomes? The benchmarking study will generate a collection of best practices from which other companies can learn.



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