E2COMATION IN A NUTSHELL

E2COMATION project provides a cross-sectorial methodological framework and a modular technological platform meant to help industrial companies **save energy and directly be more sustainable** from the environmental and economic point of view.
Benefits will not be just regarding sustainability aspects but also related the **efficiency**. Therefore, all the efforts regarding energy efficiency research imply a change, improvement and efficiency in the company as a whole.

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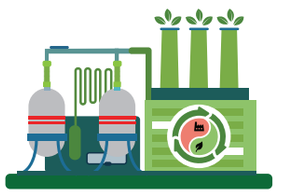
A NOVEL APPROACH TOWARD A NEW INTEGRATED PRODUCTION PARADIGM BASED ON ENERGY EFFICIENCY AND SUSTAINABLE MANAGEMENT



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Life-cycle optimization of idustrial energy efficiency by a distributed control and decision-making automation platform

CONTEXT

Nowadays, all the countries face unprecedented challenges resulting from increased **dependence on energy imports and scarce energy resources**, and the need to limit climate change and overcome the economic crisis. The continuous increase of energy efficiency, supported by innovations, is a valuable and effective way to address these challenges.

Focusing on **industrial energy efficiency**, an improvement on the manufacturing level requires the **integration of energy data**, such as historical data, real-time data and real-time predicted energy cost, into the **production management systems** based on the given and individual industrial task. In parallel, manufacturing systems are not only individual but complex because many parameters, related to the environment, components, usage of materials, machines, cells, lines and supply chains, collectively influence the energy as well as the sustainability performance of production processes.

E2COMATION ANSWER

The E2COMATION project takes up and addresses these challenges developing a **methodological approach and technological framework** that not only embeds LCA-driven reasoning criteria into a comprehensive decision support architecture but also guarantees that the corresponding information streams are elaborated by **energy-optimizing intelligent algorithms.** The overall framework allows not only the calculation of performance metrics in real-time to support **problem diagnosis and resolution,** but it also is able to communicate such information to decision-makers using perceptually efficient visualization. This is intended to **reduce cognitive workload** and improve situation awareness, a fundamental requirement to guarantee that energy efficiency and environmental footprint KPIs become central to the governance of a factory.