SYSTEMATIC APPROACH TO THE PREPARATION OF REQUIREMENTS AND SPECIFICATIONS FOR DIGITAL UPGRADES

INEVITABLE

European Commission

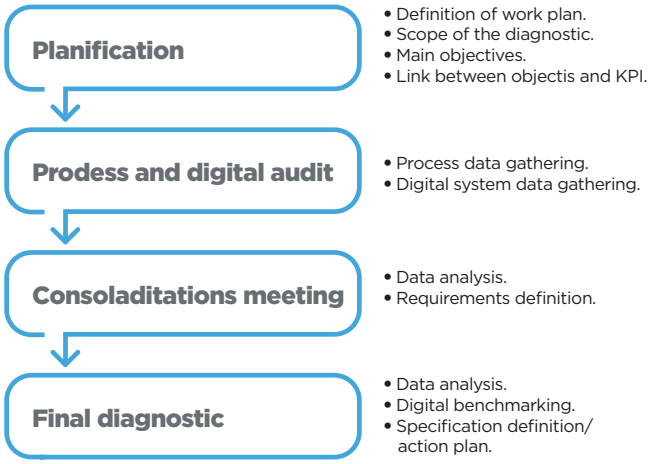
SPIRE

APPROACH

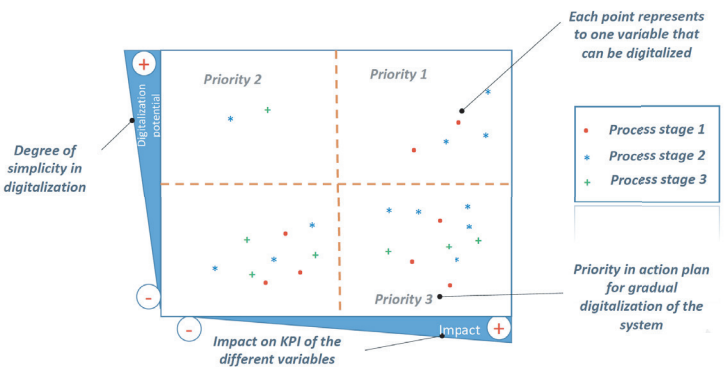
Manufacturing companies need to digitally upgrade production systems and uptake new technologies (like cognitive solutions) in order to stay competitive and to improve their business outcomes in terms of quality, service, sustainability and human wellbeing. Decision-making mechanisms in industrial companies are based on expert knowledge, and in these multi-stage processes, where a lot of data is processed, the degree of accuracy is often insufficient. More specifically, we find companies with a certain degree of digitalization, but that have not evolved into a unique and integrated digital solution. This situation leads to a lack of coordination and efficiency in the decision-making mechanism. The diagnosis of the digital situation offered to companies is not applied according to a general plan, but rather in the form of specific actions for machines or departments.

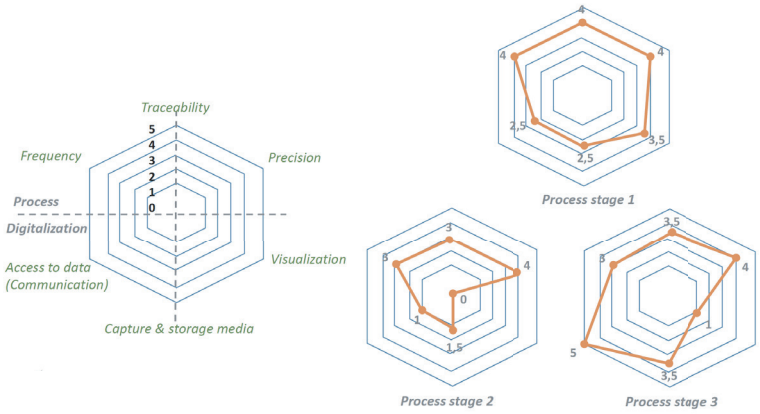
SOLUTION

To support the preparation of requirements and specifications the methodology consisting of systematic steps was developed. The approach consists of planification, process and digital system audit, consolidation meetings and final diagnostic overview.



This solution includes the analysis of the level of digitalization from two different points of view: the quality of the data in terms of process and product variables (traceability, frequency and precision) and the digitalization of this data (access to data, capture and storage, and visualization). The analysis is followed by a visual benchmarking of the company's digital situation, the definition of priority criteria and ends in an action plan. To further support the implementation of these steps, a tool (Digital Readiness Diagnostic) was created with several forms to collect the data and provide feedback. The tool provides visual aids to clearly identify the current status and its possible evolution in the future, and prepares concrete activities needed to improve the level of digitalization of the processes considered.





UNIQUE VALUE PROPOSITION/ADDED VALUE/NOVELTY:

The Digital Readiness Diagnostic tool guides the production plant to prepare concrete specifications and requirements (with detailed technical details) leading to concrete realization steps. The tool supports the analysis of all process stages of the company, even if there are many interactions between them. The diagnosis generates a clear picture of the weakest areas of the company in terms of data quality or digitalization and prioritizes in an orderly way the actions for a successful implementation of a cognitive and integrated digital system.

AREAS OF APPLICATION

The methodology was developed for metallurgical processes, it has been demonstrated for the ferrous (steel) and non-ferrous (aluminum in lost wax foundry) sectors; however, it is applicable to all production processes that already have an appropriate platform, sensor- and PLC-controller equipment, and data recorded in various formats (paper, Excel, database). Areas of application are mainly all departments of the company related to the process execution: Purchasing, Engineering, Production and Quality. It is also important to involve the general management in the analysis of the final conclusions, in order to evaluate the scope of the actions and set realistic dates and resources for their application.

CONTRIBUTING PARTNERS

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