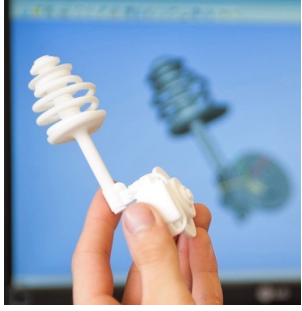
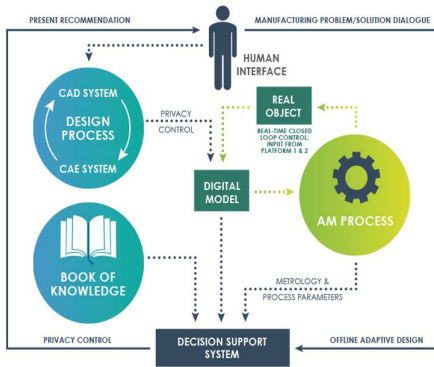


PLATFORM 3: ADVANCED ANALYTICS AND ENGINEER FEEDBACK

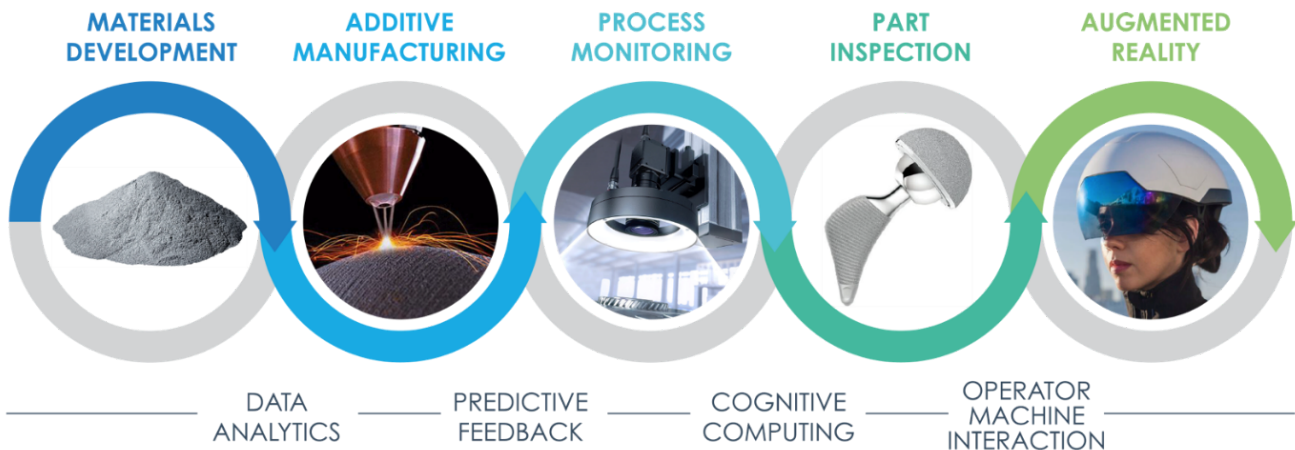


The problems arising from the increasing complexity and data overload of advanced Additive Manufacturing (AM) systems will be addressed in this platform through the provision of an AM decision support system. The output from this platform will be enhanced support for an operator's decision-making capabilities, leading to improvement of the AM process and performance. This includes fusing a wide range of design information, manufacturing process parameters and real- or near-real time data streams including sensor, image, and unstructured data, so that there is a richer base of information from which different manufacturing options can be offered as choices in decision-making.



A Knowledge Book will be developed to model information pertaining to AM. This will include for example modelling all input and output parameters, process variables and their relations pertaining to AM at both process (micro) and system (macro) levels. This reference ontology will provide the basic modelling layer required to assist in the development of cognitive technologies and control strategies, which in-turn will support operator decision making.

Platform 3 will utilise the novel in-line AM process monitoring techniques of Platform 1. The materials and modelling data of Platform 2 will also be utilised. This is part of the digital model, which in Industry 4.0 terminology is often referred to as the 'digital shadow' or 'digital twin'. Mapping takes place between the virtual object as designed, and the actual object as manufactured.



OBJECTIVES

- Optimise the human – machine interaction in real-time, providing decision-making support;
- Analyse image data and unstructured information in an integrated manner;
- Develop and deploy an Additive Manufacturing Knowledge Book, capable of modelling, structuring and reusing existing information;
- Enable the privacy-preserving collaborative use of sensitive data.