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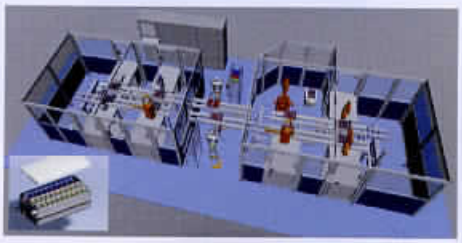
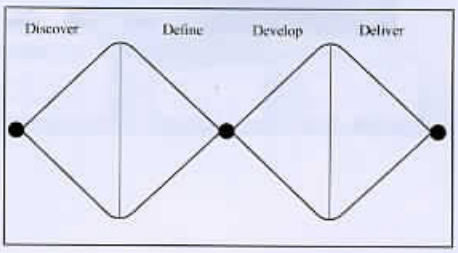
Editorial

Future Digital Design and Manufacturing

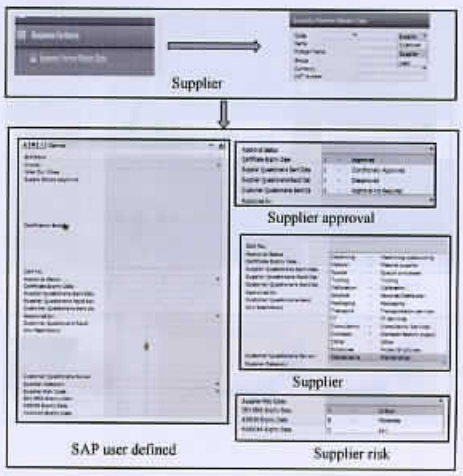
Abstract: The fourth industrial revolution promises to create what has been called the smart factory. The vision is that within such modular structured smart factories, cyber-physical systems monitor physical processes, create a virtual copy of the physical world and make decentralised decisions. This paper provides a view of this initiative from an automation systems perspective. In this context it considers how future automation systems might be effectively configured and supported through their lifecycles and how integration, application modelling, visualisation and reuse of such systems might be best achieved. The paper briefly describes limitations in current engineering methods, and new emerging approaches including the cyber physical systems (CPS) engineering tools being developed by the automation systems group (ASG) at Warwick Manufacturing Group, University of Warwick, UK.



Abstract: Crowdsourcing is an innovative business practice of obtaining needed services, ideas, or content or even funds by soliciting contributions from a large group of people (the 'Crowd'). The potential benefits of utilizing crowdsourcing in product design are well-documented, but little research exists on what are the barriers and opportunities in adopting crowdsourcing in new product development (NPD) of manufacturing SMEs. In order to answer the above questions, a Proof of Market study is carried out on crowdsourcing-based product design under an Innovate UK funded Smart project, which aims at identifying the needs, challenges and future development opportunities associated with adopting crowdsourcing strategies for NPD. The research findings from this study are reported here and can be used to guide future development of crowdsourcing-based collaborative design methods and tools and provide some practical references for industry to adopt this new and emerging collaborative design method in their business.



Abstract: Aerospace manufacturing SMEs are continuously facing the challenge on managing their supply chain and complying with the aerospace manufacturing quality standard requirement due to their lack of resources and the nature of business. In this paper, the ERP system based approach is presented to quality control and assurance work in light of seamless integration of in-process production data and information internally and therefore managing suppliers more effectively and efficiently. The Aerospace Manufacturing Quality Assurance Standard (BS/EN9100) is one of the most recognised and essential protocols for developing the industry-operated-and-driven quality assurance systems. The research investigates using the ERP based system as an enabler to implement BS/EN9100 quality management system at manufacturing SMEs and the associated implementation and application perspectives. An application case study on a manufacturing SME is presented by using the SAP based implementation, which helps further evaluate and validate the approach and application system development.



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