

Agile Implementation of 'PULL' Principles in a Manufacturing Process Chain for Aerospace Composite Parts

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Abstract : Market forecasts show a significant increase in the demand for aircraft within the next two decades and production rates will be adapted accordingly. Improvements and optimizations in the industrial system are becoming more important to cope with future challenges in manufacturing and assembly. Highest quality standards have to be met for aerospace parts, whereas cost effective production in industrial systems and methodologies are also a key driver. A look at other industries like e.g., automotive shows well established processes to streamline existing manufacturing systems. In this paper, the implementation of 'PULL' principles in an existing manufacturing process chain for a large scale composite part is presented. A nonlinear extrapolation based on 'Little's Law' showed a risk of a significant increase of parts needed in the process chain to meet future demand. A project has been set up to mitigate the risk whereas the methodology has been changed from a traditional milestone approach in the beginning towards an agile way of working in the end in order to facilitate immediate benefits in the shop-floor. Finally, delivery rates could be increased avoiding more semi-finished parts in the process chain (work in progress & inventory) by the successful implementation of the 'PULL' philosophy in the shop-floor between the work stations. Lessons learned during the running project as well as implementation and operations phases are discussed in order to share best practices.

Keywords : aerospace composite part manufacturing, PULL principles, shop-floor implementation, lessons learned

Conference Title : ICCM 2018 : International Conference on Composite Materials

Conference Location : Amsterdam, Netherlands

Conference Dates : August 06-07, 2018