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XXIII Congreso de Ingeniería de Organización



**Organizational  
Engineering  
in Industry 4.0**

**BOOK OF ABSTRACTS**

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# Impact of Additive Manufacturing in Aerospace Industry Purchasing Process

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**Abstract:** This study seeks to deepen the knowledge of the impact of additive manufacturing implementation into aerospace companies purchasing process. It has been studied the changes on the purchasing process activities and costs, in aerospace companies, when a company decides to move from a traditional manufacturing model to an additive manufacturing model. Results infer a quite relevant change in term of tasks and cost.

**Keywords:** Additive manufacturing, aerospace industry, supply chain, aerospace purchasing, 3D printing.

## 1 Introduction

Additive manufacturing (AM) process includes the design of a model based on 3D computer aided design software (CAD) and production of the model using 3D printing technology, which is then used as the basis for the final product design (Matias and Rao, 2015; Janssen *et al*, 2014). AM is currently a process with highly disruptive potential in aerospace industry. By the end of 2015 Boeing introduced about 20,000 original parts built using AM technology (Catalano,

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2015). Original parts (OP) are those used during the production of a new aircraft, while spare parts are used to manage aircraft service support. The first two titanium metal brackets were manufactured using AM in 2014 by Airbus, and were both introduced in the A350 model, making a breakthrough step forward (Airbus Presscentre, 2014). According to the Airbus Group the immediate benefits of adopting this technology are a cost reduction between 30% to 55%.

## 2 Objectives

The study seeks to understand to what extent additive manufacturing development and application is influencing the aerospace industry supply chain, with a special focus on the purchasing process. This process is extremely important in this particular industry due to the high volume (and value) of outsourced parts and purchased equipment. In this preliminary scenario the research will be focus on the consequences for purchasing process when AM it is applied to in-house manufacturing.

## 3 Methods

Authors based the research on three pillars: a detailed review of the published literature, the direct involvement of one of the authors in the purchasing process of a leading aerospace company analysed (action research) and authors also tried to get valuable field expert knowledge (using semi-structured surveys) based on in-depth interviews to gain insight into best industry practices.

## 4 Results and Conclusion

In the analysed scenario, where the in-house manufacturing technology changes from traditional manufacturing to AM, authors could infer that the impact on the purchasing process is mainly focussed on the way of working and tasks. Responsibilities of the main purchasing areas would be significantly reduced.

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