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Identification of problem types during production ramp-up^{*}

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Abstract

Production ramp-up is becoming increasingly important for industries. The urge for innovation pushes firms to constantly launch new products on their market. Therefore New Product Development and its final phase, the production ramp-up, can no longer be considered as rare events. In this paper, our research aims at gaining knowledge about the production ramp-up through the analysis of major problems encountered during this production phase. Based on an industrial case of a product transfer project, we studied the ramp-up phase, gathering a list of problem statements. These problem statements are then organized in classes, giving characteristic problem types. A further study of these problem types gives the opportunity to have a better understanding of current ramp-up phases but also helps better organizing future ones in up-coming New Product Development projects.

Key words: Manufacturing, New Product Development, Production Ramp-up, Problem classification, Production transfer.

1 Introduction

An increasingly important factor which pulses companies towards the top ranks of the competition is their capacity to innovate. The market is now pulled by the demand and the customer needs play an important role in a company's offer. This exchange of the roles as well as the high speed technological advances urge the enterprises to innovate their offer and develop better products to be put on the market faster than their competitors. For instance, in the industries like the automotive industry or the high-technology micro-electronic industry, the number of products at the beginning or the end of their lifecycle can represent 30% of the annual activity. Thus, the perturbations caused by new product development (NPD) can no longer be considered as occasional, since the company has to cope with them on a regular basis.

The final phase of a new product development process is called the ramp-up phase [1-3]. Ramp-up is defined as the period when the normal production process makes the transition from zero to full-volume production, at or near the targeted levels of cost and quality [2]. Ramp-up has received very little attention in the literature on production planning or on supply chain management, although its importance has repeatedly been mentioned in literature on product development [2-5]. Given the lack of information about the production ramp-up phase in the literature and its importance for modern companies, the research presented in this paper focus on gaining

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