2019

13th International Conference on Industrial Engineering and Industrial Management

XXIII Congreso de Ingeniería de Organización

# Organizational Engineering in Industry 4.0

# BOOK OF ABSTRACTS

Gijón, 11th-12th July 2019

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Servicio de Publicaciones de la Universidad de Oviedo
Campus de Humanidades. Edificio de Servicios. 33011 Oviedo (Asturias)
Tel. 985 10 95 03 Fax 985 10 95 07
http: www.uniovi.es/publicaciones
servipub@uniovi.es

I.S.B.N.: 978-84-17445-38-6
DL AS 1875-2019

Imprime: Servicio de Publicaciones. Universidad de Oviedo

13th International Conference on Industrial Engineering and Industrial Management
XXIII Congreso de Ingeniería de Organización
Gijón, Spain, July 11-12, 2019

# DDMRP - The need to standardise an implementation process

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**Keywords:** DDMRP; standard; process standardisation

## 1 Introduction

Traditional production planning and control systems, lack the functionality to respond to new scenarios. The traditional MRP push approach poses several shortcomings in environments with changing or unpredictable demands; meanwhile, tools based on the pull philosophy, such as JIT and TOC, also face inadequacies in implementing a demand-driven strategy due to their limited set of planning and inventory control tools (Ptak & Smith, 2016). To respond to this problem, Ptak and Smith (2016) introduced a new methodology known as DDMRP.

On the other hand, a standard process provides multiple benefits for organisations. For example, Fomin and Lyytinen (2000) offer a successful case study based on a standardised process, providing a list of advantages to standardisation for companies and clients.

## 2 Objectives

The current paper seeks to provide a systematic review of the literature in order to discover possible lines of future research that will make the DDMRP implementation process more standard and systematic, thus ensuring that the potential of the methodology is fully achieved.

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## 3 Methods

For the development of this research, a systematic review has been carried out following the steps proposed by Becheikh, Landry and Amara (2006).

## 4 Results

Of the eleven documents selected, two of them sought to demonstrate the need for new production controls and planning systems meeting the needs of today's changing paradigm. Four of the articles speak to the quantitative benefits of the DDMRP methodology with respect to traditional models. Another two of the studies analyse the changes implemented and the qualitative and quantitative results obtained in several companies following conversion of traditional or classical models to the DDMRP model. An additional two articles, introduce mathematical models to define the positioning of the inventory depending on the specific cases of different organisations. The final article analysed, describes the evolution of the DDMRP model towards the demand-driven adaptive enterprise (DDAE)

## 5 Conclusion

The DDMRP methodology represents a great advance in production planning and control systems capable of responding to the needs of the new paradigm. Though it offers multiple benefits for organisations, the steps remain unclear when it comes to implementing this promising methodology.

After carrying out the bibliographic review, we have found no evidence of a standardised implementation process for DDMRP that could maximise its potential. Along with this review, we analysed the DDMRP implementations carried out by a team of Mondragon Unibertsitatea researchers. In all of these cases, positive results were obtained in terms of increasing the visibility and flow of materials. However, significant differences existed in implementing the methodology.

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