



16th Conference on Reliability and Statistics in Transportation and Communication,
RelStat'2016, 19-22 October, 2016, Riga, Latvia

The Augmented Supply Chain

Massimo Merlino^{a,*}, Ilze Sproģe^{b,*}

^aManagement Engineering Faculty University of the Republic of San Marino, San Marino

^bTransport and Telecommunication Institute, Latvia

Abstract

Supply Chain processes must augment and change with massive injection of new technologies, robotics, artificial intelligence, big data approach, and contemporarily become more sustainable, considering the growing environmental challenges. This paper explores the main technological changes and the most advanced cases in sustainable Supply Chain. From Materials Handling to Production and Distribution, big data and robotics will change conditions and push further efficiency and customer service levels. After a general overview of the present and future trends in these areas, some practical case and experiences will be quoted.

© 2017 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the scientific committee of the International Conference on Reliability and Statistics in Transportation and Communication

Keywords: supply chain, big data, robotics, artificial intelligence

1. Introduction

Supply Chain of today and tomorrow is not only impacted from augmented reality in materials handling and other components, but empowered from the entire new generation of technologies, from robotics to Artificial Intelligence, to Big Data, which on the basis of algorithmic process of all the available information, produce decisions, govern automation devices, do forecasting and planning. Europe digest slowly the past ICT generation, USA develop a disruptive wave of combined utilization of Internet of things, supercomputer, interconnection. Mathematical models which 50 years ago were managed by few operation research analyst are at the root of

* Corresponding author.

E-mail addresses: massmerlin@gmail.com, sproge.i@tsi.lv

decision system, which substitute more and more the clerical work and middle management, as automation is substituting workers in factories.

For many years the problem was the internal integration of Supply Chain and the collaboration with clients and suppliers network. The new automatic approaches will solve these classical questions with their interconnection. Again USA drives a revolution technology-based and the new society forecasted by Rifkin is coming, with the disappearing of job.

These are the Big Data, the new magic platform launching again ICT industry after years of crisis. For someone may be only a slogan; for serious enterprises a new “Setting the Stage”, a new paradigm of competition, leaving back traditional countries.

The scenario for Global Supply Chain Management is very challenging, pushed from the Green constraints and the new technologies in processes, and only a new ICT no more transactions-based but intelligent, expert, decisions supporting can approach the future difficulties in competition. The traditional way of working, trough meetings and insufficient decisional support from an old ICT are no more sufficient in front of so large and complex problems of global management of international large companies Supply Chain. Risks are growing not last those connected to security, so enterprise need situation room of military type, with enormous computer capability, to extract from millions of information through advanced algorithms, any possible decisional content. (Cisco, 2012)

After a brilliant decade of Internet developing, next one will see a big reduction of costs both operative, but also of government, in the large multinational, with new USA leadership.

Supply Chain will be at least exploited not only like an efficiency generator, but also like a new portfolio of business and services for the firm strategy. So, the main idea of the research is to show an augmented Supply Chain for an augmented Field of Competition. The research' conclusions are here presented have the following objectives:

- Better understanding of the Technology impact on Supply Chain processes;
- More clear identification of contribute of Artificial Intelligence on Planning and Control in SC;
- Robots applications in materials handling operations;
- Future possibilities of exploiting Big Data approach in SCM.

2. Digital Supply Chain

Technology has driven a new wave of productivity by digitizing key financial and business processes and enabling collaboration across the organization. This 2016 supply chain trend will continue as best-in-class organizations leverage business networks to ***create a digital community of partners executing coordinated processes*** in a more organized and informed way than in the past.

Digital technology is disrupting traditional operations and now every business is a digital business. The impact on supply chain management is particularly great. Businesses cannot unlock the full potential of digital without reinventing their supply chain strategy. Many companies understand the elemental nature of these changes and are already working to introduce digital technology into their operations. However, simply adding digital technology is not the answer.

This approach overlooks the fundamental difference between traditional supply chains that have been “digitally enhanced” and truly integrated, re-invented supply chains whose DNA is fundamentally digital.

For digital technology to create significant improvement in business outcomes, businesses need to:

- Reinvent their supply chain strategy,
- Reimagine supply chain as a digital supply network (DSN) that unites not just physical flows but also talent, information and finance.

This new breed of supply chain is more connected, intelligent, scalable and rapid than traditional supply chain management.

Download English Version:

<https://daneshyari.com/en/article/5028147>

Download Persian Version:

<https://daneshyari.com/article/5028147>

[Daneshyari.com](https://daneshyari.com)