What are the Key Supply Chain Requirements for 3DP to become a Commercial Reality?

Venue: International Symposium on Logistics, Ljubljana
Sunday 9th July 2017
(15:30 – 18:00 hrs)

Workshop leaders: Prof. Helen Rogers and Prof. Kulwant S. Pawar

Background

3D printing (also known as additive and digital manufacturing) refers to not one, but multiple technologies and manufacturing processes that enable users to create a tangible object from a digital three-dimensional model (Lipson and Kurman, 2013; Gibson et al., 2015). The resulting flexibility allows for unparalleled levels of customization, to the point where each printed unit can be an entirely new and unique product, (Petrick and Simpson, 2013; Conner et al., 2014).

As a result, 3D printing has made an impact in sectors that predominantly produce small batches of products and/or require customization, such as the medical and dental industry, aerospace and custom-made consumer goods (Jiang et al., 2017; Holmström et al., 2010; Rogers et al., 2017). The benefits of 3D printing are many and varied, including making supply chains leaner, more agile, more responsive, more cost effective, more sustainable and overall less wasteful (Tuck et al., 2007; Gebler et al., 2014; Kietzmann et al., 2015; Despeisse et al., 2017). However, barriers for adoption remain, especially for industry sectors where little customization is required and/or unit cost is a key performance measure (PwC, 2016). Widespread adoption is further hindered by factors including high printer acquisition costs, lack of experience with the technology and the current technical limitations of 3D printers (Berman, 2012; Gibson et al., 2015; Rogers et al., 2016). As noted by Holweg (2015), Bogers et al. (2016) and Sasson and Johnson (2016), additive manufacturing is unlikely to replace traditional manufacturing processes, at least in the short and medium term but will instead complement existing production processes.

Purpose of the workshop

This year’s workshop will discuss the challenges, risks and opportunities presented by 3D printing technologies in terms of their current and future impact on supply chains. Participants will pool their diverse backgrounds and expertise to discuss and debate the key issues from their perspective. To shape the discussion, we will focus on the following issues:

- Identify the current supply chain barriers (and potential mitigating strategies) for implementing 3D printing beyond prototyping and small batch production;
- Discuss the key supply chain risks and their impact when transitioning towards a 3DP production process environment;
- Debate suitable key performance indicators that represent the business impact of 3DP adoption.
Outline Structure of the Workshop

The workshop will follow the approximate timetable below:

15:15 – 15:30  Tea/coffee & networking
15:30 – 16:00  Welcome and presentation by Prof. Helen Rogers/Prof. Kul Pawar
16:00 – 17:45  Workshop key questions, discussion and break-out groups
17:45 – 18:00  Summary of findings and concluding discussion

References


