

The Impact of 3D Printing on Digital Innovation in the Sharing Economy

Research Purpose

In recent years, the term '3D printing' (known as 'additive manufacturing') is widely used and has generated great public and academic interests. Different to traditional machining process of subtracting materials, 3D printing systems can draw on a computer-aided design model to make three dimensional objects by adding successive ultra-thin layers of the materials. Based on the literature review, most of the articles focus on a specific 3D printing processes such as selective laser sintering or fused deposition modelling to compare with the conventional manufacturing process in terms of the materials use and energy consumption in environmental perspectives. However, little has been done on its impact on business models and digital innovation. Therefore, the purpose of this research is to study the impact of 3D printing on digital innovation in the sharing economy. Also, it is important to learn more about how the specific business models offered by 3D printing providers affect the overall digital economy and the way that digital innovation is carried out.

Methodology

This paper involves a combination of critical analysis of literature and a qualitative research study. The qualitative research methods such as case study and semi-structured interview are conducted to collect detailed and in-depth information and data. The exploratory case study identified the current business models that offered by 3D printing providers and the 3D printing platform ecosystems.

Findings

We expect to enrich digital innovation theory. The main output of this research is a conceptual framework to identify failed value exchange and develop new value innovation opportunities for 3D printing companies via a systematic approach. The conceptual framework explains how 3D printing change the business models from a value perspective. This is needed to increase knowledge and empirical evidence for 3D printing business models in the digital economy. The framework is designed and developed to provide a holistic and systematic perspective of digital innovation affected by 3D printing. Thus, firms can potentially benefit and be inspired from this framework to identify the way that digital innovation is carried out in the sharing economy by 3D printing.

Value

This paper identified the gap in literature regarding the impact of 3D printing on digital innovation in the sharing economy from a value perspective. It provides a valuable starting point from which further research with 3D printing in this perspective can be conducted.