2018 Strategic Technology & Innovation Management Programme

Creating and capturing value through sustainability for 3D printing companies

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Industrial / managerial need addressed

3D printing presents significant potentials to enable companies to think new methods of creating objects and better deal with global manufacturing challenges. The research aims to investigate how 3D printing companies can create and capture value through sustainable business models. This research also proposes a framework to help companies identify uncaptured value such as waste streams in the printing process, under-utilised resources, reusable parts and recyclable materials and therefore uncover sustainable value opportunities. As 3D printing technologies enable to design objects in free geometries, it can repair damaged or worn parts to extend the life of products towards sustainability. Particularly, it would be beneficial for 3D printing companies to identify the value uncaptured in the current business models and then transform the failed value exchange to sustainable value opportunities. However, the research is still young about whether 3D printing always poses a positive impact on sustainability. Particularly, the way of achieving sustainable values for 3D printing companies is poorly addressed in the existing literature. The objectives of my research are to better understand the current 3D printing business models and to identify value capture and uncaptured within 3D printing companies to further create and capture sustainable value.

Expected deliverables

- A sustainable 3D printing adoption framework for companies who intend to integrate 3D printing technologies into their existing manufacturing systems.
- Guidance on creating and capturing value through sustainability using 3D printing technologies

Engagement opportunities

- STIM companies are encouraged to share their experiences of creating and capturing value through sustainable business model innovation. The interview/workshop based discussions with senior managers and executives are imperative for this project.
- Conduct case studies to test, refine and validate the adoption framework through application in the company context.
- A sustainable 3D printing adoption framework will be offered to the case study partners.
- STIM companies are highly encouraged to provide practical feedback and input during the development and refinement of the framework to ensure its relevance and user friendliness.

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