

3D printing as transformation trigger for local SMEs

Workshop: Re-imagining the futures of 3D printing in society @ KIT 03/2021

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Description of the Project:

The Business Innovation Lab (BIL) @ HAW Hamburg was founded 2015 to bridge the gap between teaching, research and transfer for business students with the focus on innovative and technical oriented processes and business models.

2016 we started in a BMWI (= Federal Ministry for Economic Affairs and Energy) founded project „Mittelstand Kompetenzzentrum Hamburg“ to foster the mindset of SMEs towards „digitalization“ and especially „digitization“ by trainings and projects as a Triple-Helix-Model.

In this project and in our academic courses we discuss the potential of 3D printing [3DP] for new business models. The idea is to demonstrate and try out process chains for different models:

- spare parts,
- prototypes,
- individually customized products etc. (see Fig. 1)

This poster reflects the experiences of the discussions and projects with (mostly) SMEs since 2015, but no quantitatively secured results due to different settings and the long-time observation period.

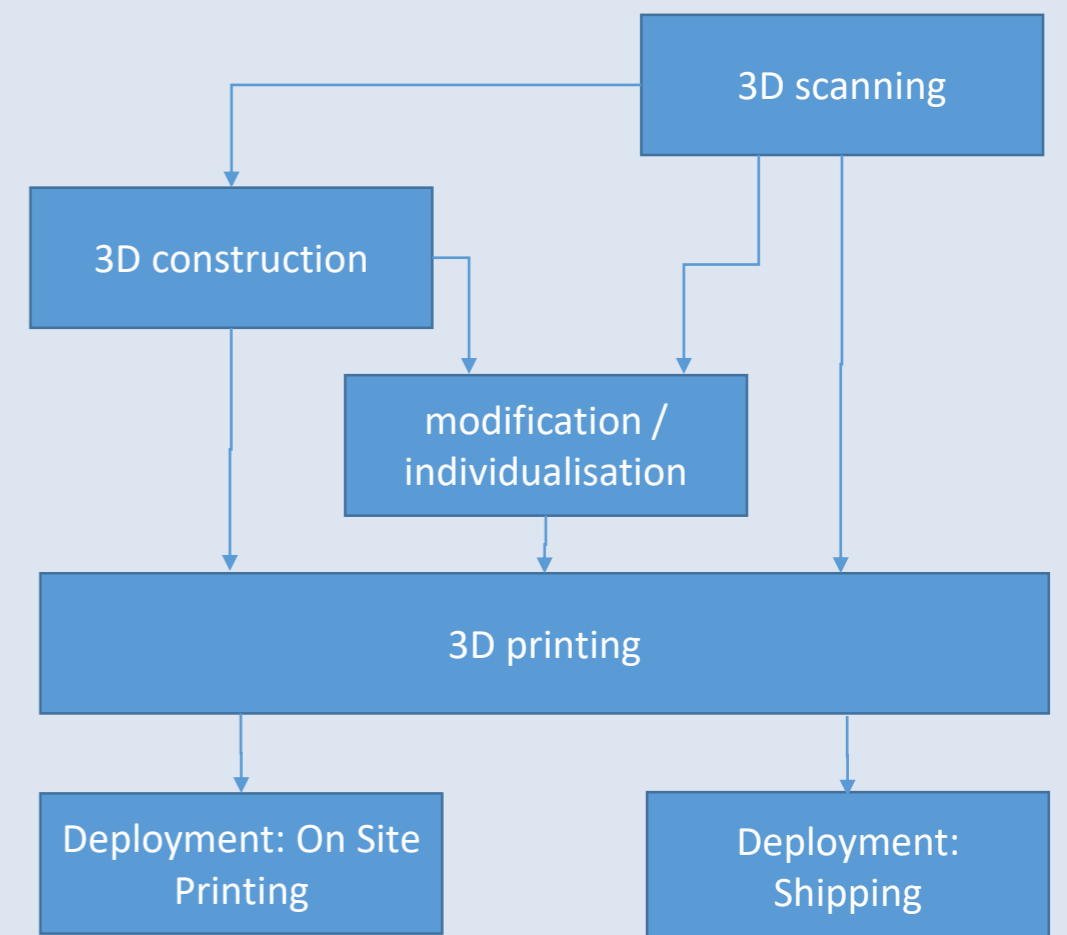


Fig.1: Different Pathes for Different Business Models

Basic Assumptions:

1. 3DP will change prototyping and modelling
> rapid prototyping for demonstration, models for casting
2. 3DP will change spare parts supply
> no stocks, better ability to deliver
3. 3DP will change construction and production processes
> additive manufacturing, longer production time / part
4. 3DP will change the mindset of engineers as well as of craftmen
> new construction guidelines, no direct operations

Observations:

1. For many SMEs (especially craft businesses) traditional prototyping is still the „real thing“, Virtual Reality will be an alternative. 3DP is less important than estimated.
2. Companies discuss changes, but: No such observations!
3. 3D production takes place for products specially designed for this technique (aircraft industries etc., NOT „normal“ SMEs)
4. Entrepreneurs, managers and technicians are thinking about 3DP, but only few are acting now

Transformation Trigger for SMEs?

- Not yet in our context (Hamburg ca. 2020)
- Industrial production is changing, but traditional SMEs have not yet adapted the technology to any significant extent
- German system of craft training seems to retard the adaption
- Relationships of dependency and power to larger companies might be driving factors
- Corona was a disruption in the digitalization process (many cancelled cooperation and transfer projects)

Ways to increase discussion and adaption

- Technique is cheap => low cost 3D technique for companies' Christmas events, apprentice events, ...
- Open workshops seem to be an attractive showcase – but we cannot confirm it yet

References, Hints

<https://www.kompetenzzentrum-hamburg.digital/>

<https://www.haw-hamburg.de/hochschule/wirtschaft-und-soziales/departments/wirtschaft/business-innovation-lab/>