Facts about the project

SUPPLY CHAIN OPTIMIZATION WITH ADDITIVE MANUFACTURING

FORSVARSMINISTERIET
MATERIEL- OG INDKØBSSTYRELSEN

- Supplying the Danish troops with equipment for operating in water, on land and in the air. Ranging from new acquisitions, to spare parts for maintenance and repair and to decommission of obsolete equipment and material.
- This enables the Danish troops to detain the domestic sovereignty and assist in peacekeeping missions for NATO and UN.

SDU
Syddansk Universitet

- SDU educates with the purpose of promoting results that develops the society. SDU have approximate 27.000 students and 3.800 employees throughout six locations.
- Place for enrolment at SDU is the Department of Technology and Innovation in the section of Global Sustainable Production.

Jeppe Foshammer

Education:
- MSc in Engineering in Operations and Management Engineering* (AAU, Copenhagen)
- BSc in Engineering in Production (IHK/DTU, Ballerup)
- Admission Course (IHK, Ballerup)
- Higher Commercial Examination (Handelsgymnasiet, Svendborg)

*two projects, including the thesis, was conducted in FMI with focus on AM.

Problem and solution

Which issue does the project solve?

The project seeks to create transparency of FMI's usage of AM by develop a knowledge management system which aims to promote knowledge sharing throughout the organisation. Furthermore, the project seeks to identify the spare part candidates with the highest AM potential for building a feasible AM business case.

What is the projects contribution to research?

The project seeks to fill out some of the gap in the literature by identifying the spare part candidates which is most suitable for AM. Furthermore, the project seeks to look at AM outside the realm of spare parts by looking into knowledge sharing and how the data literacy shapes the selection method used for identifying the spare part.

What is the projects business-like and commercial potential?

The project seeks to make FMI's supply chain more efficient by structuring the AM usage and identify the areas where AM could have a significant improvement which should result in improving the soldiers uptime. Furthermore, the knowledge acquired is meant to be shared with interested parties in DK.

What are the projects specific research and business-like challenges?

One of the biggest challenges both in terms of research and business-like is the lack of knowledge regarding AM. Especially in DK where there is very limited promoting and employing of AM. That is also the reason why the knowledge sharing outside FMI is mentioned as a potential above.

Other relevant facts

The evolution of AM is presented below. The first objective is to share and promote AM knowledge thought-out FMI.

Prototyping

The American Navy are using AM to manufacture and adjust their mock-ups in a cost efficient way. Furthermore, the lead time are reduced from days /weeks to hours.

Tooling

The American Air Force are using AM to deal with obsolete spare parts for the B-52 plane. AM is used for manufacturing moulds in a cost efficient way.

End-use Spare parts

The American Navy are also using AM to improve a intake manifold for the V-22 Osprey. The result is 70% weight reduction and a improved fluid flow after using AM.

(Source: Louis, M. J., Seymour, T., and Joice, J. (2014). 3D opportunity in the Department of Defence. *Deloitte, 2014)*