

Local Action Plan - Belgium

1. Introduction

Building on insights from the North Sea program project COM3 SUSTAIN-3D identifies barriers, solutions and mitigating initiatives to help SMEs further implement additive manufacturing (AM)-technology.

The partnership consists of knowledge Institutions and Business developers with a strong outreach to SMEs. Their main objective is to ensure, that companies can profit from new technologies and be at the forefront of R&D.

Implementing new technology like AM is in its essence a wicked problem. On the one side, SMEs know, that AM will help them innovate and stay ahead of competition. On the other hand, it is hard to grasp exactly what AM can do in their production. Some SMEs invest heavily in AM. But often investments aren't monetized. Deployment of already installed AM machinery is in some cases under 3%. Others don't invest or invest in cheap machines that do not meet expectations. All three scenarios slows transition toward Industry 4.0. SUSTAIN-3D seeks to mitigate this issue.

Studies of the problem point to complex causes:

- lack of skilled workers and innovators
- lack of (digital and structural) infrastructure and
- lack of objective institutional and digital support.

A complex problem like this is beyond any one company to solve. Companies across Denmark, Belgium, France and the Netherlands have teamed up with knowledge institutions, and local industry networks to analyze and develop and implement solutions to the problem.

2. Goals

The overall goals of the project SUSTAIN3D are to:

- Create demand:
 - More SMEs need to invest in the right AM technology
- Create effect:
 - Expensive production grade machines must be utilized better
 - Ensure, that SMEs invest in the right equipment

During 18 months (September 2023- February 2025) the project SUSTAIN3D will:

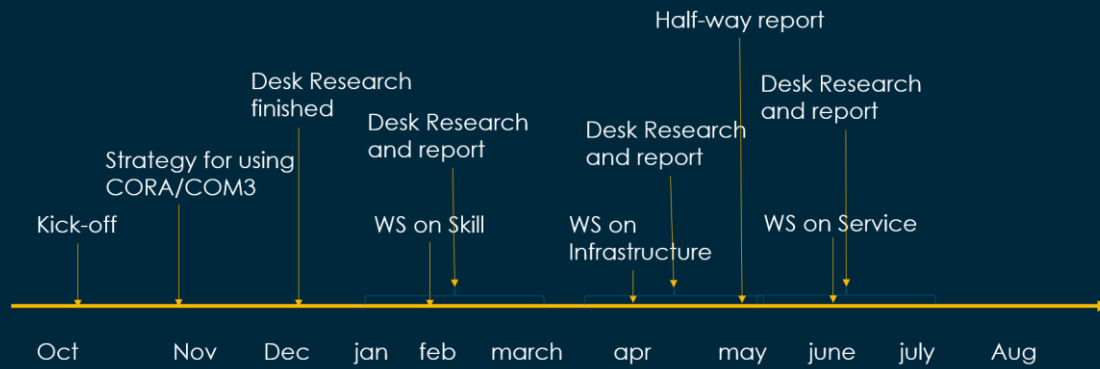
- Assess if the CORA/COM3 model for digital transformation can be meaningfully applied to the case of AM-technology. This will create a foundation for the partners to work on also after the project period.
- Implement local action plans related to Skill, Services and Infrastructure. This will ensure after effect help 30 SMEs and 5 partners to increase capacity for implementing AM

3. Tasks for project partners

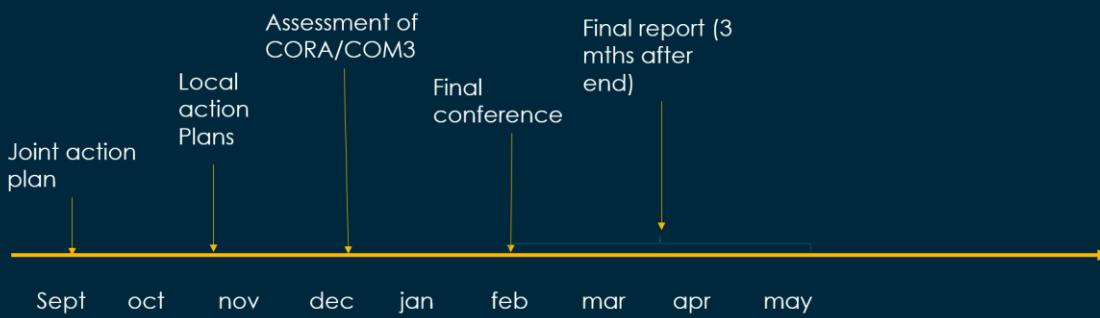
Activities for Thomas More as one of the project partners, include:

- Doing desk Research for “Skills”
- Participating in Project Kick off in Denmark
- Organizing Workshop Skills in Belgium
- Attending Workshop Infrastructure in Denmark
- Attending Workshop Services in the Netherlands
- Organizing 4 Local Stakeholder Group meetings
- Execute 5 Pilots
- Develop a Local action plan
- Participating Project Evaluation in Lille
- Project management for WP Services including monthly meetings in PM team

Timeline 1/2



Timeline 2/2



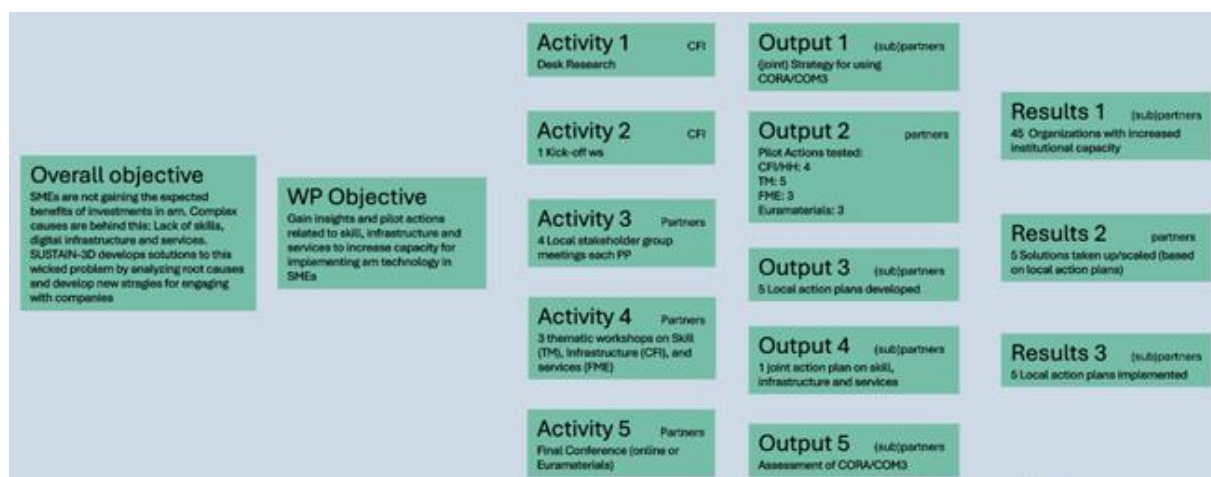
4. Role Thomas More

As the largest university college in Flanders (Belgium), Thomas More focuses on practice-based research and innovation. About 240 researchers contribute to innovation in 5 major themes among others sustainable transition and technological innovation. The team of Sustainable Manufacturing (taking part in this project) finds its expertise in technologies such as AM.

The above activities take place per affiliated country (Denmark, Belgium, France and the Netherlands). Thomas More is the work package leader of Skills Belgium. About the Skill topic we organized a Workshop between the countries to give insight and learn from each other's approach/actions.

Thomas More took part in the other workshops as well organized by the other countries in the field of Services (The Netherlands) and Infrastructure (Denmark).

As an educational institution, Thomas More, experienced in teaching 3D printing through its college courses, is exploring how education can enhance skill development within companies. The institution is examining the potential need for certification programs, the most effective methods for teaching employees without prior knowledge, and ways to inspire companies to implement 3D-printing in their business. This includes showcasing Thomas More's state-of-the-art infrastructure and demonstrating the wide-ranging possibilities of 3D printing, such as large-scale production, metal printing, aesthetic and functional parts, and reverse engineering. The goal is to foster innovation and motivate businesses to embrace 3D printing technologies.



5. Skills, services & infrastructure

Skills

The definition of skills is:

"Learning skills for 3D printing is about understanding how to make digital models into physical things. This includes multidisciplinary – or soft - skills, which use expertise from different fields without combining them; interdisciplinary – or hard -skills, which blend knowledge from various fields to innovate. This involves CAD skills, which focus on using design software effectively for 3D printing, Knowledge about which materials to use and other specific engineering skills"

- Admire-project 2023

Infrastructure

The definition of technological infrastructure is:

"In the context of additive manufacturing within a small or medium sized enterprise, "technological infrastructure" refers to the required hardware, software, and networking components required to support the entire workflow of 3D printing processes "

- Inspired by: Kristin et. Al 2020 & Ruraldigital.eu 2023)

Services

The definition of services is:

Service within additive manufacturing (3DP) in the context of small and medium-sized enterprises (SMEs) refers to an ecosystem of services that focuses on specialized support that facilitates the adoption, optimization, and utilization of 3D printing technology.

- Inspired by: Sjøberg et. al 2018

6. Detailed Activities project Partner Thomas More

ACTIVITIES		DATE
Doing desk Research for "Skills"	TM	April 2024
Participating in Project Kick off in Denmark	International Project team SUSTAIN3D	4,5,6 October 2023
Organizing Workshop Skills in Belgium	International Project team SUSTAIN3D	6,7 February 2024
Attending Workshop Infrastructure in Denmark	International Project team SUSTAIN3D	22, 23 April 2024
Attending Workshop Services in the Netherlands	International Project team SUSTAIN3D	28, 29 May 2024
Local Stakeholder Group (LSG) 1	Agoria	9 November 2023
Local Stakeholder Group (LSG) 2	KULeuven.AM	3 May 2024
Local Stakeholder Group (LSG) 3	Ecoso	September 2024
Local Stakeholder Group (LSG) 4	Showing Results to participating Companies @ De Nayer	Januari 2024
Execute 5 Pilots: <ol style="list-style-type: none"> 1. Training RELV - Ecoso Writing uses cases to publish 2. Flemish AM Competition 3. Webinar 3D-Printing in CNC 4. Borrow a printer 5. Technology Follows Aesthetics 	TM & network	September 2024 - Januari 2025
Develop a Local action plan	TM	Oktober 2024
Participating Project Evaluation in Lille	International Project team SUSTAIN3D	26-28 January 2025
Project management for WP Services including monthly meetings in PM team	International Project team SUSTAIN3D	Continuously via monthly meetings

7. Pilots Thomas More Belgium

1. Training RELV - Ecoso Writing uses cases to publish

The initial pilot program offers a low-threshold 3D printing training course for ECOSO, specifically designed for employees facing barriers to the labor market.

In order to create a customized training, desk research was first conducted and observations were made in the company. The intention is that the company will soon be able to easily accept orders and print pieces for customers themselves.

The intention is that when the training in this environment bears fruit, we can also provide this training to other companies.

The training took place on September 11, 2024.

2. Flemish AM Competition

The Flemish AM Competition aims to inspire and engage high school students in the field of additive manufacturing (AM). In this competition, students will be challenged to address real-world problems by designing and creating solutions using AM technology. This initiative is modeled after the Danish AM Cup we observed during the kickoff workshop in Herning. By providing students with this hands-on experience, we aim to cultivate their interest in AM, foster problem-solving skills, and encourage innovative thinking. Through collaboration with local schools and industry mentors, the competition will also serve as a platform to showcase how AM can tackle pressing challenges, thereby nurturing the next generation of skilled professionals in this field.

3. Webinar 3D-Printing in CNC

To support the transition of metalworking and CNC shops into additive manufacturing, we will host an online webinar targeting these sectors. The webinar will feature case studies and examples from companies that have successfully incorporated AM into their production workflows. Our goal is to demonstrate how AM can enhance production processes, from prototyping to tool creation and end-use parts, offering cost and time savings. This session will include practical insights into best practices for AM integration, potential challenges, and solutions that cater specifically to metal and CNC-based industries. Attendees will gain a clearer understanding of AM's value, helping them identify areas in their own operations where AM could be beneficial.

4. Borrow a printer

The Borrow a Printer initiative is designed to provide companies with firsthand experience of AM technology without the initial investment barrier. Inspired by the Center for Industrial Production (CFI) model, this program will offer companies the opportunity to borrow 3D printers for a limited period. During this trial phase, businesses can explore how AM fits within their existing workflows, experiment with different types of prints, and evaluate the potential cost savings and productivity gains. By allowing companies to 'test-drive' the technology, we aim to lower the threshold for AM adoption and help them make informed decisions about future investments in AM equipment.

5. Technology Follows Aesthetics

This pilot focuses on developing visually appealing outdoor furniture. The goal is to show the possibilities of 3D printing to a broad audience (by using the industrial Thomas More KUKA robot 3D printer), including less technical people who are more likely to be attracted to aesthetic furniture instead of complex meaningless machines.

With this pilot, we also want to promote interdisciplinary collaboration between different parties, so we are working together with the Furniture Design course (VOMO) in Mechelen - Belgium.

To achieve this and to appeal to as wide an audience as possible, an aesthetic piece of furniture designed by one of the VOMO students will be printed by the Thomas More KUKA robot at an expo in the city of Mechelen at the 'City Festival' starting from the 7th of November 2024.

8. Important figures and models

<https://ruraldigital.eu/model/>



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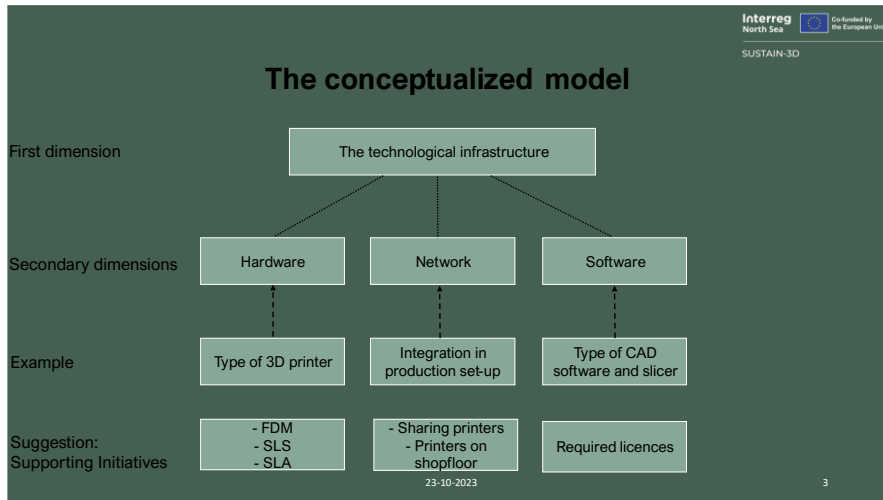
Skill: Network (+30), Metal Cluster (7), Lend-a-printer, vocational schools, university of applied sciences

Service: Network/cluster, Consultancies, implementation, one-to-one design and development, company reach

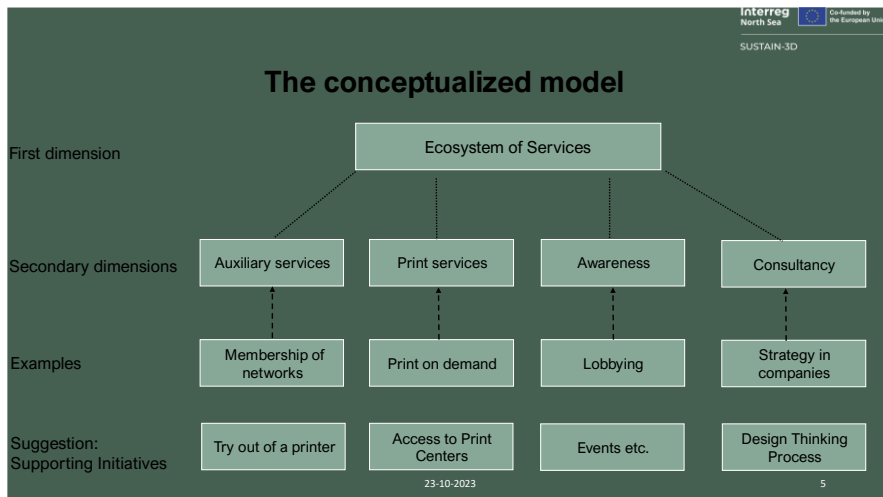
Infrastructure: Printcenters, using exiting capacity between companies and organizations, New capacity, intl. Collaboration

SCOPE OF THE PROPOSED PROJECT: BUILDING ON COM³ METHODOLOGY

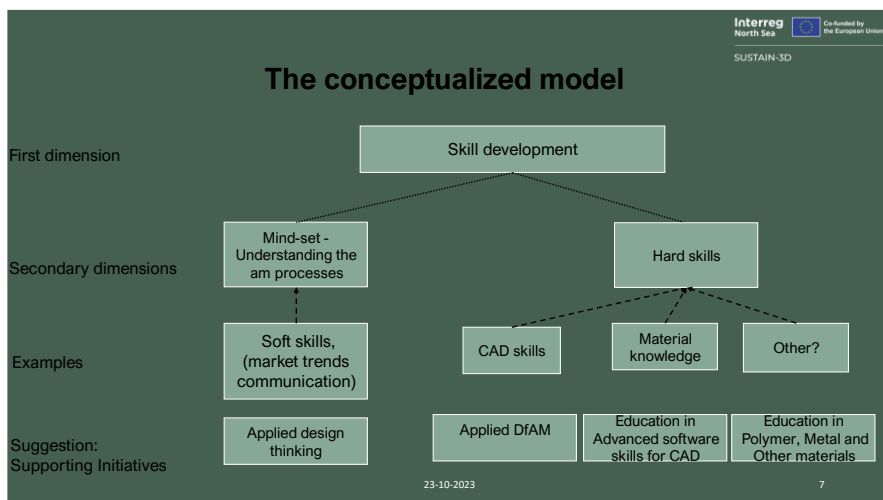
Technical Infrastructure



Services



Skills



CORA.COM3 vs SUSTAIN3D model

