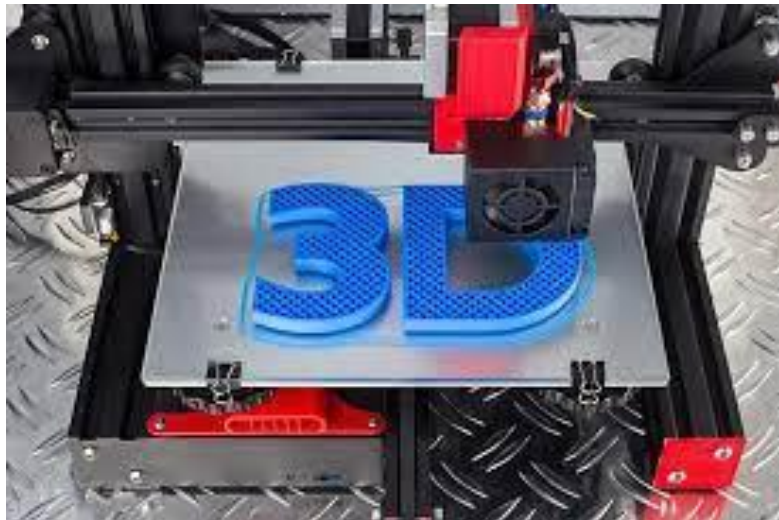


Local Action Plan

SUSTAIN3D & FME AM network

Netherlands



September 2024

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1. Introduction

1.1 Interreg Northsea

Building on insights from the Northsea programme 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.

1.2 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:

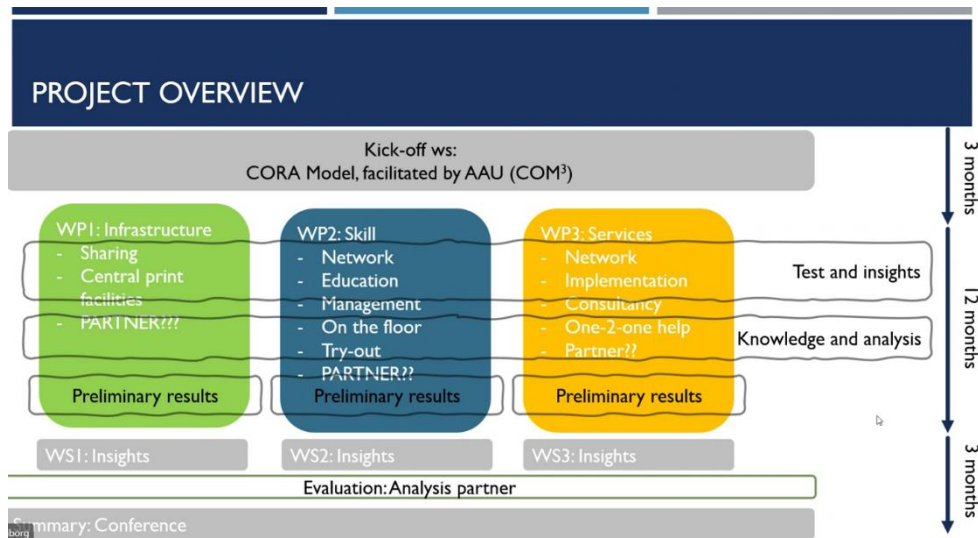
- Assess if the CORA/COM3 model for digital transformation can be meaningfully applied to the case of AM-technology. This will create a foundation for the partners to work on also after the project period. See appendix 1.
- Implement local action plans related to Skill, Services and Infrastructure. This will ensure after effect help 30 SMEs and 5 partners to increase capacity for implementing AM

1.3 Tasks for Projectpartners

Activities for FME, as one of the project partners, include:

- 1: Doing desk Research for "Services"
- 2: Participating at the Kick-off
- 3: Organizing 3x Local Stakeholder Group meetings in the Netherlands (LSG)
- 4: Set up a Workshop Services

- 5: Develop a Local action plan, including the implementation of 3 pilots
- 6: Participating Final conference
- 7: Project management for WP Services including monthly meetings in PM team
- 8: In the Netherlands realizing communication and dissemination activities.



1.4 Role FME

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

FME also represents the other workshops organized by the other countries in the field of Skills and Infrastructure.

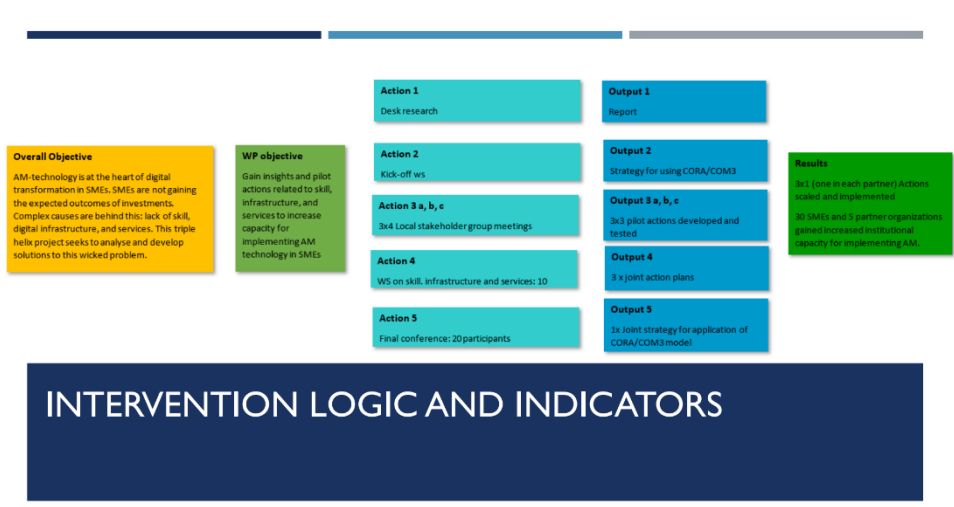
The aim of the FME AM network is to increase 3D printing adoption and thus improve/intensify the services of the affiliated companies.

With the FME AM network, FME organizes various local stakeholder sessions, executes deskresearch and stimulate pilots focusing on the SUSTAIN3D topics. FME also organizes awareness sessions to inform potential users about the benefits and use (use cases) of 3D printing in addition to traditional production methods.

Before this project we developed an AM training as a metroline in the area of Skills. We shall share this method and lessons learned with the other countries.

Benefits for the FME AM network:

- + Experiences from abroad, knowledge from the pilots
- + Members (customers) are mobilized
- + Collect wishes and requirements regarding Services we provide
- + Use project as a flywheel to better put 3D printing services on the map
- + Reimbursement for organization and stakeholder meetings



2. Skills, services & infrastructure

2.1 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*

2.2 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)*

2.3 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*

See also appendix 2.

3. Detailed Activities project partner FME

	Activities		date	# KPI
1	Participating in Project Kick off in Denmark	International Project team SUSTAIN3D	4,5,6 October 2023	WS kickoff:1
2	Local Stakeholder Group (LSG) 1- Strategy meeting in NL	Coreteam FME AM network: Oceanz, 3DMZ and TU Delft	14 dec 2023	LSG meeting:1
3	Attending Workshop Infrastructure in Denmark	International Project team SUSTAIN3D	22, 23 April 2024	WS Infra: 1
4	Attending Workshop Skills in Belgium	International Project team SUSTAIN3D	6,7 February 2024	WS Skills: 1
5	Doing desk Research for "Services", interviews	FME AM network potential users FME community, internation projectmembers SUSTAIN3D	April 2024	Desk research Services: 1
6	LSG 2 & 3 AM network NL	FME AM network companies on top of core team	February 14, 2024 April 12, 2024	LSG meetings: 2
7	Organizing Workshop Services in the Netherlands, including LSG 4	International Project team SUSTAIN3D	28, 29 May 2024	WS Services: 1, LSG meeting: 1
8	Develop a Local Action Plan, including the implementation of 3 pilots	PM FME	August-September 2024	Local AP: 1
9	Execute 3 Pilots: <ul style="list-style-type: none"> 1. Organizing segmented 3D print Event at CEAD Delft 2. Writing uses cases to publish 3. Developing & organizing deepdive Masterclass Engineers 	FME AM network	13 July 2024 July-September 2024 September-February 2025	Pilots: 3
10	Participating Project Evaluation in Lille	International Project team SUSTAIN3D	26-28 January 2025	Evaluation: 1
11	Project management for WP Services including monthly meetings in PM team	International Project team SUSTAIN3D	Continuously via monthly meetings	
12	Communication and dissemination activities in the Netherlands	PM FME	Continuously via Linked in, FME AM network and other channels	

4. Pilots Netherlands

4.1 CORA3COM model

If we use the CORA.COM3 model extended as shown in Appendix 3 you see the following themes:

1. Pilot 1: Organizing segmented 3D print Event at CEAD Delft
//SERVICES// interest, awareness//industry level//networks
2. Pilot 2: Writing use cases to publish
// SERVICES//interest, awareness//industry level//case stories
3. Pilot 3: Organizing and developing Deepdive Masterclass Engineers
//SKILLS// hard skills// technical competences // develop specialized training programs
//SERVICES //Implementation// seeing new possibilities and development// training newest technology

4.2 Pilot 1: 3D Printing Inspiration Session for engineers working in Automotive and Aerospace

An inspirational meeting was held on the application possibilities of 3D printing for companies in the aerospace and automotive industries. Practical use cases of 3D printing were discussed from the specific perspectives of these sectors.

Drivers/ Barriers

Meetings we held before were very global: broad targetgroup and very general topics which applied to anyone but did not address the 'pain' of companies. Also a mix of targetgroups were invited, from directors, projectleads, to engineers. They all speak different languages and need to be addressed differently to get onboard on the 3D printing journey.

Target group

To target SME's in the technological industry, in specified segments, with a bottom up approach to reach the right companies in order to adopt AM in their production process.

- Segments: aerospace and automotive
- Bottom up: engineers instead of directors

Goal

To reach at least 5 SME's and inspire them with use cases with proven track record.

Timing

9 July 2024

Activities

Organizing a 3D print event at a 3D print machine builder: CEAD in Delft. Present use cases by FME AM network members: Oceanz, 3D Makers Zone and CEAD (including a physical tour to show the possibilities).

Result

16 companies who attended are more aware of AM possibilities and applications.

4.3 Pilot 2: Writing uses cases to publish

Interesting showcases about various applications, the do's and don'ts of 3D printing, told by experts from the Netherlands. Spread the 3D printing message to a wider audience!

Drivers/ Barriers

Catch the show- and uses cases in a printed story and offer potential AM users different scenarios how to implement 3D printing in their production process. Next to storytelling at presentations it will be a low hanging fruit, extra channel to interest and stimulate SME's.

Target group

To target potential users of 3D printing, SME's in the technological industry.

Goal

To interest, inform and enthusiasm at least 30 SME's about 3D printing possibilities via AM FME network channels.

Timing

July- September 2024

Activities

Write down and publish use cases from 3D print machine builders and service providers to inspire and guide the potential 3D print users. Starting with the presented cases on the organized event for pilot one from Oceanz, 3DMZ and CEAD.

Result

400 companies received the FME AM special with the cases published. Even more can still read it at the website: <https://www.fme.nl/digitalisering/additive-manufacturing>

4.4 Pilot 3: Deep dive Masterclass Engineers

Redesign the Future: Masterclass Additive Manufacturing (AM).

A follow up on the basic 3D printing training offered in a metroline form. Deep dive into 3D printing and realize local & sustainable production in your company!

Drivers/ Barriers

We developed a basic training with 7 fundamental courses to learn the basics of 3Dprinting like materials, techniques and processes. But we could not offer a follow up to these companies who followed the metroline 3D printing. We were in search of a deepdive for companies in which they could bring in their own case in order to make real steps in 3D printing as one of the production methods.

Target group

To target SME's in the technological industry who want to retrieve more profound knowledge.

Goal

To reach a more knowledgeable level of 3D printing and new technologies within the SME's who use 3D printing for prototyping, testing and/or production.

Timing

23 January 2025

Activities

Set up a 3D print Masterclass with partners like the University of Delft and 3D Makers zone to extend the knowledge, demonstrate the business case and stimulate a 3D print mindset. (follow up on the metroline 3D printing from the Smart Makers Academy) including the newest technology insights.

Results

10 companies followed the pilot masterclass and want to continue deep diving into 3Dprinting. Clustered themes and goals will be gathered to continue with a series of deep dive sessions.

Appendix 1

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



Home Check your Digital Maturity Get Inspired Get the skills News Library



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

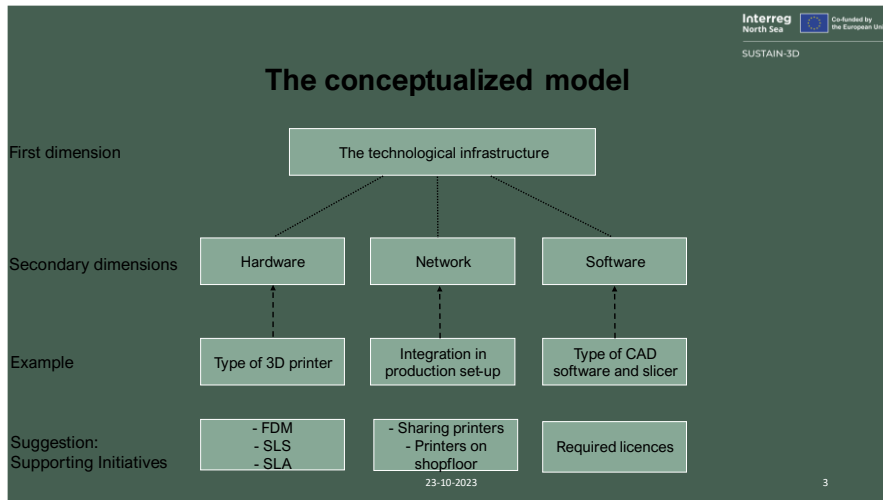
Service:
Network/cluster, Consultancies, implementation, one-to-one design and development, company reach

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

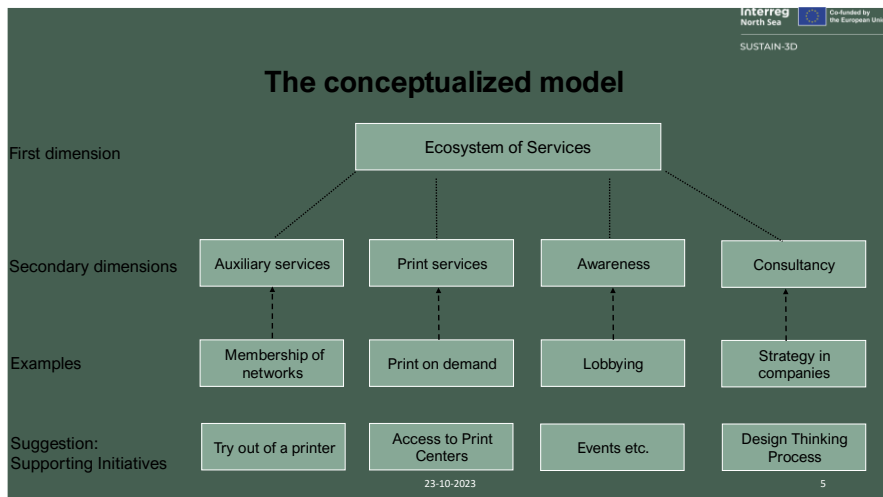
**SCOPE OF THE PROPOSED PROJECT:
BUILDING ON COM³ METHODOLOGY**

Appendix 2

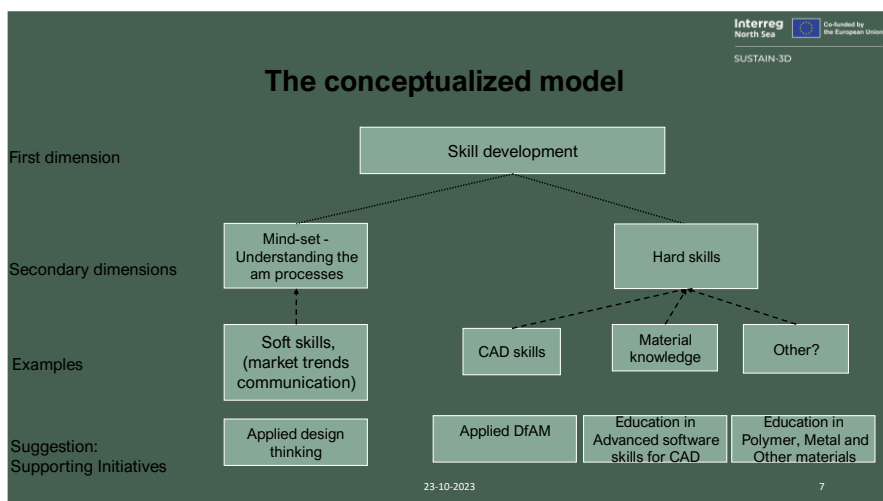
Technical Infrastructure



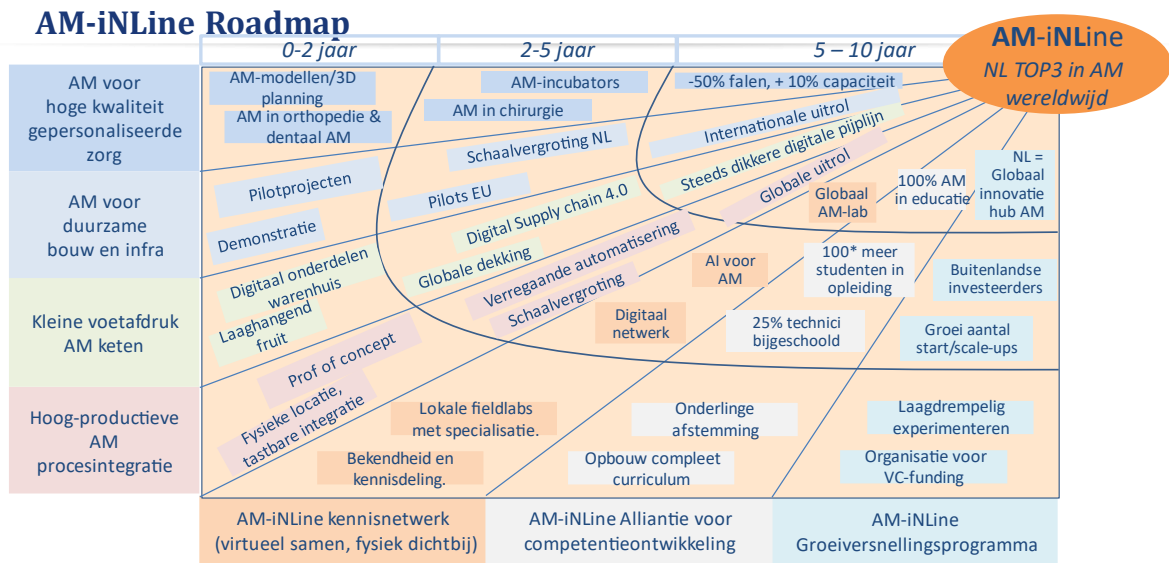
Services



Skills



Appendix 4



Berenschot

20210407- Presentatie voor EZK 2