D7.10 Initial report on Coaching Sessions to SME
WP7 Dissemination & Exploitation

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EMC2

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List of acronyms

AI: Artificial Intelligence
AM: Additive Manufacturing
CO: Confidential
CRM: Customer Relationship Management software
EC: European Commission
E-DIH: European Digital Innovation Hub
IIW: International Institute of Welding
NDT: Non-Destructive Testing
NGO : Non-Governmental Organization
ROI: Return-On-Investment
SME: Small & Medium enterprises
WAAM: Wire-Arc Additive Manufacturing

1. Introduction

1.1. Context

Dissemination objective: reaching 1,080 SMEs in Europe. Therefore, a main task of WP7 are the actions for the D7.6 - *Coaching Sessions **to SMEs***. Based on a stakeholder database, it bears:

- Webinars
- WAAM Experience Days
- The WAAM Roadshow
- Adapted Industrial Trainings
- Training of professionals
- M2i Design Contest

1.2. Structure of the document

The deliverable is a report on real-life activities. Initial release on M12. This report will be updated on M24, M36 and M48. This reports features:

- Description of actions
- Management of the events

Beyond being a report to the EC on concrete actions undertaken, it aims at being a concise document as a tool for organizers of coaching sessions to SME where people involved such as communication managers can refer to. Strategic content of higher level can be found in the D7.1 - *Plan for dissemination & Exploitation.*

1.3. Overall of the training and coaching programme for SME

More than 1.000 SME on the continent will be offered the opportunity of witnessing a WAAM prototyping demonstration and receiving coaching to start a WAAM business or equip with a WAAM system.

The coaching sessions will be widely advertised

- through a Grade2XL newsletter
- through professional networks and associations – such as the International Welding Institute. Indeed, a wide network of multipliers are being contacted, including the companies from supply chains of the Grade2XL partners, national welding societies, toolmakers association, foundries, robot manufacturers, materials suppliers.

Furthermore, information on WAAM is included in the trainings already delivered by current partners to professionals employed in SME.

Grade2XL expects to reach at least twice as many countries as those represented in the consortium.

2. WAAM Experience Days

2.1. Key dissemination event

The WAAM Experience Days will ensure the delivery of simple and fast routes for the rollout of WAAM technology in the relevant industrial sectors and promote WAAM as an attractive business opportunity for SME.

Objective and targets

The target audience for this action are SME interested in starting a WAAM business or in using WAAM for prototyping or for repairing. Large manufacturing companies can also be involved. People expected to attend are process engineers, production engineers. A maximum of two representatives per SME will be selected on a “first come first served” basis, provided that their business has proven relevance with WAAM potential.

Evaluation & follow-up indicators

Participants will be required to register to the event and specify a few information about their expectations of the day and their business. They will be asked sign an attendance sheet so the consortium can report to the EC. At the end of the day, attendees will be asked to answer a “satisfaction survey” so the impact can be measure qualitatively.

Then, interested companies will be coached one-by-one in a personalized way to build their business case. Interested companies are known thanks to the satisfaction survey done at the end of the experience day.

The key performance indicator for theses dissemination events towards SME will be the total number of participants compared to the number of companies building a business case and finally investing in WAAM (conversion rate). It is monitored by EMC2 as *WP7 leader.*

Places and organizers

Experience days will occur at five different places. At RAMLAB facilities (Rotterdam area, NL), at Naval Group facilities (Nantes area, France), at Valk Welding (Czech Republic, Denmark, France, and the Netherlands) and at Voestalpine Böhler Welding (in Hamm, Germany).

Organizer	Partners involved	Location	Number of sessions*SME = Total
M2i	RAMLAB	Rotterdam, NL	10*20 SME = 200 SME
EMC2	Naval Group	Nantes, FR	5*20 SME = 100 SME
M2i	Valk Welding & RAMLAB	Czech Republic, Denmark, France, Germany	6*20 SME = 120 SME
M2i	Voestalpine Böhler Welding	Application Technology Center (ATC) in Germany	Additional sessions: 4 times of 30 external people and 4 times of 30 corporate people

2.2. Standard agenda of an Experience Day

A WAAM Experience Day is divided into 4 key moments:

1. Technical description
2. Demonstration
3. WAAM business model explanation
4. Individual use-case definition

In case of interest for an SME in investing in a Grade2XL system, an additional step is realized consisting of a one-to-one coaching on investment.

Step 0. Welcome introduction

Length: 30min.
Objective: Participants get the basic knowledge about the context (H2020 project Grade2XL) and the agenda of the day is reminded.

1. Welcome word from the host - 5min.
2. Reminder of the context (general project presentation .ppt + video) - 20min.
3. Schedule of the day – 5 min.

Contents used by speaker: PowerPoint presentation + videos of the project.

Step 1. Technical description

Length: 60min.
Objective: SME should understand what is possible to realize with the WAAM technology as developed within Grade2XL.
Contents provided to the audience:

a) What is possible? Design possibilities in terms of shapes, size of parts, materials available, multimaterial capabilities, lead time.
b) How does it work?
    a. General knowledge about WAAM (difference with other AM techniques).
    b. Grade2XL solution: the WAAM cell process.
c) Manufacturing constraints are explained: multimaterial deposition (supplying), production time (kg/hours), cooling impact on quality of the parts.
d) What are the necessary equipment? List and define machines such as 6 axes robots, the cooling system for WAAM? The NDT machine. In case of subcontracting (WAAM-as-a-service), what are the preliminary works and equipment necessary? (To adapt CAD layouts? To write specifications? Calculate stiffness do determine material?).

Contents used by speaker: PowerPoint presentations.
Person responsible (speaker): technical person from RAMLAB or Naval group (WAAM engineers).

Step 2. Demonstration

Length: Possibilities will be defined according to the possibilities at each site. The targeted activity is a practical exercise, of approximately 90 minutes so the audience gets familiar with the machines.
Person responsible (speaker): Technical person from RAMLAB or Naval group (WAAM engineers).
Objective: Have the participants see and thus experiment the WAAM cells in motion, to help them better understand the process and try to see if it fits in with their own business and shop floor.
Contents provided to the audience: Manufacturing of a part. Explanation of the process. From theory (step 1 - *Description*) to practice (Step 2 - *Demonstration*).

Usual parts produced due to the length (deposition and cooling). Possibility to keep production that was already planned for that very day.
The demo case should be representative of the capabilities of the technology: complex shape, multi-material etc. What will be showed should convince the participants to adopt the technology. The part may be produced before the event so it has time to cool down. So, other options are discussed to match technical requirements with the best user experience of these events such as keeping production for the day so participants see the WAAM cell on duty.
Contents used by speaker: hardware and software of the WAAM cell in the experience centre, knowledge of the speaker.

Step 3. Business Model explanation

Length: 90min (60 min about the 8 use-cases + 30 min on economical facts)
Objective: Participants get info on WAAM business model, so they are then able to determine their relevant use-case.
Contents provided to the audience:
The ways to access to WAAM manufacturing is described:

a. WAAM-as-a-service at RAMLAB facilities.
b. Buying a complete system from Valk Welding.

The interest for Grade2XL-WAAM solution of the eight use-case are detailed. It shows the accuracy of this manufacturing technology on a business perspective. The industrial use-cases are also reassuring and enable a positive feeling of emulation.

Return-On-Investment (ROI): basic info is given so the audience knows the criteria on which calculate their ROI when adopting WAAM.
Financing tools available such as grants and loans are introduced e.g. support by public frecnh bank called BPI France, regions, European Digital Innovation Hub (E-DIH), EC funding, EIT Manufacturing, etc. Each Grade2XL partner will investigate funding instruments in its countries on Q1 2023 to provide the info that will be integrated to the *Experience Day* PowerPoint presentation which could help SME to adopt the technology.

Step 4. Use-case definition

Length: 90min (60min on drafting a business model + 30min of feedbacks)
Objective: Participants determine their relevant use-case and understand how WAAM as offered by Grade2XL meets their requirements. First data about budget/investment is drafted, so the ROI appears interesting to the companies.
Contents provided to the audience: A questionnaire is provided to help the company to precise its use-case and determine how WAAM as offered by Grade2XL should be the most relevant. First technical constraints can be identified. The audience fills the form. Creativity methods can be deployed to maximise the quality of the contents produced and make this exercise more lively.
This questionnaire or paperboard diagram could be an enhanced “Business Model canvas”. How to ensure that an accurate and usable business model is created? The speaker(s) should support each participant.
This would be done in two steps:

- firstly, description of the technical use-case in itself,
- secondly, definition of the use-case from a business perspective (putting figures on the technical use-case previously described), cost estimates, revenues forecasts.

Person responsible (speaker): Maxime (EMC2), Viktoria (M2i), Vincent (RAMLAB), Peter (Valk Welding)

Contents used by speaker: PowerPoint presentation, questionnaire or paperboard diagrams to be filled

Next step: One-to-one coaching for financing

Objective: Transforming the use-case in a business case enabling to invest, in order for the company to become an early-adopter of Grade2XL solution (exploitation of results). Indeed, the draft of ROI written during the step 4-*Use-Case definition* must be detailed to issue a document that would convince investors, banks or shareholders of the SME to invest.

Contents provided: Personalized support

Person responsible: Maxime of EMC2. Perhaps external companies such as innovation consultancies in support. Maybe, in the future, the DIH orchestrators could play this role.

Contents used by speaker:

- The Business Model as draft created during the step 4 of the WAAM experience day
- A more detailed ROI calculation form
- Technical feedback from RAMLAB/Valk
- Template for project proposal (EUcalls for SMEs for demonstration projects or loans from public innovation banks).

3. WAAM Roadshow

The Roadshow is based on the same principle of the WAAM Experience Days although mobile. It consists on a WAAM system embedded in a container moved by a truck. It enables to reach others area and SMEs that would not travel to one of the 5 facilities in Europe offering WAAM Experience Days. It contributes to enhance the outreach of the project results. With such mobile WAAM system, prototyping and coaching sessions will be delivered at any other location in Europe.

EMC2 and M2i will lead the selection of SMEs to receive coaching, by reaching out to both their national and European networks, including the clusters dedicated to advanced manufacturing technologies (such as Produtech Portugal, TCS Tools Slovenia, Manufacturias Spain, Smart Industry Netherlands and incubators, to ensure a wide geographical coverage) and Digital Innovation Hubs network (created thanks to the Digital Europe program).

Example of a mobile WAAM system (developed by Valk Welding and owned by Autodesk): shown during transportation (left); installed and ready for operation (centre) and during operation (right).

Organizer	Partners involved	Location	Number of sessions*SME = Total
EMC2	RAMLAB/ NavalGroup	Italy, Spain, Greece, Portugal	6*20 SME = 120 SME
M2i	RAMLAB/ TU Delft	Northern or Eastern Europe (initially on demand)	3*20 SME = 60 SME

Voestalpine Böhler Welding volunteered to join the Roadshow team. They offered to participate to the explanations. Their engineers could for instance contribute on topics such as basics on the materials used in AM:

- impact of heat input and temperature control on the material metallurgy,
- mechanical technological data
- material selection and optimization.

4. Adapted Industrial Trainings

Adapted industrial trainings aims at creating more awareness about WAAM and making people consider using WAAM in their production processes. It targets people with a little background in welding-process. Valk Welding involves dedicated experienced people giving training in robot programming.

Valk Welding will organize trainings at Alblasserdam in the Netherlands **with the objective of reaching 480 SME. It is initially planned to be divided into 40 trainings per year during 4 years with trainees from 3 different SME at each session.** Valk Welding will contact the SMEs through its newsletter and through the industrial exhibitions the company takes part in. Besides, the company will spread the news about WAAM among its sales-engineers throughout Europe so they can contact the customers in their region which could be interested in this process. The company will also spend a part of its regular programming-trainings, which they give to all their customers, to instruct about WAAM. Herewith they would spread widely the knowledge about WAAM.

The trainings will be split into two parts: a theoretical one and a practical one. The theoretical training consists on an explanation of the possibilities of the WAAM process. This theoretical part teaches the WAAM principles, when it is interesting to use it and for which kinds of parts. The practical part teaches how to generate a robot-program for making a WAAM-part. As indicator, there won't be final test (so the trainees are not frightened with some sort of exam to pass). If the trainees are convinced that WAAM is a serious alternative for other production methods, the training is considered as a success.

Valk Welding will contact the SMEs through its newsletter and through the industrial exhibitions the company takes part in. Besides, the company will spread the news about WAAM among its sales-engineers throughout Europe so they can contact the customers in their region which could be interested in this process. The company will also spend a part of its regular programming-trainings which they give to all their customers to explain about WAAM. Herewith, it will spread widely the knowledge about WAAM.

The premises in Alblasserdam consist of several buildings that are particularly appropriate to organise industrial trainings featuring assembly halls, warehouses for welding wire, a training centre of 360 sqm and classrooms of 90sqm as well as a demo centre of 360sqm. In addition, Alblasserdam facility lays in the industrial heart of Holland, close to Rotterdam and close to RAMLAB. Alblasserdam is surrounded with all kinds of metal industries. The premises are located directly at the highway A-15 and therefore easy reachable by car, train or from the airport.

5. Training of professionals

Courses for training of professionals will be crafted having in mind the skills needed for the future engineers operating robotic WAAM machines. RAMLAB and Naval Group will guide the content of

these courses. The International Welding Institute and other professional associations, such as the European Welding Federation will be involved in the development of the course providing contents.

All this with the intention to organise further trainings during and after the project. The course content will remain dynamic to incorporate new developments in the technology and will serve as a tool to re-educate the welding professionals in the spirit of WAAM.

These courses for WAAM professionals will be organised by TU Delft with the support of the International Institute of Welding (IIW) and the European Welding Federation – through links via the national welding institutes. This training is facilitated by having key members of Grade2XL in leading positions at the International Welding Institute. Naval & RAMLAB would emerge as trainers.

Grade2XL consortium will also liaise with other AM projects and initiatives to ensure a good fit with the needs for AM workforce development at European level: Made in Europe (EIT Manufacturing, the I4MS project, the AM-platform (via M2i), CECIMO (via Valk Welding) and the TMS Materials Societies (via TU Delft). **The aim is to create synergies and reach a critical mass of welding engineers and professionals who are trained on WAAM thus indirectly reaching industrial SME.**

The training would go on the AM and specifically WAAM topic. This is typically of interest for manufacturing schools for instance. The targeting audience for this training is:

- The European Welding Federation
- Manufacturing schools
- National welding institutes
- Certifications bodies
- Designers (how to incorporate Graded WAAM into the design aspects)
- Software developers: tool path generation

It concerns the operator level as well as the European welding engineer level.

Training program would deal with the following topics:

- Robotic deposition
- WAAM process (printing strategies, heating & cooling as well as NDT)
- NDT as specific topic
- Design aspects

The training will be offered in a compact version of four hours and a more extended version up to 40 hours. The length of the course would depend on

a) Level of knowledge to be reached (from general introduction to detailed information)
b) The background / entry level of the participants at the beginning of the training

The training will be dealing with both theoretical aspects and manufacturing-applied aspects. Training and coaching by manufacturers (Naval Group & Valk Welding) could show their welding capacity. These players are members of Grade2XL consortium. They have extensive experience in welding. An academic partner (TU Delft) would add scientific knowledge.
The outcome could be some sort of presentation in combination with supplementary document (featuring comments remarks) about the entire flexible manufacturing system or on specific functions of the system (hardware, software).

Such training would be a perfect base that could be adapted by Valk Welding for maintenance training to prepare their clients to use and maintain their Grade2XL installation. The aforementioned

presentation would be used in addition to Valk Welding's tailor-made content for Adapted Industrial Training.

6. M2I design contest

The automate features of WAAM and its endless design freedom make it a very interesting technology for young engineers, both in academia and industry. During its annual conference Meeting Materials (the largest materials event in Benelux, with a tradition of over 20 years), M2i organises an **Open design contest for young engineers**, yearly, challenging them to design a novel WAAM product. This event enables to reach professionals working for industrial SME so is mentioned within D7.6.
The academic participants (MSc, PhD students or postDocs) will be incentivised by the possibility to build a full-scale prototype to enrich their portfolio, whereas the young industrial engineers may get the chance to convince their management to consider WAAM as alternative production method.
The contest is organised annually during the project, launching a new tradition. The conference takes place annually on the second Monday and Tuesday in December. The first M2i conference took place on 14-15 December 2020.

7. Reaching European Industrial SME

7.1. Approach

A key action remains in reaching industrial SME that are potentially interested by WAAM in general and in particular in exploiting the results of Grade2XL.
The entrance gates are of three kinds:

- By activity (e.g. 3D printing, welding, etc.)
- By market sectors (e.g. aerospace, automotive, naval, etc.)
- By size and maturity (subsidiaries of old industrial large companies, diversifying SMES, start-ups and university spin-offs)

The means to reach SME are multiple:

- Stakeholder Database (contacts of consortium member) whose consent to receive information is requested to belong to a *Grade2XL mailing*-list that might give birth to a newsletter.
- Registering to networks and interest groups
- Linking with clusters of companies involving industrials or E-DIH (created from the Digital Europe Program of the EC) that would include additive manufacturing in their technological focuses as an application of AI.

Trade fairs will enable to meet SME representative. It is an opportunity to offer them to register to the *Grade2XL mailing list.* See details about *Trade Fairs* in the D7.1.
In accordance with the cumulative objectives of

a) reaching 1,080 SME
b) covering as many regions of the European Union as possible

7.2. D7.2 – The Stakeholder database

The coaching sessions to SME will be advertised thanks to the Grade2XL *Stakeholder Database* (D7.2). The stakeholders thus identified will be contacted through an initial email requesting their approval to be added to a dedicated *Grade2XL mailing list* managed by EMC2. Such *Grade2XL mailing*

list would later advertise to the stakeholders the dissemination events organized for them. WAAM Experience Days targeting industrial SME for instance.

Reminder: Stakeholders of Grade2XL enabling to reach SME are:

See screenshot of the confidential excel document below.

Deliverable 7.2 - PRELIMINARY Stakeholders Database

Organisation Name	Main business	Organisation Address	Organisation City	CONTACT - Last	CONTACT - Fi
2MV Composites BV	Production/Composites	Zoutketen 14	ENKHUIZEN	Verwoerd	Martijn
3AComposites - AIREX	Production/Composites	Hinterbergstrasse 20	6312 Steinhausen	Cohen	Frans
3D Makers Zone	3D printing	Oudeweg 91-95	Haarlem	Veger	Jeroen
3D NEW PRINT	Production/Composites	16, rue des Clairieres	LES SORINIERES	DESARTHE	Christophe
3D-Metal Forming B.V.	3D printing	Karperweg 8	LELYSTAD	Oud	Marcel
3M	Production/Automotive/Medical/Transport/Engery/Electronics	Industrieweg 24	ZOETERWOUDE	Kroon	Arnold
5LM	Engineering/Tooling	1, rue Alexandre Fleming	ANGERS	ABRAHAM	Sylvain
A. Leering Enschede Apparatenbouw BV	Production/Metals/Plasmacutting	Kanaalstraat 151	ENSCHEDE	Olde-Boerrigter	
Aalberts Industries N.V.	Production/Metals/Piping/Advanced Megatronics	Sandenburgerlaan 4	LANGBROEK	Aalberts	
ABC PLIAGE	Production/Metals	198 rue de la mainguais	NANTES	BERTHE	Patrice
ABCO EUROPE	Engineering/Equipement goods	6 Rue des Harnais	ORVAULT	PERDRIAT	Eric
Academia Sinica	Academic		TAPEI	Lee	Ting-Kuo
ACB	Production/Metals	27, rue du Ranzai BP 31908	NANTES	LESCROART	Dominique
ACE wikkeltechniek B.V.	Production/Automotive	Nijverheidsstraat 2	HORST	Comperen	Ad
AcQ Inducom	Production/Aerospace/Transportation	Rijnstraat 20	OSS	Driel	Remko
ACTEMIUM NANTES	Engineering/Equipement goods	5, rue Véga	Carquefou	VERBEKEN	Stéphane
Adamas	Production/Industrial			Willemsen	
Additive Industries	Production/Aerospace/High-tech/Automotive/Medical	Leidingstraat 27	EINDHOVEN	Pennings	Remco
ADDIUM SAS	Engineering/3D Printing	27 rue du Ranzai BP31908	NANTES	DOYEN	Franck

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The column B “Main business” applies for industrials as well as for other kinds of organisations i.e. academic, etc. If the CRM software enables such data retrieval, it is advised to add columns to make the difference for “main business” between:

- the activities: research, engineering, production, etc.
- the technical field: 3D printing, welding, etc.
- the industries (or market sectors) addressed: aerospace, naval, automotive, etc.

This would be very useful in order to accurately target stakeholders for each kind of event and thus avoid spamming. The people enrolled for each kind of coaching session to SME would be more qualitative

The stakeholders thus identified will be contacted through an initial email requesting their approval to be added to a dedicated *Grade2XL mailing list* managed by EMC2. Such *Grade2XL mailing list* would later advertise to the stakeholders the dissemination events organized for them. *WAAM Experience days* targeting industrial SMEs for instance.

7.3. Registering to already existing networks

A wide network of multipliers are contacted, including the companies from supply chains of the Grade2XL partners, national welding societies, toolmakers association, foundries, robot manufacturers, materials suppliers.
Networks and interest groups where Grade2XL is already registered.

a) AM Platform (via M2i)
b) CECIMO (via Valk Welding)
c) EFFRA (via M2i and EMC2)
d) European Digital Innovation Hubs such as the future E-DIH "DIVA" (via EMC2)
e) France Additive (via EMC2 - pending)
f) International Institute of Welding (IIW) and other professional associations, such as the European Welding Federation TMS Materials Societies (via TU Delft)
g) Vanguard Initiative (via EMC2)
    a. Efficient & Sustainable Manufacturing Pilot
    b. 3D Printing Pilot

Description of these organisations and networks can be read in appendix of this document.

8. Master plan

8.1. D7.6 Task Force

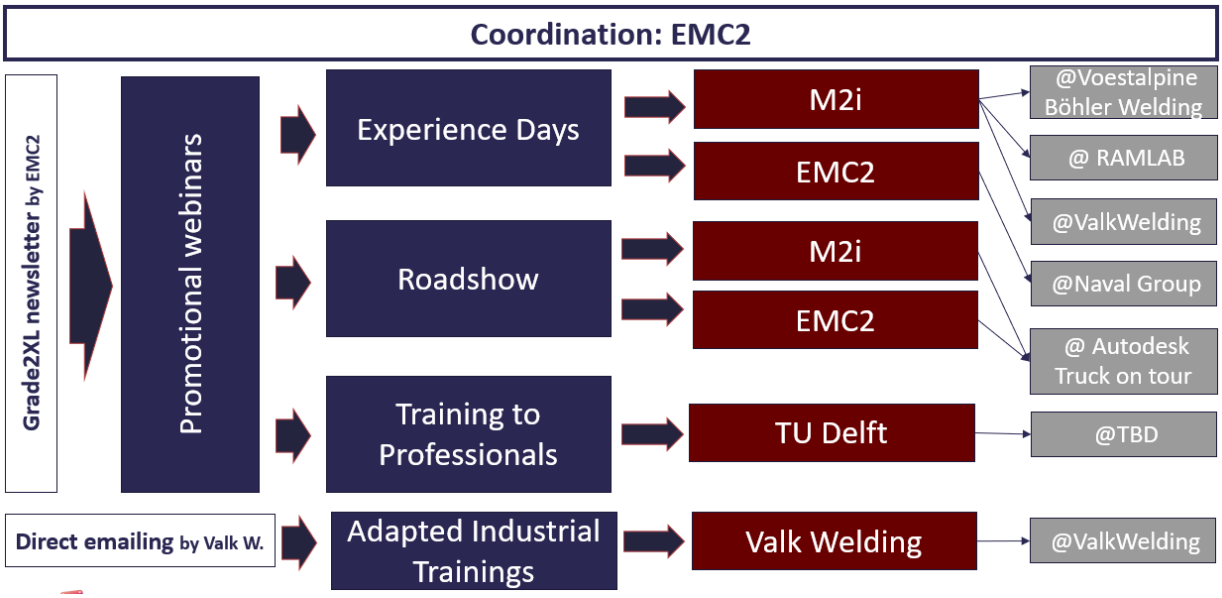
Some partners are more deeply involved on the tasks dealing with coaching sessions **to SME**:

- EMC2: Maxime EZEQUEL (leader)
- Naval Group : Thibault CASTEL, Emilie LOUERAT & Anne-Sophie THORR
- M2i: Iulia DEGERATU
- RAMLAB: Constantinos GOULAS & Vincent WEGENER
- TU Delft: Marcel HERMANS
- Valk Welding: Peter HASPELS
- Voestalpine Böhler Welding: Martin SCHMITZ-NIEDERAU

These members are constituting the "*D7.6 TASK FORCE*" that meet occasionally on the first year of the project and will then meet monthly through videocalls since February 2021 to report on action done previously and to coordinate the operational work of the coming months.

8.2. Implementation

At M12, an initial action plan had been realized according to the D7.1 Initial dissemination and exploitation plan. It will be updated at M24, M36 and M48.
The figure below explains how are articulated the various activities gathered under the topic "coaching sessions to SME"



Squares in **dark red**: organisation responsible for promoting the event and realizing the attendance list (enrolling SME).
Squares in **light grey**, the organisation responsible for the technical aspects of the event and hosting it in its facilities.
Promotional webinars aim at enrolling SME to attend physical events and to make participants starting their thinking process about their possible WAAM use-case.

8.3. Sessions breakdown

The table below shows the number of sessions for each kind of event.

D7.6 Dissemination Actions	2021	2022	2023	2024
Adapted Industrial Training by Valk W.	**40**	**40**	**40**	**40**
Grade2XL Design Contests by M2i	**1**	**1**	**1**	**0**
Promotional webinars	**6**	**28**	**28**	**0**
By EMC2	2	8	8	0
By M2i	4	20	20	0
WAAM Experience Days	**0**	**8**	**18**	**4**
By Naval Group (with EMC2)	0	2	3	1
By RAMLAB (with M2i)	0	3	6	1
By Valk W. (with M2i)	0	1	4	1
By Voestalpine BW (with M2i)	0	2	5	1
The WAAM Roadshow	**0**	**0**	**12**	**0**
By RAMLAB with EMC2	0	0	8	0
By RAMLAB with M2i	0	0	4	0
Trade Fairs	**6**	**14**	**14**	**6**
By EMC2	1	1	1	0
By M2i	1	1	1	0
By others	4	12	12	6
Training to Professionals by TU Delft	**TBD**	**TBD**	**TBD**	**TBD**

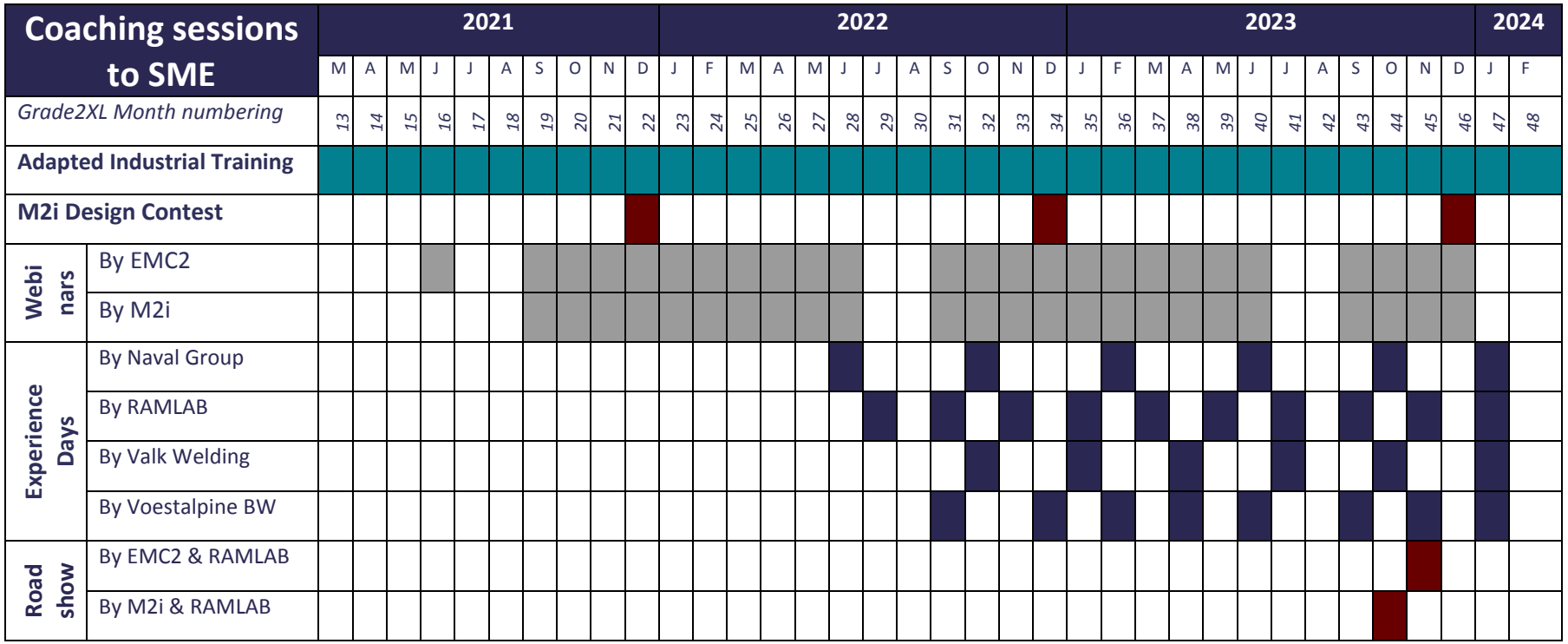
8.4. Indicative planning

The Coaching Sessions to SMEs can be visualized in the planning hereinafter. This planning can only be indicative at this step because a lot of uncertainty remains on the possibility to have physical events according to

- laws of European Member States since coronavirus outbreak
- the availability of the WAAM cell in the container that will be also used for producing Grade2XL parts
- the possibility to access the WAAM cell at Naval Group located on a sensitive site so that may be temporarily closed for business/confidentiality reasons

This planning will be updated at M24.

The risk mitigation measure consists on bringing forward or postponing of a few weeks the event concerned.
If no physical event remains the rule in the future, online WAAM Experience Days would be created. The lack of interaction due to the distance would be compensated as much as possible through a special pedagogy such as serious games.



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9. Appendix

Description of networks and interest groups
AM Platform European Technology Platform in Additive Manufacturing https://www.rm-platform.com/
The future E-DIH "DIVA" of therRegion Pays de la Loire in France (2021-2024) The "Additive Manufacturing" had been added to the technologies focused by the regional European-Digital Innovation Hub (E-DIH, pronounced "Eddy") of Pays de La Loire entitled DIVA. Initially the technological focus was only on the use of data for AI). This will enable to deliver coaching to SMEs with Grade2XL results through services • Tests before invest • Skills and training • Access to Finance Using the network of the E-DIH as well as the financial possibilities (e.g. cascade funding, people available with time dedicated to support SME on that journey to implement a Grade2XL production system in their factory)
EFFRA The European Factories of the Future Research Association (EFFRA) is a non-for-profit, industry-driven association promoting the development of new and innovative production technologies. It is the official representative of the private side in the 'Factories of the Future' public-private partnership. https://www.effra.eu/effra-innovation-portal
France Additive NGO working on developing the community of practice of 3D Printing in France. It is a non-profit organisation that gathers researchers, industrials techno-provider and industrial end-users.
A policy making platform: the European Technology Platform in Additive Manufacturing Currently, the community appears to be less active, most probably due to the COVID-19 crisis. M2i, who is leading the policy-making actions within WP 7, will liaise with the persons in charge and will investigate the options to link and promote Grade2XL on this platform (by M12). Many Grade2XL partners are also members of this platforms, the others will again be encouraged to register.
the platform of the European Welding Federation - Promotion platform. A topic is dedicated to Additive Manufaturing. 20 competences are listed. They mention certification of personal. Guideline on arc welding, on laser cladding etc. Grading of parts could be discussed within this event. Both with industrial and academic participants. - Related European projects are listed (with links on the Cordis website). - Training & certification platform. It should design programmes for certification of personnel. Grade2XL would contribute to this platform. TU Delft will contact EWF via the national welding institute, to promote Grade2XL with the objective of creating a programme available for education. A set of presentations could be sent, as input for the training programme of these organisations. The training is based on the concept of "Competences units". It features 40 hours on AM. Grade2XL may contribute by adding a competence on grading structures. The content will include a presentation on the current capabilities of WAAM, after which will introduce grading and its potential in terms of materials and cost savings - as well as on the process requirements and possible adaptations of current hardware.

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The Vanguard Initiative

It seeks to lead by example in developing interregional cooperation and multi-level governance for supporting clusters and regional eco-systems to focus on smart specialisations in priority areas for transforming and emerging industries. Vanguard regions want to build the synergies and complementarities in smart specialisation strategies to boost world-class clusters and cluster networks, in particular through pilots and large-scale demonstrators. These investments will strengthen Europe's competitive capacity to lead in new industries in the future and develop lead markets that offer solutions to our common challenges.

Source: https://www.s3vanguardinitiative.eu/ambitions