

# AM INTERACTION DAYS

ADELAIDE ALMEIDA

*SAM Qualifications:  
the Personnel Roles for today and for the future*



**EU Industry Week**  
2021

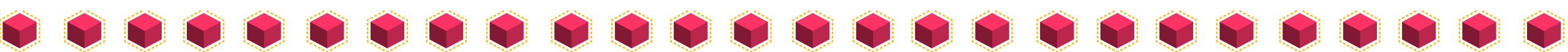
#EUIndustryWeek



# Summary



- 01 SAM project & European Observatory
- 02 The International AM Qualification System
- 03 Current AM Qualifications – AM Worker
- 04 Roles and Skills of Tomorrow
- 05 Getting involved within the European Network



# SAM Project

ARE YOU—  
**AM**  
— READY?

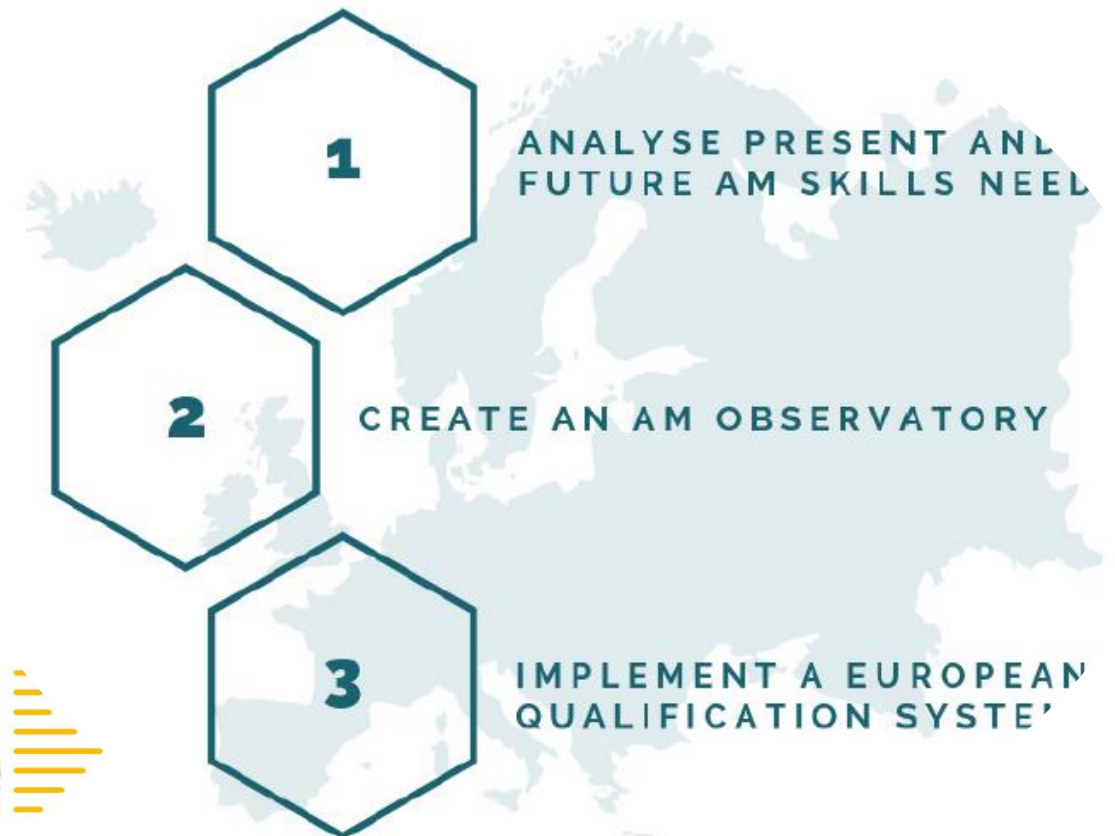
**Partnership:** 17 Partners

- 3 Umbrella Organisations
- 8 Industry Representatives
- 6 Education & Training Providers

**Coordination:** EWF (BE)

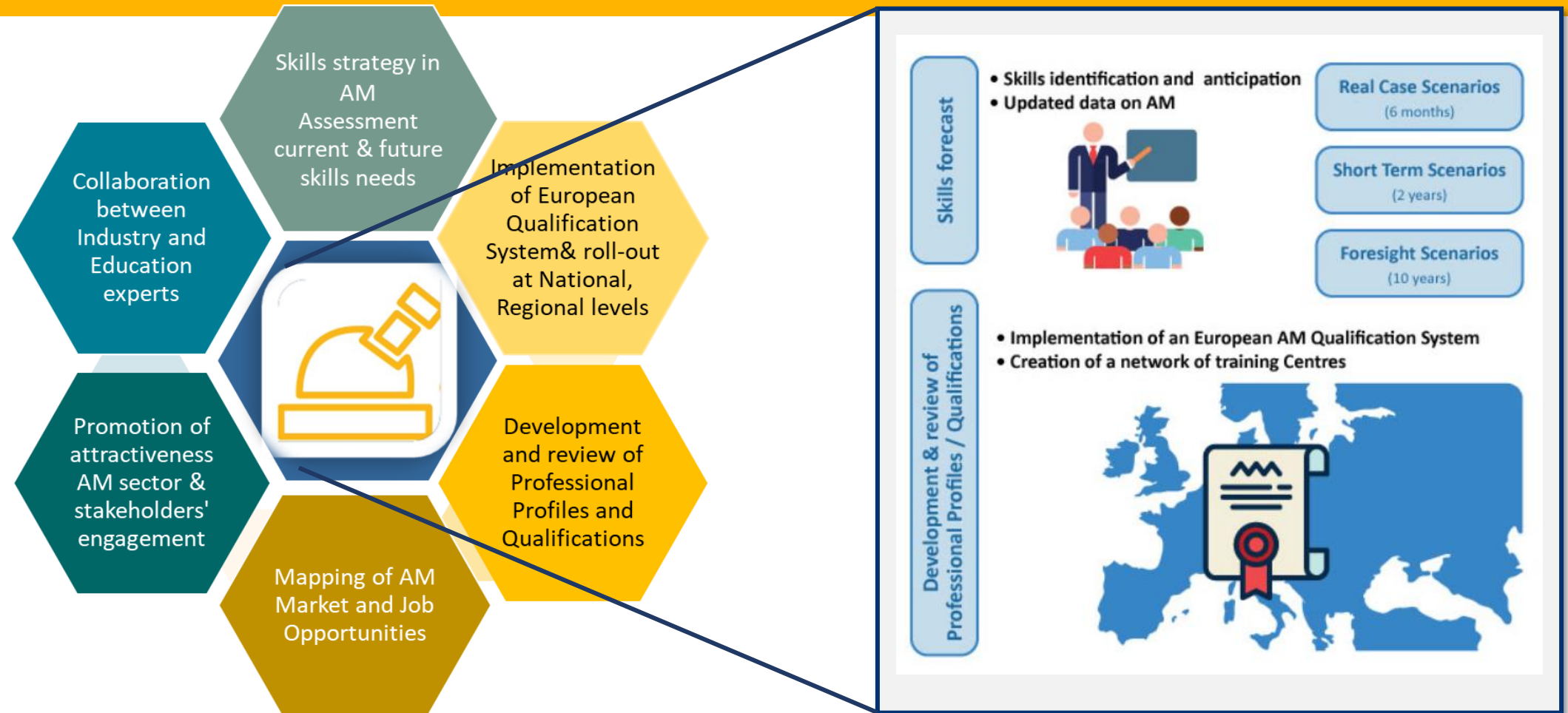
**SSA Blueprint in AM:** Additive  
Manufacturing skills identification  
and anticipation /strategic development  
of skills for the sector in Europe

**Duration:** 1.1.2019 to 31.12.2022



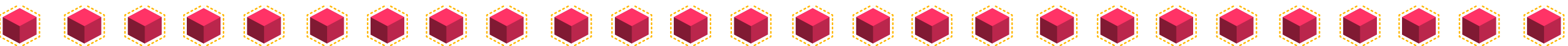
# AM Observatory

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— READY?



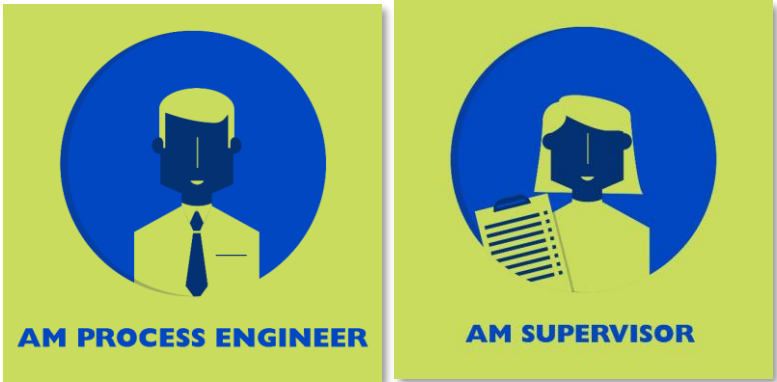
# The Unique International AM Qualification System

ARE YOU—  
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— READY?

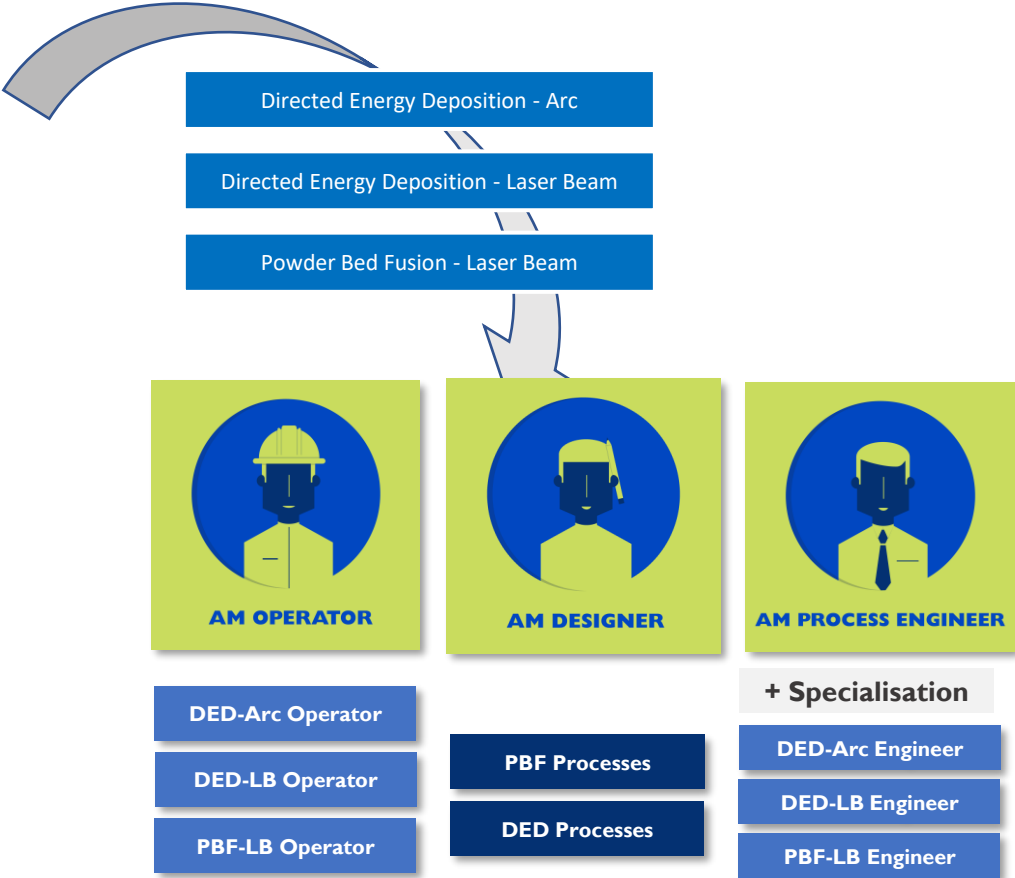
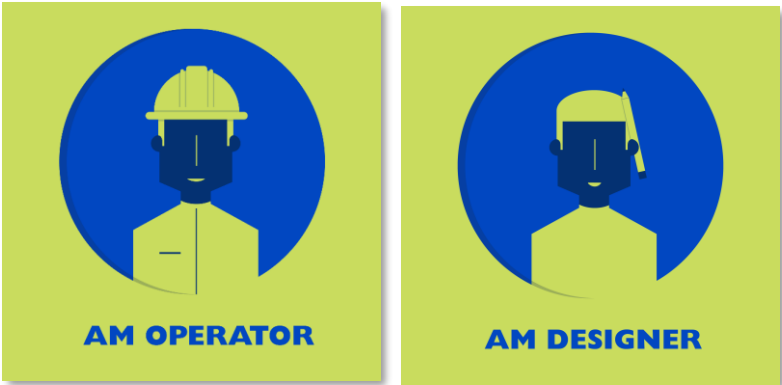


# The AM Qualifications

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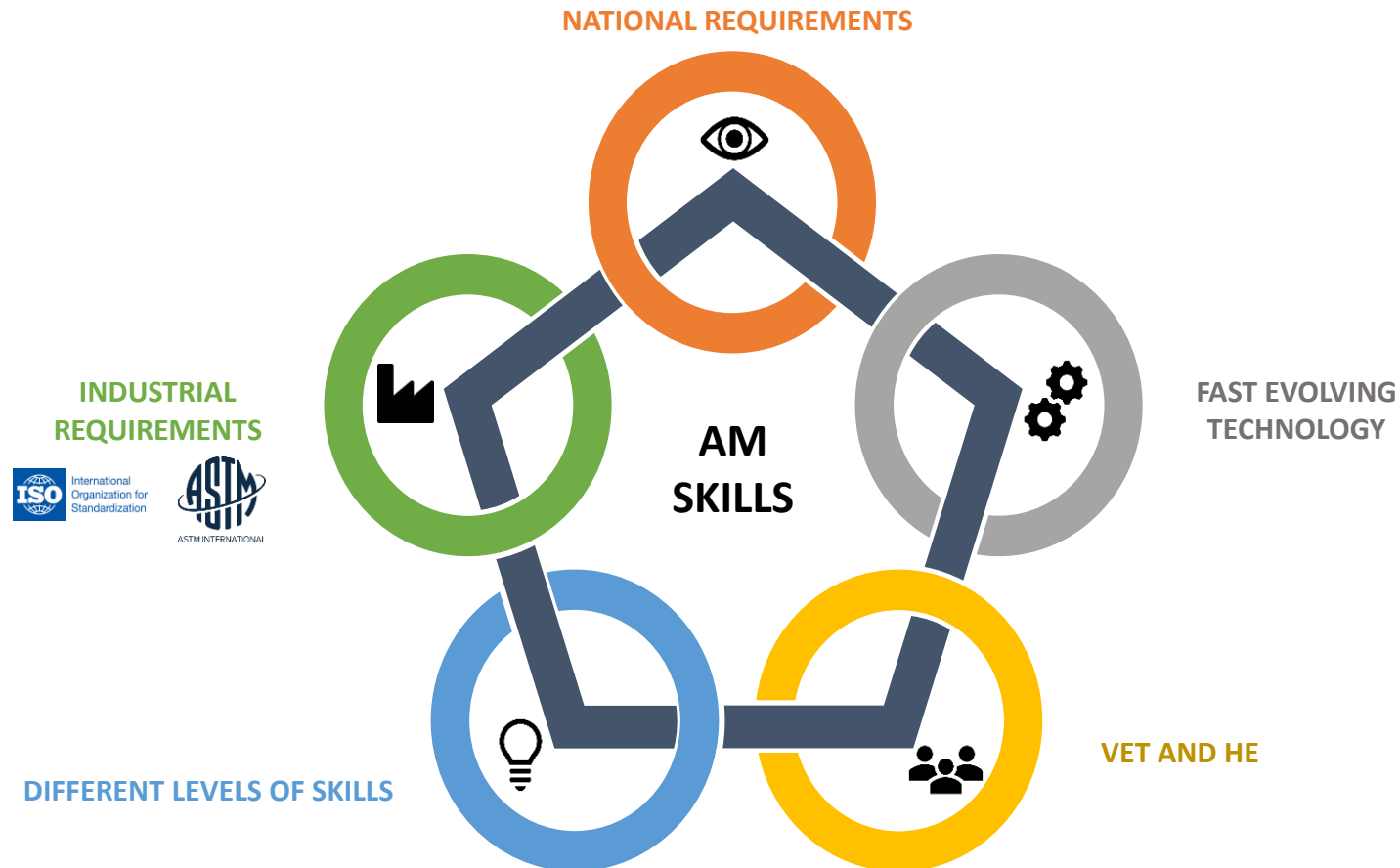


International Metal AM Professional Profiles



# Development and Validation

ARE YOU—  
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— READY?

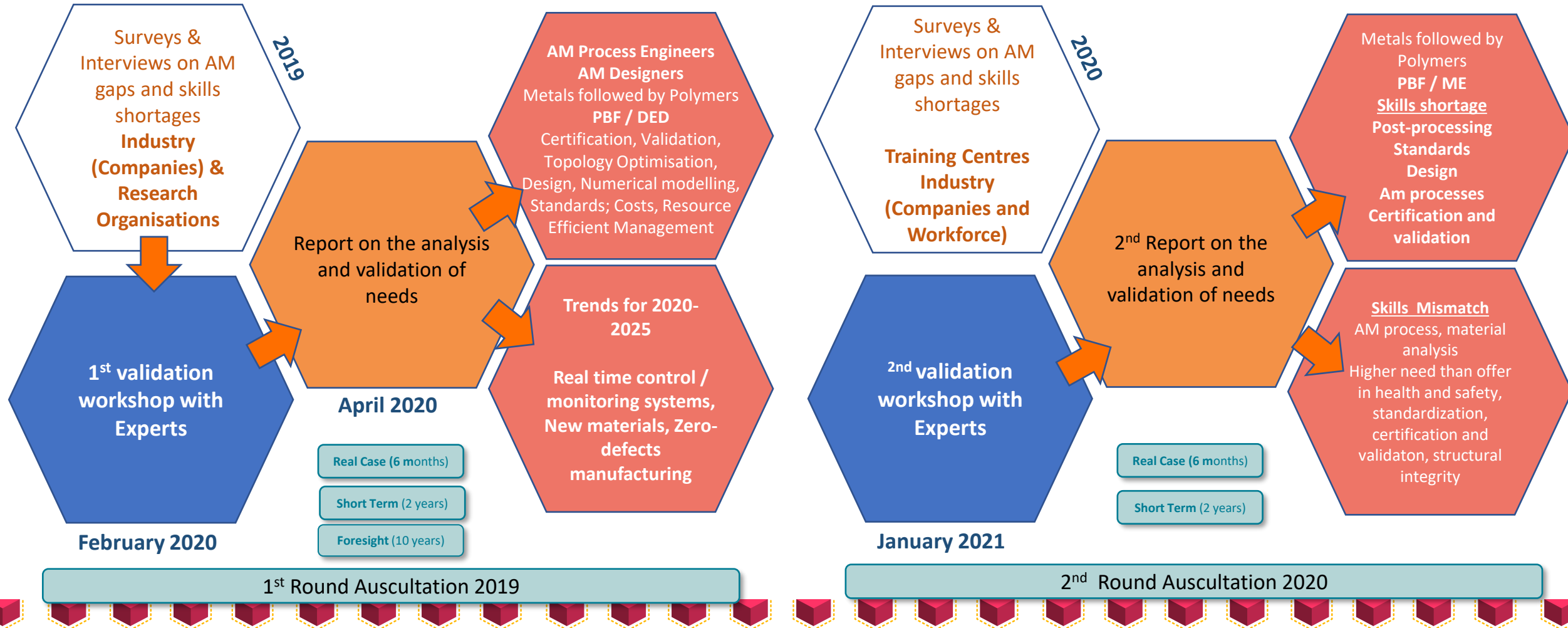




# Industrial market research

OVER 500 REPLIES

ARE YOU—  
**AM**  
— READY?





# Profile of AM Worker

Source: Workforce Survey, 2020

ARE YOU—  
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— READY?

## MATERIALS KNOWLEDGE

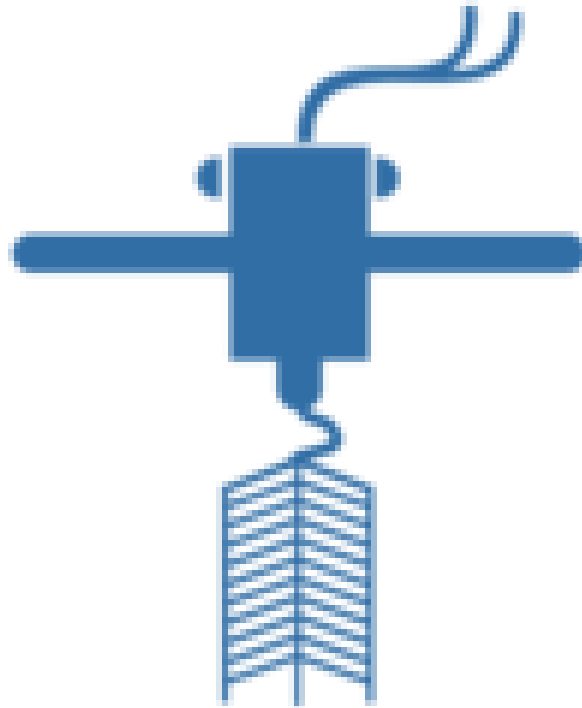
Knowledge on metals and polymers  
Lacking knowledge regarding ceramics,  
biomaterials and composites

## PROCESS EXPERTISE

Mostly in Powder Bed and Material  
Extrusion

## VALUE CHAIN EXPERTISE

Predominant for AM Process and  
Materials  
Lower expertise on End of life followed  
by Modelling/Simulation



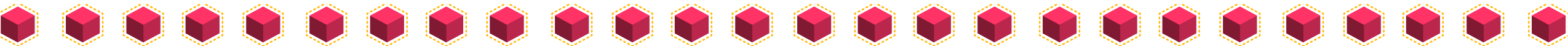
## AM EXPERIENCE

60% of respondents had been working in  
AM for 1-5 years

## TRAINING

50% of the participants stated they had  
not received training for their role

Knowledge acquired through learning  
by doing (53%) and on job mentoring  
(48%), followed classroom education  
(40%) and online courses (32%)



# Roles & Skills of Tomorrow

Source: Workforce Survey, 2020

ARE YOU—  
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— READY?

## Technological Skills

### REAL CASE (6 MONTHS)

AM processes  
Materials' analysis and  
characterization  
AM applications  
Design

### Short Term (2021-2022)

AM processes  
AM applications  
Materials' analysis and  
characterization  
Design

## Non Technological Skills (Entrepreneurial-Digital-Green )

### REAL CASE (2020)

Learning through  
experience  
Working with others  
Motivation and  
perseverance  
Creativity

### SHORT TERM (2021-2022)

Learning through  
experience  
Working with others  
Vision  
Spotting opportunities

Ability to think in 3D  
Digital data management  
Digital data analysis

Circular economy  
Life Cycle Analysis (LCA)  
Green awareness

Resource efficiency  
management  
Circular economy

# Skills Needs & Implications for AM Sector

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— READY?

Surveys will be considered and will influence the:

- ❖ Design of European Qualifications and Profiles in alignment with industry priorities
- ❖ Upskilling/reskilling of AM personnel
- ❖ Definition of training environments, methodologies and tools
- ❖ Inclusion of pathways for skills development and knowledge exchange in collaborative research, training and capacity building programmes
- ❖ Awareness of future workforce



# Future Qualifications

ARE YOU—  
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— READY?



Directed Energy Deposition - Arc

Directed Energy Deposition - Laser Beam

Powder Bed Fusion - Laser Beam

Powder Bed Fusion - Electron Beam

Vat photopolymerization

Material jetting

Binder jetting

Polymers

Composites

## Short Term Skills (2021):

- Certification and Validation
- Standards
- Polymers
- Entrepreneurship /Business for AM
- Digital and Green skills



# SAM Webinar Series #2

ARE YOU—  
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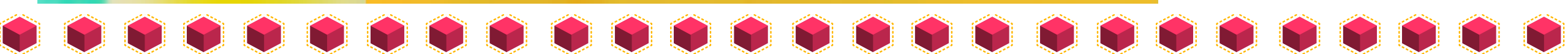
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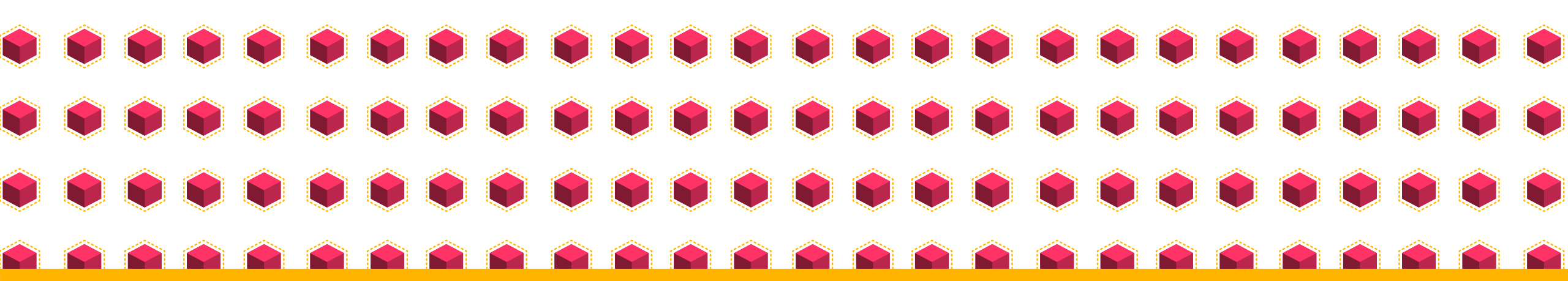


SAM WEBINAR SERIES  
AM SKILLS: 3D  
Thinking and Design  
for Additive  
Manufacturing

Tuesday, 16 March. 10-11.30 CET Microsoft Teams

<https://www.eventbrite.com/e/am-skills-3d-thinking-and-design-for-additive-manufacturing-tickets-142672610619>





Follow SAM updates



[www.skills4am.eu](http://www.skills4am.eu)

Contact [madealmeida@ewf.be](mailto:madealmeida@ewf.be)

# Thank you!



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