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# LIGHTWEIGHT PROFESSIONAL MAKE YOUR FUTURE LIGHTER

Fraunhofer Institute for Manufacturing Technology and Advanced Materials  
IFAM

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Dr. Èric Hernández Edo  
1<sup>st</sup> April 2019

Hannover Messe

# The Fraunhofer-Gesellschaft

## Fraunhofer-Gesellschaft

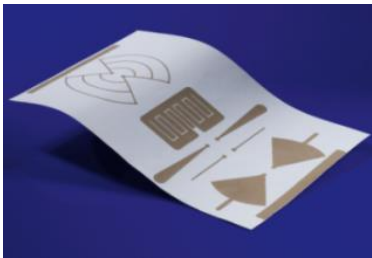
- Founded in 1949
- 72 institutes
- 26.600 employees
- R&D volume  
2.5 billion Euro



## Fraunhofer IFAM

- Founded in 1968, Fraunhofer institute since 1974
- **Bremen**  
Locations in Dresden, Oldenburg, Stade, Wolfsburg and Braunschweig, as well as a test center for maritime technologies on Helgoland
- 684 employees
- Total budget in 2018  
52.3 Mio. Euro

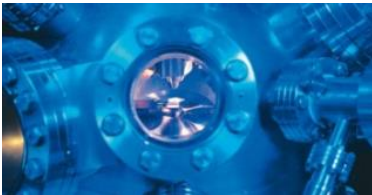
# Fraunhofer IFAM – Adhesive Bonding Technology and Surfaces



## Professional training courses

Focus on:

- Adhesive Bonding Technology
- Fiber Reinforced Plastics (FRP) Technology
- In-house courses
- Consulting



# Fiber Reinforced Plastic - Professional Training Courses



Source: Fraunhofer IFAM

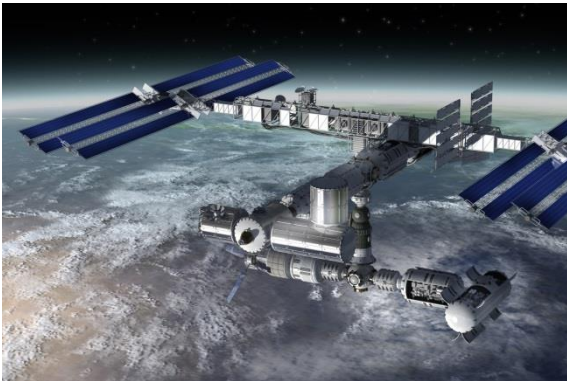


# Professional training courses: Adhesive bonding technology and fiber reinforced composites

Target group	Welding technology	Adhesive bonding technology	Fiber-reinforced material technology
Decision-making level	<b>Welding Engineer (IWE)</b> Guideline DVS®-IIW/EFW 1170 (IAB 252r1-11)	<b>Adhesive Bonding Engineer (EAE)</b> Guideline DVS®/EFW 3309 and EWF 517	<b>Composite Engineer</b> Fraunhofer PersZert DIN17024
Technical management and supervision level	<b>Welding Specialist (IWS)</b> Guideline DVS®-IIW/EFW 1170 (IAB 252r1-11)	<b>Adhesive Bonding Specialist (EAS)</b> Guideline DVS®/EFW 3301 and EWF 516	<b>Fiber Reinforced Plastic Specialist</b> Fraunhofer PersZert DIN17024
Performing level	<b>Welding Practitioner (IWP)</b> Guideline DVS®-IIW/EFW 1170 (IAB 252r1-11)	<b>Adhesive Bonder (EAB)</b> Guideline DVS®/EFW 3305 und EWF 515	<b>Fiber Reinforced Plastic Manufacturer</b> <b>Fiber Reinforced Plastic Remanufacturer</b> Fraunhofer PersZert DIN17024

Source: Fraunhofer IFAM

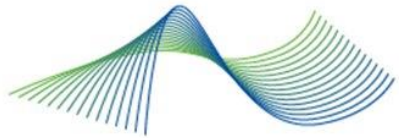
# Fiber reinforced materials is only a part of the lightweight concept



Other pictures: Adobe Stock

# Need of more knowledge about „lightweight concepts“

## Lightweight Materials: how to treat them right (LightRight)



**LightRight**  
Materials for Lightweight Design



*n  
for*



# Need of more knowledge about „lightweight concepts“

## Lightweight Materials: how to treat them right (LightRight)



*“It intends to respond to these circumstances by developing effective training modules for professionals which provide them with relevant material knowledge for lightweight design”*



# Professional training courses based on the needs of the industry

## How was it done?

### Awareness Workshops

- 4 European countries
  - Germany, Belgium, Italy and Spain
- 130 companies
- 18 countries
- 5 profiles
- 4 groups
- 4 questions
- 1 result



Source: Fraunhofer IFAM

# Awareness workshops

## 4 main questions

### Questions

- Why do we need lightweight?
- Which technical challenges do you see “in applying” lightweight?
- Which educational obstacles do you see “in applying” lightweight?
- Which format of possible courses would you prefer?

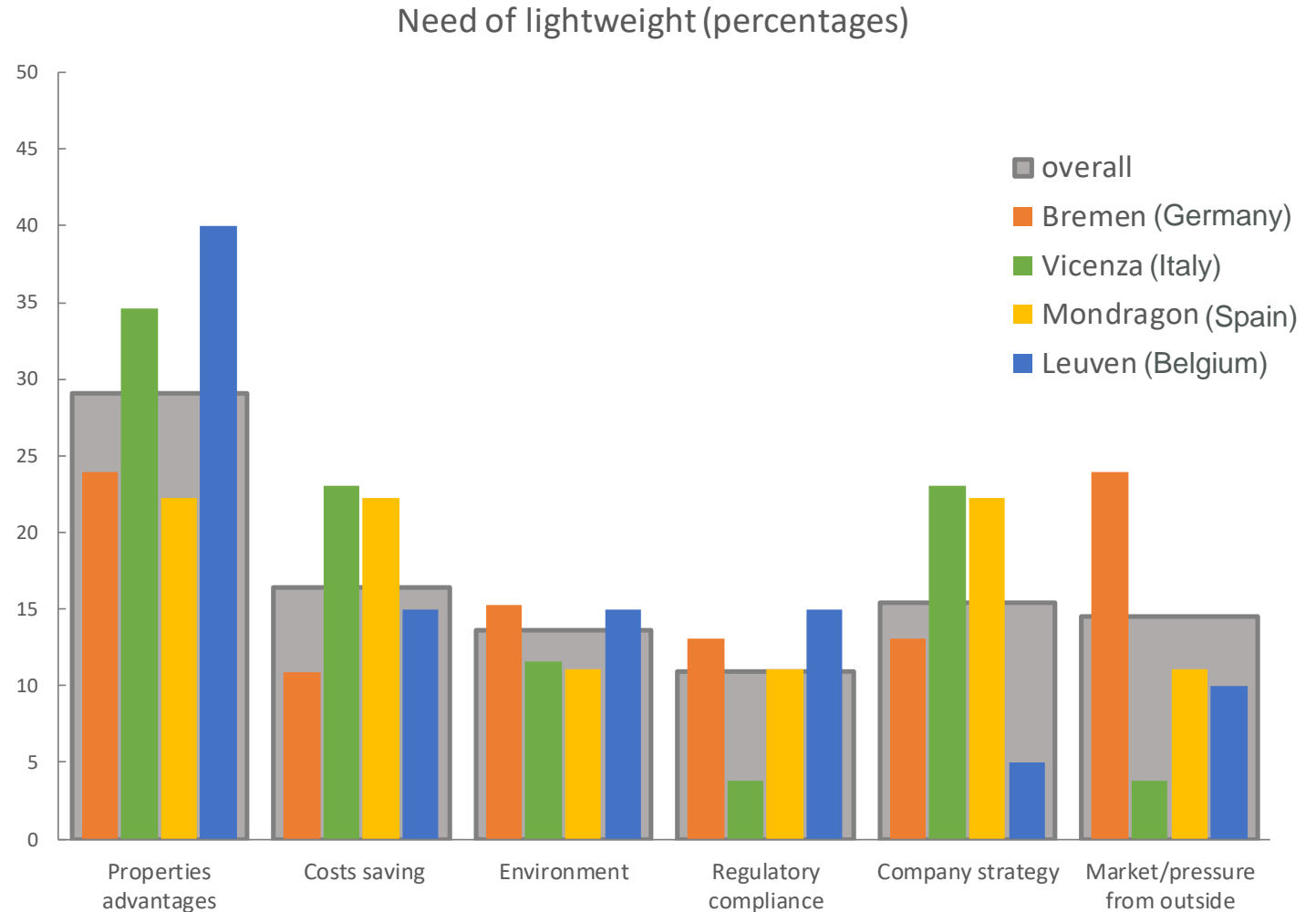


Source: Fraunhofer IFAM

# Why do we need lightweight?

## Answers

- Advantages of the material properties
- Cost saving
- Environment
- Regulatory compliance
- Company strategy
- Market / pressure from outside

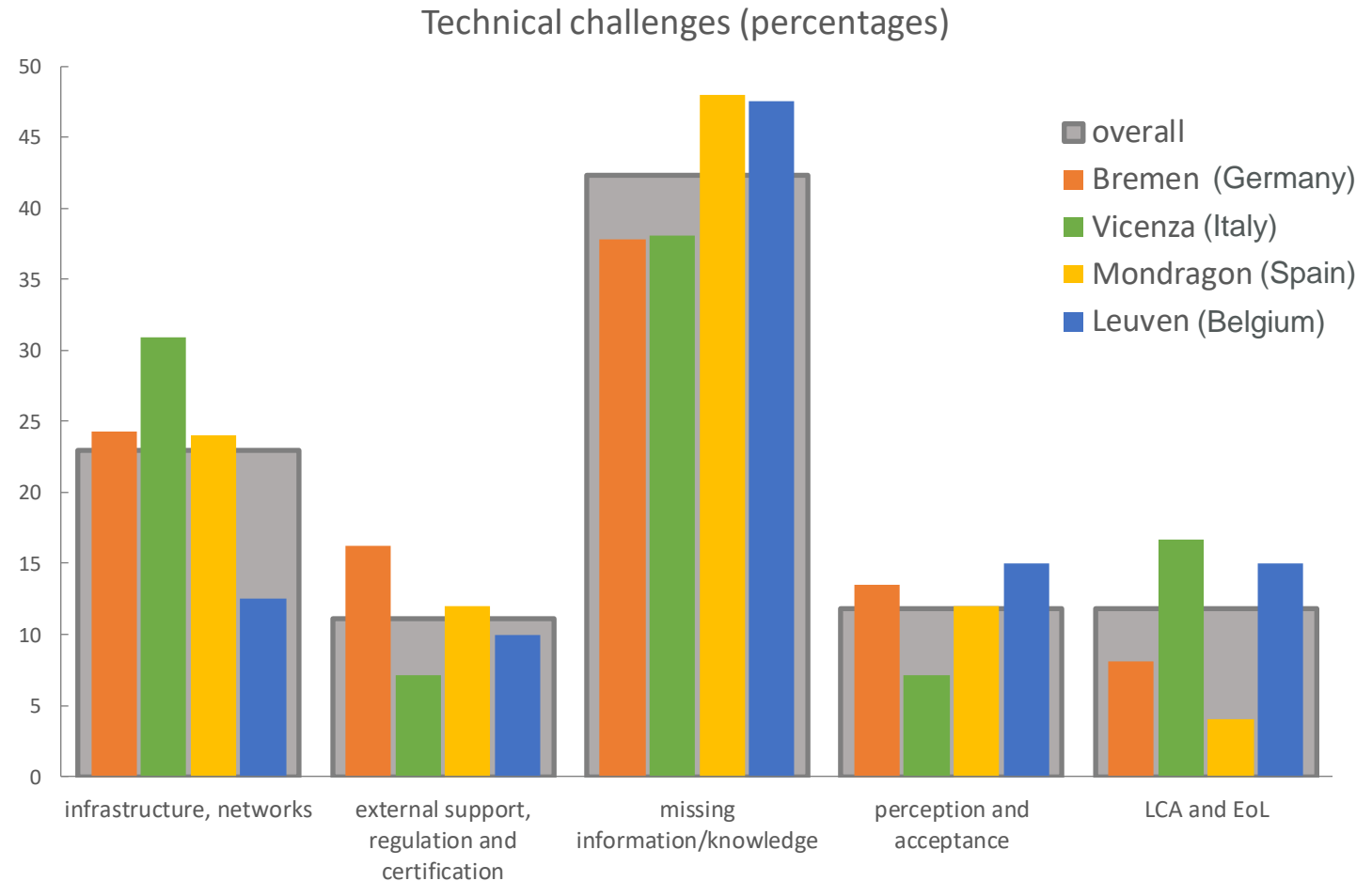


Source: LightRight project

# Which technical challenges do you see “in applying“ lightweight?

## Answers

- Infrastructure, networks
- External support, regulation and certification
- Missing information / knowledge
- Perception and acceptance
- Life Cycle Assessment (LCA) and End of Life (EoL)



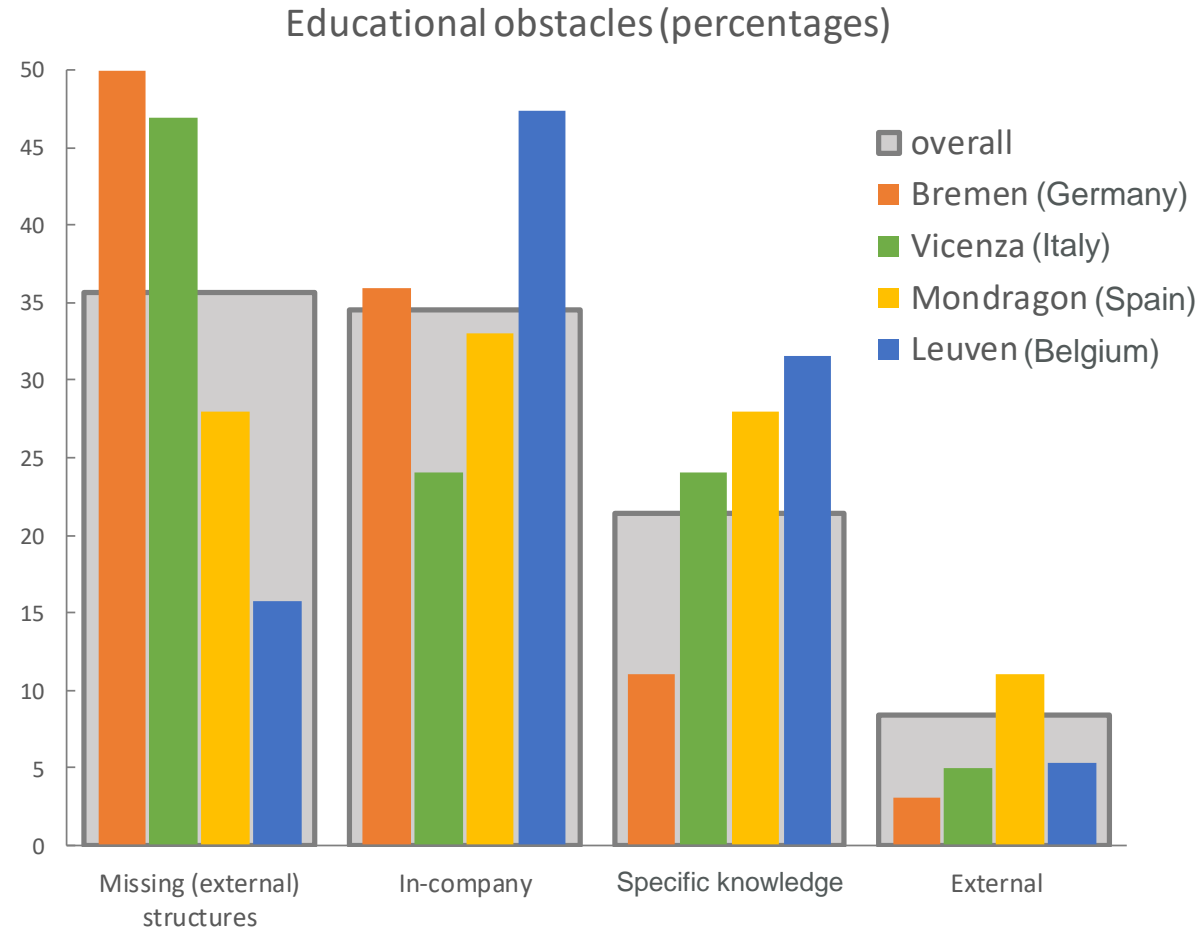
Source: LightRight project



# Which educational obstacles do you see “in applying“ lightweight?

## Answers

- Missing (external) structures
- In-company
- Concrete knowledge
- External

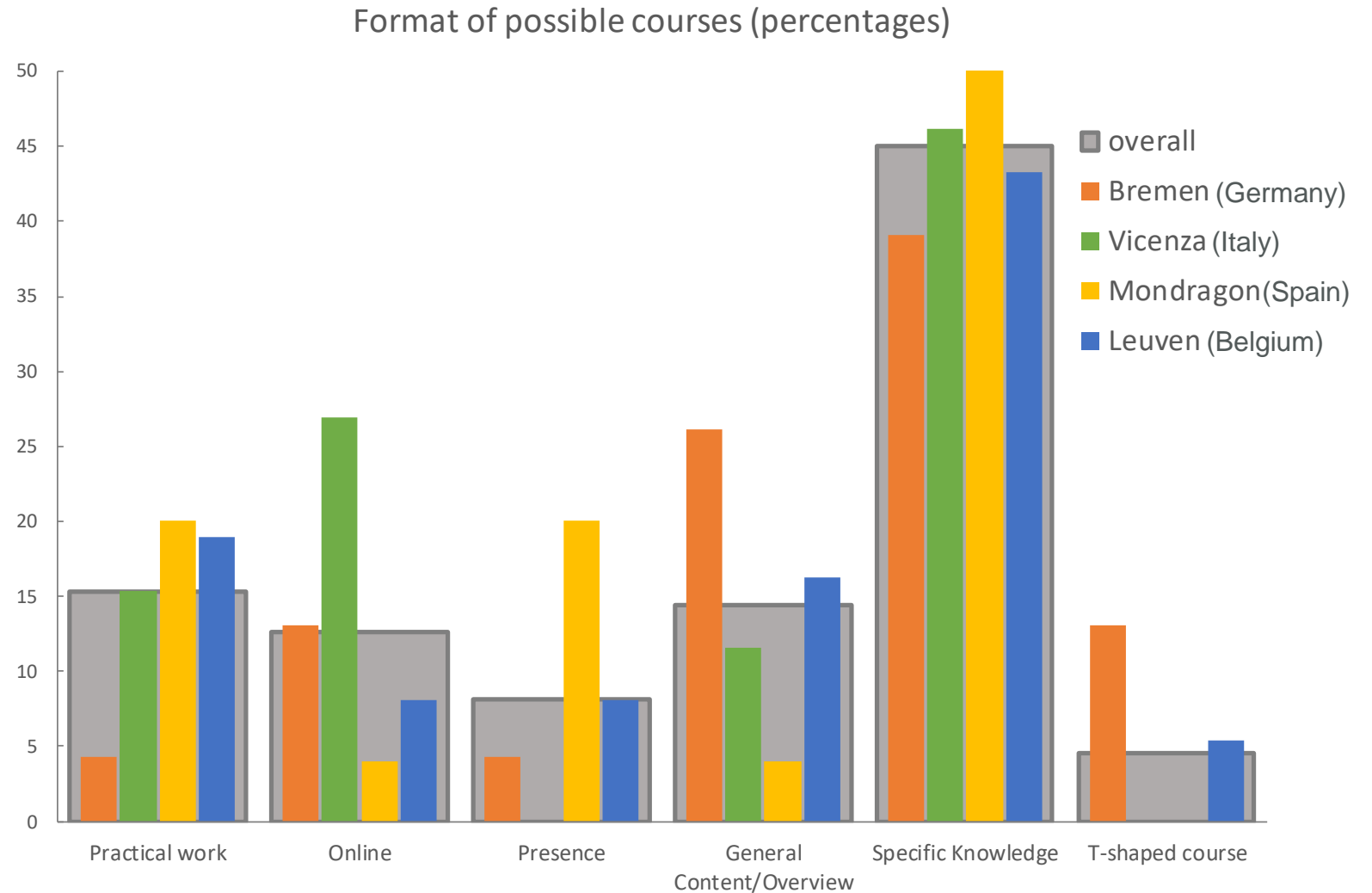


Source: LightRight project

# Which format of possible courses would you prefer?

## Answers

- Practical work
- Online
- Presence
- General content/overview
- Specific knowledge
- T-shaped course

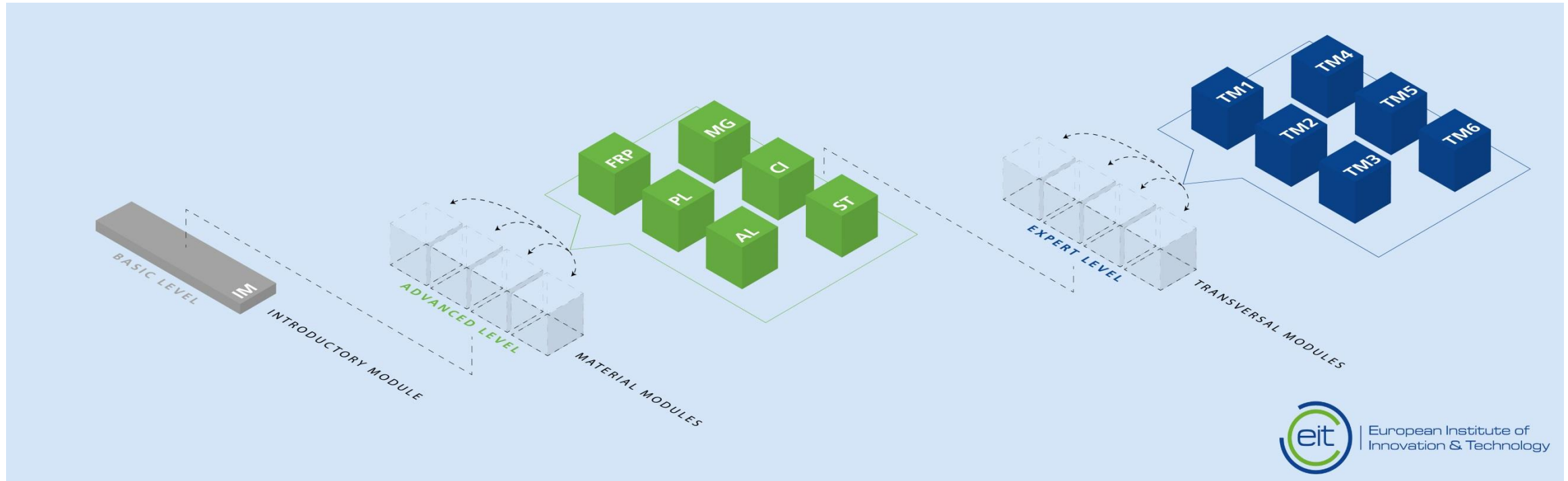


Source: LightRight project

# The Lightweight Professional is a T-shaped professional training

Lightweight Professional Structure			Level	Target group	Objective	Certification
<b>Introductory Module</b> Product development strategies, case studies			Basic level	Managers / technical staff	Overview	First level
Aluminium alloys	Cast irons	Fiber reinforced plastics	Advanced level	Technical staff	Specific material knowledge	Second level
Polymers	Steels	Magnesium and powder metals				
<b>Transversal modules</b> Testing, recycling, supply chain, LCA, LCC...			Expert level	Technical staff	Transversal knowledge	Third level

# The Lightweight Professional is a T-shaped professional training



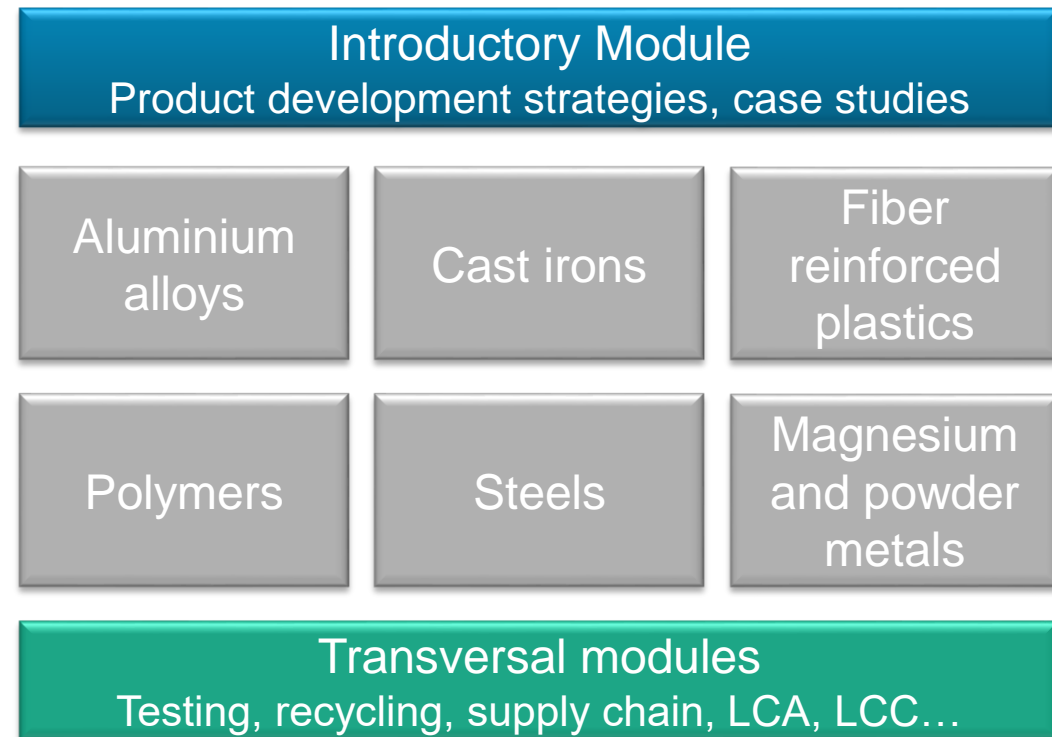


# The Lightweight Professional Course is modular

## Lightweight Professional

- In English
- Modular
  - E-Learning + 2,5 classroom days
- Certified according to DIN 17024
  - Basic, advanced and expert levels
  - Examination
  - Requirements
- Modules are bookable individually

### Lightweight Professional Structure



# The first Lightweight Introductory Modules will take place in September 2019

## Lightweight Introductory Module

### Location / dates / language

#### Target group

- Managers and technical staff

#### Duration

- 2,5 days e-learning
- 2,5 days classroom course

#### Cost

- 1200 € + examination fee for certification

**Munich,  
Germany**

September 3<sup>rd</sup> – 5<sup>th</sup>, 2019  
in German

**Leuven,  
Belgium**

September 17<sup>th</sup> – 19<sup>th</sup>, 2019  
in English

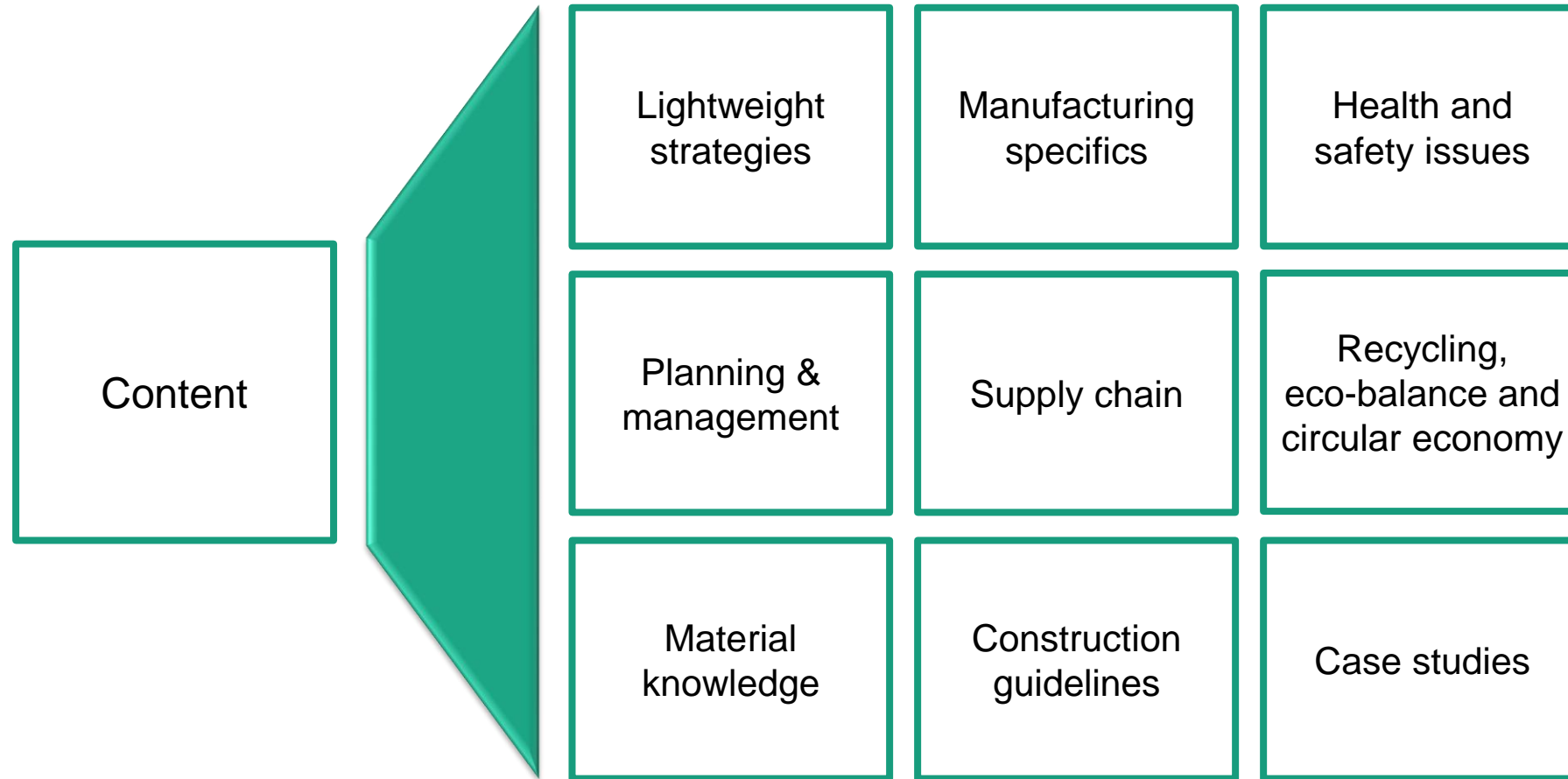
**Bilbao,  
Spain**

October 8<sup>th</sup> – 10<sup>th</sup>, 2019  
in Spanish

**Vicenza,  
Italy**

8<sup>th</sup> Oct., 22<sup>nd</sup> Oct. and 5<sup>th</sup> Nov., 2019  
In Italian

# Content required by the industry



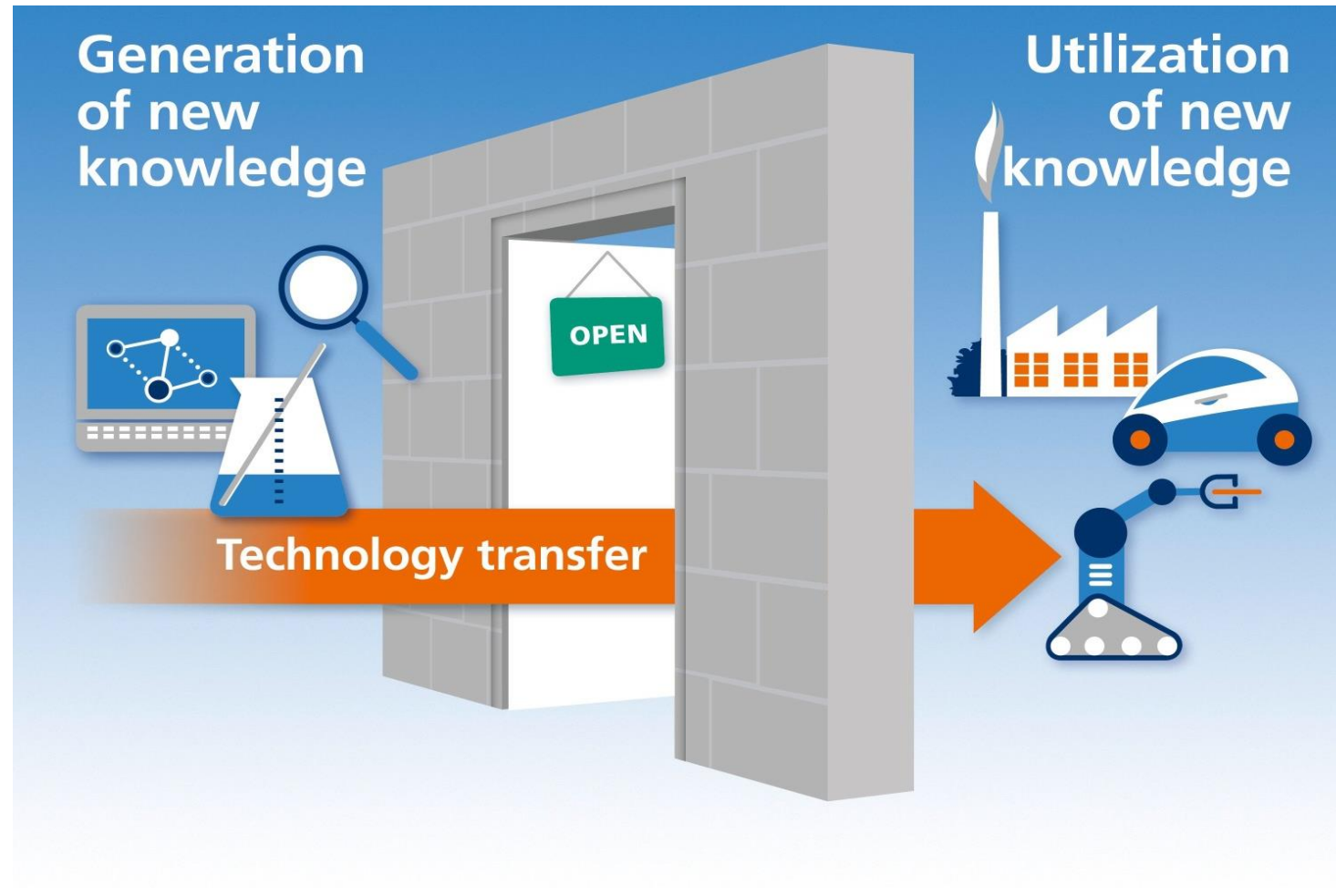
# Generation of knowledge open doors and reduces costs



Source: Fraunhofer IFAM



# Generation of knowledge open doors and reduces costs



Source: Fraunhofer IFAM

# Thank you!

[www.lightweightprofessional.com](http://www.lightweightprofessional.com)

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## Lightweight Introductory Module

### Location / dates / language

<b>Munich, Germany</b>	September 3 <sup>rd</sup> – 5 <sup>th</sup> , 2019 in German
<b>Leuven, Belgium</b>	September 17 <sup>th</sup> – 19 <sup>th</sup> , 2019 in English
<b>Bilbao, Spain</b>	October 8 <sup>th</sup> – 10 <sup>th</sup> , 2019 in Spanish
<b>Vicenza, Italy</b>	8 <sup>th</sup> Oct., 22 <sup>nd</sup> Oct. and 5 <sup>th</sup> Nov., 2019 In Italian