

EIT Manufacturing Call 2024 for Education proposals

ANNEX A. Education Pillar Basic Concepts and Glossary Version 1.0



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1 Foreword

EIT Manufacturing Education Pillar seeks to increase the innovation capacity in EU by education, upskilling and reskilling future and current manufacturers.

Along its calls for proposals, focuses in different target groups in order to ensure training and education through the complete life time of learners as well as of companies. By putting the humans on the center, we look into **engaging**, **connecting** and **empowering** them to become the backbone of a strong European Manufacturing Innovation Community and a prosperous and inclusive society.

Education at EIT Manufacturing is **learner-centric**, and **inclusive**. It aims at the development and assessment of target **learning outcomes** and **competencies**, through innovative, engaging, enjoyable learning experiences with an orientation towards innovation, entrepreneurship, and solving social challenges. It is therefore not limited only to higher education and it goes beyond knowledge transfer.

2 Skills.move: digital learning content

[Skills.move](#) is EIT Manufacturing’s digital learning platform. It aims to support Europe’s manufacturing industry to upskill and reskill its current and future workforce by providing individuals easy access to a digital learning experience.

The curriculum has been co-created with EIT Manufacturing’s partner community in line with pre-identified industry needs.

This platform is the main showcase and access point for EIT Manufacturing Education Offer.

Proposals in call 2024 can contribute to the enhancement of Skills.move throughout the different segments by developing digital learning content. In order to avoid duplication of content and to be able to reuse the existent content it is important that the consortia evaluate what is currently available. Published content is accessible through the platform, while the full list of learning nuggets and learning paths, including those under development, is available Excel format upon request.

For more information about content development in Skills.move please refer to [Skills.move – Handbook for Authors](#)

2.1 Skills.move concept

Skills.move is structured as illustrated in Figure 1 and described in the following two chapters. The main learning units are called nuggets and aggregated together they conform learning paths. At the same time the combination of several learning paths create a learning journey.

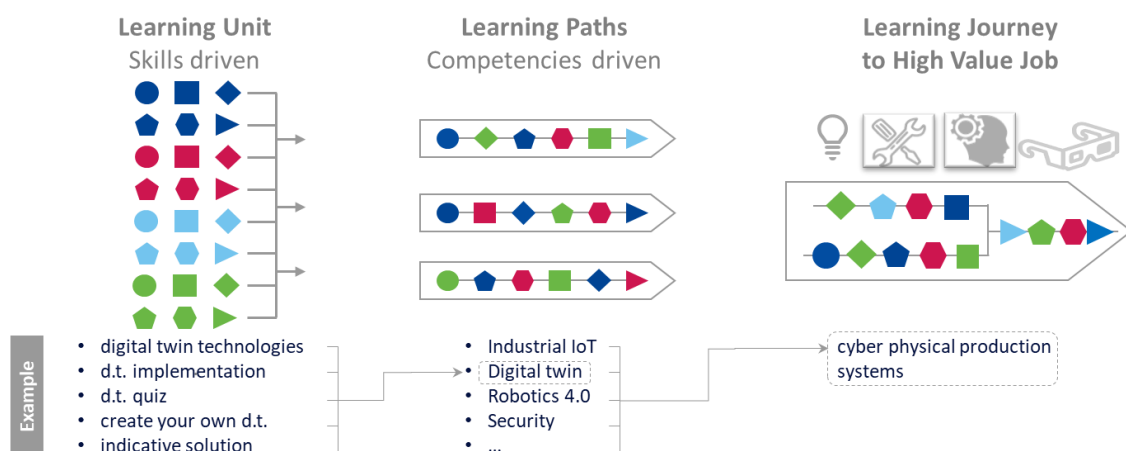


Figure 1. Skills.move architecture

2.1.1 Learning Nugget

Nuggets (learning units) are **self-contained learning elements** composed by different kind of didactic media like videos, text, images, animations, AR/VR sessions and learning assessments **to achieve and to verify desired competencies or skills**.

Nuggets are by definition **short learning content** with a maximum duration of 30 minutes (recommended 15 minutes) in order to engage learners.

Each learning nugget can be consumed as stand alone lesson, it should address at least **one skill** and have well defined **learning outcomes** that should be measurable.

Moreover, learning nuggets should be **interactive** and **appealing** for the learners, for this reason they should be developed keeping in mind that they're digital learning content to be delivered asynchronously.

Three or more nuggets can be aggregated in order to create a learning path.

As a general rule, Nuggets produced by EIT M funded activities are open access and accesible to all learners in Skills.move, in order to boost EIT Manufacturing impact.

2.1.2 Learning Path

The aggregation of **three or more** learning nuggets allows to create competency-oriented **learning paths**. Each learning path must:

- address at least one **competency**,
- have well defined overarching **learning outcomes**,

In order to be considered as a learning path for KPIs achievement, the learning path structure should include:

- well defined **metadata**, with the description of the learning path that clearly states the topics illustrated, indicates what the learner will be able to do after its completion (learning outcomes) and defines the level of difficulty and pre-requisites;
- a **core**;
- a **final assessment** that measures the achievement of the learning outcomes;

The succesfull completion of a learning path leads to the realease of a certificate for the learner.

Note that learning paths can include nuggets developed by other projects in previous years or during the running year.

Learning paths are sold through Skills.move. The price is set by EIT Manufacturing in agreement with the authors depending on the duration of the learning path and the complexity of the media and tools used.

2.1.3 Learning Outcomes

“Learning outcomes are statements of what a learner knows, understands and is able to do on completion of a learning process, defined in terms of knowledge, skills and competences.”

Source: European Centre for the Development of Vocational Training – Cedefop

As mentioned above EIT Manufacturing Education pillar follows a learner centric approach, therefore all the learning content developed, including digital contet (nuggets and learning paths), should be based in clear and sound learning outcomes (LO).

Learning outcomes are defined in terms of knowledge, skills and competences. They enable both the students/learners and teachers/trainers to clearly identify what a student is expected to have achieved or have made progress towards achieving on completion of a module (e.g., nugget or learning path).

Well written learning outcomes follow a SMART criteria, and they should:



- Describe **SPECIFIC** knowledge, skills or competence resulting from a learning activity
- Be **MEASURABLE** through assessment and evaluation
- Be **ACHIEVABLE**
- Be **RELEVANT**
- Be **TIME-BOUND**

For more information about learning outcomes please refer to the presentation in the following [link](#)

2.2 Quality check process

To ensure a high standard of quality for the learning content, all materials published through Skills.move should go through a quality check. EITM Funded Activities must undergo a thorough quality check. Funded Activities are required to adhere to this process, following the timeline and milestones specified in the call for proposals. The following paragraphs provide a brief overview of the quality check process, with more detailed information available in the [Skills.move – Handbook for Authors](#).

2.2.1 Preliminary nugget review

Although not a part of the standard quality check process, this step has been introduced to support funded activities in developing digital content effectively. During the initial phase of content development, all activities must submit at least 2 "nuggets" for preliminary review by EIT Manufacturing team. The objective of this review is to offer detailed feedback to creators, helping them enhance the content and align it with EITM guidelines at an early stage. This approach prevents the propagation of errors and mistakes throughout the subsequent content development.

2.2.2 Peer Review

Once the content is prepared, the consortium carries out a peer review to evaluate and ensure that the course's learning objectives are met. The assigned peer reviewer evaluates the accuracy of the content, the methodology employed, and the flow of both nuggets and learning paths. This assessment is guided by the "Skills.move Peer Review Checklist" provided by EIT Manufacturing.

It is worth noting that the peer must be an individual distinct from the author.

2.2.3 Admin Review

Following the peer review, EIT Manufacturing conducts an Administrative Review to verify the content's adherence to EITM quality standards. Detailed feedback is provided for all developed content. Creators have the opportunity to review the feedback and make necessary adjustments to meet EIT Manufacturing requirements.

Subsequently, a final review by EIT Manufacturing takes place. If the content and associated metadata have been appropriately revised according to EITM's feedback, the content will be approved for publication.

Should any of the requirements not be met even after this review, the affected nuggets will be rejected and will not be considered for key performance indicators (KPIs) such as the number of created nuggets (KIC.G03) and learning paths (KIC.G05).

3 Teaching and Learning Factories

3.1 Teaching Factories

Teaching Factories are a quite unique didactic method promoted by EIT Manufacturing. As defined by Rentzos et al. 2015, the Teaching Factory is a “two-way street”, where from the factory, practitioners teach students and from the classroom, students and faculty teach practitioners. This two-way street is realized via internet and is a continuous process over a lengthier period of time, with regular sessions and continuous interaction between the factory and the classroom.

In other words, the Teaching Factory is an environment based on the Open Innovation paradigm where students, researchers and enterprises work together to mutually develop skills, promote and share expert knowledge through co-creating solutions to industrial manufacturing challenges.

It is worth noting that in 2022 and 2023 EIT Manufacturing launched the “Teaching Factory Competition”.

Detailed information of the education activities that have worked on developing Teaching Factories networks is available in EIT Manufacturing website.

Education Activities can use the Teaching Factory paradigm and apply the shared framework, model and processes to enhance their learning experience.

3.2 Learning Factories

Learning Factories represent a realistic manufacturing environment for education, training, and research. They are a physical learning environments containing didactical instruments and equipment, effectively creating the work conditions of a real industrial site for didactic and training purposes. Learning Factories are used for delivering hands on experiences and promote a learn by doing approach.

Education activities are encouraged to use Learning Factories to promote the learning by doing approach.

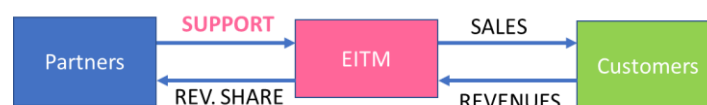
4 The Digital Content Agreement

The Digital Content Agreement (DCA), is EIT Manufacturing specific agreement and is a financial sustainability mechanism. It rules the rights and obligations of EIT Manufacturing and the owners of the digital content developed under EITM funded activities (appartaining to the different pillars). The agreement defines the terms of use, distribution and exploitation of the digital content developed under the funded activities for EIT Manufacturing and the partners.

All partners developing digital learning content for Skills.move are requested to sign the DCA and they commit to do so when submitting the proposal. The DCA is available in Plaza downloadable through this [link](#).

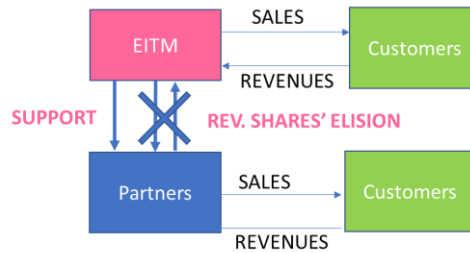
The following paragraphs briefly described the two options partners can choose when signing the DCA.

FULL Skills.Move: Funded partners license EIT Manufacturing to exclusively commercialize the learning content on Skills.Move, with revenue shares for the owners of the content.



LIGHT Skills.Move: Funded partners license EIT Manufacturing to non-exclusively commercialize the learning content on Skills.Move, therefore they can also exploit the learning content by their own means. In this case EITM should receive revenue shares from the partners’ sales and the Partners should

receive revenue shares by EITM. For the sake of simplifying the accounting, the two streams of revenue shares are elided (compensated by default).



5 Key Concepts

5.1.1 Instructional Designer

According to ESCO the Instructional Designer role is to develop instructional material for training courses using multimedia technology and authoring tools. They aim to create instructional experiences which make the acquisition of knowledge and skills more efficient, effective, and appealing.

As per ADDIE model the Instructional Designer is usually supporting the whole process of online learning development from the analysis, design, development, implementation and evaluation.

The Instructional Designer should be able to:

- Create engaging learning activities and compelling course content
- Work with subject matter experts to identify the target audience's training needs
- Set instructional end goals and create content that matches them
- Visualize instructional graphics, the user interface and the finished product
- Analyze and apply trends and best practices in learning technologies and instructional design
- Provide exercises and activities that enhance the learning process
- Create supporting material/media (audio, video, simulations, role-plays, games, etc)
- Devise modes of assessment, such as tests or quizzes, to measure the effectiveness of the course

5.1.2 Manufacturing Company:

Companies with NACE cat. C Manufacturing.

Consultancy companies or software house will not be accepted as manufacturing industrial partners.

5.1.3 Rollout & scalability plan:

The rollout and scalability plan should define the strategy for the introduction and integration of the results of the projec into the market, manufacturing ecosystem or society. It should clearly state how the solution can be scaled up to a wide number of learners, users and/or pupils and indicate the target of users to be reached in the following years.

6 Glossary

BP: Business Plan

CLC: Co-location/affiliate of EIT Manufacturing

DCA: Digital Content Agreement

DN(s): Digital Nugget(s): smallest self-contained unit(s) of digital learning content

EIT: European Institute of Innovation & Technology

EITM: EIT Manufacturing Asbl
FS: Financial Sustainability
HE: Horizon Europe Program
HEI: Higher Education Institution
KIC: Knowledge Innovation Community
LF(s): Learning Factory(ies)
LFN(s): Learning Factories' Network(s)
LO: Learning Outcome
RIS: Regional Innovation Scheme adopted by the EIT
RIS Country: EU Members and Associated Countries modest or moderate innovators according to the European Innovation Scoreboard and addressed by specific policies.
Skills.move: EIT Manufacturing digital learning platform
STEM: Science, Technology, Engineering Mathematics (disciplines)
TF(s): Teaching Factory(ies)
T&LFs: Teaching & Learning Factories
T&LFN(s): Teaching & Learning Factories' Networks
XKIC: Cross-KIC, referred to activities implying collaboration across different Innovation Communities.