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IO1 - I-THEN Set of methodologies and guidelines

# INTERNATIONAL TECHNICAL HIGHER EDUCATION NETWORK – METHODOLOGICAL GUIDELINES

Erasmus+ 2020-1-IT02-KA203-079561

Standards and instructions that can be used by all Technical VET institutions and Universities to mainstream the Set of ITHEN methodologies – considered of vital importance to develop key marketing competencies in students – in their own courses.

**Document published by the ITHEN International Technical Higher Education Network partnership.**

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# ITHEN METHODOLOGICAL GUIDELINES

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|---|---|
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| Targets | • ITHEN Partners<br>• Teachers and managers of TVETs and Universities or<br>• International Marketing and Business Management Courses<br>• Students |

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# ITHEN METHODOLOGICAL GUIDELINES



## THE ITHEN PROJECT

ITHEN is an Erasmus+ Strategic Partnership project that involves international tertiary technical VET institutions and universities collaborating for the development of joint international courses in the business management and marketing fields.

### CONTEXT OF ITHEN

In Europe, despite official attempts for the creation of regular paths starting from 2-year Technical Tertiary Vocational Education and Training courses (offered by TVETs, in Italy ITS – Istituti Tecnici Superiori) and continuing with a third year and a bachelor's degree, this connection is not systematized yet and often students of the TVETs are not even aware about this possibility. Only few TVETs assign ECTS credits for their modules, making it difficult for universities to recognize their exams, and therefore forcing TVET graduates wishing to continue their studies to start their Bachelor's degree from the beginning, discouraging them as it entails a huge quantity of additional time dedicated to their studies.

Only specific agreements between TVETs and universities allow this recognition, which, anyway, is often incomplete, requiring some integrations.

Among ITHEN's partners, there are TVETs that have activated agreements with Universities to recognize ECTS credits and enable students to complete their studies by obtaining a Bachelor's or a Master's with an additional 1-3 years of studies. This method has been successfully tested since 2018 and has proved to be very effective.

The ITHEN Network aims to adopt this synergy between TVETs and universities on a larger geographical scale to become an ordinary practice in the medium term and – hopefully – officially systematized with dedicated policies in the longer term.

### AIM AND OBJECTIVES

The main aim of ITHEN is to establish strategic and structured cooperation between European and non-European universities and TVETs delivering technical higher education, creating a network for the development of joint international courses.

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## MAIN EXPECTED OUTCOMES



- To overcome the skill gap encountered by students wishing to work in international business environments by fostering the development of key entrepreneurial and cultural awareness competencies.
- To establish a synergy between universities and Tertiary Technical VET Institutions (TVETs). This synergy will facilitate the transition between different EQF level courses and degrees (from EQF 5 to 6 and 7), thus increasing the learning and job opportunities of TVET students and all of Europe.
- To connect technical higher education with the market. By involving market representatives in all stages of the design and delivery of new joint international courses, technical education in the fields of marketing and business management can meet the requirements of today's international job market.
- To upskill teachers providing them with a dedicated set of training methodologies, enabling them to successfully contribute to the development of entrepreneurship and cultural awareness competencies among their students.

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## TARGETS

What are ITHEN's target groups?

- 32 teachers trained on ITHEN's methodologies.
- >250 people among deans and teachers of TVETs and Universities, SMEs and trade organizations, students, public authorities, and other national/regional/local stakeholders, participating in the project's Multiplier Events.
- 140 students attending the local pilots.
- 10 new TVETs, Universities, Chambers of Commerce, Public Bodies, Corporations, and International Organizations from Europe and worldwide formally joined the network by signing a Memorandum of Understanding.
- 40 SMEs or non-profit organizations involved in the alignment of ITHEN's competencies and methodologies with market requirements.

## PARTNERS

ITHEN is the result of the cooperation between 8 project partners from Italy, Germany, Slovenia, Spain, Portugal, and Turkey:



- **Fondazione ITS Jobs Academy** - Italy (Project coordinator)
  https://jac-its.com/en/
- **Institut de Vic** - Spain
  https://www.ivic.cat/portal/index.php
- **Institut Escola del Treball de Lleida** - Spain
  https://www.escoladeltreball.cat/en/home/
- **EIA – Ensino, Investigação e Administração** - Portugal
  https://www.uatlantica.pt/
- **Univerza na Primorskem Università del Litorale** - Slovenia
  https://www.upr.si/en%20
- **Mugla Sitki Kocman University** - Turkey
  https://www.mu.edu.tr/en
- **OneOffTech** - Germany
  https://oneofftech.xyz/
- **Associazione Multiculturale I Due Mondi** - Italy
  https://www.demixgroup.com/i-due-mondi/

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# INTRODUCTION

The **ITHEN** project has among its main objectives the creation of Guidelines for the introduction of innovative Didactic Methodologies in the courses delivered by the network.
To start, the network's partners will introduce the use of a set of selected methodologies within some identified modules of their existing courses. Then, once new joint international courses will be created, the use of these (and other) methodologies will be automatically embedded.
These Guidelines include standards and instructions that can be used by all new TVETs and Universities formally joining the ITHEN Network in order to mainstream the selected methodologies – considered of vital importance to develop key competencies in students – in their own modules.
This is of key importance for the Network, enabling its members to integrate and disseminate innovative methodologies and achieve a unique international course culture based on a network of schools, each with its own culture and teaching methods.



## USE OF THE GUIDELINES BY ITHEN PARTNERS

These guidelines will work has a Roadmap for ITHEN partners, both the initial and future ones. The development of Guidelines on the use of selected Methodologies and Competences allowing allows the integration of these tools in existing local programs and future joint courses. Training institutions will know exactly how to proceed, making sure that all methodologies are well implemented and suitable to obtain the expected results. The Guidelines should be shared among all the stakeholders (schools, teachers, others) involved in the use of the Methodologies in their classes.

## USE OF THE GUIDELINES BY EXTERNAL UNIVERSITIES OR TVETS

These Guidelines may be also used by other schools as a Roadmap to learn about innovative methodologies and contents, integrate innovative didactic methodologies in existing training programs, and to develop networks of knowledge and new joint programs.
The development of synergies among training bodies is a trend that will grow in the near future, especially in adopting an international approach. Each training institution has its own area(s) of knowledge and seeks to achieve excellence in that field. The establishment of synergies with other educational bodies will enable them to offer innovative methodologies and excellent programs with a common culture, allowing higher student vertical (between EQF levels) and horizontal (geographical, thematic) mobility. The ITHEN network and these Guidelines will facilitate future ventures and contribute to a higher number of innovative and excellent international programs.

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## STRUCTURE OF THE GUIDELINES

These Guidelines intend to facilitate the dissemination and use of ITHEN's Set of Methodologies among the current and future ITHEN network partners, as well as towards external training bodies. This document will make available the following contents:

- Key competencies to be achieved;
- Brief description of each methodology;
- Instructions on how to integrate methodologies in the learning process.



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## ITHEN'S KEY COMPETENCES



The ITHEN partners have identified some key competences lacking in students graduating from business and marketing courses, making it difficult for them to apply their technical competences in an international environment. These competences involve different subjects, such as strategy, management, innovation, logistics and statistics and are considered of vital importance for those graduates wishing to find a job in the field of international business and marketing.
They have been grouped in 4 categories: Management; Digital; Technical; Transversal.

The **management category** includes the following competences:

- *Knowledge management* as a trigger for the development of the *Organizational development competence*: the ability to identify key data, information, and knowledge an organization must have for reaching its goals.
- *Marketing management competence*: the ability to deal with basic daily marketing activities in companies and organizations.
- *Innovation management competence*: the ability to deal with modern concepts of innovation management in an organization, including the concepts of sustainable, international and open innovation and research.
- *Logistic management competence*: the ability to understand contemporary issues in logistics and supply chain management.
- *Management and planning in non-profit organizations competence*: the ability to organize people and capital and communicate properly and solve problems within a non-profit working environment.
- *HR development and management in non-profit organizations competence*: the ability to recruit the proper candidate and integrate them into the organization, as well as to train and help them in their professional development process.

The **digital category** includes the following competencies:

- *Digital marketing for international markets competence*: the ability to create appropriate digital marketing strategies to foster the international expansion of the company.
- *Social media and community management competence*: the ability to develop a strategic vision in the corporate management of social networks.

The **technical category** includes the following competencies:

- Sales techniques for International Markets competence: the ability to conclude agreements with customers/clients.
- Excel or Google Sheets advanced level competence: the ability to use the main functions and graphics from Excel or Google Sheets to analyze data, extract conclusions and make visual graphics or reports.

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- Statistics in Research marketing competence: the ability to use statistical variables to draw conclusions in research marketing.

The **transversal category** includes the following competencies:



- *Well-being competence*: the ability to organize projects which create well-being for the target group and society.
- *Strategic Corporate Social and Societal Responsibility competence*: the ability to develop/support social projects that most contribute to a better society.
- *Creativity and innovation competence*: the ability to master innovation (managing the innovation process in an organization, initializing and supporting innovation management) as one of the key factors in socially responsible and sustainable development.

A more detailed description of the competencies is available in Annex I.

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## THE METHODOLOGIES



With the aim of developing the competencies and skills listed above, ITHEN's partners have identified some **innovative teaching/learning methodologies**, to be integrated and used within all future joint international courses delivered by the Network. These methodologies can help develop market-oriented key competencies in the students.
Moreover, all these methodologies are innovative either in their intrinsic features or in their application to the competencies identified by the network.

Below there is the list of the identified methodologies, with a short description for each. A more detailed description is available in Annex II.

In Annex II, before each Methodology, the following summary table will enable users to assess if that methodology is applicable or not to their training context and specific situation.

| | |
|---|---|
| *Number of students involved* | *min-max* |
| *Face-to-face / online / not relevant* | |
| *Necessary time* | *hours / sessions / weeks* |
| *Necessary tools* | *Projector, interactive whiteboard, open space with no desks, stationery, etc.* |
| *Involvement of additional stakeholders* | *Y / N* |
| *Does the teacher need specific training in order to use this methodology?* | *Y / N* |
| *Necessary level of motivation of the class* | *High / Low / Any level of motivation* |
| *Specific characteristics of the class group* | *...* |
| *Assessment* | *Type of assessment suggested* |

### FLIPPED CLASSROOM

Literally, this innovative method means "inverted classroom" and allows for more enjoyable, faster, and more cost-effective learning. It reverses the traditional way of teaching: content that has been traditionally delivered as lectures is consumed outside the classroom as homework, and activities traditionally used for homework (worksheets, assignments, etc.) are now done in class.
First step: after selecting the topic (Keller, 2012), the teacher provides the learning material on an e-learning platform, which can be consulted by the students: photos, videos, texts and any resource that can form the basis for further development. They can also use publicly available sources of data and information. The jigsaw concept can be applied: the subtopics related to the learning materials will be divided among students so that altogether they will address all the subtopics of the course.
Second step: students will develop a video, a Power Point presentation or a text file, in which they will develop the requested topic.

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Third step: each student will then discuss his or her work in class with the teacher, resolving any doubts about the topic and comparing it with the work done by other students. In-class activities may include debates, small group discussions, class discussions, short written assignments, whiteboard exercises, and student presentations.
This methodology applies well for those long activities that are hard to complete in class, as well as for those topics on which students have to apply concepts an exercises.



## JIGSAW PEER TEACHING

Jigsaw peer teaching is a method by which students collaborate in small groups to learn and take responsibility to teach the learned concepts to other peers in a classroom. It is an applicable tool as a means of creating more interactive and collaborative learning environments for students while preparing them to become more adaptable to the challenges of a rapidly evolving marketplace. Jigsaw can be beneficial in this regard as it is designed in a way that holds each other accountable in the learning process. It provides a cooperative yet autonomous learning environment that encourages students to develop various skill sets valued by employers as they practice finding a balance between group interdependence and individual accountability (Ye et al., 2020).

## BUSINESS CASE STUDY

The business case study requires students to describe and analyze a company's case, answering a series of concerns and questions. To facilitate the case study, it is good to select/use a concrete business area or a concrete company, so that students can use it as an example (linked to cooperation with the private sector). Linked to that, some challenges that can be solved step by step by analyzing relevant data related to the selected area are introduced. The questions raised in the case study focus on acquiring competence, while developing skills defined earlier in the text, such as autonomy, problem-solving or analytical spirit.
The learners' product is a detailed description of a business problem. In the best case, it shall be written with the support of a person who has experience working in a private company or organization, and who knows the challenges that companies face in the specific area.
The primary purpose of the case study methodology is to introduce a measure of realism into management education. In the opposite to theoretical concepts, it focuses on the application of concepts and development of solutions to real-world business problems. The student learns to apply concepts in practice.
The opening paragraph of the learners' product should make clear what is the nature of the problem of issue, when the case took place (specific dates can be given). The body of the case should tell the whole story in chronological order and must contain information on business environment, company background and the details related to the specific issue. The concluding paragraph should summarize the main issues and even raise new questions.

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## DESIGN THINKING



The Design Thinking approach is aimed at empowering teams (the respective student group) to clearly identify, analyze and develop innovative solutions quickly and efficiently using creative tools. In the beginning, students will reflect on what exactly innovation represents, and what is meant by creativity. Then students will go through a Design Thinking Process, tackling one identified problem in the surrounding society. As the target group is students in the sphere of business administration it is suggested to select a topic around social enterprises, where the private sector contributes to social equality and ends equal rights in society.

The design thinking process includes six phases: Understanding, Investigating, Synthesizing, Ideating, Prototyping, and Testing. In this way, the members of an innovation team can approach the solution to a problem piece by piece. The first three phases of the process focus on exploring the question and the problem behind it. In the subsequent phases, ideas for a solution are generated and tested.

Along the course the students will learn tools and methods, using the design thinking methodology, and will apply them step by step while realizing its own projects. Regular online or offline seminars will create spaces to reflect on the ideas, the process, and progress, and give support to the students, guided by a trainer/a teacher.

## PROJECT-BASED LEARNING

Project-Based Learning (PBL) is a teaching method in which students work on a project over an extended period of time that engages them in solving a real-world problem or answering a complex question. They demonstrate their knowledge and skills by creating a public product or presentation for a real audience. As a result, students develop deep content knowledge as well as critical thinking, collaboration, creativity, and communication skills.

In PBL, the inquiry process starts with a guiding question and lends itself to collaborative projects that can integrate various subjects within the curriculum. Questions are asked that direct student to encounter the major elements and principles of a discipline. The teacher or in this case, a company poses a guiding or essential question, which represents their challenge: “How can our company improve this process?” This question/challenge will become the basis to develop the project.

The pillars of PBL are learning by doing, the students become the leaders of their learning process; and significant learning, the student must understand that he/she doesn’t need to know everything but must only be able to find what he/she needs when he/she needs it.

A very important aspect to be considered in the classroom. A classroom is a place where people can live a fulfilling experience together as a community of learners; they are able to discuss problems. Support, encouragement, and models can be provided by both teachers and peers. To achieve this atmosphere, it is also very important that the place itself is comfortable, this was the driving force in IET for creating a new, modern, lit classroom.

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## CHALLENGE-BASED LEARNING

Challenge-based learning (CBL) offers general concepts from which the students derive the challenges they will address.
The Project based-learning methodology is proposed in this document to help to solve necessities about innovation that companies have observed, thus to improve their innovation management.
Combining CBL and PBL means that companies will explain their general activity to the students and will point out some innovative aspects, but will not directly ask for a proposal or solution-focused in this field. Through the explanation given, students will have to prepare a list of questions that helps them to decide which is their challenge to send the company a point of improvement for their procedures.
Through the challenge of "improving the innovation management", many questions will arise and through the answer to all these questions, it will be possible to establish and create a project.



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## PROBLEM-BASED LEARNING

Problem-Based Learning (PBL) is a teaching method in which complex real-world problems are used as the vehicle to promote student learning of concepts and principles as opposed to direct presentation of facts and concepts. In addition to course content, PBL can promote the development of critical thinking skills, problem-solving abilities, and communication skills. It can also provide opportunities for working in groups, finding and evaluating research materials, and lifelong learning (Duch et al, 2001). PBL can be incorporated into any learning situation. In the strictest definition of PBL, the approach is used over the entire semester as the primary method of teaching. However, broader definitions and uses range from including PBL in lab and design classes, to using it simply to start a single discussion. PBL can also be used to create assessment items. The main thread connecting these various uses is the real-world problem.

## BUSINESS GAME

The Business Game is a contest in which teams of students compete to develop a solution following a "challenge" launched by a company in their sector.
Companies propose cases, which must respect the following:

1. It must be within the field of reference of the courses.
2. It must be formulated as a request for support/help from the entrepreneur to the students' teams (e.g., "I want to add a new product in the catalog, but I don't know which one", "I would like to improve a service I provide ", "I would like to enter a market where I am not present, help me to understand how").
3. It must be a real problem (that the company is experiencing or has experienced).

4. It must be suitable for what will be the project phases:
    - An initial market/product/service study
    - The first design of the basic solution
    - An advanced technical design of the solution
    - A budget and a communication plan
    - An elevator pitch with a final presentation.



The teams, composed of 5 students, will develop a project structured in phases. Simultaneously, students receive training on hard and soft skills.
It is included a gaming strategy, creating competition among the teams of students. The Game includes periodic checkpoints, where an assessment of the progress of the projects and the ranking of the teams will be updated.
As last step, teams will present their complete project to a jury composed by the company's referents and facilitators, with the goal of "selling" their solution. The winners of the contest will be awarded.

## SIMULATION

In groups, students take over the role of a consulting team and realize a management diagnostic. This way, students enhance their skills in organizational analysis, project management in teams and in participatory, qualitative research. The professional reference is a base framework which element they will study and apply. The educational product of the methodology is for example a visual representation of knowledge and information flows between institutions and people. For drafting it, students conduct small interviews during which they are accompanied in small sprints by their teachers.

## COMPUTATIONAL THINKING METHODOLOGY

Computational thinking is an innovative methodology that has been mostly used for the study of mathematics and science. As defined by Jeannette Wing, computational thinking is "a way of solving problems, designing systems, and understanding human behavior by drawing on the concepts of computer science."
Computational thinking involves the following steps:

1) Decomposition: breaking large problems down into smaller ones;
2) Pattern recognition: recognizing how these relate to problems that have been solved in the past;
3) Abstraction: setting aside unimportant details;
4) Algorithms: identifying and developing the steps that will be necessary to reach a solution;
5) Debugging: refining these steps.

In our approach Computational thinking involves also concepts of machine learning to use statistical analysis and IT to predict future problems and find solutions in a cost-efficient manner.

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The challenge of this methodology is to successfully apply it in a non-traditional context such as *Logistics and IT Structure in non-profit organizations.*

### CROSSOVER METHODOLOGY



The crossover methodology combines both formal and informal learning environments and aims to provide students with the best of both worlds to enhance the value of the educational experience. The use of a variety of methods both in formal and informal settings is expected to make the students actually enjoy the learning which will result in a faster and more productive assimilation of theoretical concepts and their practical applications. The use of different traditional and non- traditional methods also is expected to stimulate the learner curiosity and eagerness to study.

## HOW TO INTEGRATE THE METHODOLOGIES

The use of ITHEN's Set of Methodologies may be a challenge since not all the players have a full knowledge of all methodologies. To make sure that methodologies are well implemented by all ITHEN training partners, some steps have been taken:

- A detailed document is available for each methodology (Annex II), with the description of the methodology, the skills, and attitudes to be developed, the example of a session guide, the time and needed material / resources, how to monitor its application, evaluation criteria, etc.
- Schools and teachers wishing to apply these methodologies in their business and marketing classes may directly contact the ITHEN Network partner specialized in each methodology;
- Teachers may assist (online or in class) classes held in ITHEN network schools.
- The ITHEN Network will share, ongoing, best practices and lessons learned on the use of each methodology, allowing all partners to remain updated.
- Prior to the beginning of the delivery of modules, all the ITHEN training partners have received a peer to peer training to fully understand each methodology and how to use in their own context. External users can rely on the Guidelines and their Annexes.

## CONCLUSIONS

This document intends to work as a Roadmap for the application of the ITHEN innovative methodologies in the actual and futures partner TVETs and Universities. In joint courses or local ones. By profiting from the ITHEN network knowledge, with a structured and formalized framework and full access to materials and lessons learned, schools and teachers will be able to implement locally, proven, innovative approaches and provide students a unique benefit for their future academic and professional career.

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# ANNEXES

## Annex I – ITHEN Set of Key Competences and Indicators of Achievement

Identification of Management, Technical, Digital and Transversal Competences needed by students graduating from Technical Higher Education courses in the fields of International Marketing and Business Management and entering the international job Market

**DOWNLOAD**

## Annex II – Alignment of ITHEN's Methodologies with the Jobs Market

Assessment on the real impact of ITHEN's selected methodologies and identified ì competences on students' opportunities in the international job market. Report on the feedback of SMEs regarding ITHEN's competences and methodologies.

**DOWNLOAD**

## Annex III – Set of I-THEN Methodologies

Set of ten innovative methodologies – with step by step session guides – useful to develop the key competences required by the international job market in the field of marketing and business management

DOWNLOAD IN **ENGLISH**, **ITALIAN**, **SPANISH**, **CATALAN**, **PORTUGUESE**, **SLOVENIAN**, **TURKISH**, **GERMAN**

## Annex IV - National Pilots Evaluation Report

Overall evaluation report on the National Pilots conducted in Italy, Spain, Portugal, Slovenia, and Turkey to test the ITHEN Set of Methodologies on local students and teachers.

**DOWNLOAD**

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