

**FEM
CON**

Empowering
Women in
Construction



Pedagogical guide & worksheet

MODULE 5

WOMEN-EMPOWERED INNOVATION AND DISRUPTION IN CONSTRUCTION

www.femalesinconstruction.eu



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FEMCON Open Education Resources

FEMCON project

FEMCON develop innovative vocational education & training that assist women working in or considering a career in construction industry to progress to visible roles within the industry.

In so doing, FEMCON aim to increase the attractiveness of the industry for others, thus leading to a greater number of women choosing the sector.

The long term objective of FEMCON education is to impact female workforce in the construction industry across Europe, to become aware of their rights to equality in the industry & to utilize their skills in the industry towards their careers progression, thus creating conditions for positive change to happen, improving the industry outlooks & these groups' quality of life.

Open Education Resources

The FEMCON Open Education Resources (OER) aim to equip VET trainers to provide specialist learning content to women working or interested in a career in the construction to help career progression & development of females in this industry.

The resources target the needs of women in the industry but through VET organizations & wider education providers across Europe as an online resource.

They cover industry-specific issues putting attention to the needs and conditions to entering this field, role of women in construction industry, the career progression possibilities, communication and assertiveness, as well as understanding new technology solutions & trends in construction and opportunities to develop innovative businesses based on the knowledge and experience gained.

The TRIPPLE “I”

The course concept is based on the TRIPPLE “I” idea, which means that the materials aim to:

INSPIRE women to work in construction industry and businesses to hire women,

IMPROVE professional skills, managerial and soft skills,

INNOVATE within the working possibilities and in the construction business.

Each module was designed to inspire woman to take on new challenges in construction industry, improve personal skills and thinking about carrier in construction industry and create innovative attitude to start working and developing career in construction industry.

The course aims also to inspire business owners on how women can be better engaged in the industry and contribute to its development.

The course structure

The course covers the topics like new challenges in the construction, problems of managing construction projects, and soft skills needed to work effectively in construction.

Specifically there are 5 modules available:

MODULE 1: Stereotypes affecting woman in construction

MODULE 2: Working in construction industry)

MODULE 3: Assertive and workplace communication

MODULE 4: Future of construction

MODULE 5: Disruptive business (Innovation)

How to use

The resources are dedicated mainly for classroom learning to facilitate VET training sessions. They can be however regarded with flexibility for self-paced use or adapted to the needs of specific training programs.

Module introduction

The why

In an ever changing world nothing is certain. New workforces, new competences, new technologies appear along with the new market opportunities. By observing and capturing them one can not only look into the future, but also create the future. Disruptive innovation approach gives some insights into how construction sector can contribute to positive social changes while being empowered by women.

What's in

The module will provide insights into how to design innovative business in construction, that breaks the rules and propose new configurations at the market. Learners will be guided on how to discover and create innovation opportunity that disrupts the market with female factor as a vital component.

Learning objectives

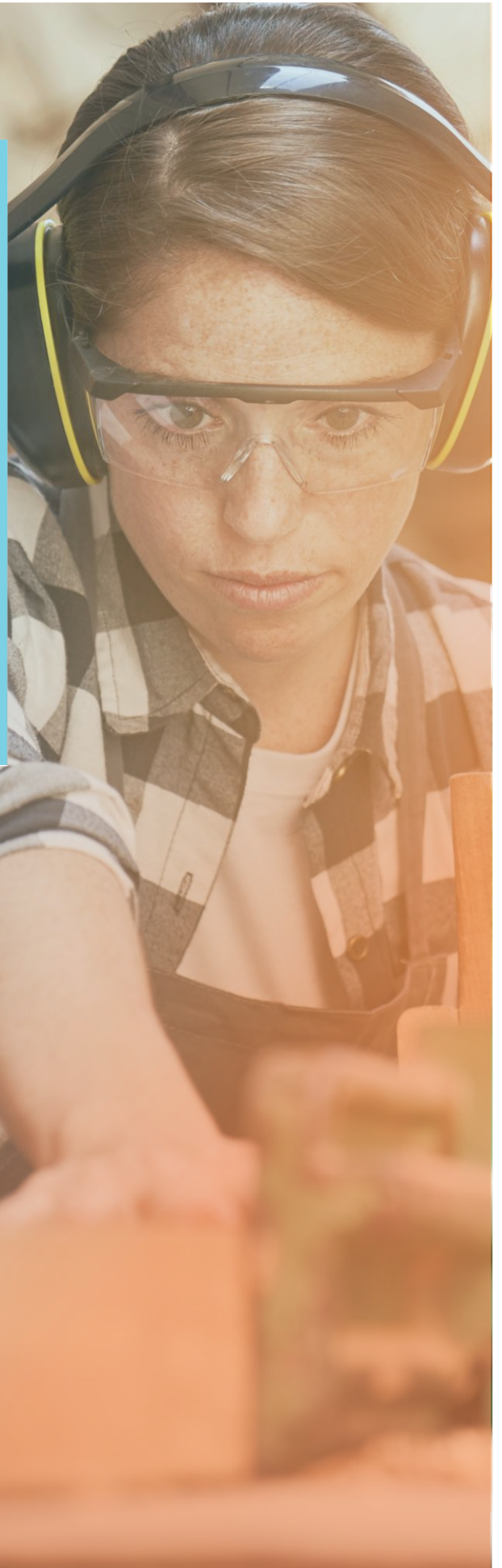
At the end of this module learners will:

- understand the disruptive innovation theory
- know examples of disruptive innovations
- be able to apply disruptive innovation theory to change construction industry and contribute to social development
- have some ideas on how women can empower innovation in construction





The only three things you need to change the World are vision, passion, and action



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Module information

Time needed to deliver

Total: 4 hours

- theoretical introduction: 1 hour
- collaborative learning, workshop activities: 2 hours
- feedback and discussion: 1 hour

Delivery mode

Group learning (workshop-specific group size)
Relevant for women only, or mixed groups

Pedagogical methods

Teaching and learning activities: Jigsaw (Collaborative learning)

Assesment and feedback practices: Intersession

Educational technologies: Social media

Module resources

PPT presentation for class delivery

TechTrends 2022 Handbook (Deloitte Insights)

Business Models Examples Book (Board of Innovation)

Value Network in Green Building Analysis (Wei Bo)

Women in the industry can lay a solid foundation for those interested in pursuing a career in construction.



04 Facilitators guide

The aim

In this module the aim is to engage learners in the process of exploring innovation opportunities in construction that can be empowered by women.

Disruptive innovation is not the same as breakthrough technology, that makes good product a lot better. It uses technology (sometimes breakthrough technology or sequence of technology) to propose a new value. Disruptive innovation transform product that historically was complicated and expensive and only few (skilled and rich) people has access to it, into a product that is affordable and accessible and can address wider population.

Disruptive innovations are positive force not only in a traditional business sense, but socially and economically. They are important in construction services, that supports human basic needs and affects quality of life.

Pedagogical explanation

methods

In this module the following pedagogical methods will be facilitated:

- **Jigsaw:** a method of collaborative learning; students are split into groups with one member assigned to each topic; working individually, each student learns about his or her topic and present it to the group.
- **Intervision:** smaller groups of participants with similar backgrounds exchange experiences without the guidance of a facilitator.

The learning experience will be additionally facilitated by educational technology:

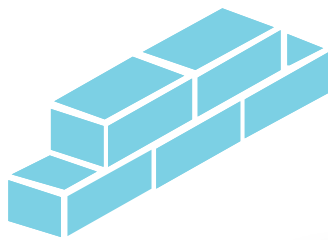
- **Social media:** e.g. Twitter, Facebook, Pinterest, LinkedIn

Women in the industry can lay a solid foundation for those interested in pursuing a career in construction.



Training scheme

1. Based on the PPT materials the trainer introduces the concept of disruptive innovation; trainer give some insights into disruptive innovation examples and, if there's enough time and audience is ready, the trainer facilitates discussion about disruptive innovation examples in construction.
2. Students are provided with the resources on women in construction (role, competences, social & psychological aspects); they discuss in pairs how women can impact disruptive innovation in the construction industry (this should be considered as explorative brainstorming session). They are also encouraged to go to social media (particularly construction-related special interest groups) and look for some inspiration and interesting insights;
3. Students are split into 3 groups. Each of the group receives separate exercise related to 3 components of disruptive innovation (JIGSAW learning activity):
 - Group 1: Group receives information about new technologies and discuss together how these technologies can be applied in construction to create disruptive innovation;
 - Group 2: Group receives information about innovative business model and discuss together how these models can be applied in construction to create disruptive innovation;
 - Group 3: Group receives information about value networks and discuss together how these networks models can be applied in construction to create disruptive innovation
(The leading questions are provided – see PPT slides to the module)
4. The trainer pick one person from each group and create groups of 3. One person from each group act as an expert in a new team in a field that he/she explored in the previous exercise; now the group work on ideas of disruptive innovation in construction taking info account the specific women contribution. Learners are asked to choose one strong idea, and to write it down using the worksheet form provided. Learners are instructed that every person makes his/her own notes – those will be needed to the next exercise.
5. Students come back to the initial groups (3 groups) and discuss/compare ideas to review lessons learnt (INTERVISION). They are provided with instructions on how to structure the discussion.



INTERACTIVE AND INNOVATIVE

- Training materials are developed in PowerPoint. They can be adjusted to the particular training needs, as they are editable.
- Videos and external articles are used to explain certain sections of the training content and to present case studies for discussion
- Exercises encourage both group and individual learning and give a practical tone to all the context
- Activities invite learners to investigate certain content such as articles, podcasts, books and more
- Case studies help bring thematics to life
- All of these can be replaced with the suitable, localised examples, by the educators, that best suit the needs of a particular target group, making these resources highly transferable.

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Links to additional resources

„What Is Disruptive Innovation?“

<https://hbr.org/2015/12/what-is-disruptive-innovation>

„Disrupting The Construction Industry: A Breakdown On Startup Driven Innovation“

<https://www.startus-insights.com/innovators-guide/disrupting-construction-industry-breakdown-startup-driven-innovation/>

„Is Disruptive Innovation possible in the Construction Industry?“

<https://www.futureofconstruction.org/blog/is-disruptive-innovation-possible-in-the-construction-industry/>

„Construction Industry. Trends, analysis, statistics“

https://www.reportlinker.com/market-report/Construction/510717/Construction?term=construction%20sector&matchtype=b&loc_interest=&loc_physical=9067540&utm_term=construction%20sector&utm_campaign=transactionnel1&utm_source=google&utm_medium=ppc&hsa_acc=9351230540&hsa_cam=15072746546&hsa_grp=131203484638&hsa_ad=565342522970&hsa_src=g&hsa_tgt=kwd-311218241235&hsa_kw=construction%20sector&hsa_mt=b&hsa_net=adwords&hsa_ver=3&gclid=CjwKC_AiAvK2bBhB8EiwAZUbP1JqTcsoAHLY0SdVS4NUIz9W6gLiZAUkL7a8uiEzP63ixQyTVqvp-QhoCKEAQAvD_BwE



Data is only available about the past.
But you can use the lenses the of theory
to look into the future.



06 Worksheets



Worksheet 5.1.1. Components of disruptive innovation
– enabling technologies

Worksheet 5.1.2. Components of disruptive innovation
– innovative business model

Worksheet 5.1.3. Components of disruptive innovation
– coherent value network

Worksheet 5.2.1. IDEAS and PROPOSITIONS for disruptive innovations in construction

Worksheet 5.2.2. Validating and revising IDEAS and PROPOSITIONS for disruptive innovations





Worksheet 5.1.1. Components of disruptive innovation – enabling technologies

Read information about new technologies and discuss in your reference group how these technologies can be applied in construction to create disruptive innovation

What technologies can be applied in construction (e.g. civil engineering, design & architecture) – select at least 5 technologies

What technologies could make the best use of women competences in construction? – select at least 2 technologies

What technologies could make women's participation in construction more accessible – select at least 2 technologies

*Your notes
Additional comments*



Worksheet 5.1.2. Components of disruptive innovation – innovative business model

Read information about business models and discuss in your reference group how these models can be applied in construction to create disruptive innovation

What BM can be applied in construction (e.g. civil engineering, design & architecture)? Are there any specific elements of BMs that are particularly interesting and inspiring? – select at least 5 models

What BM could make the best use of women competences in construction? – select at least 2 models

What BM could make women's participation in construction more accessible? – select at least 2 models

*Your notes
Additional comments*



Worksheet 5.1.3a. Components of disruptive innovation – coherent value network

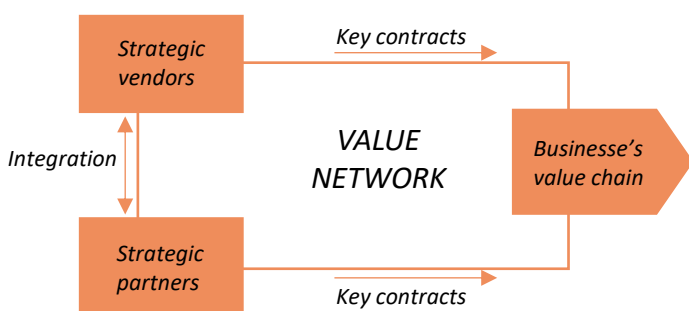
Read information about value networks and discuss in your reference group how can new and existing value networks in construction contribute to create disruptive innovation

Read the explanation of the understanding of value networks in business [here](https://corporatefinanceinstitute.com/resources/management/value-network/):

<https://corporatefinanceinstitute.com/resources/management/value-network/>

Draw value network for a chosen service in construction

Now, look at the scheme of value network:



Service

Customer

What customer considers valuable
.....

Activities needed to create value for the customer
.....

Resources needed to carry out activities
.....

Strategic vendors
.....

Strategic partners
.....

Discuss in group 4 steps of defining effective value network (Halender, 2004)

1. Who is the customer? What customer considers valuable?
2. What activities are needed to create the value for the customer?
3. What resources are needed to carry out the activities?
4. Who (=actors) are able to utilise these resources?

Discuss in group how the value could be better delivered? Which value network elements could be changed and how? Write down your remarks.



Worksheet 5.1.3b. Components of disruptive innovation – coherent value network

Read information about value networks and discuss in your reference group how can new and existing value networks in construction contribute to create disruptive innovation

What existing VN can be used in construction (e.g. civil engineering, design & architecture) to create new value and/or new opportunities – select at least 5 options

What VN elements could make the best use of women competences in construction? – select at least 2 options

What VN elements could make women's participation in construction more accessible? – select at least 2 options

*Your notes
Additional comments*



Worksheet 5.2.1. IDEAS and PROPOSITIONS for disruptive innovations in construction

Discuss the results from Worksheet 5.1.1., Worksheet 5.1.2., Worksheet 5.1.3 in your group. Explain to your groupmates your experience in the construction sector (details of your work, foundations of your business, etc.)

Consider how the construction sector could be transformed in your field given the new insights into enabling technology, innovative business models and coherent value network. How those could be combined into disruptive innovation concepts?

PROPOSITION 1

.....

Enabling technology

Business model

Coherent Value network



Solution / Disruptive innovation

PROPOSITION 2

.....

Enabling technology

Business model

Coherent Value network



Solution / Disruptive innovation



Worksheet 5.2.2. Validating and revising IDEAS and PROPOSITIONS for disruptive innovations

Having your IDEAS and PROPOSITIONS defined, use Internet information to validate them.

Use the most relevant key words in the browser to find out if your ideas are original and sound at the market.

Key words used

Conclusions

Revised idea

Write down the post that could be published in social media to validate the idea directly with users.

Please consider that the information published should be concise, appealing, but at the same time protective in terms of copying the idea.

Additional questions to be addressed in further investigation



Stay creative and purposeful in your training!

Add new methods to your training scenario. Here some useful and interesting examples are proposed.

Teaching and learning activities

Carousel brainstorm: Small groups of students rotate around the classroom, stopping at various "stations" for a designated period of time (usually 1-2 minutes). At each station, students activate their prior knowledge of a topic or concept and share their ideas with their small group. Each group posts their ideas at each station for all groups to read.

Pretest: To activate students' prior knowledge, a pretest can be given to students that consists of questions related to new content for the students. The students are instructed to make the test without preparation. The test can contain one or two comprehension questions or a number of multiple choice questions.

Focused freewriting: Focused freewriting is writing about a particular subject or question which has been posed. It simply means putting pen to paper and writing whatever comes into your head. It is a useful tool for generating ideas and discovering attitudes. A pre-lesson brain dump: Writing-to-learn activities can be used before a learning experience to get students to 'warm up' by thinking about what they know or think they know or feel about a new topic.

Fishbowl discussion - A fishbowl conversation is a form of dialog that can be used when discussing topics within large groups. The advantage of fishbowl is that it allows the entire group to participate in a conversation. Several people can join the discussion. Four to five chairs are arranged in an inner circle. This is the fishbowl. The remaining chairs are arranged in concentric circles outside the fishbowl. A few participants are selected to fill the fishbowl, while the rest of the group sit on the chairs outside the fishbowl. In an open fishbowl, one chair is left empty; any member of the audience can, at any time,

occupy the empty chair and join the fishbowl. In a closed fishbowl, all chairs are filled. The moderator introduces the topic and the participants start discussing the topic. The audience outside the fishbowl listen in on the discussion.

Assessment and feedback practices

Intervision sessions - Smaller groups of participants with similar backgrounds exchange experiences without the guidance of a facilitator

Supervision sessions - A group session after a training where a (large) group of participants are able to exchange experiences with each other. This happens under the guidance of a facilitator who has the required expertise in that field.

Peer assessment - Activities that require students to assess their peers' performances against applicable criteria; extend to offer specific suggestions for improvement.

Co-assessment - Both the lecturer and the students have a role in the assessment process.

Educational technologies

Mobile response systems - In order to actively involve all individuals of a group of students during class, you can ask questions by means of personal response systems. Students are able to respond simultaneously and individually with digital (e.g., Mentimeter, Kahoot) or analogue clickers.

Wiki - A collaborative tool that allows students to contribute and modify one or more pages of course related materials. Essentially, a wiki is a web page with an open-editing system.



To grow big, think big. Dream BIG dream. Create a world-changing vision, and your vision will lead you.

