

# GUIDE TO IMPLEMENT FRUGAL INNOVATION COURSE

Teachers' Pack  
For  
VET  
(Vocational Education  
and Training  
institutions)



*Promoting low tech  
sustainable solutions*

Our project will introduce,  
adapt and mainstream  
frugal innovation into our  
entrepreneurship  
education processes.



[www.frugalinnovation.how](http://www.frugalinnovation.how)

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## WHY IT IS WORTH TO TEACH ABOUT FRUGAL INNOVATIONS?

Frugal Innovation is both a mind set and a series of techniques that enables entrepreneurs to innovate despite resource constraints. The concept has emerged from developing markets, but, given the current climate of austerity and economic uncertainty across large parts of Europe, we too can benefit greatly by integrating Frugal Innovation to our entrepreneurship education and equipping new generations with new ways to innovate.

Our project does not seek to replace “traditional” teaching in innovation, but we do wish to make sure that students and entrepreneurs learn alternative, arguably more appropriate approaches to innovation. Frugal innovation offers the most coherent alternative framework, showing how early stage entrepreneurs/SMEs can grow faster by adopting flexible, low tech or “soft” approaches such as human-centered design and creative problem solving methods.



Our project responds to the needs of students, young entrepreneurs and existing business owners who understand the need for innovation in setting their business or making it grow, but are unsure how to proceed. They often have little money to invest in research or technology, are averse to risk, or lack a problem-solving mentality.

It also responds to the needs of VET and HE institutions in the entrepreneurship eco-system:

- it provides shared learning and collaboration spaces, vital given the complexity of the relationship between innovation and social/economic development;
- for enterprise focused VET institutions, it refreshes the innovation curriculum, strengthening key competences and offering entrepreneurs skills of more practical use in the “real world”;
- for universities, it reinforces links to regional development and provides high-quality materials for teaching innovation as a transversal competence;
- for development agencies, it contributes to diversification, growth and resilience of local businesses.



## BENEFITS OF FRUGAL INNOVATION COURSE

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### For entrepreneurs

Frugal Mindset	Business Skills	Life Skills
<ul style="list-style-type: none"> <li>▪ Understanding of frugal innovations</li> <li>▪ Frugal innovations as a new economic trend</li> <li>▪ Impact of frugal innovations not only on business, but also on the society and environment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Effectiveness</li> <li>▪ Saving resources</li> <li>▪ Faster implementation of changes</li> <li>▪ Design Thinking</li> <li>▪ Human Centered Design</li> </ul>	<ul style="list-style-type: none"> <li>▪ Creativity</li> <li>▪ Initiative</li> <li>▪ Social Skills</li> <li>▪ Productivity</li> </ul>

### For teachers

Frugal Mindset	Learning Materials	Career
<ul style="list-style-type: none"> <li>▪ New knowledge and skills relevant to the demands of the contemporary economy</li> <li>▪ Impact of frugal innovations on business, society and the environment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Classroom course and interactive on-line course</li> <li>▪ Case studies</li> <li>▪ Activities</li> <li>▪ Evaluation tools</li> </ul>	<ul style="list-style-type: none"> <li>▪ Professional development</li> <li>▪ Inspiration for other courses</li> <li>▪ Gaining new knowledge</li> </ul>

## MODULES AND THEIR LEARNING OBJECTIVES

Module	Learning objective
1. The business case for Frugal Innovation	<ul style="list-style-type: none"> <li>Understanding the meaning of innovations and frugal innovations</li> <li>Understanding the benefits of frugal innovations</li> <li>Know various terms defining frugal innovations</li> <li>Learn about case study of frugal innovations examples</li> <li>Be able to explain features of frugal innovations</li> </ul>
2. Market opportunities for frugal innovations in Poland/Hungary/Croatia/Ireland/UK	<ul style="list-style-type: none"> <li>Understanding why frugal innovations are important in developing and advanced economies?</li> <li>Learn about frugal innovations in various EU countries as inspirations for business</li> <li>Be able to indicate sectors which demand frugal solutions</li> <li>Understand business, social and environmental aspects of frugal innovations in terms of various countries</li> </ul>
3. Creative problem solving	<ul style="list-style-type: none"> <li>Understand why creativity is important</li> <li>Be able to enhance creativity at individuals and groups</li> <li>Be able to use various sources of innovations</li> <li>Be able to employ basis techniques boosting creative problem solving</li> <li>Be able to employ design thinking</li> <li>Learn about various methods of research</li> </ul>
4. New market development, human centered design and prototyping	<ul style="list-style-type: none"> <li>Why the elements of business environment are important</li> <li>How to define target market</li> <li>How to prepare a market analysis</li> <li>How to use human centered design</li> <li>How to benefit from prototyping</li> <li>How to use various prosumers</li> </ul>
5. Sustainability and social inclusion in frugal innovation	<ul style="list-style-type: none"> <li>Raise the awareness about business, social and environmental aspects of frugal innovations</li> <li>Learn about the bottom of the pyramid market</li> <li>Understand the necessity of the environmental protection.</li> <li>Learn about the meaning of global trends, like sustainability, CSR, circular economy etc.</li> <li>Explore the examples of eco-friendly and social innovations</li> </ul>
6. Financial planning for innovation	<ul style="list-style-type: none"> <li>Understand how the crowdfunding works</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Understand the difference between crowdfunding and crowdsourcing</li> <li>▪ Learn how to write a successful business plan in applying for loans or credits?</li> <li>▪ Learn how to successfully manage cash flow</li> <li>▪ Learn how to obtain external financing in their country</li> </ul>
7. Management of frugal innovations	<ul style="list-style-type: none"> <li>▪ Learn how to use E&amp;I in the context of R&amp;D</li> <li>▪ Learn how to flex assets in order to become more frugal?</li> <li>▪ Learn about methods to shape consumer's behavior</li> <li>▪ Understand how to create networks to be more frugal</li> <li>▪ Learn about case studies of successful cooperation which result in frugal solutions</li> </ul>

Dear Teachers,

The use of this materials is not obligatory. We proposed tasks, information and sources which are complementary to the content presented in the course. We leave you with a choice of which materials from this teachers' pack to use.

We hope that you will find them interesting and supportive.

Frugal Innovation Team

## HOW TO USE THE GUIDE?

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We will guide you through each module. As a teacher/trainer, you are provided with tools which can ensure the effective delivery of the training modules in the classroom.



### **DURATION**

How much time should be spent on each module.



### **INTRODUCTION**

Introductions will give you a quick overview of what to expect from each module.



### **LEARNING OUTCOMES**

A summary of what knowledge and competences entrepreneurs should obtain in each module.



### **GLOSSARY**

A summary of main terms which entrepreneurs should understand.



### **ACTIVITIES**

Various activities which should help you to introduce the knowledge presented in each module your entrepreneurs.



### **SOURCES**

List of interesting books, articles, websites, videos, etc. related to each module.



## MODULE 1. THE BUSINESS CASE FOR FRUGAL INNOVATION

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The duration of this module estimated for 2 hours.



How to understand frugal innovations? Are they important for nowadays economies? What are the examples of successful frugal innovations?

These questions are crucial and therefore the module should provide answers on them.

Definition proposed by NESTA :

*Frugal innovation responds to limitations in resources, whether financial, material or institutional, and using a range of methods, turns these constraints into an advantage<sup>1</sup>.*

is proposed as the main in the module. Nevertheless, we suggest to discuss with entrepreneurs how they understand a typical approach to innovation.

Constraints, social inclusion and environmental strands should be underlined while explaining the meaning of frugal innovations



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<sup>1</sup> Nesta, <https://www.nesta.org.uk/feature/frugal-innovations/>



**#1.** Ask entrepreneurs to read about typical approach to innovations. The definitions proposed by OECD<sup>2</sup> below might be useful for you to present to entrepreneurs:

**An innovation** is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.

Ask entrepreneurs how would they distinguish the following types of innovations:

A product innovation

A process innovation

An organisational innovation

A marketing innovation



**#2.** Ask entrepreneurs to give examples of innovations based on high-technology and on the contrary, innovations based on simple solutions. Try to encourage them to the discussion, which innovations are more important.

Such discussion would be a good base to introduce the terms of radical (breakthrough) and incremental (modernizing) innovations.



**#3.** When entrepreneurs understand the typical meaning of innovations, you can start to introduce the frugal innovation concept. Ask entrepreneurs about sophisticated products – whether they use all functionalities of such products. One of a good example of such product is a smartphone – do they know all functionalities of their smartphones? Do they use all of the functionalities? Are smartphones durable enough for everyday use?



**#4.** Encourage entrepreneurs to talk about the advantages of cheap cars. You can use the example of Tata Nano (and why Tata Nano went of production) and other small and affordable cars.



**#5.** Ask entrepreneurs to work in groups in order to discuss which products from their surrounding could be transferred into frugal solutions (what should be changed, what should be simpler, what should be defeatured, etc.).



**#6.** Ask entrepreneurs to work in groups in order to compare regular airline with low-cost airlines especially in the scope of eliminating many traditional passenger services. Ask entrepreneurs whether they could eliminate extra services in their business?





Important terms (in an alphabetic order):

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Catalytic innovation

Frugal innovation

Gandhian innovation

Grass root innovation

Inclusive innovation

Innovation

Jugaad innovation

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Marketing innovation

No-frills innovation

Organizational innovation

Process innovation

Product innovation

Reverse innovation



## Entrepreneurs:

- ✓ Understand the meaning of innovations and frugal innovations
- ✓ Understand the benefits and features of frugal innovations
- ✓ Know frugal innovations examples
- ✓ Understand the difference between typical approach to innovations and frugal innovations

*Entrepreneurs are aware that limitations are no longer constrains. Limitations mean possibilities.*



## Sources:

### To read:

Radjou, N., & Prabhu, J. C. (2014). Frugal innovation: how to do better with less (1st ed.). New York: PublicAffairs.

What is frugal innovation? Three defining criteria, Weyrauch, T. & Herstatt, C. J Frugal Innov (2017) 2: 1. <https://doi.org/10.1186/s40669-016-0005-y>, Springer Singapore

A conceptual analysis of foundations, trends and relevant potentials in the field of frugal innovation (for Europe). Interim report for the project "study on frugal innovation and reengineering of traditional techniques" – Study, Directorate-General for Research and Innovation, Fraunhofer ISI, Nesta, European Commission, 2016-08-04

Radjou, N., & Prabhu, J., Ahuja S. (2012) Jugaad Innovation: Think Frugal, Be Flexible, Generate Breakthrough Growth Jossey-Bass; 1 edition

Yasser Bhatti Y., Basu R.R., Barron D., Ventresca Marc J. (2018) Frugal Innovation: Models, Means, Methods, Cambridge University

### To watch:

What is frugal innovation? What does frugal innovation mean?  
frugal innovation meaning & explanation

<https://www.youtube.com/watch?v=Yq4rcGyb4g>

Frugal innovation in healthcare | The Economist

<https://www.youtube.com/watch?v=hmqaW4VSSHl&t=1s>

The Art of Frugal Innovation | Arun Cherian |  
TEDxBocconiUMumbai

<https://www.youtube.com/watch?v=psduq4vYZmQ>

Frugal Innovation

<https://www.youtube.com/watch?v=DnQi7ndgx3Y>

## MODULE 2. MARKET OPPORTUNITIES FOR FRUGAL INNOVATIONS IN CROATIA, HUNGARY, IRELAND, POLAND AND THE UK

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The duration of this module estimated for 2 hours.



The aim of this module is to get entrepreneurs familiar with the real frugal innovations implemented in specific European countries as well as to provide knowledge about various scope of problems which create markets for frugal solutions.

Therefore, entrepreneurs will be analyzing:

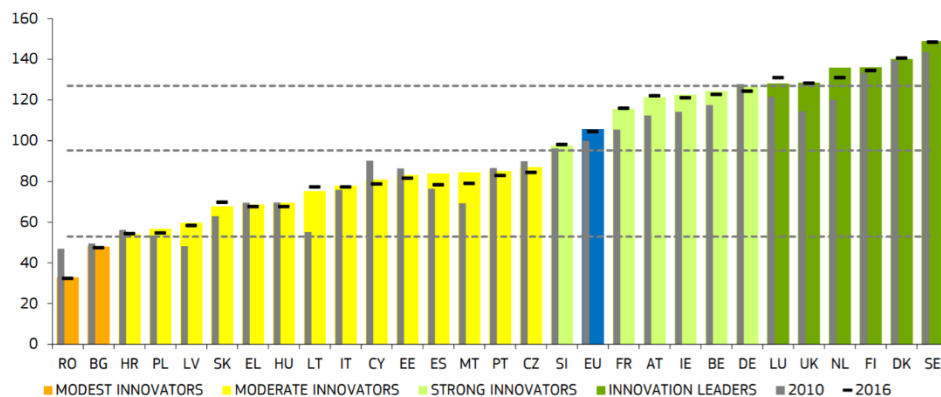
- What does innovative economy mean and what does it mean to my business?
- Which European economies have the best innovative performance? And which the worst?
- Why frugal innovations are important in developing and advanced economies?
- Why companies should focus on the bottom of the pyramid market?
- What are the examples of frugal innovations in the selected European countries?
- In which sectors demand / potential demand exceeds supply?
- Which sector demands immediate support or development?
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The awareness of entrepreneurs about the necessity of implementing frugal innovation not only in developing economies should rise after this module. They should also be more conscious about social and environmental issues in advanced economies, which impose frugal solutions.



## #1. Ask your entrepreneurs get familiar with the latest European Innovation Scoreboard.

Figure 1. Performance of EU Member States' innovation systems in 2018



Coloured columns show Member States' performance in 2017, using the most recent data for 27 indicators, relative to that of the EU in 2010. The horizontal hyphens show performance in 2016, using the next most recent data for 27 indicators, relative to that of the EU in 2010. Grey columns show Member States' performance in 2010 relative to that of the EU in 2010. For all years, the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups in 2017, comparing Member States' performance in 2017 relative to that of the EU in 2017.

Source: European Innovation Scoreboard 2018 – Executive summary, European Commission, 21/06/2018  
<https://ec.europa.eu/docsroom/documents/30201>

Discuss with entrepreneurs which country is the most innovative and which is the modest?



## #2. Ask entrepreneurs to list frugal innovations in your country. If you are in one of the country described in the course, please try to find more examples apart from those given in the course. If your country was not described, ask entrepreneurs to choose examples of frugal innovation they have come across or heard about.



### #3. Talk with entrepreneurs about global problems, like:

- air pollution,
- global warming,
- overproduction of waste,
- health,
- plastic pollution,
- access to health care,
- shortened product life cycle,
- poverty.

Divide them into groups. Ask each group to conduct a brain storming in order to come up with ideas of frugal innovations solving a selected problem.



### #4. Focus on your country or region. Discuss with entrepreneurs whether there are some sectoral, social, economic or environmental problems which should be tackled in your region or country. How frugal innovation could support to solve such problems?



### #5. Watch about the examples of frugal innovations in India. Discuss with entrepreneurs whether similar solution would work in your country?

Indian Jugaad Innovation

<https://www.youtube.com/watch?v=nE-rvtg1TVk>







Important terms (in alphabetic order):

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Advanced economies

Innovation performance

Developing economies

Pollution

Environmental protection

Poverty

European Innovation Scoreboard

Social inclusion

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## Entrepreneurs:

- Understand the European Innovation Scoreboard.
- Can give examples (case studies) of frugal innovation in Croatia, Ireland, Hungary, Poland and the UK
- Understand why frugal innovations are important in developing and advanced economies?
- Why companies should focus on the bottom of the pyramid market?
- In which sectors demand / potential demand exceeds supply in their country?
- Which sector demands immediate support or development in their country?



## Sources:

### To read:

Poverty and Shared Prosperity 2018, The World Bank,  
<http://www.worldbank.org/en/publication/poverty-and-shared-prosperity>

Living conditions in Europe - poverty and social exclusion

[https://ec.europa.eu/eurostat/statistics-explained/index.php/Living\\_conditions\\_in\\_Europe\\_-\\_poverty\\_and\\_social\\_exclusion#Policy\\_context](https://ec.europa.eu/eurostat/statistics-explained/index.php/Living_conditions_in_Europe_-_poverty_and_social_exclusion#Policy_context)

Liedtka J., Salzman R., Azer D., Design (2017) Thinking for the Greater Good: Innovation in the Social Sector, Columbia University Press

Sharma J., Effective Social Innovation: Planning Guide for Changemakers (Social Innovation Guide), Jyoti Sharma 2018

### To watch:

Frugal Innovation in Healthcare: Doing Better with Less

<https://www.youtube.com/watch?v=jhF1Elh7wuU>

Work with what you have: Frugal Innovation Part 1: What is it?

<https://www.youtube.com/watch?v=w8DUyZyT6ow>

Work with what you have: Frugal Innovation Part 1: What is it?

<https://www.youtube.com/watch?v=STkYsvxcrLE>

Work with what you have: Frugal Innovation Part 3: How do I plan it?

<https://www.youtube.com/watch?v=ejACF2Ftjp8>

## MODULE 3. Creative problem solving

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The duration of this module estimated for 2 hours.



The most crucial knowledge which should be taught during this course, is related to the following issues:

- why creativity is important.
- how to enhance human creativity using techniques like brainstorming, brainwriting or nominal group technique.
- how to create a creative work environment.
- how innovation process works
- what the sources on innovations are.
- what design thinking is.

It is important to keep the module in a practical dimension, using a lot of case studies and exercise various techniques.





## #1. Time for a warm-up. You need:

- ✓ 28-35 nails (7-8 cm /3 inches)
- ✓ 4 – 5 wood blocks
- ✓ a hammer

Hammer one of the nails into the center of the block of wood. Please remember that this nail shall be standing as straight as possible.

Divide the group of entrepreneurs into 4 or 5 smaller groups. Give each group a wood block with a hammered nail and 6 nails.

Challenge for entrepreneurs is to put all 6 nails on top of one nail which is hammered to the wooden block. None of the nail may touch the wooden block.

Entrepreneurs would probably say – “it is not possible”.



Nailed it - How to balance 6 nails on one nail - Party trick

<https://www.youtube.com/watch?v=jTela5VcZQA>

Discuss with entrepreneurs that challenges which seem to be impossible in the beginning, sometimes are quite easy, when we work in groups and use our creativity.



**#2. Brainstorming.** In this activity entrepreneurs will have a chance to compare two brainstorming techniques.

You will need two classrooms. Divide entrepreneurs into two groups and ask them to go to separate rooms.

Ask one group to generate ideas on how to make “Frugal innovation” classroom course more interesting using typical brainstorming. Remind them about the rules of this technique.

Ask the other group to generate ideas on how to make “Frugal innovation” classroom course more interesting using Nominal Group Technique.

When both groups are ready, compare the results. Ask entrepreneurs about advantages and disadvantages of the technique they used. Discuss these methods.



Analyze, what conditions must be provided to brainstorming participants to make this technique effective.



**#3.** Ask entrepreneurs how they would imagine their ideal work place, which would stimulate their creativity. Talk about all factors which could influence creativity, like work hours, ability to go out of office and look for inspirations, the design of the office, facilities in the office etc. Compare entrepreneurs' expectations with how Mark Zuckerberg stimulates creativity in his company.



**#4.** Analyze with entrepreneurs “Seven areas of opportunity for innovation” coined by P. Drucker. Ask them to present examples for each of the seven opportunities. Encourage them to find case studies from their local business environment and from the global business.



Examples like: an ice trade / frozen water trade, Audi A2 perceived as one of the great motoring disasters, demographic changes on different continents and more eco-conscious consumers could be helpful to illustrate these sources of innovations.



Important terms (in alphabetic order):

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Brainstorming

Innovation process

Brainwriting

Marketing research

Creative Work Environment

Nominal Group Technique

Creativity

Sources of innovations

Design Thinking

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## Entrepreneurs:

- Know techniques how to enhance human creativity
- Are aware that work environment influences creativity
- Can indicate innovation process phases
- Can use various types of sources of innovations.
- In the line with design thinking, are more committed to testing even the most basic ideas, and to start experimenting with very low fidelity prototypes.



## Sources:

### To read:

Curedale R.A., (2017) Design Thinking Process & Methods 4th Edition Paperback, Design Community College Inc.

Innovating for People Handbook of Human-Centered Design Methods, LUMA Institute, 1st edition, 2012

Hamme D., (2014) Customer Focused Process Innovation: Linking Strategic Intent to Everyday Execution, McGraw-Hill Education

Burns A.C., Veeck A., Bush R.F., (2016) Marketing Research (8th Edition) 8th Edition, Pearson

### To watch:

Design Thinking and Innovation At Apple

<https://www.youtube.com/watch?v=ir3E-TEUk48>

Design Thinking Case Study

<https://www.youtube.com/watch?v=rWyClv8bico>

Design Thinking in 90 Seconds

<https://www.youtube.com/watch?v=vQytKCT563I>

Design thinking – what, how, why, when? | Paweł Żebrowski | TEDxSzczecinLive

<https://www.youtube.com/watch?v=Q80wUnju5YA>



## MODULE 4. NEW MARKET DEVELOPMENT, HUMAN CENTERED DESIGN AND PROTOTYPING

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The duration of this module estimated for 2 hours.



This module covers two main topics – new market development and human centered design.

In terms of new market development, after this course entrepreneurs should:

- ✓ Be aware of the elements of business environment
- ✓ Be able to define target market
- ✓ Be able to prepare a market analysis

As far as human centered design, entrepreneurs should:

- ✓ Understand and be able to implement human centered design
- ✓ Understand and be able to implement prototyping
- ✓ Be able to explain the roles of prosumers

These two topics are linked. Entrepreneurs should vary focused on the customers –their target market and to develop tailor-made products for them (human centered design) .





**#1. A**sk entrepreneurs whether they know any examples of global brands which were not successful entering foreign markets. You can use the example of Starbucks failure in Australia.



Ask entrepreneurs why this happened? What were the main reasons?

Could Starbucks avoid such failure?



**#2.** Ask entrepreneurs to analyze and describe the external environment of their company covering Unique Task Environment.

How does each element of external environment influence their company. Which have the biggest impact?



**#3. D**ivide entrepreneurs into two groups. Groups will have the same task – to describe who buys cloths of a selected brand and also to provide details about each brand's target group. Create customer profiles



The brands are: H&M and Coco Chanel.



**#4.** Ask entrepreneurs to redesign their mobile phone according to the needs of two groups: elder people (65+) and children (8-10 years).

Are they able to use human center design techniques in the classroom?

It should be their homework to observe these groups and ask questions when they are able to reach these specific target groups.



**#5.** Ask entrepreneurs to analyze various types of prosumers.

Do they have any experience as one of the prosumer? Which type?

Do they now initiatives like MyStarbucksIdea.com?



Important terms (in alphabetic order):

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Customer's profile

Prosumers

External environment

Prototyping

Human Centered Design

Target group

Internal environment

Unique task environment

Market analysis

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## Entrepreneurs:

- ✓ Are aware of various market conditions resulting from external environment.
- ✓ Are able to prepare market analysis.
- ✓ Are able to define a target group.
- ✓ Are able to prepare consumer's profile.
- ✓ Know how to use techniques of human center design.
- ✓ Are aware about an important role of prosumers and know how to engage them.



## Sources:

To read:

Winston W. (1993) Market analysis, Routledge

Dolnicar S., Grün B., Leisch F., (2018) Market Segmentation Analysis: Understanding It, Doing It, and Making It Useful (Management for Professionals), Springer



Truman O., Hague P., Cupman J., (2016) Market Research in Practice: An Introduction to Gaining Greater Market Insight 3rd Edition, Kogan Page;

IDEO (2015), The Field Guide to Human-Centered Design Paperback, IDEO.org / Design Kit

LUMA Institute (2012) Innovating for People Handbook of Human-Centered Design Methods, LUMA Institute

Stickdorn M., Schneider J., (2012) This is Service Design Thinking: Basics, Tools, Cases, Wiley

#### To watch:

Why Starbucks Failed In Australia

[https://www.youtube.com/watch?v=\\_FGUkxn5kZQ](https://www.youtube.com/watch?v=_FGUkxn5kZQ)

Why Walmart Is Failing In Japan

[https://www.youtube.com/watch?v=32\\_fm92-EF8](https://www.youtube.com/watch?v=32_fm92-EF8)

Market Segmentation Why Market Segments Are Important

<https://www.youtube.com/watch?v=D8oVKRNSWBc>

Target Market vs Target Audience

<https://www.youtube.com/watch?v=UgbBtCEfWtE>

Customer Profile

[https://www.youtube.com/watch?v=dc3QNf5\\_mo0](https://www.youtube.com/watch?v=dc3QNf5_mo0)

Principles of Human-Centered Design (Don Norman)

<https://www.youtube.com/watch?v=rmM0kRf8Dbk>

Design thinking for every endeavour | Robyn Richardson | TEDxCreativeCoast

<https://www.youtube.com/watch?v=TPXrheqhTCs>

## MODULE 5. SUSTAINABILITY AND SOCIAL INCLUSION IN FRUGAL INNOVATION

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The duration of this module estimated for 2 hours.



This module is very important according to the latest UN report, which informs us that nature is declining globally at rates unprecedented in human history. Therefore this module is focused on the following topics:

- ✓ business, social and environmental aspects of frugal innovations
- ✓ the bottom of the pyramid market
- ✓ environmental protection.
- ✓ global trends, like sustainability, CSR, circular economy etc.

Entrepreneurs should rise their awareness that frugal innovations have a lot in common with eco-friendly and social innovations.

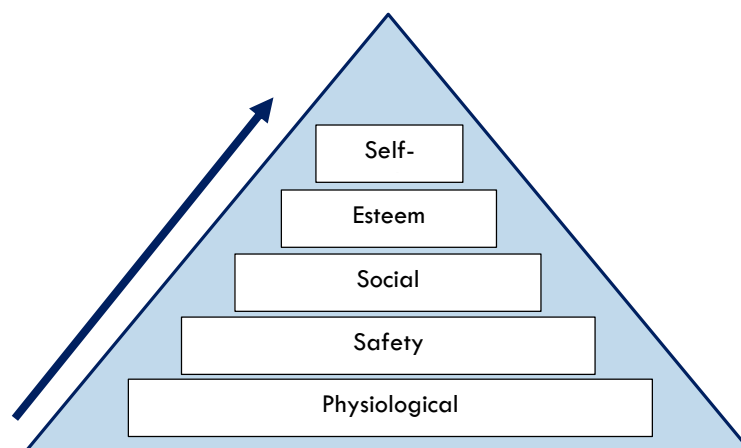




**#1.** Ask entrepreneurs about the pollution which affects their everyday life and their health. Do they know any solutions how to reduce specific pollution? Have they used any of the suggested solutions yet? Ask them if they think that eco-innovations are needed in nowadays world. Which eco-innovations are the most important in their opinion.



**#2.** Ask entrepreneurs about the hierarchy of needs proposed by Maslow. Do they agree with this hierarchy?



How can they relate this hierarchy with the needs of people who belong to the bottom of the pyramid market? How does it impact their purchase behavior?





**#3.** An example of social innovation – Paperfuge – a cheap, human-powered centrifuge which can spin biological samples at thousands of revolutions per minute. It can separate plasma from a blood sample, crucial for the diagnosis of infections including, for instance, HIV. It is made of paper, string and plastic, and unlike other centrifuges requires no electricity or complex machinery (with expensive replacements) and only very little money (to cover the cost of the base materials).



(<http://www.socialinnovationacademy.eu/8-cool-examples-social-innovation-north-america/>).

Discuss with entrepreneurs why such solutions are important in the third world countries.



**#4.** Ask entrepreneurs to read about IKEA's ecological approach announced At the Democratic Design Days in Älmhult.

“Our ambition is to become people and planet positive by 2030 while growing the IKEA business. Through our size and reach we have the opportunity to inspire and enable more than one billion people to live better lives, within the limits of the planet” says Inter IKEA Group CEO, Torbjörn Lööf.

Commitments for 2030 include:

- Designing all IKEA products with new circular principles, with the goal to only use renewable and recycled materials
- Offering services that make it easier for people to bring home, care for and pass on products



- Removing all single-use plastic products from the IKEA range globally and from customer and co-worker restaurants in stores by 2020
- Increasing the proportion of plant-based choices in the IKEA food offer, like the veggie hot dog launching globally in August 2018
- Becoming climate positive and reducing the total IKEA climate footprint by an average of 70% per product
- Achieving zero emissions home deliveries by 2025\*
- Expanding the offer of affordable home solar solutions to 29 IKEA markets\* by 2025

[https://www.ikea.com/us/en/about\\_ikea/newsitem/060718-IKEA-commits-to-become-people-planet-positive-2030](https://www.ikea.com/us/en/about_ikea/newsitem/060718-IKEA-commits-to-become-people-planet-positive-2030)



Ask entrepreneurs whether they could implement ecological approach/policy in their companies? What actions could they undertake? How would it impact the environment?



Important terms (in alphabetic order):

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Bottom of the pyramid market

Circular economy

Corporate social responsibility

Cradle-to-cradle production

Eco innovation

Green Innovation

Product Demand Matrix

Prototyping

Sharing economy

Social innovation

Spiral economy

Sustainability

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## Entrepreneurs:

- ✓ Understand business, social and environmental aspects of frugal innovations
- ✓ Understand the role of the bottom of the pyramid market
- ✓ Understand the necessity of the environmental protection
- ✓ Can explain global trends, like sustainability, CSR, circular economy etc.
- ✓ Can indicate examples of eco-friendly and social innovations



## Sources:

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Viki T., Toma D., Gons E., (2017) The Corporate Startup: How Established Companies Can Develop Successful Innovation Ecosystems, Vakmedianet Management

Albinsson P. A. (Editor), Perera B. Y. (Editor), (2018) The Rise of the Sharing Economy: Exploring the Challenges and Opportunities of Collaborative Consumption, Praeger

Weetman C., (2016) A Circular Economy Handbook for Business and Supply Chains: Repair, Remake, Redesign, Rethink, Kogan Page



To watch:

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Pollution to claim millions of lives prematurely by 2050, warns UN report

<https://www.youtube.com/watch?v=bZD28Ec3zmY>

WHO's Air Pollution and Child Health report & other topics - Daily Briefing (29 October 2018)

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The Circular Economy: A Simple Explanation | Cillian Lohan | TEDxYouth@EEB3

<https://www.youtube.com/watch?v=cbm1MCTobVc>

The Latest Green Automotive Innovations from Japan

<https://www.youtube.com/watch?v=BXoxWsEPLms>

5 Incredible Eco-Friendly Innovations To Save The Earth

<https://www.youtube.com/watch?v=vl1dBBfjAxQ>

Green Innovations: Thinking Outside the Box

<https://www.youtube.com/watch?v=uFBL8AjoPY>

## MODULE 6. FINANCIAL PLANNING FOR INNOVATIONS



The duration of this module estimated for 2 hours.



The most crucial knowledge which should be taught during this course, is related to the following issues:

- ✓ Why crowdfunding should be perceived as a way to raise money for original and innovative solutions
- ✓ How to write a successful business plan in applying for loans or credits?
- ✓ Are there any opportunities to use a special financial programmes dedicated to support innovative activities in my country or region?





**#1.** Time to prepare a crowdfunding campaign. Divide entrepreneurs into groups of maximum 4 persons. Ask each group to think about an innovative product which they would like to develop and introduce thanks to the money collected through a crowdfunding platform.

Ask entrepreneurs to prepare a plan of such a crowdfunding campaign.



**#2.** Ask entrepreneurs, who remain in the same groups, to search for some interesting idea in various crowdfunding platform. What is the idea? Why did the group choose it? How to promote the pitch?



Does the key to success mean capturing people's attention and curiosity?

What are the best practices in crowdfunding like Indiegogo or Kickstarter?

After research and considering the above questions, ask entrepreneurs to revise their plans of crowdfunding campaign.



**#3.** Ask entrepreneurs, who remain in the same groups, to write a business plan for the, which was prepared for the crowdfunding campaign. They may use the plan below:

- ✓ Executive summary
- ✓ Company description
- ✓ Market analysis
- ✓ Organization and management
- ✓ Service or product line
- ✓ Marketing and sales
- ✓ Funding request
- ✓ Financial projections
- ✓ Appendix

When business plans are ready, ask entrepreneurs to give business plans to other groups for reading.

Discuss the business plans.





Important terms (in alphabetic order):

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Business plan

Crowdfunding

Cash flow

Crowdsourcing

Credits

Loans

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## Entrepreneurs:

- ✓ Can indicate the most popular global and national crowdfunding platforms.
- ✓ Know how to promote their idea on crowdfunding platforms.
- ✓ Know how to benefit from crowdfunding and crowdsourcing.
- ✓ Can write a successful business plan in applying for loans or credits?
- ✓ Are there any opportunities to use a special financial programme dedicated to support innovative activities in my country or region?



## Sources:

### To read:

Creating and Capturing Value through Crowdsourcing (2018), (ed.) Allan Afuah A., Tucci C.L., Viscusi G. Oxford University Press

Zoref L., Mindsharing: The Art of Crowdsourcing Everything (2015), Portfolio



Rose N., (2016), Equity Crowdfunding: The Complete Guide For Startups And Growing Companies Stonepine Publishing

Epstein M.J., (2017) Crowdfunding Basics In 30 Minutes: How to use Kickstarter, Indiegogo, and other crowdfunding platforms to support your entrepreneurial and creative dreams, In 30 Minutes Guides

Genadinik A., (2015) Business Plan Template And Example: How To Write A Business Plan: Business Planning Made Simple, CreateSpace Independent Publishing Platform

Kiyosaki R.T., (2011) Rich Dad's Cashflow Quadrant: Rich Dad's Guide to Financial Freedom, Plata Publishing; 2nd edition

#### To watch:

Crowdsourcing Innovation: Changing the world one idea at a time | Rob Wilmot | TEDxKraków

<https://www.youtube.com/watch?v=Y1GZoamtgHQ>

Crowdsourcing: How to Distill Innovative Ideas

<https://www.youtube.com/watch?v=Xct0seKq7yY>

Jeff Howe – Crowdsourcing

<https://www.youtube.com/watch?v=F0-UtNg3ots>

The 4 Types of Crowdfunding

<https://www.youtube.com/watch?v=Vqvomrib6x0>

First Steps Toward A Successful Crowdfunding Campaign by Emily Best (Seed&Spark Founder / CEO)

<https://www.youtube.com/watch?v=YRvu6e9Utd4>



## MODULE 7. MANAGEMENT OF FRUGAL INNOVATIONS

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The duration of this module estimated for 2 hours.



The main aim of this module is to present general rules of the management of frugal innovations. In some way this module constitutes a summary of the previous modules, nevertheless this part of the course highlights the following issues:

- ✓ How to use E&I in the context of R&D
- ✓ How to flex assets in order to become more frugal?
- ✓ Methods to shape consumer's behavior
- ✓ How to create networks to be more frugal?
- ✓ Examples of successful cooperation which result in frugal solutions





**#1. A**sk entrepreneurs how they understand R&D? Do you know any interesting R&D undertaken by universities **or** companies?

Example of R&D work – sharks' skin is an inspiration for scientists improve the aerodynamic performance of planes, wind turbines, drones, and cars. Sharks' scales are perfectly designed to decrease drag.



Are R&D departments necessary in each company?

What are the advantages and disadvantages of having such department in the company? Would entrepreneurs like to have R&D department in their companies? What could they do instead of having R&D department?



**#2. R**eshoring to the U.S.

According to Reshoring Initiative (<http://www.reshorenw.org/companies-reshoring/>), many companies decided to change the location of the production from offshore.

Examples:

Apple<sup>3</sup>:

- ✓ \$100 million investment to produce the Mac Pro in the U.S. instead of China.
- ✓ 200 jobs the U.S.
- ✓ Reasons: Rising wages, Lower energy costs



Ford<sup>4</sup>:

- ✓ Hybrid transmission components and transmission gear machining reshored from Japan,
- ✓ Battery pack assembly from Mexico
- ✓ Steel forging from India
- ✓ Ford plans to add 12,000 U.S. jobs by 2015
- ✓ Reason: I To be sure quality standards are followed

Ask entrepreneurs to list advantages and disadvantages of reshoring.



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<sup>3</sup> [http://www.reshorennow.org/content/companies\\_reshoring/Cases9\\_26\\_16.pdf](http://www.reshorennow.org/content/companies_reshoring/Cases9_26_16.pdf)

<sup>4</sup> [http://www.reshorennow.org/content/companies\\_reshoring/Cases9\\_26\\_16.pdf](http://www.reshorennow.org/content/companies_reshoring/Cases9_26_16.pdf)

Do they know the companies from their domestic market which decided to change the location of the production from offshore to their countries?



**#3. O**bstacles can lead to sustainable solutions. Watch about Coca Cola Company experienced water constraints in China.

Coca-Cola helping China go green?



<https://www.youtube.com/watch?v=X0zGvyNboD4>

Ask entrepreneurs what they think about the efforts of Coca Cola Company on water protection?

What kind of stakeholders can co-operate with their companies to protect environment, and, at the same time, benefit from green solutions?



**#4. I**ndustrial Symbiosis

Watch about industrial symbiosis in Northern Ireland. Ask entrepreneurs to compare this symbiosis with Kalunborg Industrial Eco-Park presented in the course.

## Industrial Symbiosis | Improving productivity through efficient resource management



<https://www.youtube.com/watch?v=GjI9tvsUwNU>

Ask entrepreneurs to list benefits.

Ask entrepreneurs to list the conditions of effective and win-to-win cooperation. Would they be able to start such symbiosis in their sectors?



Important terms (in an alphabetic order):

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E&I

Industrial symbiosis

Innovation loop

Networks

Prosumers

R&D

Reshoring

Synergy effect

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## Entrepreneurs:

- ✓ Can implement E&I as a management method
- ✓ Know how flex assets in order to become more frugal
- ✓ Knows the methods to shape consumer's behavior
- ✓ Are aware that networks accelerate innovations
- ✓ Are able to provide examples of successful cooperation which result in frugal solutions
- ✓ Are aware of the impact of campaigns that should affect more conscious behavior and environmental protection.



## Sources:

### To read:

Using shark scales to design better drones, planes, and wind turbines. Bioinspired vortex generators increase airfoil lift, decrease drag, Source: Harvard John A. Paulson School of Engineering and Applied Sciences,

<https://www.sciencedaily.com/releases/2018/02/180207090135.htm>

Smith S.J., (2011) The Young Activist's Guide to Building a Green Movement and Changing the World: Plan a Campaign, Recruit Supporters, Lobby Politicians, Pass Legislation, Raise Money, Attract Media Attention, Ten Speed Press

McCallum W., Sutherland J., (2018) How to Give Up Plastic: A Guide to Changing the World, One Plastic Bottle at a Time. Penguin Books Ltd.

Ermine J.L., Knowledge Management: The Creative Loop (Innovation and Technology Set Book 5) , Wiley-ISTE

To watch:

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<https://www.youtube.com/watch?v=7uRTR9Yd1mQ>

Innovation Loop

<https://www.youtube.com/watch?v=RG98ukjWcYI>

Wearer Innovation Loop

<https://www.youtube.com/watch?v=usLlOlKsmJs>

Together Possible - WWF

<https://www.youtube.com/watch?v=zTau1cqtg4U>

Innovation Networks

<https://www.youtube.com/watch?v=Dc20kt7LNd8>

Industrial symbioses and eco-industrial parks: the Kalundborg symbiosis

<https://www.youtube.com/watch?v=1koYpJs5PSo>



Find more on our website:

[www.frugalinnovation.how](http://www.frugalinnovation.how)



*Promoting low tech  
sustainable solutions*

Our project will introduce,  
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frugal innovation into our  
entrepreneurship  
education processes.



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