



Regional Partnership Plan

01.A4

**COUNTRY:
HUNGARY**



Erasmus+

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Preface

This publication has been produced under the project supported by the Erasmus+ program entitled Frugal Innovation. It aims to promote frugal innovation mindset in any regions. This document outline the formative assessment of frugal innovation in the current economic climate, knowledge and skills gap, policy recommendations and a strategic action plan in the Hungarian region.

This Strategic Partnership Plan can be utilized by academic actors, higher education policy makers as well as by business actors, organizations and chambers. It facilitates the creation of the conditions and organizational connections that are essential for the processes promoting frugal innovation.

Additional useful materials will be also produced in the framework of the Erasmus+ program entitled Frugal Innovation. These will be available free of charge on the following address: www.frugalinnovation.how. We recommend that those who are interested in this topic visit the official website of the project.

1 General overview

1.1 What is frugal innovation?

Frugal innovation is a new phenomenon that is considered as both a mindset and a series of techniques that enables entrepreneurs to innovate despite resource constraints. The concept has emerged from developing countries but given the current climate of austerity and economic uncertainty across large parts of more developed countries (such as Europe), the phenomenon has gained an increasing attention in more advanced economies (Pisoni et al., 2018) and academic researches (Radjou – Prabhu, 2015). The definition and the understanding of frugal innovation vary among scholars, practitioners and policymakers that calls for discussion among the previously mentioned groups of stakeholders (Hossain, 2017).

This new type of innovation is often referred to as resource-constrained innovation although it includes a wide range of interpretation (Pisoni et al., 2018). Previous researches and literature reviews on the topic concluded that the terms of frugal innovation is often described with the following aspects: affordability, low-cost manufacturing, low-cost materials, design focusing on basic functionality and minimal feature. Interestingly, frugal innovation can yield more benefit for the society than traditional innovations, since frugal innovation does not necessarily need sophisticated labs and infrastructure, however relies on basic engineering skills (Mandal, 2014). The role of frugal innovation is important in emerging countries, since society face unserved needs which are less attractive for companies (Tiwari – Henstatt, 2012).

According to Nesta, we define frugal innovation with the following definition: Frugal innovation responds to limitations in resources, whether financial, material or institutional, and using a range of methods, turns these constraints into an advantage. (Source: <https://www.nesta.org.uk/feature/frugal-innovations/>)

1.2 Why it is important?

Although the EU identified entrepreneurship as a key competence since 2006 and that is one of the most important aims of the Entrepreneurship Action Plan 2020, there is still a little focus on frugal innovation at European Higher Educational Institutions. While multinational companies change their global strategies and shift their focus to low-income countries to develop frugal innovation (Ojha, 2014), European universities continuously rely on high-investment research and development activities. We do not suggest that teaching traditional innovation would be a wrong way, but we raise attention to frugal innovation that should gain more emphasis in students' curriculum.

In order to better understand the current climate at Higher Education Institutions, we conducted a research that aims to understand the perception of frugal innovation among various groups (both students and professors). This study has two aims. Firstly, to identify common misunderstandings and the perception of frugal innovation in contrast to traditional (high-tech) innovation, secondly, to identify possible teaching practices that can be implemented into entrepreneurship education and innovation generation. The outcomes of our investigation will provide significant insights into the perception of frugal innovation in the higher education (both students and professors) and will suggest teaching practices.

The results can contribute to the development of more effective teaching toolkits and seminars which can yield useful knowledge for students and improve their problem-solving skills in case of resource constraints.

Furthermore, the development of students' curriculum will lead to more entrepreneurial higher education and will enhance innovation generation.

1.3 Target groups

The aim of the project is to bring together actors who have a need for and also the influence on the development of new ideas and implementation of frugal innovation concept in the region. By bringing them together, the actors get informed and involved, making it possible to exploit synergies stemming from that exchange. The Regional Partnership Plan clearly identifies the stakeholders that play essential role in the promotion of frugal innovation.

- **Higher educational actors (teaching staff, management, students):** They have the greatest influence on the young studying in higher education, their engagement during the project completion is essential. Fostering frugal innovation mindset at the university can be executed with the involvement of teaching staff and the commitment of the management. The teachers can demonstrate the relevance of frugal innovation at the courses and students can utilize it during their internship. Furthermore, students can contribute to economic development and social issues by developing new ideas aiming to fulfill social needs.
- **Local business experts / entrepreneurs:** They personally transfer the competences and motivations related to innovation through participating in the project and sharing experiences. They can also provide an important input in the development of the teaching toolkit created for the teachers.
- **Local non-profit organizations and institutions (e.g. Chamber of Commerce, professional community, club, etc.):** Involvement of such organizations can enhance the efficiency of implementing frugal innovation mindset in the region. The collaboration is more efficient if it is established on the basis of existing partnerships, using their experience and network of contacts. In most regions, alongside general professional organizations, there are organizations supporting teaching and innovation skills of students, thus their involvement offers a good starting point for better understand the current economic climate.
- **Local governmental and municipal actors:** Boosting innovation thinking among the key stakeholders is a priority in most regions for governmental and municipal institutions, and thus very often accompanied by publicly funded programs. In order to exploit the consistency and synergy between existing programs, it is practical to align the work of the partners with current as well as planned measurements. Naturally, this can be done most easily by involving relevant policy makers already at an early stage of the project.

2 Assessment of frugal innovation in the current economic climate

Frugal innovation is not a well-discussed topic in the region, even in Hungary. In order to gain better insights from relevant stakeholders we organized a **one-day in-person meeting** with the representatives of non-profit organizations (VET and Chamber of Commerce) and teaching staff at the university. Our goal was to introduce them the concept of frugal innovation and perform certain tasks to determine the barriers that could hinder frugal innovation teaching. Furthermore, an **online survey** has been also carried out to reach wider audience and collect responses.

2.1 Qualitative research – Awareness of frugal innovation

At the beginning of the workshop (one-day in-person meeting) some internationally known frugal innovations we introduced to the participants:

Mitti Cool	<p>Mitti Cool was introduced first which is a clay fridge without electricity. This product can keep food and water cold in high temperature regions (like in India) where the infrastructure is less developed and inhabitants do not have electricity in their houses. This is an infrastructural barrier that Mitti Cool can overcome.</p> <p>https://www.youtube.com/watch?v=at0cwScRXHc</p>
Foldscope	<p>Foldscope is a microscope that is made from paper and a single lens. The microscope is assembled by the user and aims to enhance scientific interest of the society with making this microscope available globally at an affordable price. Thus, this frugal innovation was developed due to cost barriers.</p> <p>https://www.youtube.com/watch?v=vQJDV4GE4aY&t=65s</p>
Nokia 1100	<p>Nokia 1100 was developed for developing countries where the newest cell phones with high-tech features are not affordable, but a wide range of the society need basic communication tools. Although this frugal innovation was inspired by overcoming cost barriers, it is also a good example of reducing unnecessary features of a product.</p> <p>https://en.wikipedia.org/wiki/Nokia_1100</p>
Solar light bulbs	<p>Solar light bulbs are also well known in developing countries, specifically in the Philippines where slums are growing without any plan and the infrastructure is less developed. Solar light bulbs aim to let sunshine into the “houses” because there are no windows and electricity in the houses. Basically, this innovation provides solution against infrastructural barriers.</p> <p>https://www.youtube.com/watch?v=hPXjzsXJ1Y0</p>

Then, some “frugal innovation” solutions of our region were introduced. Since frugal innovation is not a well discussed topic in Hungary we did not find any article focusing specially on frugal innovation solutions in Hungary, but we tried to identify some of them. We applied three rules during the identification: (1) the solution must be **cheaper** than available other products; (2) the solution has to **meet social needs**; (3) the solution has to **overcome infrastructural constraints**.

The latter requirement was perceived a bit broaden because in Hungary we have quite good infrastructure compared to those countries where frugal innovation solutions are part of the everyday life. Furthermore, the products/solutions/services listed below will be discussed in the context otherwise would be not clear why we perceive these solutions as a frugal innovation.

Although the participants found frugal innovation as an interesting topic, they had difficulties to mention such innovation. In order to help them better understand frugal innovation in practice, we provided some internationally known examples and some local solutions. Thus, it is advisable to introduce some examples for the participants otherwise they could not understand the concept of frugal innovation even if we provide a definition of it. According to the results, none of the participants has heard about frugal innovation before. After some thoughts and examples we could facilitate the brainstorming.

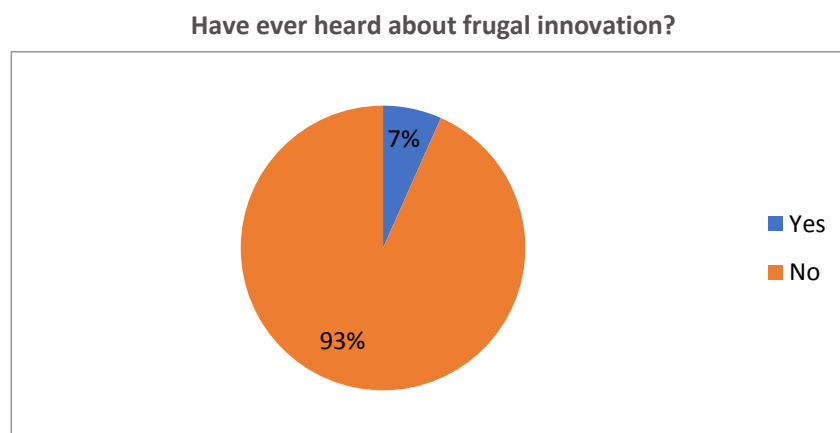
Participants agreed on that the **infrastructure and purchasing power** is higher in Hungary (even in whole Europe) that requires another way of thinking since frugal innovation concept emerged in those countries where a wide range of the society face lack of infrastructure and represent low purchasing power. Furthermore, participants had previous knowledge regarding *sharing economy* and *social innovations* that probably influenced their examples and their thinking. Some of the examples mentioned by the participants also belong to the field of sharing economy and social innovations and can be partly accepted as frugal innovation. In addition, they were sometimes confused how to distinguish them.

Based on the results of the workshop we concluded the following:

- It's difficult to distinguish frugal innovation from social innovation and the concept of sharing economy because in some cases such solutions have similar characteristics.
- The frugal innovation mindset is important, but we should readjust it to the European context where the infrastructure is well developed and inhabitants do not face strong financial constraints to buy anything.
- Since the infrastructure is more developed in Europe we have to find other problems that might be solved as building on the well-developed infrastructure (like internet, communication network, etc.). Thus, we might have to shift our perception and broaden the definition of frugal innovation while focusing on the social need instead of infrastructural constraints.

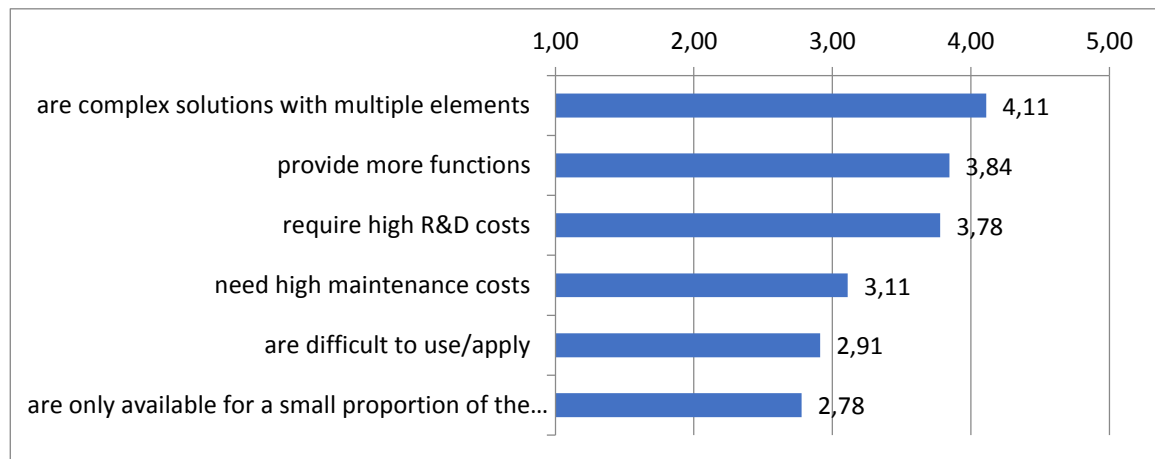
2.2 Online survey – Perception of frugal innovation

In our online survey we investigated the awareness of frugal innovation in our region. According to the results, only 7% of the respondents have heard about frugal innovation before which is a quite low rate. This result proves that frugal innovation is not a common topic in Hungary and do not enjoy high attention in the region.



We wanted to know how respondents perceive innovations in general that can highlight some remarkable results in comparison to frugal innovation. As Figure 1 shows, most of the participants perceive innovation as a complex solution with multiple elements (M=4,11) that provides many functions (M=3,84) for its users and requires high R&D costs (M=3,78). However, opinions varied regarding how much maintenance cost innovation requires (M=3,11), how difficult is the application and use (M=2,91) and the availability for a narrower or wider range of society (M=2,78).

General opinion about innovation



These results are in line with the general assumptions. People usually perceive innovation as a complex solution that usually difficult to develop and requires high expertise that makes the whole development process expensive. Figure 2 demonstrates the characteristics that participants associated with innovation in general. According to the respondents innovation is usually represent high value and quality (M=4,07) and closely relating to sustainability (M=3,53). Opinions differed in other characteristics, while respondents think innovation is neither characterized with low initial costs or purchase price (M=1,84) nor minimising the use of materials and financial resources (M=1,82).

Characteristics of innovation



These results suggest the followings. Although people believe that innovations are complex solutions, provide more functions than existing alternatives and represent high value and quality, innovations are usually difficult to apply and associated with high initial costs and price.

While in the previous section we demonstrated the results relating to innovation in general, in this section we summarize the results relating to frugal innovation. Our study investigated attitudes towards frugal innovation as well. In the online survey, we provided a brief introduction of frugal innovation concept to the participants and some examples to get familiar with what frugal innovation means in practice. This introduction was similar to the qualitative research where we realized that participants should be more informed about the concept before indicating the answers.

The first question relating to frugal innovation measured with whether the respondents were familiar with frugal innovation or not. According to the results, only 3 participants (6,7%) have heard about frugal innovation before which represents a very low rate, however 93,3% of the respondents find the concept of frugal innovation interesting (Table 3). The latter suggest a very positive results and open-minded participants who are interested in new things.

Awareness and attention to frugal innovation

		Based on the examples provided above, did you find the concept of „frugal innovation” interesting?		Total
		No	Yes	
Have you ever heard of the concept of „frugal innovation”?	No	3	39	42
	Yes	0	3	3
Total		3	42	45

Although expressing positive attitude towards a concept is promising, we also wanted to investigate the intention of participants to learn more about frugal innovation if they are offered to attend to a free online study course. In contrast, the results depict a less positive attitude towards frugal innovation. As Table 4 shows, 24 respondents out of 45 would attend to the online course which is about half of the sample.

Intention to participate in frugal innovation training

		Would you like to participate in a FREE online training to learn more about frugal innovation?		Total
		No	Yes	
Have you ever heard of the concept of „frugal innovation”?	No	18	24	42
	Yes	1	2	3

Total	19	26	45
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We also wanted to gain insights into how much respondents believe frugal innovation can contribute to different areas. Respondents expressed a quite positive opinion regarding the potential impact of frugal innovation 'thinking'. There were different factors listed in the research that frugal innovation can contribute to. The respondents were asked to indicate their opinion about how much frugal innovation can influence these factors.

As Figure 3 shows most participants believe that frugal innovation can fulfill social needs in their region (M=4,11) and can contribute to economic development (M=4,09). They also suppose that this new kind of innovation thinking can yield to sustainable use of resources (M=4,09) and to higher competitive advantage in their organization (M=3,93). Although these results demonstrate a positive opinion about frugal innovation there were two factors that the respondents rated lower than the others. They have some concerns (compared to the previous factors) how much can frugal innovation contribute to their performance at workplace (M=3,22) and to their personal career (M=3,20). The results are interesting since they suggest that „frugal innovation” can have more impact on social needs and issues rather than on personal circumstances.

Potential impact of frugal innovation



3 Knowledge and skill gap

In this section we provide a brief overview of the innovation skills and gaps in the Southern Great Plain region in comparison to Hungary and the EU 28 average. We used European Innovation Scoreboard for the demonstration because it provides a comparative analysis of innovation performance in EU countries, other European countries, and regional neighbours as well. It also assesses the relative strengths and weaknesses of national innovation systems and helps countries identify areas they need to address. The data presented below were collected by the European Commission in 2017.

3.1 Innovation Scoreboard of the Southern Great Plain region¹

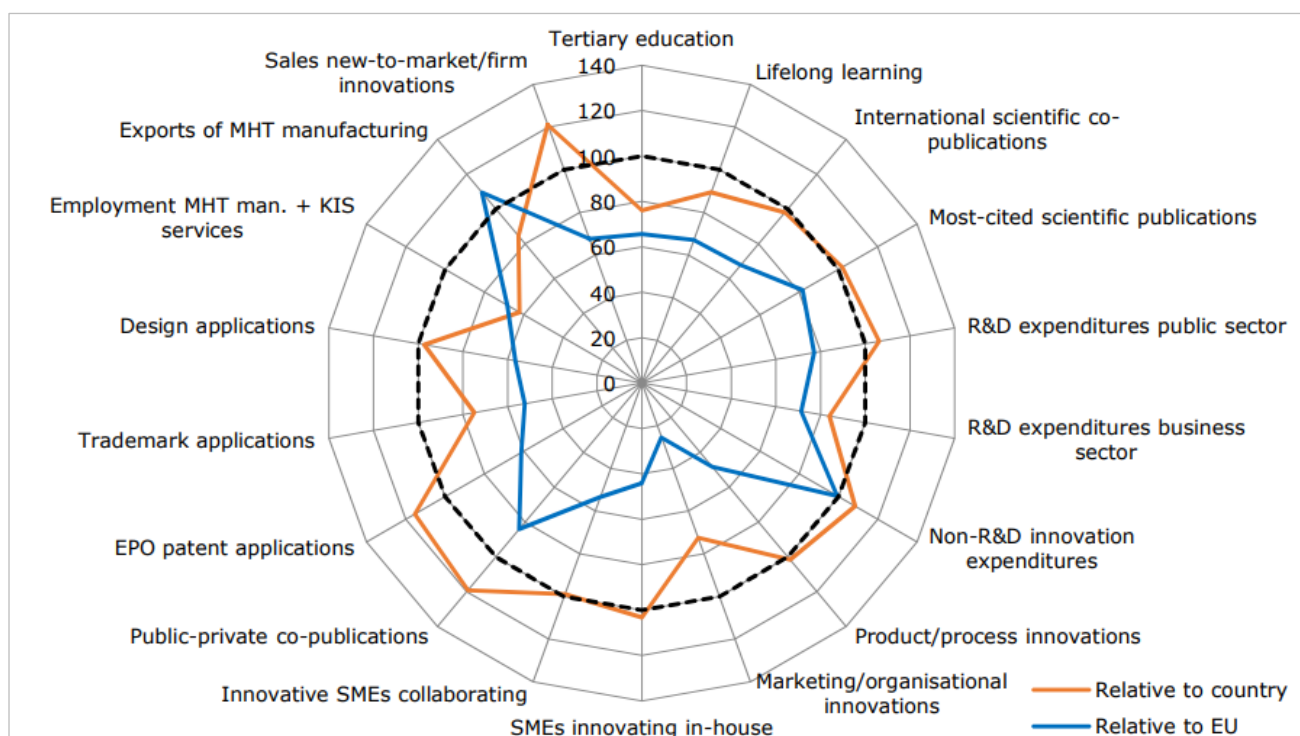
As the Table ... shows the Southern Great Plain region is a Moderate Innovator, and innovation performance has increased over time. The table shows demonstrates the normalised scores per indicator and relative results compared to the country and the EU.

Table ... European Innovation Scoreboard of Southern Great Plain region

	Data	Normalised score	Relative to	
			HU	EU
Tertiary education	27.7	0.361	76	66
Lifelong learning	6.1	0.316	89	67
International scientific co-publications	493	0.283	98	68
Most-cited scientific publications	6.3	0.446	102	82
R&D expenditures public sector	0.44	0.421	106	77
R&D expenditures business sector	0.71	0.326	84	71
Non-R&D innovation expenditures	±	0.299	±	±
Product/process innovations	±	0.215	±	±
Marketing/ org. innovations	±	0.099	±	±
SMEs innovating in-house	±	0.202	±	±
Innovative SMEs collaborating	±	0.191	±	±
Public-private co-publications	71.6	0.249	119	84
EPO patent applications	1.70	0.239	115	61
Trademark applications	1.62	0.206	75	52
Design applications	0.36	0.295	97	57
Employment MHT manuf./KIS services	10.2	0.366	62	68
Exports of MHT manufacturing	58.3	0.692	85	109
Sales new-to-market/firm innovations	±	0.316	±	±
Average score	--	0.307	--	--
Country EIS-RIS correction factor	--	0.898	--	--
Regional Innovation Index 2017	--	0.276	--	--
RII 2017 (same year)	--	--	91.8	60.7
RII 2017 (cf. to EU 2011)	--	--	--	62.3
Regional Innovation Index 2011	--	0.266	--	--
RII 2011 (same year)	--	--	84.9	60.2
RII - change between 2011 and 2017	--	2.1	--	--

Source: European Commission (2017) – European Innovation Scoreboard

¹ European Commission (2017): Innovation Scoreboard of the Southern Great Plain region.
Source: <https://ec.europa.eu/docsroom/documents/30684>



According to the data, the region's performance in most factors is below the country and the EU average. The tertiary education, marketing/organizational innovations and trademark applications are below the 80% of the country average while sales new-to-market/firm innovations are over 120% of the country average. The latter is very important since this factor can closely relate to frugal innovation. Regarding other factors the region's performance is more or less similar to the country. However, the scores of these factors are far below the EU average that raises some concerns.

The table below shows data highlighting possible structural differences. For instance, the region is less densely populated, with higher employment share in agriculture, and lower than average GDP per capita, but higher GDP per capita growth.

Table ... Key metrics of Southern Great Plain region

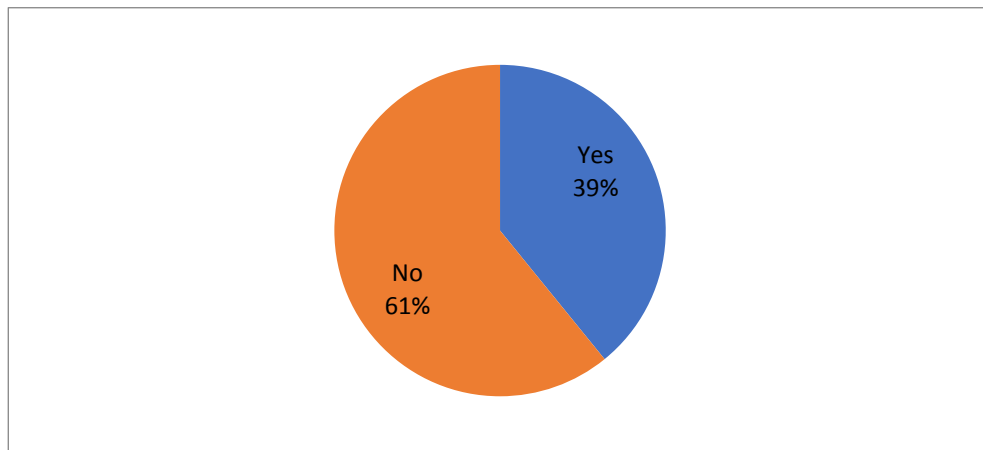
	HU33	HU	EU28
Share of employment in:			
Agriculture & Mining (A-B)	9.9	5.1	5.1
Manufacturing (C)	21.4	21.2	15.5
Utilities & Construction (D-F)	8.4	8.8	8.5
Services (G-N)	50.7	55.9	63.2
Public administration (O-U)	9.5	8.9	7.1
Average employed persons per enterprise (firm size), 2013-2014	3.8	4.4	5.4
GDP per capita (PPS), 2014	13300	18700	27600
GDP per capita growth (PPS), 2010-2014	5.84	3.34	2.00
Population density, 2015	69	106	117
Urbanisation, 2015	60.5	67.8	74.1
Population size, 2016 (000s)	1260	9830	510280

Source: European Commission (2017) – European Innovation Scoreboard

Online survey - Participation in innovation education

In our online survey we wanted to measure how many of the respondents took part in innovation education. As the results show, about two-third of the participants took part in any form of innovation education. In one hand, this is a quite high rate among the participants, but on the other hand highlight that current innovation education do not pay high emphasis on frugal innovation (since 93% of them have never heard about it) even on other kind of innovation.

Previous participation in innovation education



4 Recommendations for innovative pedagogical approaches

Previous sections provided a brief overview about the awareness and perception of innovation in general and frugal innovation which tend to determine the general opinion regarding the topic. Now, we provide insights into the pedagogical approaches that can enhance frugal innovation education. The results were gathered during our research.

4.1. Qualitative research on pedagogical approaches

Both research (one-day in-person meeting and online survey) provided significant insights into preferred pedagogical approaches in the region. The following subsections demonstrate the results of these researches. The discussion regarding the teaching method highlighted some important areas and thoughts that we have grouped into different topics. Some of the suggestions referred to the **content** of the teaching material while some comments linked to the **frame** of teaching. We also distinguished below some remarks in case of teaching entrepreneurs and students.

1) Content

According to the participants' experiences students and entrepreneurs should be allowed to prepare tasks and assignments during training about any topic that they prefer linked to frugal innovation concept. By forcing them to work on predefined topics might decrease their interest. Letting entrepreneurs to find solutions in their field of interest might result higher quality of work and improvement. Furthermore their engagement to frugal innovation can be higher.

Participants also agreed on that students/entrepreneurs have to take part in a business simulation task where there is a common problem that they have to solve. But, the solution should be developed in their field of expertise. It means that a student studying engineering has to find solution from engineering and an entrepreneur has to figure out how his/her services or products should be changed to contribute to the social need.

The examples or the teachers should involve an authentic character who has experiences in developing frugal innovation-like solutions. Real examples usually raise higher attention during teaching programs. Involving entrepreneurs into teaching can also enhance students' engagement.

Participants had an idea to prepare a so called frugal innovation certificate that the participants of the training program can use after successful achievement. This certificate could increase higher interest and foster students to take part in such activities and use this certificate for increasing their employment opportunities.

2) Frame

According to the participants there are different options to organize such trainings. This could be...

- a 40-hours training
- part of a course
- one-day workshop
- online course

The participants were a bit sceptic how can frugal innovation topic fulfill a 40-hours training but with group tasks may be it is possible. At universities the best option would be to implement frugal innovation into the curriculum. The advantage of this method is that frugal innovation topic would reach more students since many courses will implement this concept but in a specific field (engineering, biology, chemistry, business, marketing, etc.). But, in this case teachers would need a teaching toolkit that they can use, ensuring that all courses implement frugal innovation mindset in the same way.

A one-day workshop would be also useful, where the participants have to spend only one day to get familiar with frugal innovation and take part in tasks to acquire necessary knowledge. Such one-day workshop would be also beneficial at the end of an online training. According to the participants, one-day workshop helps to better understand and increase engagement of participants who finished an online training because the personal interaction between the participants is still important. During an online meeting, the possible advantages of gamification should be also considered and implement some characteristics of gamification (like collecting points, making a competition between participants) in order to increase efficiency.

3) Target group: Entrepreneurs

Participants also highlighted some experiences regarding entrepreneurs that should be taken into consideration before approaching them with different training programs. According to their experiences, most entrepreneurs do not realize that they need training to improve specific skills and competencies. Since they are doing their business in the way they can, do not have proper self-evaluation. In such cases training centrums have to raise their attention, highlight their deficiencies and show a solution/training that the entrepreneurs can benefit from.

Furthermore, this group of stakeholders has less time for such activities that makes difficult to involve in long-term trainings due to the high drop-out rate that the participants of the workshop experienced before. Thus, the local chamber and educational organizations organize information events where they try to highlight the problems that the trainings can solve and introduce briefly the advantages.

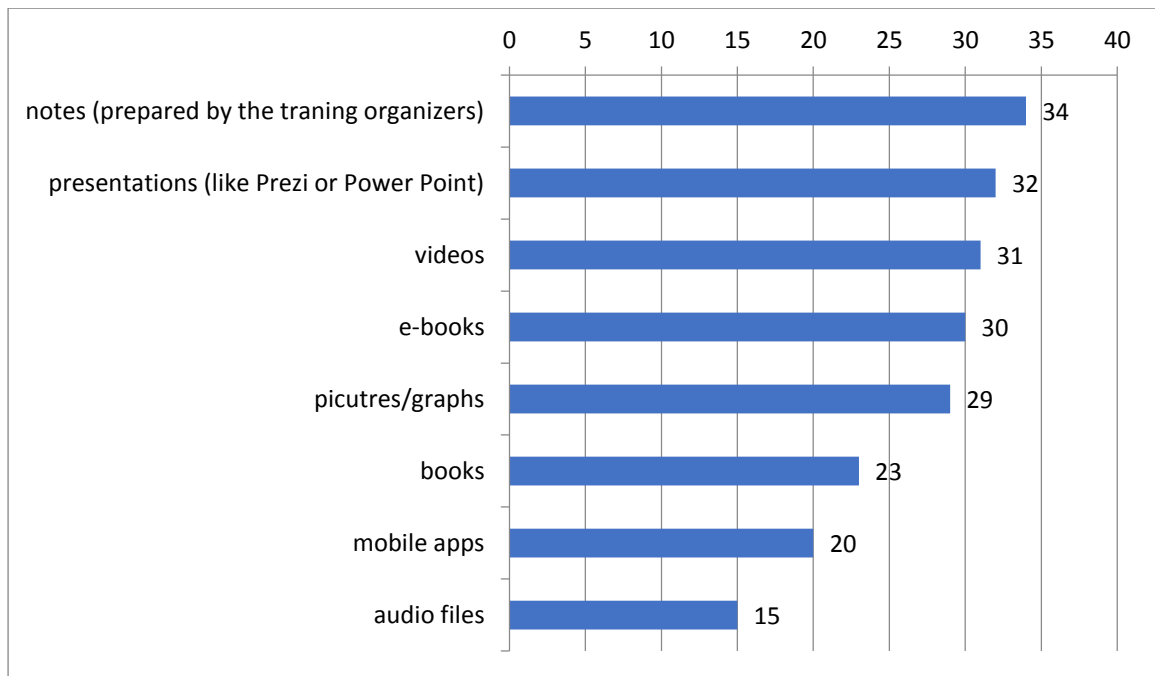
4) Target Group: Students

Although entrepreneurs have less time for trainings and might prefer one-day workshops, students do not like one-day trainings. According to the participants students rather prefer small rounds, 90 minutes per week (like a normal course) and join to the seminars regularly. Probably the reason behind it the students can adjust these trainings to their courses.

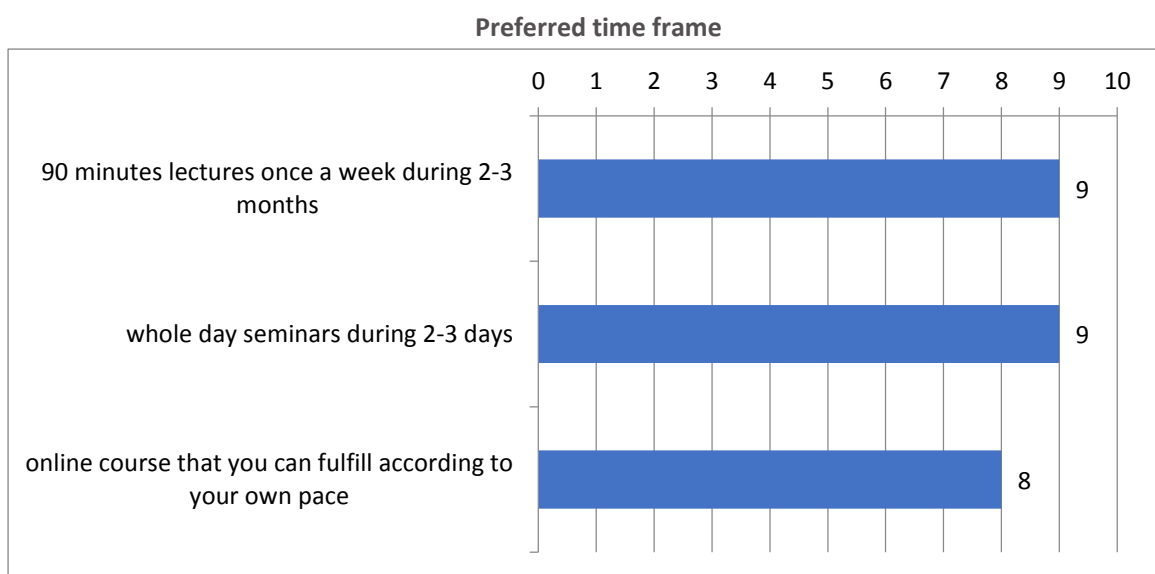
4.2 Online survey on pedagogical approaches

As we paid attention on the learning methods during the qualitative research, we also investigated the preferred learning materials and teaching methods in the online survey. As the results show (Figure 4) the most important learning material is the notes prepared by the trainer. Slideshows (Power Point Presentation, Prezi, etc.) videos, e-books and pictures were also mentioned by most of the respondents. Interestingly, in our digitalized age mobile apps were considered as a less important learning materials and audio files.

Preferred learning materials



Regarding the time frame of studying innovation related subjects, there were quite balanced answers, one-third of the respondents prefer 90 minutes lectures once a week during 2-3 months. We received the same result in case of whole day seminars and the online courses.



5 Strategic Action Plan

The Strategic Action Plan summarizes the necessary steps that should be carried out to implement frugal innovation mindset in any region. This plan can be adopted by any organization that decides to engage in frugal innovation promotion.

The Strategic Action Plan consists of the following phases:

1. PHASE 1: Setting up the team
2. PHASE 2: Approaching potential partners for cooperation
3. PHASE 3: Engaging partners in cooperation
4. PHASE 4: Organizing the educational activities
5. PHASE 5: Monitoring the execution and sustainability

PHASE 1: Setting up the team

As in every project, there is a need for a coordinating team that is responsible for organizing all activities and delegate tasks within the participants. The coordinator team performs the following functions:

Functions	Tasks
Account management deputy	<ul style="list-style-type: none">▪ Establishing and keeping contact with the stakeholders and members of the cooperation partners▪ Creating contact lists▪ Requesting stakeholders, making arrangements with them▪ Keeping ongoing contact; informing and getting feedback from the stakeholders
Education deputy	<ul style="list-style-type: none">▪ Educational organizational duties▪ Drawing up the related educational program (course, summer school, student competition, etc.)▪ Implementing frugal innovation mindset in the educational materials▪ Keeping contact with HEI and VET actors
Dissemination deputy	<ul style="list-style-type: none">▪ Communication activities▪ Promoting the project among relevant stakeholders▪ Informing local media about the milestones of the project▪ Producing dissemination materials (flyers, posters, etc.) with customized content targeting stakeholders from businesses and academia

PHASE 2: Approaching potential partners for cooperation

At the beginning, the team should prepare **a list of potential cooperation partners**. When compiling a potential partner list, it is more useful to start with a broader list because usually less stakeholder join the project than the expected. As the previous research highlighted, the target group is usually not familiar with the concept of frugal innovation, thus a wider audience should be approached. The following partners should be added to the list:

- Educational institutions (both HEI and VET institutions)

- Management of the organization (deans, directors, heads of departments)
- Teaching staff
- Representatives of student organizations (student unions, student clubs)
- Representatives of start-up communities and organizations in the region
- Management of university spin-off companies
- Non-profit organizations
 - Representatives of the Chamber of Commerce in the region
 - Local authorities
- For-profit organizations
 - Entrepreneurs in contact with the university (especially those who have already been at the universities as lecturers and/or students)
 - Management of incubator houses and accelerator programs
- Actors of regional media

After drawing a list of potential partners the team should prepare an “offer” that clarifies the ways a partner can be involved in the implementation of the project. In the present formulation, “offer” refers to these opportunities and “ways to be involved” which can be offered to the partners. In order to define the offers, it is practical to divide the potential partners in the following categories:

Teaching staff:

- **Giving a lecture:** It is useful to involve teachers and professors with extensive knowledge in management, marketing and innovation in the program to extend the general innovation knowledge of students through short lectures.
- **Mentoring:** Similarly to professionals, teachers with theoretical experience can also give important feedback to students through direct interaction. It is particularly efficient if mentoring by an entrepreneur and a teacher is applied in combination.

Local SMEs and entrepreneurs:

- **Defining the problem:** The opportunities and challenges of local economic climate and market. Entrepreneurs should be involved in defining the central problem as well as in filtering the student venture ideas; moreover, they may be requested to define potential entrepreneurial ideas.
- **Sharing experience:** A teaching toolkit can be prepared for the purpose of a wider use of the educational activities carried out by the team, for which entrepreneurs may provide valuable input as well as feedbacks for already prepared teaching material.
- **Mentoring:** The most efficient way of transferring knowledge is having direct, personal interaction between the entrepreneurs and the student. Mentoring may refer to team work incorporated in an academic course, to supporting a team participating in a university competition, and even to giving advice to a start-up (student) firm.

Other stakeholders:

- **Dissemination:** It is an important element in the success of the program to raise the awareness of the program by the most stakeholders possible. In this respect, every stakeholder can contribute by advertising through their own communications channels. It is itself valuable information if they share the news about participating in the program on their online platforms.

After the offer is completed, that should be sent out to the contact lists prepared in the previous sections. The following aspects should be considered in sending out the call:

- **Segmented message:** As the partners in the team may have various, different motivations and interests, a one-size-fits-all general approach should be avoided. Instead, it is practical to send out the call by segments separated.
- **Personalized sending:** The importance of personalization has already been emphasized, according to which it is useful to register the name of the internal contact person who has a direct (personal) relationship with a given member of the contact list. Instead of using the central email address of the project, each contact **should receive messages or calls from this internal contact person.**
- **Brief content:** Although the program has a broad spectrum and numerous partnerships may be formed in the context of the team, it is still practical to announce only the most important message. It is enough to provide the details when it is clear who is actually involved in the project. Providing too long and complicated content, results in refusal without reading.
- **Monitoring the process:** Establishing contact may take place via email, as well as social media channels. Whatever channels are chosen, it is important to ensure ongoing monitoring (opening rate, clicking rate, etc.), and, where justified, resend the message (“reminder”). It is useful to put a link in the first message to be used by those interested, thereby separating uninterested people (who opened it but did not click on the link) from unaware people (who did not even open it).

PHASE 3: Engaging partners in cooperation

Now, the potential partners are invited to join the project and hopefully we received all feedbacks who will join and who won't. Based on the feedbacks, the interested stakeholders should meet, thus a kick-off meeting should be organized. The following topics must be covered by the coordinator team in the meeting:

- The aim of the project
- Brief description / introduction of members
- Brief description / introduction of frugal innovation – the previous research highlighted that a short introduction and discussion of frugal innovation is necessary for deeper understanding of the concept
- Presentation of the possibilities of involvement in the program targeted at frugal innovation
- Collection of attendant feedback
- Dedicating tasks for partners

A needs assessment should be sent out to the attendants of the kick-off meeting (and the ones who cannot attend but express their interest), in which they indicate their expressions of interest and the form of involvement. As the offers are presented in detail in the kick-off meeting, every stakeholder is aware of how they can take an active role in the project.

In order to record the ways of involvement approved it is practical to formally confirm an action plan. This document should include the following:

- The fact of and rationale for establishment of cooperation
- The name of involved parties and organizations
- The aims of the project

- The measures needed to pursue the aims of the project

Signing this document offers a good opportunity for the involved parties to meet again and elaborate the practical implementation of the collaboration in the course of a final consultation before starting the actual educational activities.

PHASE 4: Organizing the educational activities

The formal establishment of the project can be followed by carrying out the actual activities fostering frugal innovation. This process can be divided into three sub-steps:

- **Recruitment:** In this step, students, entrepreneurs and teachers (at HEI and VET) need to be informed about the frugal innovation program and the platform for application. Participants may be accessed via the following communications channels:
 - Online interfaces (its website, Facebook page, Twitter channel)
 - Online advertisement
 - Encouraging the applied participants to share their own participation on their social portals
 - Informing the management of each faculty through the central educational and/or marketing directorate
 - Informing students in person (during courses) through fellow lecturers involved in the program
- **Education:** This is the implementation of the educational program itself, which may take various forms, for example:
 - Part of an existing course
 - Online course
 - Workshop
 - Competition (for students and/or entrepreneurs)
 - Summer school
 - International Week course
- **Evaluation:** It is essential to provide acknowledgment outside the scope of mere knowledge transfer to motivate the participants involved in the program. It may take place – depending on the implemented way of education – in the form of:
 - Credit obtained for accomplishing the course
 - Prize achieved in competition
 - Document (certificate) verifying the completion of course

PHASE 5: Monitoring the execution and sustainability

In the course of implementing the educational activities, an open and flexible attitude on the part of both the organizers and the participants is crucial. It is important to emphasize that there are no two identical programs, the outcome of a program changes in place and time, generally according to the specificities of the involved parties. This is the reason why the ongoing monitoring of the program is important.

The following measures may serve as a solution to the described challenges:

- Taking part in local events with the aim of promoting the program and frugal innovation mindset, as well as recruiting members.
- Joining other programs, projects and applications in the region where frugal innovation can be presented
- Promoting the educational elements using online media
- Including participants representation to the project to help strengthen the programs

Sources:

- Hossain, M. (2017) 'Mapping the frugal innovation phenomenon.' *Technology in Society*, 51, 199-208
- Mandal, S. (2014) 'Frugal innovations for global health - perspectives for students.' *Pulse, IEEE* 5 (1), 11-13.
- Ojha, K. A. (2014) 'MNCs in India: focus on frugal innovation.' *Journal of Indian Business Research*, 6 (1), 4-28
- Pisoni, A., Michelini, L. and Martignoni, G. (2018) 'Frugal approach to innovation: State of the art and future perspectives.' *Journal of Cleaner Production*, 171, 107-126
- Radjou, N. and Prabhu, J. (2015) 'Frugal Innovation: How to do more with less.' London: The Economist.
- Tiwari, R. and C. Herstatt (2012) 'Assessing India's Lead Market Potential for Cost-effective Innovations.' *Journal of Indian Business Research*, 4 (2), 97-115