

Frugal Innovation Classroom Course

**MARKET OPPORTUNITIES FOR
FRUGAL INNOVATIONS IN CROATIA,
HUNGARY, IRELAND, POLAND and
the UK**

MODULE 2

How to do better with less?

COURSE CONTENT

1. The business case for Frugal Innovation
- 2. Market opportunities for frugal innovations in Poland, Hungary, Croatia, Ireland and the UK**
3. Creative problem solving
4. New market development, human centered design and prototyping
5. Sustainability and social inclusion in frugal innovation
6. Financial planning for innovation
7. Management of frugal innovations

Do you know that...

You can use modules in the way you wish. This course is tailored for individual needs. You can read full modules, you can focus on the main terms, which will be highlighted in each module, you can find examples or try to do the test. Either way we are sure that we will make you read more about how to profit from doing business frugally.

Icons you may come across in the course



Important term



Example



Test



Activity



Video



Source

Market opportunities for frugal innovations in Croatia, Hungary, Ireland , Poland, UK

Tired of books and articles, in which you cannot find practical and useful knowledge.

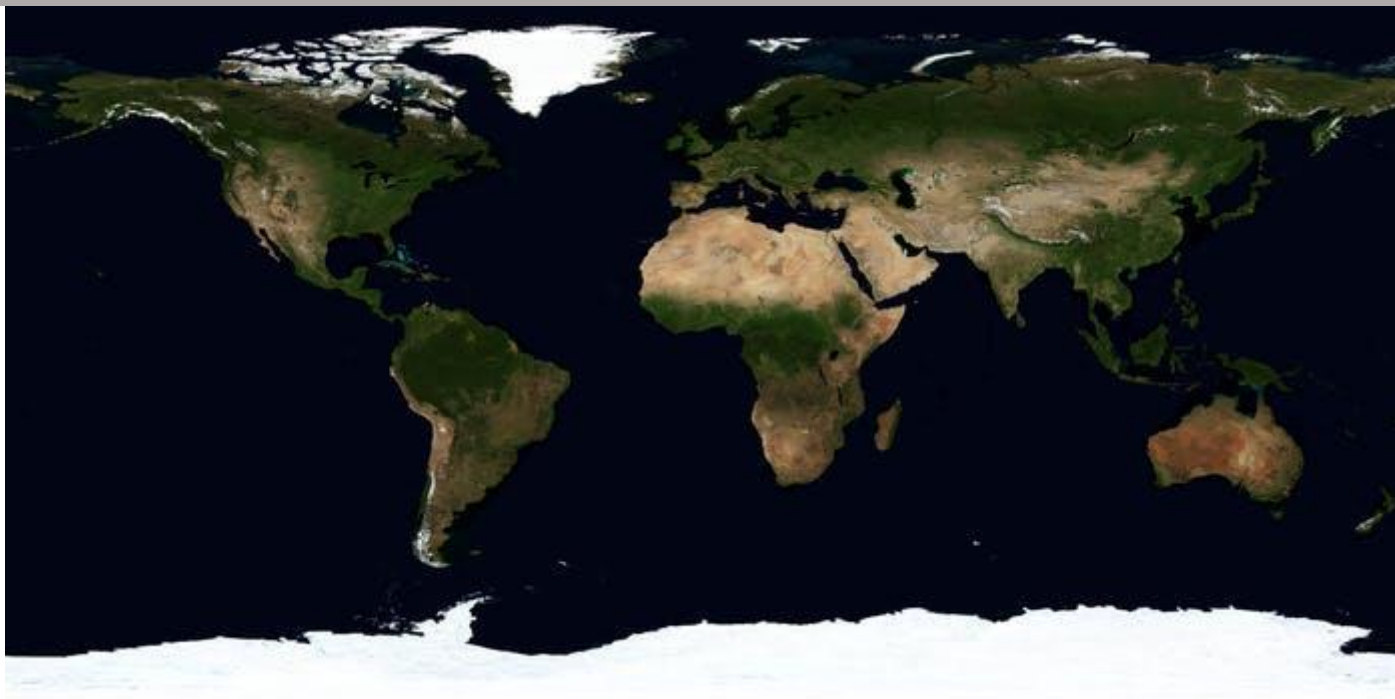
Start the module **Market opportunities for frugal innovations in Croatia, Hungary, Ireland, Poland and the UK**, which will provide you with information on:

- Why frugal innovations are important in developing and advanced economies?
- Why companies should focus on the bottom of the pyramid market?
- What is the innovation performance of the selected country?
- What are the examples of frugal innovations in the above mentioned countries?
- In which sectors demand / potential demand exceeds supply?
- Which sector demands immediate support or development?

We will focus on the countries which take part in the project, nevertheless we will give you tips how to analyze your country market in the scope of frugal innovations.



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Each country should consider frugal innovations because:

- According to the World Resources Institute¹ four billion low-income consumers, a majority of the world's population, earn less than \$1500 (€1304,12) annually, which means that their monthly incomes do not exceed \$125 (€108,68).
- Products affordable for less affluent consumers mean social inclusion.
- Products and services should be environmentally friendly, regardless the economic development.
- There are industries which demand frugal changes, because they do not fulfill the demand and expectations.

¹ <http://www.wri.org/>

The countries taking part in Frugal Innovation project are:

Croatia

Hungary

Ireland

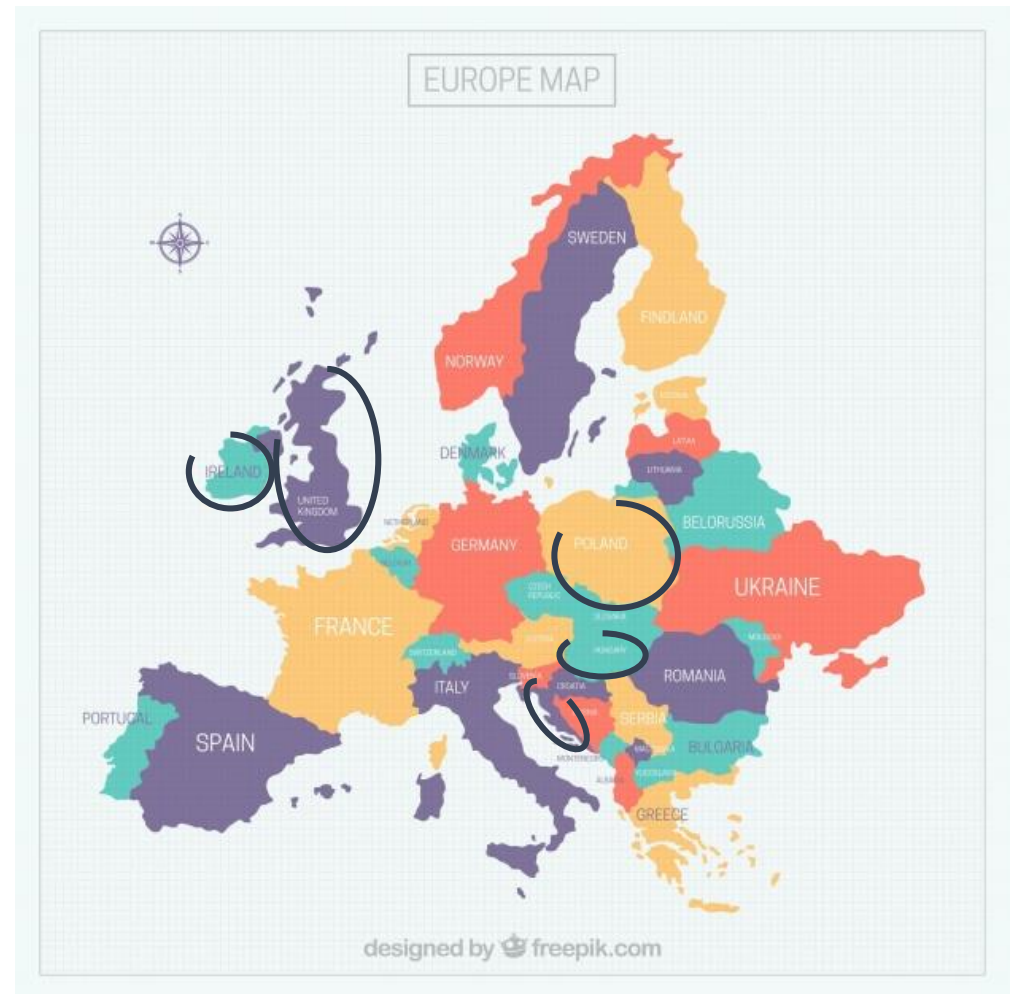
Poland (the leader)

United Kingdom

Therefore market opportunities for frugal innovations will be presented for the above mentioned countries. If your country is not listed above, don't worry. We will guide you how to assess opportunities in your home market.

Do you know that...

One of the advantage of Frugal Innovation course is that it fills the information gap. European Innovation Scoreboard presents innovation performance related to mainly to high- and medium-tech innovations measuring indicators like: International scientific co-publications, R&D Expenditures in business sector, medium and high-tech product export or employment in knowledge-intensive activities. European Innovation Scoreboard does not provide information on frugal innovation potential, while our project does!



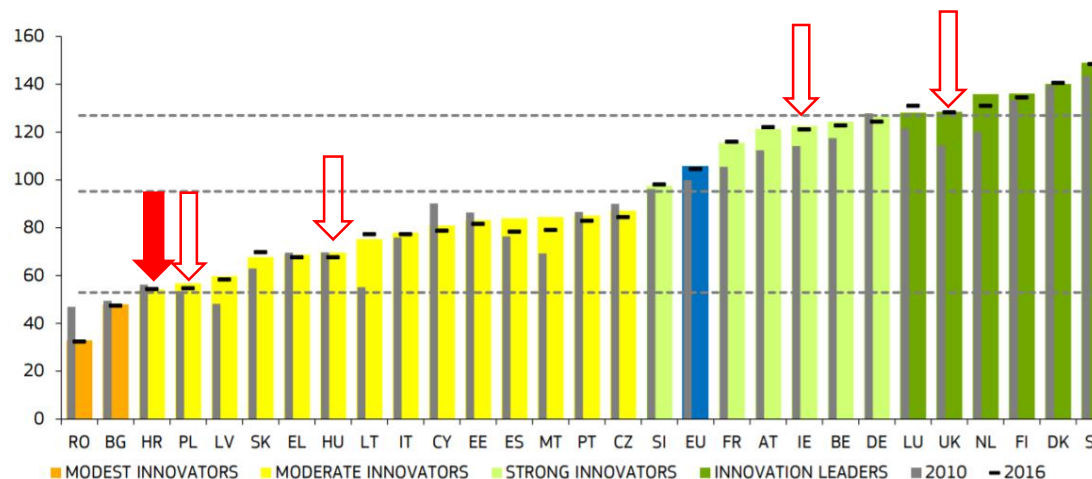
Croatia

According to the European Innovation Scoreboard, Croatia belongs to the group of Moderate Innovators (the last place in the group). Firm investments and innovators are the strongest innovation dimensions, while sales impacts and intellectual assets are the weakest ones².



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CROATIA AND OTHER COUNTRIES TAKING PART IN THE FRUGAL INNOVATION PROJECT ACCORDING TO THE EUROPEAN INNOVATION SCOREBOARD 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>

² <https://ec.europa.eu/docsroom/documents/30672>

What frugal innovations are used in Croatia? Our project team conducted research in their counties in order to find out the specifics of frugal innovation market. The results show that Croatians like the following frugal solutions:



Bookcase in the capital city of Croatia, Zagreb is a wooden cottage which represents the Little Quarter Library, whose construction was initiated by the staff of the S. S. Kranjčević Library, with the support of the Peščenica-Žitnjak

Regional Office and the Peščenica Municipal Board. In the project implementation, librarians and residents of Peščenica participated in the project. Librarians equipped the house with the first books to encourage reading, sharing books, socializing with the book, and taking care of the Little Quarterly Library. The goal of the project is to encourage people to read books, but also to link them together in today's alienated world.



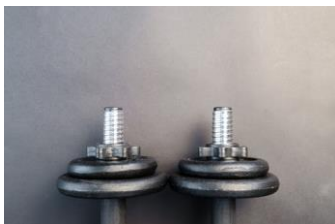
Get Kisha is the first Croatian smart umbrella that will allow you to always stay protected from rain and never forget your umbrella. Namely, the device is linked to a mobile application that will remind the owner of the church that he has forgotten the umbrella. The team who developed the idea of a clever umbrella sold the first 1000-piece series in just three months, which best describes the popularity of this device.



Even Croatian regions can boast of frugal innovations. For example, in Primorje- Gorski kotar region , the following frugal solutions were developed and implemented:



AnatoMRI is an innovative and completely new approach and learning method from the anatomy course. It is about the use of new technologies, more accurately the use of digitization in synergy with 3D printing, for the purpose of a new way of learning skeleton anatomy. AnatoMRI was created in the synergy of the Medical, Technical and Faculty of Civil Engineering of the University of Rijeka, and the equipment was obtained through the project RISK - Development Research Infrastructure at the University Campus of Rijeka. With the help of the new technology, AnatoMRI will be able to use replicas of real human bones created through 3D printers, which will then be able to be reproduced for the purposes of using and learning all students which will be more easier, cheaper and realistic.



Outdoor gym is placed in a municipality of Lovran, which is located near the city of Rijeka. The Fitness Park Urban S consists of six devices: mini fitness set, mini set fitness set, armchair, side swing, stretchers and abdominal equipment. All the products are the Croatian product of Vojtek d.o.o. made according to ISO 9001: 2008 and ISO14001: 2004 standards. The products are completely recycled and each device contains a tab with instructions for use, warning and description of functions performed by the body when exercising. Outdoor fitness will undoubtedly improve the tourist offer in the area of Lovran Municipality and will serve all recreational tourists whose sun and sea are not the only choice. By putting outdoor fitness in the environment it is promoting healthy lifestyles and encourage physical activity, reducing the number of diseases and problems of overweight in the local community, while also successfully contributing to the social and good psycho-physical condition of our members.

Servus - home-based speech. It is home management system with speech intended for people with severe disabilities and older and helpless persons. Servus is an electronic assistant that allows speech-based home management. With the help of Servus, the person can literally talk to his home and thus manage the lights, TV, telephony, door unlock, radio, heating, air conditioning, and even surf the Internet with speech. With the help of Servus, all these functions can be performed completely without the use of hands. Servus is primarily intended for people with physical disabilities and the old and helpless people, but also for those who want to have maximum comfort in their home. Servus currently supports Croatian, Slovenian, English, German, Italian and Dutch, and is constantly working on adding support for new languages.



Not every Croatian can afford high-tech innovation. Do you know that **the at-risk-of-poverty threshold** for a one-person household amounted in 2016 to 25 668 kuna per year, which means **€3439.00 per year** (circa €283,34 per month). According to the Croatian Bureau of Statistics³, the people at risk of poverty or social exclusion indicator refers to persons who are at risk of poverty, or severely deprived, or living in a household with a low work intensity. According to this indicator for 2016, there were **28.5%** of persons in that position in the Republic of Croatia.



Almost 1/3 of population of Croatians are very price-conscious consumers. Offering low-cost products makes them more affordable for excluded groups of people and this way boost the **social inclusion**.

³ Source: Croatian Bureau of Statistics <https://www.dzs.hr>

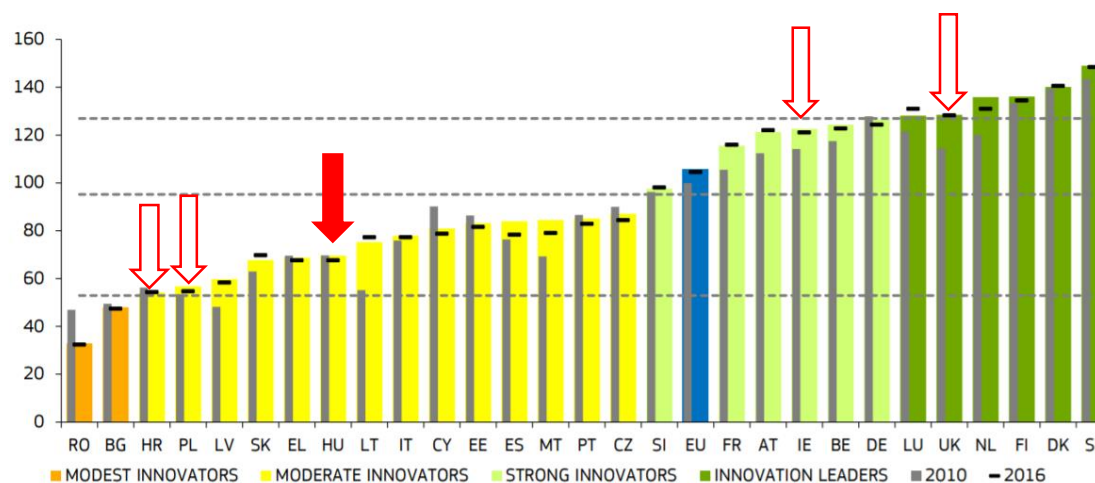
Hungary



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According to the European Innovation Scoreboard, Hungary also belongs to the group of Moderate Innovators (in the middle of the group). Employment and Sales impacts are the strongest innovation dimensions, while intellectual assets are the weakest ones⁴.

HUNGARY AND OTHER COUNTRIES TAKING PART IN THE FRUGAL INNOVATION PROJECT ACCORDING TO THE EUROPEAN INNOVATION SCOREBOARD 2018



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

⁴ <https://ec.europa.eu/docsroom/documents/30684>



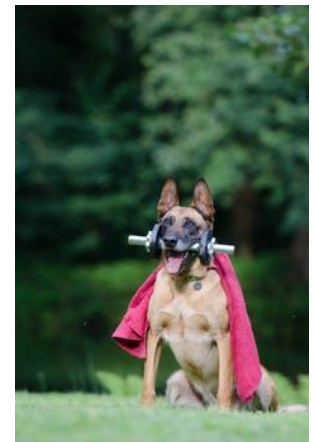
Our project team conducted research in their counties in order to find out the specifics of frugal innovation market. A piece of research was conducted in Hungary. Are you interested to hear about the results?

Hungarians appreciate some frugal innovations which are available on their market.

A **personal alarm** is perceived as a frugal innovation. The idea of this device is very simple – in case of a danger, one can activate the alarm and it continues to sound. Due to the high share of crimes against elderly people, the Hungarian police was disseminating such personal alarms among retired people who live alone in order to minimize the risk of crimes. In this situation the target group could not afford high-tech alarm systems and was not aware of the available solutions of personal protection. Therefore in this case this product meets social problems of retired people.



Another idea is the outdoor gym that is more or less known in Western European countries but in Hungary such gyms have started to appear recently. The aim of these gyms is to foster outside activities in those parts of cities and towns where professional gyms are not available and/or inhabitants cannot afford the membership fees. In these parts of cities people live in blocks of flats where employability and salaries are low. These gyms help to spend the time more usefully and let inhabitants improve their health conditions. Thus, this idea reduces health care expenditures in the long term.



Wizz Air (a low-budget airline) can be also perceived as a frugal innovation. This Hungarian low-cost carrier was established in 2003 and now has the biggest fleet in Hungary.

Such no-frill services is based on the basic aim – to carry passengers from point A to B. All premium and unnecessary services are reduced. Also a very high proportion of bookings made through the Internet and low average fares, with a strong focus on price competition make such airlines affordable for many passengers.



Hungary is ranked among the European countries with **the highest poverty rates**. Bulgaria (30%), Greece (21.1%), Romania (19.4%) and **Hungary (14.5%)** register the highest shares of severe material deprivation [Eurostat 2017]. Almost half of Hungarians (44 percent) cannot afford basic resources. This compares with an average of 19 percent across the EU [<https://borgenproject.org/facts-about-poverty-in-hungary>]

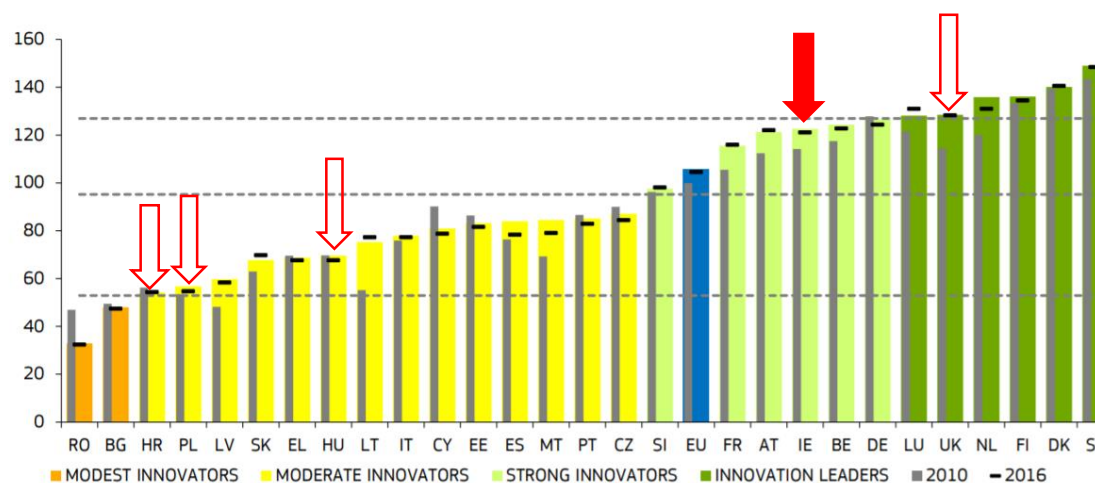
Ireland



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According to the European Innovation Scoreboard, Ireland belongs to the group of Strong Innovators (in the middle of the group). Innovators and Employment and impacts are the strongest innovation dimensions, while intellectual assets and finance and support are the weakest ones⁵


IRELAND AND OTHER COUNTRIES TAKING PART IN THE FRUGAL INNOVATION PROJECT ACCORDING TO THE EUROPEAN INNOVATION SCOREBOARD 2018



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

⁵ <https://ec.europa.eu/docsroom/documents/30686>



Our project team conducted research in their counties in order to find out the specifics of frugal innovation market. A piece of research was conducted in Ireland. Are you interested to hear about frugal innovations available on Irish market?

The Magiflo patented **rainwater gutter system**

The Magiflo gutter is a uniquely shaped rainwater gutter that can be fitted to new or old buildings and suits most applications to form a leafguard barrier. It will remove the rainwater from the roof without the gutter getting clogged up with debris. The main purpose of a rainwater gutter system is to remove rainwater from roofs. If there were no gutters on your house in a area with a wet climate, the rainwater from the roof could cause damp in the house and even subsidence. In warmer climates the gutter can be used to harvest the rainwater for use around the house.

The problems arising from gutters are debris such as leaves and moss build up and require cleaning out in order for the gutter to function properly. Heavy snowfall can also cause problems as the snow builds up causing ice dams and even just the weight of the snow can cause some gutters to collapse. All of these problems are eliminated by using the Magiflo rainwater gutter system.

Cheaper - The Magiflo patented gutter system costs less than the cost of cleaning gutters twice.

Greener - The rainwater supplied by the Magiflo gutter will be up to 95% cleaner than conventional gutters.





FoodCloud makes the redistribution of surplus food as easy as possible, matching businesses with too much food, with charities in their community that have too little, tackling food waste and food poverty in the process.

Stores have food, which cannot be sold, according to the legal restrictions like expiration date or the time of exposure in the shops. As a result, huge amount of food is wasted. According to the Food and Agriculture Organization of the United Nations, people use farmland the size of Mongolia, China and Kazakhstan combined to grow food which is thrown out. Thanks to smart app offered by FoodCloud, charities are linked with stores and have up-dated information on food which can be collected by them. This way the fresh food

is not wasted but goes to people who experienced food poverty.

Waste solutions for the 21st century. **Kollect** is a young Irish Start-up. Kollect is working to disrupt the waste disposal market and create alternative waste solutions that give people more flexibility and save money. Kollect is based on the observation, that every household is different – each family produces different amount of waste, so why they should pay the same money. Therefore the services provided by Kollect are:

Cheaper comparing to traditional waste services providers

Adjusted to real needs as clients decide by themselves about the day of collection

Flexible – clients pay when waste is collected

Simple – no contract is needed



Poverty in Ireland

According to the Irish National Anti-Poverty Strategy, **790,000** in Ireland are unable to maintain a standard of living acceptable by Irish society due to their lack of resources [<https://borgenproject.org/top-10-facts-about-poverty-in-ireland/>].

According to Eurostat , Ireland is ranked at 13 place in terms of the rate of people risk of poverty or social exclusion with the rate of **24,2%**

[https://ec.europa.eu/eurostat/statistics-explained/index.php/People_at_risk_of_poverty_or_social_exclusion].

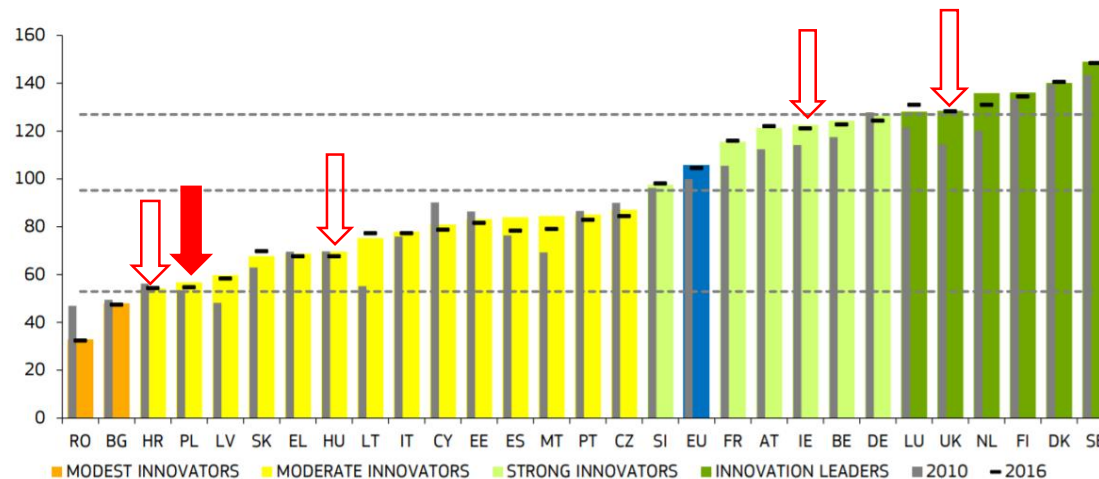


Poland

According to the European Innovation Scoreboard, Ireland belongs to the group of Moderate Innovators (at the last but one place in the group). Innovation friendly environment and Employment and impacts are the strongest innovation dimensions, while innovators and attractive research system are the weakest ones⁶



POLAND AND OTHER COUNTRIES TAKING PART IN THE FRUGAL INNOVATION PROJECT ACCORDING TO THE EUROPEAN INNOVATION SCOREBOARD 2018



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

⁶ <https://ec.europa.eu/docsroom/documents/30695>



Our project team conducted research in their counties in order to find out the specifics of frugal innovation market. A piece of research was conducted in Poland. Are you interested to hear about frugal innovations appreciated by Polish consumers?

Mahstone is a fluorescent road parts which improves commuting and communication after dusk or during lighting failure and this way provide the safety of: the pedestrians, cyclists, drivers, disabled persons, children and elder people. Mahstone is a prefabricated element with embedded glowing sign. The sign glows for more than 8 hours after all-day exposure to sunlight. It can have any shape, e.g. pictogram, geometric figure, line, letter or number. Mahstone was developed by a small company from West Pomerania Region.

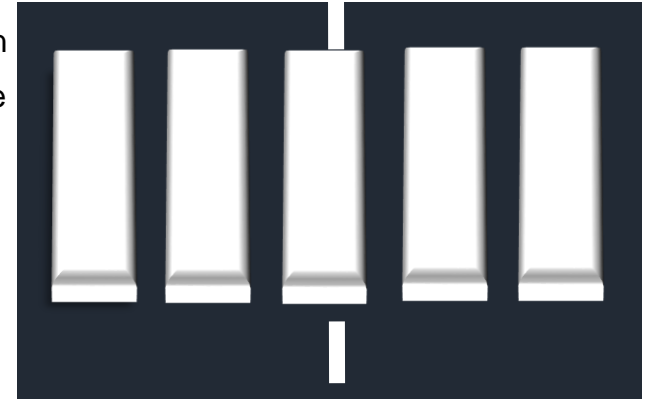
Mahstone is an innovative solution in various aspects:

- improves the safety,
- does not need maintenance,
- does not need electricity,
- does not disappear,
- is environment friendly.



3d pedestrian crossing is a solution which is used by rising number of local government in Poland in order to improve the safety of pedestrians. Cooperation with local artists can result in 3D looking pedestrian crossing, which makes the drivers stop or slow down in order not to hit “cuboids”. Such solution is:

- Cheap
- Does not requires high technology
- Does not requires special resources (just road paint)
- Environmentally friendly
- Drivers friendly (such pedestrian crossing will not damage their cars, even though they could think so)
- Inhabitants friendly as it protects pedestrians and also engages artists to paint



Affordable accommodation



Touristic character of many cities and regions enhanced private investors to buy new apartments on primary market or old apartments in secondary market in order to transfer them into attractive place for accommodation, which constitutes competition for traditional hotels. Such process is observed as well at the coastline, mountain area and main cities. Apartments are frugal innovation because it is focus on the main functionality – to provide a place to stay for a night/nights. Other services which are usually offered by hotels like food, gym, bars etc. are not in they offer, as it should be cheaper than typical hotel accommodation and this way target to more people who want to travel.

Discount (budget) store concept is perceived to be frugal innovation in Poland. Comparing to traditional shops, discount stores focus on price rather than on display, wide choice within the line or services. Buy more for less is their main marketing slogan. They have also special offers of goods produced especially for them. For example one discount store in Poland offered mobile devices for less than €100 (tablet for 379,00 PLN, which is circa €88 and smartwatch for 89,90 PLN, which is circa €21). It is estimated that discount stores cover 20% of retail food sale in Poland.



Poverty in Poland

According to the data of Central Statistical Office in Poland, over 5 million people experienced poverty in Poland (below the relative poverty line which equals 50% of average household expenditure). Extreme poverty refers to 4,3% of population. According to CIA⁷, Poland ranks at the 117th place out of 171 countries with 17,6% of population below the poverty line.

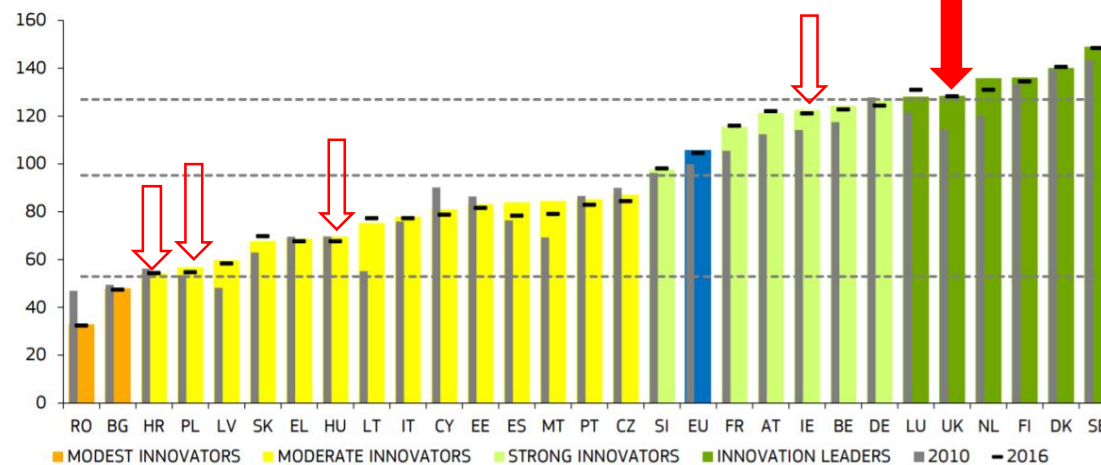
⁷ <https://www.cia.gov/library/publications/the-world-factbook/>

United Kingdom

According to the European Innovation Scoreboard, Ireland belongs to the group of Innovation Leaders (at the fifth position in the group). Attractive research system and human resources are the strongest innovation dimensions, while intellectual assets and innovation-friendly environment are the weakest ones⁸.



UNITED KINGDOM AND OTHER COUNTRIES TAKING PART IN THE FRUGAL INNOVATION PROJECT ACCORDING TO THE EUROPEAN INNOVATION SCOREBOARD 2018



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

⁸ <https://ec.europa.eu/docsroom/documents/30706>



Our project team conducted research in their counties in order to find out the specifics of frugal innovation market. A piece of research was conducted in the United Kingdom. Are you interested to hear about frugal innovations developed in the UK and which frugal solutions are appreciated by British consumers?

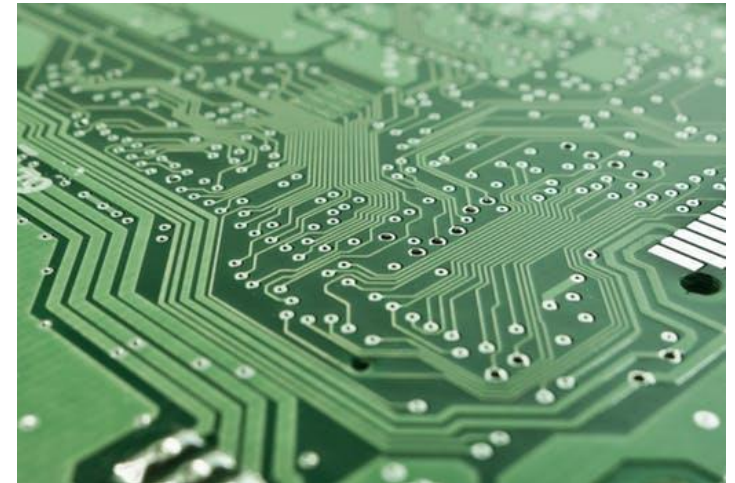
Peek Vision is a solution that enables to diagnose eyesight problems using smartphones. Thanks to a special software and high resolution camera, a smartphone can help to help people, who live away from eye clinics and cannot afford eye treatment.

Apps and hardware developed by Peek Vision can be easily used in homes, schools and communities where the access to conventional eye treatment is limited or unavailable. This way appropriate treatment and resources can be allocated efficiently. Peek Vision has conducted many eye screening in the third world countries.



Raspberry Pi is a small and affordable computer developed in the UK to promote learning programming. The idea was to support teaching computer science in developing countries by creating a single circuit board, with microprocessor, memory, input/output and other features of typical computers.

With the sales figure of over 12,5 million computers sold in five years, Raspberry Pi is, after Apple Macintosh and Microsoft Windows PCs, the third best-selling general purpose computer ever.



Azimo is an online remittance service which enables the transfer money via the Azimo website or smartphone app to various countries worldwide at affordable price. The transfers are available to more than 190 countries in 80 different currencies. The mission was to help migrants who work

in the UK to transfers money to their families for a low-cost. It can be even 5 times cheaper than traditional banks and offline money transfer providers.



Poverty in the United Kingdom

According to the statistics from 2012-2013, a median personal income was £21000 a year (€23427), therefore United Kingdom is perceived as a wealth country. According to Poverty and Social Exclusion⁹, there are 9 per cent of the population living below the state's poverty standard, and another 23 per cent on the margins of the standards. CIA¹⁰ place the UK at 133 position (out of 177 countries) with a 15% of population living below poverty line.



⁹ <http://www.poverty.ac.uk>

¹⁰ <https://www.cia.gov/library/publications/the-world-factbook>

Summary

- ✓ All presented countries (Croatia, Hungary, Ireland, Poland and the UK) develop or use frugal innovation, regardless their innovation performance.
- ✓ Despite the statistical level of wealth of citizens of a given country, there are always marginalized groups, that would need special attention (population living below the poverty threshold or retired people) and frugal solutions (see: personal alarm, **FoodCloud**).
- ✓ Consumers generally have become more cost-conscious. Why pay more if they can have good quality for less (e.g. flexible waste collection by **Kollect**).
- ✓ Consumers pay more attention to environmental protection, and this is one of the crucial impact in their purchasing decision (**Mahstone**).
- ✓ Social inclusion matters not only within countries. Supporting people in developing countries seems to be simple thanks to the new technologies (smartphone eye checks by **Peek Vision**)



Different countries, different sectoral needs for frugal solutions

According to our research frugal solutions would be useful in the following sectors/areas:

- ✓ Croatia: electro industry and healthcare
- ✓ Hungary: social problem of obesity, lack of human resources
- ✓ Ireland: agri-tech and environmental management
- ✓ Poland: healthcare and green technologies
- ✓ UK: Environmental and healthcare sector





Sources

Are you interested to learn more about frugal innovations in different countries?

Websites of presented examples:

<https://azimo.com/en>

<https://www.peekvision.org/>

<https://www.raspberrypi.org/>

<https://www.getkisha.com/>

www.magiflo.com

<https://food.cloud/>

<https://kollect.ie>

<http://mahstone.pl/en/>

<https://www.peekvision.org/>

<https://wizzair.com/en-gb/main-page>



Videos:

Kisha Umbrella https://www.youtube.com/watch?v=1ue9_ptmehU

Food Cloud

<https://www.youtube.com/watch?v=qUQTSJIs8qQ>

PeekVision

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

3D Pedestrian Crossing

https://www.youtube.com/watch?v=M6st0j_gl-o

Other sources:

European Innovation Scoreboard

https://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en

World Bank

<https://data.worldbank.org/topic/poverty>

Central Intelligence Agency

<https://www.cia.gov/library/publications>



Ready for a quick TEST?

T

You can quickly verify the knowledge you gained after attending this module.

1. Do you think that frugal innovations should be implemented only in developing countries like India?:

- a. Yes, because there were many frugal innovations developed in India
- b. No, they should be implemented worldwide
- c. Only in third world countries in Africa

2. Frugal innovations are important in nowadays economies because:

- a. They are expensive
- b. They assure social inclusion
- c. Only developing countries need them

3. There were some frugal innovations developed in the United Kingdom (a country perceived as an innovation leader):

- a. True
- b. False
- c. I don't know



Ready for a quick TEST?

T

You can quickly verify the knowledge you gained after attending this module.

4. Innovation performance of Croatia is:

- a. Weak (the last in the group of moderate innovators)
- b. Strong (in the group of innovation leaders)
- c. Below the EU average

5. The most well-known Hungarian frugal innovation is:

- a. personal alarm
- b. low-budget airline
- c. clay fridge

6. A fluorescent road parts which improves commuting and communication after dusk were invented in:

- a. Germany
- b. Ireland
- c. Poland



Ready for a quick TEST?

T

You can quickly verify the knowledge you gained after attending this module.

7. A solution that enables to diagnose eyesight problems using smartphones is an example of a frugal innovation from:

- a. Hungary
- b. Croatia
- c. United Kingdom

8. The European Union countries:

- a. Do not have any problems with poverty.
- b. The inequalities among consumers are increasing
- c. Poverty still constitutes an important issue to be solved.

9. The examples of frugal innovation presented in this modules are:

- a. Clay fridge, Dacia
- b. Get Kisha, FoofCloud, Kollect
- c. Foldscope

A *Activity*

How to find a market for frugal innovations in your country?

Please think about the following issues:

1. Product/services that can be defeated
2. Sector that demands improvements
3. Social problems to be solved
4. Too expensive product/services
which very little portion of people can afford
5. Sector which demands changes in order
to meet environmental requirements.....

Got answers? You are very close to a frugal innovation idea

