

Frugal Innovation  
Classroom Course

**MANAGEMENT OF FRUGAL  
INNOVATIONS**

MODULE 7





## *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/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

## MANAGEMENT OF FRUGAL INNOVATIONS

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

Start the module **Management of frugal innovations**, which will provide you with information on:

- Why R&B gives way to E&I.
- How to flex asstes in order to become more frugal?
- How customers behavior can be shaped?
- How to create networks to be eveon more frugal?

We advise you to join the whole module.



## *Managing frugal innovation*

Managing frugal innovation is a very broad topic. The previous modules covered the most important aspects of frugal innovation and also some issues concerning managing this type of innovations.

In this module the following rules of managing frugal innovations will be explained<sup>1</sup>:

- ✓ E&I instead of R&B
- ✓ Flexing assets
- ✓ Sustainable solutions
- ✓ Shaping consumers behavior
- ✓ Importance of prosumers
- ✓ Innovative networks



What is frugal innovation?



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<sup>1</sup> Based on: Radjou, N., & Prabhu, J. C. (2014). *Frugal innovation: how to do better with less* (1st ed.). New York: PublicAffairs.

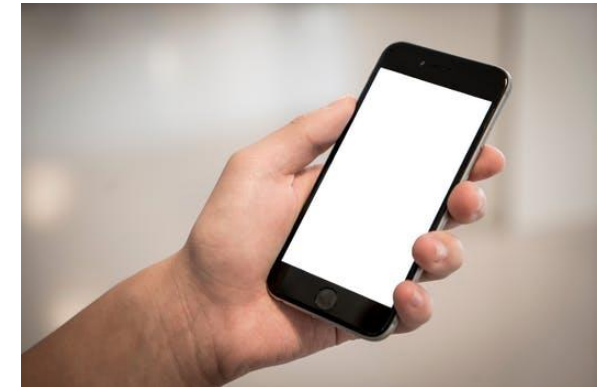


## *E&I = Engage and Iterate*

E&I instead of R&D – Engage and Iterate instead of Research and Development.

Why R&D departments are less important in managing frugal innovation?

- They are usually time-consuming and inflexible.
- They are more focused on quantity of outputs rather than on quality of the outputs and their value for customers.
- They are complex and expensive. What is more the complexity costs both companies and their customers.
- They are environmentally unfriendly. For instance the complexity and planned obsolescence of mobile phones increase the production of waste.
- Customers' role means to validate a product idea/prototype rather than co-create solutions.



### *Do you know that...*

- ✓ Sophisticated products are seemingly attractive. Most customers use only 10% of functionalities available in apps such as Microsoft Word.
- ✓ 125 million of mobile phones end up in landfill as they are planned to be obsolete after 2 years of use.

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

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

## *How to engage and Iterate*

**Work fast** – the faster adaption to changes the better. Don't stick to projects, only because you started them. You can always change priorities, reallocate resources and thus be first who respond to market needs. Eliminate silos and reduce bureaucracy to minimum – this will help you to work faster.

**Involve end-users** at all stages of the product design. It will prevent you from a product failure. What is more, keep thing simple. Sophisticated products are desired by engineers, and less likely by an average customers.

Use **external** resources, experts and R&D. Such co-operation in network will allow you to make you design process more flexible and faster.



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

## E

## Example

TGV (Train à Grande Vitesse) is a well-known high-speed train operated by a French state-owned company SNCF (a national railway operator). TGV is still one of the fastest train operating in conventional train service in the world (wheeled train) with a competitor in China (China's Shijiazhuang–Wuhan high-speed railway), who surpassed the speed of TGV.

Despite the reputation of an innovator, SNCF began to lose passengers, as the speed was not everything what decided about the satisfaction from the journey. But how to launch new services and gain new customers if an average product development process lasted 5-10 years?

SNCF decided to launch a TGV Lab in order to practice frugal innovation techniques. Results? Fast innovation projects which are prioritized every six months. Outcomes? SMS based system enabling train crews to communicate with hearing-impaired passengers instead of previously planned video monitors, which would be more expensive and time-consuming for implementation.



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





## *Flexing assets*

Does mass production meet increasingly heterogeneous customers? Does it manage with resource scarcity efficiently? Old style mass production seems to be inflexible and environmentally unfriendly. Why? Because:

- They are giant, energy-hungry factories.
- Demand huge supply.
- Demand expensive logistics to transport goods to thousands of retail stores worldwide.

Such scheme of mass production factories was meant to making more of the same at increasingly lower cost achieving the economy of scale. Doing one thing at a time repeatedly was possible until it fulfilled homogeneous needs of customers.

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





## *How to flex assets ?*

How to apply frugal approach in manufacturing, distribution and services?

In **manufacturing**, the changes should be focused on:

**New materials**, which are the major costs in the whole product lifetime, also when they end up in the landfill.

**Example** – car producers started to use carbon fibre, which initially was used in planes and space aircraft. The reason for this is because of its “lightweighting”. Carbon fibre combined with resin results in material which is as strong as steel, but weight half the weight of steel. BMW uses such solutions in its i8 electric car, which is lighter comparing to conventional cars and thus consume less energy.

**New tools**, like 3D printers, which can reduce manufacturing costs of customized products. What is more, 3D printers can work with various types of materials, including glass, plastic, ceramics, steel and even concrete. Source:

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



3D-Printed Home Can Be  
Constructed For Under \$4,000



<https://www.youtube.com/watch?v=wCzS2FZoB-l>

## *How to flex assets ?*

In **logistics**, the changes should be focused on:

**Reshoring** – a few decades ago the way to cut costs was to transfer production to low-cost destinations like China. Now reducing costs means returning to developed countries. Why? Shipping costs are rising. It also contributes to carbon emission. Therefore companies like Zara decide to near-shoring operations to be close to the European market.

**Sharing resources** – an example of sharing economy has become more and more popular among companies. It allows to cut costs of transport and warehousing, and also to deliver goods to remote villages. Examples: Coca Cola agreed to deliver life-saving medicines in their a temperature-controlled supply chain. Mars co-operates with its competitors in Germany and uses a joint distribution network. Ferrero and Hershey, competitors in chocolate production, decided to share warehousing and vehicle fleets in North America.

**Using robots** – cheaper and safer for people. For instance Amazon in Poland started its pioneer project of using robots to work in warehouses.

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



Amazon Robotics w Kolbaskowie k. Szczecina

<https://www.youtube.com/watch?v=fPWmJGKOA4c>

## *How to flex assets ?*

In **services**, various business models and digital technologies can be implemented, for instance:

**Multi-services** platform. Example: Amazon, extended its initial main service – sale of books, and started selling music and household goods. Then customers could sale goods among each other using a peer-to-peer platform. One of the latest extension of the offer was cloud computing.

**Advertising campaign engaging customers.** “Share a Coke” campaign was conducted in Australia in 2011. 150 of the most popular Australian names were printed on the Coca Cola’s bottles. “Share a Coke” campaign was spreading a message “If you know a Kate, share a Coke with Kate, or Mel or Dave”. As the feedback, Coca Cola received another 65,000 suggestions of names, of which Coca Cola decided to print 50 more. The campaign was a big success and resulted in increased sales volume.

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



Share A Coke' campaign ...Coca Cola, a marketing genius!!!

<https://www.youtube.com/watch?v=2X8Bd3-G6IU>

## *Sustainable solutions*

We highly recommend you to read MODULE 5 on Sustainability and social inclusion in frugal innovation\_. Interesting facts, important trends and examples of sustainable solutions were presented there.



# SUSTAINABILITY

## *Shaping consumers behavior*

Customers' behavior is not always environmentally friendly or with the line of a company's mission. There are some techniques how customers' habits can be shaped, by a new product itself or by an intelligent campaign.

**Smart products** can influence consumers' behavior in desired direction.

**Example:** Learning thermostat was developed by Nest Labs, a Silicon Valley start-up. Such smart thermostat, thanks to Wi-Fi connection, can monitor and learn users' habits, and thus help to adopt more eco-friendly behavior. How? Nest device:

Sends emails to users with a monthly energy reports about the usage of energy, which also includes tips like "Changing the temperature just 1° can cut your energy use up to 10%."

Allows to control through a smartphone app. Such application allows users to warm up selected rooms in case the user arrives earlier than it is planned.

Offers "rush hours" rewards for moderate energy use. Nest thermostat inform owners that they can earn money if they reduce energy use at peak times. Such rewards are possible provided that Nest Labs co-operate with US energy utilities.



Meet the 3rd  
generation Nest  
Learning Thermostat



<https://www.youtube.com/watch?v=1qkSkOn4h-A>

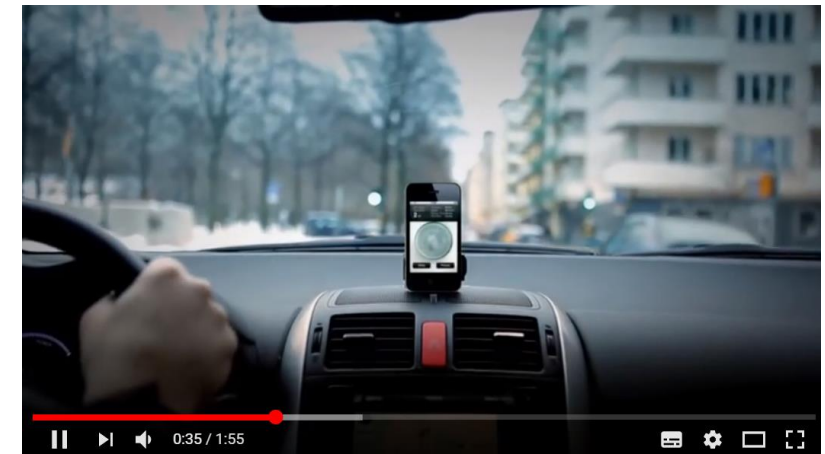


## *Shaping consumers behavior*

**Smart campaigns** can help to adapt to new habits.

Example: in 2010 Toyota Sweden launched a campaign called “A Glass of Water” which was based on the assumption that calmer drivers use less fuel and this way reduce the emission of carbon. Therefore Toyota asked drivers to place a glass of water on the dashboard. The driving should be calm, so that the water will not spill out and the fuel consumption will decrease to 10%. But what if the glass of water spills out on a driver? Because such experiment could discourage many drivers, Toyota Sweden proposed an iPhone app which pretends the glass of water. What is more, it is integrated with Google maps, and this way drivers can read reports how much water was spilled during the route and how much fuel could be saved. The app was down-loaded 95,000 time making 400,000 kilometers calm and environmental friendly driven.

Toyota - A glass of water

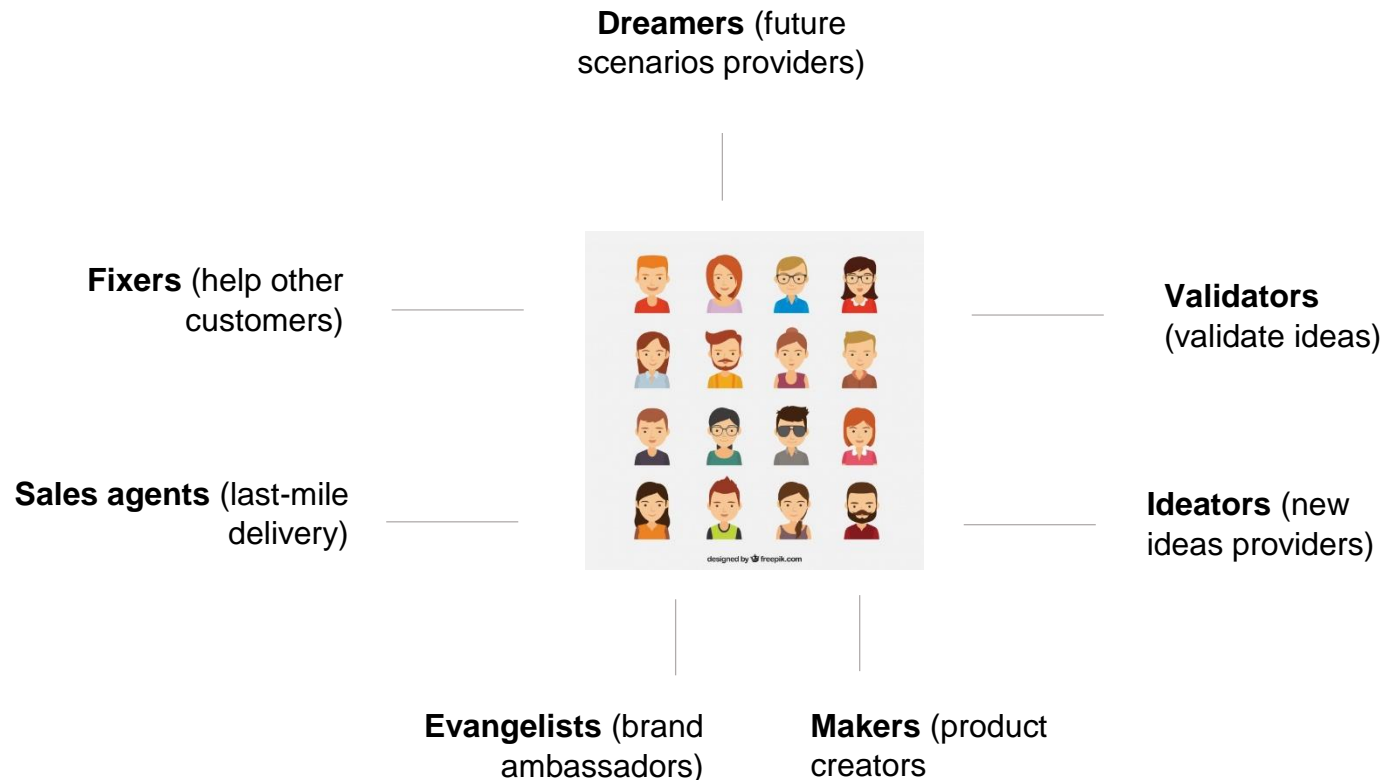


<https://www.youtube.com/watch?v=NI6LMXynmDs>

## *Importance of prosumers*

We highly recommend you to read MODULE 4 on New market development, human centered design and prototyping.

Interesting facts, important trends and examples of sustainable solutions were presented there.





## *Innovative networks*

Open innovation

Networking

$$1+1=11$$

Ultra synergy effect



$$1+1=3$$

Synergy effect

Limitless opportunities  
for collaboration

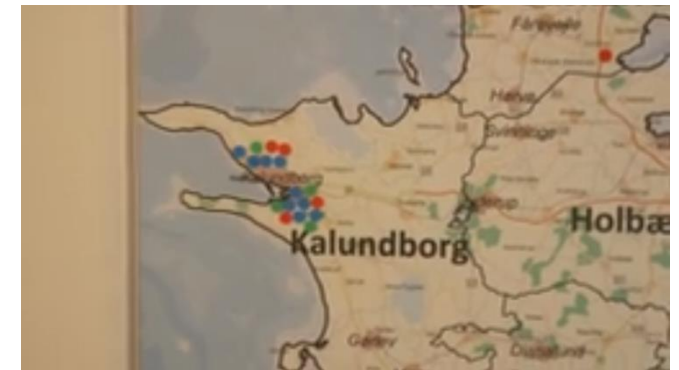
Two heads are better  
than one

## *How to create effective networks?*

Don't be afraid of collaboration. Your consumers, suppliers, competitors and many other companies and individual could have idea, knowledge and solutions, which can bring value in terms of your frugal innovation projects. Some examples of co-operation were already presented in Module 5 (Sharing Assets)

### **Think about environmental protection.**

Example: Kalunborg Industrial Eco-Park located in Denmark encompasses private and public industrial enterprises, which create an “industrial symbiosis”. Due to exchange water, energy and waste, all plants together can save the water use up to 3 million cubic meters and reduce carbon emission by 240,000 tonnes annually.



Kalundborg  
Symbiosis Center



<https://www.youtube.com/watch?v=EGxbQ-qcX5M>

## **Be ambitious, together you can achieve ambitious goals**

Example: Natural Capital Impact Group is an initiative aiming at working collaboratively to determine how business can sustain the natural world and its resources through its strategies and operating practices. The companies like Volac, Mars, Primark, ASDA and Kering join the group.



## **Engage all who might have interesting ideas and potential to implement them**

Example: Ford (Ford Motor Company) started co-operating with TechShop in 2012 and offered 10,000 square meters to Do-It-Yourself workshops and fabrication studio in Detroit. Ford located this DIY playground with laser cutters, 3D printers and typical machine tools close to Ford's global R&D center, and thanks to it gained an access to creativity of people, possibility to outsource part of projects and opportunity to explore entirely new ideas and projects.

TechShop Detroit  
is now open



<https://www.youtube.com/watch?v=X4vviUg9gqo>



## Sources

Are you interested to learn more about sustainability and social inclusion in frugal innovation?

We recommend you to use the following sources:

### Websites:

<https://www.cisl.cam.ac.uk/business-action/natural-capital/natural-capital-impact-group>  
<https://www.sustainablesolutionscorporation.com/>  
<http://www.symbiosis.dk/en/>  
<https://explolab.com/2013/12/20/tgv-lab-beating-competitors-with-high-speed-innovation/>  
<https://www.forbes.com/sites/onmarketing/2014/02/04/six-trends-that-will-shape-consumer-behavior-this-year/#7f013eed7125>  
<https://www.forbes.com/sites/onmarketing/2014/02/04/six-trends-that-will-shape-consumer-behavior-this-year/#7f013eed7125>

### Other sources:

The role of frugal innovation and collaborative ecosystems: The case of Hyundai in India by Sharmelly, Rifat; Ray, Pradeep Kanta  
*Journal of General Management*, 07/2018, Volume 43, Issue 4

From Cost to Frugal and Reverse Innovation: Mapping the Field and Implications for Global Competitiveness by Marco B Zeschky; Stephan Winterhalter; Oliver Gassmann, *Research Technology Management*, 07/2014, Volume 57, Issue 4

### Videos



Industrial symbiosis in Kalundborg: turning waste into a resource  
<https://www.youtube.com/watch?v=QiHdMPmzUG0>

Make Your Designs Come Alive at TechShop Detroit  
<https://www.youtube.com/watch?v=o6pUfl5k5QA>

Suncor Energy and GE collaborate to meet sustainability goals with advanced technology  
<https://www.youtube.com/watch?v=mBDdb-bOJ8hQ>

Environmental Sustainability | Creating Shared Value at Nestlé USA  
<https://www.youtube.com/watch?v=3FS9trOigig>

An Inside Look at BMW's Carbon Fiber Manufacturing Process  
<https://www.youtube.com/watch?v=kaog8Mc4xxw>



*Ready for a quick TEST?*

**T**

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

Choose right answers

**1. E&I means**

- a. engage and inform
- b. encourage and inform
- c. engage and iterate

**2. Flexing assets**

- a. is crucial in nowadays changing economic reality
- b. can occur in logistics
- c. means new materials and tools

**3. Innovative networks**

- a. should be created only with small firms or individuals
- b. should be created also with competitors
- c. can be created basing on DIY workshops



*Ready for a quick TEST?*



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

Choose right answers

**4. Sophisticated products are:**

- a. useless
- b. attractive, but most of customers use only a small portion of such sophisticated functionalities
- c. usually demand expensive R&D

**5. Reshoring means**

- a. returning of the production to developed countries
- b. less emission of carbon
- c. higher cost of shipping

**6. Shaping consumers behavior can be achieved**

- a. by smart products, which educate consumers
- b. by launching fake products
- c. by smart marketing campaigns





*Ready for a quick TEST?*



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

Choose right answers

**7. Innovative networks**

- a. should be avoid as it allows innovation to be imitated by competitors
- b. enable to achieve synergy effect
- c. provide various sources for innovations

**8. Kalunborg Industrial Eco-Park**

- a. is an example of effective network collaboration
- b. proves that collaboration of several industrial enterprises leads to increased environmental pollution.
- c. proves that the effectiveness can be also achieved in the field of carbon emission and the usage of water

**9. The case of Coca Cola which agreed to deliver life- saving medicines in their a temperature-controlled supply chain**

- a. is an example of losing the position of the leader on the market
- b contributes to the decrease in carbon emission
- c. is an example of sharing resources



## A Activity

Let's say you are asked to develop a new innovative model of a bike for teens. You have a place in DIY workshop for 3 months. Who would you engage to this endeavor?

Issues to be tackled	Who?	What company?	What group of users?
Design			
Technical aspects			
Additional functionalities			
New materials			
Other ...			

