



# RESPONSIBLE RESEARCH AND INNOVATION 8 SUCCESS STORIES

# RESPONSIBLE RESEARCH AND INNOVATION IN EIT

Responsible Research and Innovation (RRI) is a concept promoted by the European Commission as a set of principles (Public Engagement, Gender Equality, Science Education, Open Access, Ethics, and Governance) for governing research and innovation and is a key priority in Horizon2020. It seeks to bring issues related to research and innovation into the public eye, anticipate their positive and negative consequences, and engage society in a discussion about how science and technology can help create the kind of world we want for generations to come.

RRI is well-suited in the context of the European Institute of Innovation and Technology (EIT) with our open innovation in the collaboration between industry, academia, and educators in the Knowledge and Innovation Communities (KICs) and our determination to co-create new products and services that seek to address major societal issues. We are well underway. But an increased focus on RRI is a great opportunity to discuss our responsibility towards society, to sharpen our awareness on the Sustainable Development Goals, and to target specific goals such as more Open Access and gender equality.

## RRI CASE EXAMPLES IN EIT:

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A working group, established as Social Lab 16 under the NewHoRRizon project, has collected eight examples of projects across EIT Food, RawMaterials, and Climate KIC that address one or more dimensions of RRI. The aim is to inspire new projects to reflect on their social responsibility and to address one or more dimensions of RRI.

The European Commission works with six key dimensions of RRI: Public engagement, Gender Equality, Science Education, Open Access, Ethics, and Governance. Below you can find examples from EIT addressing these different keys.

- **Open Access** seeks to make the circulation of knowledge easier and more transparent between all societal actors as articles and data should be available for free online.
- **Public Engagement** aims to bring a diversity of social actors into the innovation and research process so they can make their voices heard.
- **Science Education** seeks to raise scientific awareness and literacy at a young age, equipping future generations to take part in discussion on science and technology.
- **Gender Equality** is about raising awareness of gender structure in society in general and in research and innovations teams and content specifically.
- **Ethics** is specifically about respecting fundamental rights and ethical standards in research and innovation, but also about asking the big questions; what are potential long-term consequences of my project and how can I positively contribute to society.
- **Governance** is an overarching principle stating that policymakers have a responsibility to prevent harmful and unethical developments in research.

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# ABANDO`NADA

## Love food, hate waste

30% of the world's food production never reach their designated dinner plates; it is simply wasted along the way from farm to kitchen. The EIT Food Circular Food Generator sets out to challenge students to address this sustainability issue by developing new products from food waste. The team behind "Abando'nada", a snack-bar made from waste bread and bananas, found that consumers tend to associate the term "waste" with non-edible food. Through public engagement they learned that a new terminology is needed to increase acceptance of new products, they now call it "upcycling".

### Tackling a major societal challenge: food waste

Food waste is a global sustainability problem, which occurs at different stages in the food value chain. It has many negative impacts on our planet and it leads to the waste of precious resources from land and oceans. About 30% of all food produced in the world is being lost or wasted, however a portion of this wasted food is still edible. One way to reduce food waste is to act at the retail level. Food buyers tend to dislike products, which are still edible but show sensorial features, which may cause the rejection of food products by consumers. For instance, fruits and vegetables that have a non-standard shape or have issues with ripeness, products that are slightly tarnished or products whose packaging has been damaged (but not compromised with potential safety implications) are among the causes of food rejection by consumers. A team of Master's students from the University of Leuven (Belgium) took up the challenge to produce a new snack by using bananas and bread which would otherwise be discarded from the shelves. This project, named "Abando'nada", was part of a larger series of projects supported by EIT Food in 2018, aiming at the reduction of food waste generated at the retailer level. The consortium saw the participation of academic and industry organizations from across the EU.

### Consumer involvement improves product likeability

The Responsible Research and Innovation (RRI) aspect of the "Abando'nada" came about when the product was presented to consumers in marketing tests. Consumers' reactions to the product were ambivalent: on the one side the product's taste and flavour were acceptable, on the other the idea of eating a product made by food "waste" led to a refusal of the snack. This engagement/feedback from the public was a key RRI aspect in the "Abando'nada" project. The team had to re-defined "Abando'nada" as a snack made from 'upcycled' bread and bananas rather than made from food waste. The word upcycled is now widely used in place of waste and public engagement induced triggered the re-shaping of the product with a consequent stronger consumer acceptance and reduction of food waste.



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#### Website

<https://www.eitfood.eu/projects/circular-food-generator-track>

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# EIT FOOD GOVERNMENT EXECUTIVE ACADEMY:

Inspiring European  
governments to  
address societal  
challenges

National and regional governments in Europe design and finance research and innovation programmes with multi-million euro programmes. Do they have access to the latest technological knowledge, good governance practices, and experiences of other countries? EIT Food Government Executive Academy is a training scheme, which helps government executives from across Europe better understand challenges of the global food system and consider how to address them efficiently with sectoral regulation and directed funding for responsible research and innovation initiatives.

## **Public sector representatives learn from each other**

EIT Food Government Executive Academy was organized in 2018, 2019 and 2020 as an education and awareness rising activity.

The training programme included sessions with European institutions, governmental leaders, international companies, start-ups, and scientists, offering opportunities to acquire knowledge about recent trends, good practices, and challenges encountered in implementation of funding programmes. The workshop contents included topics related to the Responsible Research and Innovation, highlighting the importance of public engagement, the need to involve a broad spectrum of stakeholders in the design and governance of funding programmes, the significance of science-based education, ethics, and diversity. Government officials were made aware of challenges faced by the global food system, including distorted eating habits of consumers, impacts of food production and consumption on natural resources, food waste, safety, and traceability concerns.

## **An opportunity to discuss ethics and social responsibility**

The Academy presented an opportunity to discuss ethics and social responsibility, and individual participants from various countries and regions were encouraged to further disseminate the knowledge on the local level. Participants benefited also from practical project assignments, the network of international contacts, the exchange of good practices with peers from other countries and opportunities to identify joint cross-country project opportunities, which was one of planned, tangible outcomes of the Academy. By working directly with representatives of national and regional governments, EIT Food was able to inspire various regions and countries to use funding for impactful, responsible research and innovation initiatives that address important challenges of the food system. In this way, EIT funding was used to multiply the societal impacts and set good examples for policy makers and research funders throughout Europe.



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### **Website**

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# EIT FOOD RIS CONSUMER ENGAGEMENT LABS

## Empowering consumers in product development

Consumers are the genuine experts of their needs and wants, so engaging them in the development of new products and innovations has attracted attention of various companies as a possible way to avoid market failures. But how can we empower consumers to benefit from their inputs into the new product development? EIT Food RIS Consumer Engagement Labs have addressed this question and developed an innovative methodology involving consumers in co-creation of new food products and services with industrial companies.

### Co-creating new products that are needed

In 2019, the EIT Food RIS Consumer Engagement Labs organized a series of structured workshops, training senior citizens to turn them into experts in developing products that serve the needs of consumers like themselves. The workshops help to gain different perspectives when exploring their existing food environment. Participating consumers can better understand techniques used to design new foods and aspects that are important for senior citizens' health. They socialize and jointly work on assignments that help them uncover what drives consumers' acceptance of new products. Participants can then reflect on their own choices and food environment around them by following a structured team assignment, in which they diagnose the needs of a selected group of senior consumers, analyse the products already available in shops and identify potential gaps. Afterwards, they get together again to co-create new product ideas that are discussed with local food producers.

As a result, participants will produce new concepts that will be placed in an open arena for companies to exploit, and selected ideas will be commercialised by local companies directly involved in this co-creation process

### Consumer Engagement Labs can help smaller companies

EIT Food RIS Consumer Engagement Labs are piloted in four countries in 2019: Lithuania, Poland, Portugal, and Spain.

These locations represent areas with high number of smaller companies in the food sector and large populations of senior consumers, but often limited resources to invest in market research. The approach developed for EIT Food RIS Consumer Engagement Labs provides a possibility to empower consumers to become active members in new product development process. It has been developed in co-operation with behavioural scientists and innovation management experts. In the approach, consumers can be in the driving seat in concept development whilst respecting the product-related requirements.



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# Encouraging Girls to Study Geosciences and Engineering

Women are highly underrepresented in geosciences and engineering; a sector that is characterised by men and stable male stereotypes in business clusters, professional communities as well as in education, research, and innovation. ENGIE aims to turn the interest of girls to study geosciences and geo-engineering, and thus to improve the gender balance in the fields of these disciplines. The project has developed an awareness raising strategy and has created a stakeholder collaboration network for the implementation of a set of actions in more than 20 EU countries.



## Women are underrepresented in Geosciences

The recruitment crisis in STEM (Science, Technology, Engineering and Mathematics) professions observed in recent years is even worse when young girls are considered. This is particularly serious for geosciences and related engineering fields (such as mining engineering), which many see as masculine professions. Indeed, while about 30% of all science researchers in the EU are women, the proportion of female professors in the higher education in the field of geosciences is very low (worldwide, it was only 6% in 2003<sup>[1]</sup>).

## Collaborative awareness-raising activities to spark girl's interests in the field

In the period 2020-2022, Encouraging Girls to Study Geosciences and Engineering (ENGIE), funded by the European Institute of Innovation and Technology (EIT) in the sector of raw materials (EIT RawMaterials), will support awareness-raising activities to encourage 13-18 years old girls to study geosciences and geo-engineering.

Public bodies, schools, research centres, universities, and professional organisations on gender equality will be brought together, and strategies will be formulated on the basis of European and international procedures.

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[1]<https://pdfs.semanticscholar.org/0464/29439cab05c26b4c3a94493b88a3c9bf5c6d.pdf>

Best practices and success stories will be adopted from countries where STEM education and geo-sciences have already been successfully promoted among young women (Australia, Canada, and the US) and also from leading European countries in this area, such as Sweden and Finland.

Several actions have been and will be implemented in order to achieve the project goals. One of them revolves around the positive examples that successful women within the geoscientific and global engineering community can embody for young women. During an online international workshop organised in September 2020, 18 leading women geoscientists and geo- engineers were invited from all over Europe to explain what made them interested in geosciences and when and how they decided to embark on a scientific/engineering career. At the same time, interviews were made with a selection of geo- and mining companies' HR managers addressing their new targets for gender equality to understand what has changed over the past decades, and the reasons behind the bottlenecks of the mobilisation of young women.

The aim of this action was to help the formulation of key messages towards girls and young women by inducing successful women's past motivation factors (but also challenges and difficulties encountered) to present day circumstances.



#### Website

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# FOODUNFOLDED®

## A community to connect people with the origins of food

FoodUnfolded® aims to engage the general public with all other actors of the agrifood chain in conversation about food production and food technology via online channels and offline events to reconnect people to their food and encourage greater transparency of the food sector and, in the longer term, trust.



### Food production is high-tech

What do you think about when you hear the word food? How about technology? What if we put the two together: food technology? Maybe you think it is strange; the two separate concepts that initially popped into your mind seem to contrast one another. With food, you might think of fresh fruit and vegetables or your mother's home cooking. With technology, you might think of your laptop or cell phone. Food technology might make food sound cold, inorganic, or fake but the fact is that food and agricultural technologies are part of our daily lives and a vital part of feeding a growing population safe and healthy food. For instance, new technologies enable us to waste less edible fish or use fewer pesticides in production. There are so many things that go into producing and eating food. At FoodUnfolded® we're unpacking these things one by one.

### What is FoodUnfolded?

FoodUnfolded® is a global platform where we seek to engage consumers and other actors in the food chains in conversation, based on scientific insights about the origins of our food, the broader food system and the latest food and agricultural innovations. We want all citizens to be involved in new ideas for a more healthy and sustainable food system and to become a movement around food and how food is made.



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#### Website

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# OPEN THE BRIEFCASE

## Teaching pupils about mining and conflict minerals

The briefcase project seeks to bring minerals and mining closer to society. Using an innovative method, it teaches pupils to identify minerals they use in their everyday life and encourage them to reflect on issues like conflict minerals, consequences of purchase decisions, sustainability of mining operations, and the importance of recycling and climate change.



### Teaching ethical aspects of mining

We all use minerals everywhere and every day; in the houses, we live in, the bikes we ride, and the phones in our hands. Yet, many of us are unable to recognize the minerals we use in our daily lives, which products they go into, and where they are obtained. Most of the minerals we use are mined outside Europe, sometimes under poor working conditions, using forced- or child labor, in ways that are unsustainable or harmful for the environment, and sometimes minerals are even the cause of armed conflict. These conflict minerals are far away, both geographically and emotionally, and we rarely reflect on the ethical aspect of the products we buy. The briefcase project seeks to remedy this by teaching pupils from an early age where minerals come from and encourage them to reflect on ethical issues of mining.

The briefcase is targeted pupils aged 6 to 14. It contains a set of minerals, tools to identify them, and products of everyday life. It teaches pupils to recognize the most common minerals and their applications with

a hands-on experience and to reflect on their own purchasing decisions and power to demand more ethically sound practices of companies, as well as the consequences of “not in my backyard”, which has moved a lot of mining outside Europe.



### The project is rolled out across Europe

The project team will present the tool in different areas of Europe through demonstrative workshops.



The material, including a borrow service for the physical briefcase, is available Open Access on the project website to the educative community, so all teachers can use it freely in their workshops and courses. We have recently created four new thematic Briefcases; gold, cobalt, tin, and platinum and we developed a 3D/Augmented Reality Briefcase Game, which aims to attract older students and the general public visiting museums and science centers. The 3D BRIEFCASE GAME has been translated into 22 languages, you can play it by clicking [here](#).

Would you like to participate in our workshops?

Contact us and visit our [website](#) for more information.

3D   
**Briefcase**  
of mineral applications

The   
**Briefcase**  
of mineral applications



Learning the uses of minerals  
through non-conventional  
teaching tools

#### Website

<http://briefcase.eitrawmaterials.eu/the-project>  
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# RM@SCHOOLS

## Young ambassadors in action

Metals and minerals are essential to our everyday life as well as to support the transition to a sustainable economy. They are needed to produce renewable energy and to store this energy in batteries, which are needed for elements of sustainable transport and infrastructure, such as electric vehicles. Raw Matters Ambassadors at Schools (RM@Schools), a project supported by EIT RawMaterials Academy, aims to promote science education and careers in the raw materials sector for students aged 10 to 19 by combining technical knowledge and soft skills like creativity and communication. Students have varied and unique hands-on opportunities to interact with relevant experts and researchers, and then they become Young RM Ambassadors in turn and spread their knowledge to other students and a wider public.



RM@Schools is an innovative programme, which trains students from age 10 to 18 to increase their understanding of how raw materials are needed in modern society. RM Ambassadors – experts and researchers in raw materials related issues – propose active learning paths to schools on RM-related topics, so students are involved in experiments with RM-related hands-on educational kits, in excursions to industry partners, and in science dissemination activities. The RM@Schools methodology is easily replicable, suitable to different contexts, adaptable to local needs, flexible in

its educational approach and able to reach a large audience. Its message works at different levels and gives value to all disciplines, thus strengthening connections between science, creativity, and responsible citizenship.

Today the RM@Schools consortium involves 28 partners; scientific organisations, universities, and companies from 18 European countries. This European network constantly works to activate cooperative processes between the three sides of the knowledge triangle:



business, research, and education.

### How does the RM@Schools methodology work?

Classes are first introduced to the raw materials topics by researchers, known as RM Ambassadors. Then, the students are asked to work in teams to develop something by themselves: communication products such as videos, lab toolkit, games, etc. They can also plan to organise a public event or a lesson in a class of younger pupils. In this way the trained students become Young RM Ambassadors themselves. Within this learning pathway, they can visit industry to gain understanding of the relevance of scientific projects to real-life applications. Young RM Ambassadors participate in a variety of local and international events such as science exhibitions, competitions, and product presentations, as well as in the annual European Conference with delegates from schools all over Europe. In addition, teachers are trained to become RM Ambassadors, and selected groups of students are trained on digital competence, video making, and other activities.

All the produced materials and the best communication materials created by pupils are accessible online too. 2,650 students were Young RM Ambassadors between 2016 and 2018 and a further 1,500 students are involved in 2019.



#### Website

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# STUDENTS 4 RETAIL RETROFIT

## Students as ambassadors in the energy transition

We often hear that not all store owners are motivated to make their store more sustainable, simply because their customers don't ask about the energy performance or climate impact of their operations and premises. They don't envision that this topic guides customer buying preferences. So, spending time or money to bring down the store's energy use and climate impact will not result in the benefits they would like to see. This raises the question: can customer mobilization help shape storeowner choices and by doing so accelerate store retrofit rates? The Students 4 Retail Retrofit project is designed to experiment on this specifically.

The Students 4 Retail Retrofit (S4RR) project, implemented by Ecomatters and Technotrend will work with six primary school classes in the city of Utrecht to raise awareness of store owners and their customers. Schools are excellent places to use as an investigative and mobilizing force, as their students can act as ambassadors for the energy transition on a neighbourhood level.

The expectation is that this project will increase bottom-up awareness and will drive behavioural change by improving the store owners' willingness to invest in the transition, while at the same time practically expose students to the potential of technical education around energy saving measures as a future job prospect.

### Project implementation activities

During five lessons each class will have time to interview both store owners and their customers about their openness to reducing their climate impact and their ambitions towards retrofit. To further nudge the store owners' appetite towards retrofitting, the project will focus on creating a social media buzz around the activities. During the interviews store owners and customers will be challenged to show their support for sustainability and energy efficiency. Excited participants will be photographed and each picture will be posted through the 'Klimaatgerust' social media channels. On top of this, vlogs will be made by the engaged students during the project's activities. Showcasing their positive contribution towards the biggest challenge of our time.



## The wider ambitions of Klimaatgerust

The project is based on a larger program called Klimaatgerust, which is implemented by Ecomatters and the Climate Neutral Foundation. Klimaatgerust is committed to getting companies and consumers to support each other towards climate-neutrality.

### Why do we do this?

With the 2015 Paris climate deal and increasing national sustainability objectives objectives entrepreneurs are expected to make substantial energy use and climate impact changes.

All great developments, but the question is; how do we ensure everyone, including the shop around the corner, can manage to take part in the enormous transition ahead?

On top of this, the Retail sector faces particular challenges in reducing their impact, due to the prevalence of small and medium enterprises (SMEs), narrow profit margins, split incentives between building owners and tenants, and the advent of online ordering through web-based shops. Therefore, the Klimaatgerust programme supports retail and hospitality with very practical step-by-step climate impact reduction plans and certificates to show how well individual entrepreneurs are doing. All with the key message: it's a gradual process, no need to do everything at once.



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### Website

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Climate-KIC



RawMaterials

Connecting matters



Food

3D   
**Briefcase**  
of mineral applications

The   
**Briefcase**  
of mineral applications



## STUDENTS 4 RETAIL RETROFIT



RawMaterials

RM@Schools 

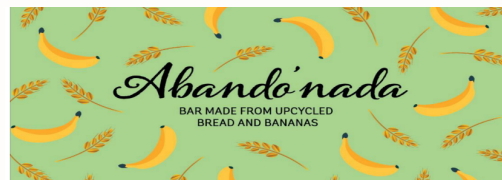


Food

GOVERNMENT EXECUTIVE ACADEMY



food  
.....  
unfolded



Food

Consumer Engagement Labs