1.5 Good practices examples in CE business models in the food supply chain

e-module 1: Circular economy and food supply chain
October 2021

Three good practice examples

- UNVERSCHWENDET, AT
- OLIO, UK
- Permafungi, BE

UNVERSCHWENDET, AT

- Gives superfluous fruit and vegetables a new purpose by reworking them into jam, mustard, syrup, chutney, bruschetta etc.
- Founded in 2016 by the siblings Cornelia and Andreas Diesenreiter in Vienna
- Saved over 5 million kilograms of perfectly fine fruits and vegetables
- Use of an AI to help dealing with the surpluses

UNVERSCHWENDET

https://unverschwendet.at

Field of Work

- Process fruits that are not sold because they are too big, too small, ripe at the wrong time, do not have the right color or are simply too much

- Use unprinted newsprint rolls for the packaging of the glasses

- The start-up relies on regional farmers and people who want to share their harvest

- Their network consisting of more than 43 fruit donors

“For us it's all about enjoyment! Sustainability has nothing to do with doing without”

Working with an Artificial Intelligence

- In the food industry, food sometimes arrives on the market too early or too late due to "wrong planning" and then finds no buyers.

- “Overproduction" causes the tonnes of discarded food to grow enormously.

- By developing a smart surplus management system (an Artificial Intelligence), they could systematically record surplus fruit and vegetables in agriculture and make them commercially available for the food industry, gastronomy and (wholesale) trade

- In the long term, data collection and the use of machine learning should improve the predictability of surpluses.

Smart Surplus Management System

- All surpluses available on the market are displayed clearly to make them commercially available for the food industry, gastronomy and (wholesale) trade
- Potential buyers are suggested accordingly
- Together with the *University of Natural Resources and Applied Sciences* in Vienna relevant factors for surpluses (precipitation, market prices, standards, etc.) are identified and an automated forecast model for future surpluses will be developed
- Surpluses are brokered and/or sold via different distribution channels as fresh products or storable intermediate products

Lesson learned

- Perfectly fine food is often not used for commercial sale because of its‘ size, shape or color -> can be reworked into other products to avoid food waste
- Food waste is often the result of wrong planing that leads to overproduction -> new technology can help to predict surplusses and avoid food waste
- Sustainability and technological innovation go hand in hand
- Companies involved in research activities can create remarkable win-win situations

OLIO, UK

- OLIO is an UK based app that connects neighbors with each other and with local businesses so surplus food can be shared, not thrown away
- Founded in 2015 by Tessa Clarke and Saasha Celestial-One
- The app has almost 5 million users

https://olioex.com

Impact

- 50% of food waste is produced in the gastronomy or private homes

- The impact of the app in numbers (October 2021):
  - 21,267,532 shared portions of food
  - 52,355,572 equivalent car miles saved
  - 3,177,992,110 saved litres of water

- Also redistributes surplus food from companies, restaurants and markets to the people

- Offers a lesson plan and other tools to talk about food waste in schools

Carbon Negativity commitment

- OLIO is a carbon negative company
- Far more greenhouse gas emissions are diverted than being produced
- The carbon emissions the business creates offset 4% of all the carbon they are saving as a result of the waste saving
- Transparency about emissions: yearly publication of emissions

Lesson learned

- Community is an important factor in CE and food waste avoidance
- Information of the community plays an important part in sustainability and for social entrepreneurship
- Starting small can be the base for a worldwide success

Permafungi, BE

- Permafungi is a social cooperative settled in Brussels
- Grow oyster mushrooms from urban waste (coffee grounds)
- Provide a sustainable and stable job to young people in Brussels
- In 2018, Oyster mushroom production reached 1 ton per month

PERMAFUNGI

https://www.permafungi.be/en

Field of work

- From five tones of coffee grounds, they produce one ton of fresh oyster mushrooms and (further on) ten tons of organic fertilizer

- Every morning, they collect organic coffee grounds from their collaborators by bike

- Coffee grounds are then used as a substrate for growing the oyster mushrooms, which are also organic labelled

- The oyster mushrooms are also used as a material for their Ecodesign-project (for example LumiFungi – a lamp that is handmade, organic and biodegradable)

- Permafungi has a training program to teach their methods

“In nature, waste does not exist.
Why not be inspired by it?”

Mushroom cultivation

- Inoculation
  - Coffee grounds are mixed with straw and mycelium (the mushroom seed) and put in bags

- Incubation
  - The bags prepared during the inoculation step are then placed in an incubation room for an approximate period of 2 weeks
  - During this stage, the mycelium is going to colonize the substrate, “eating” and decomposing the coffee grounds

- Fructification
  - When the mycelium has colonized all the substrate, it is forced to reproduce.
  - To do so, it is confronted with a shock of lamp, freshness and humidity.
  - A few days later, the oyster mushrooms are ready to be harvested
  - The residue or rest of the oyster mushroom production is reused as a compost for chicory cultivation

Ecodesign

- Champost (a residue of oyster cultivation) is turned into a sustainable and biodegradable material by adding mycelium

- Mycelium (the mushroom seed) can be transformed into a material which can replace plastic – the myco material

- This material generates ten times less carbon dioxide (CO_2) and uses about eight times less energy than the production of polystyrene foam

- Many possibilities exist with myco material: lights, flowerpots, decorative objects, packaging, building bricks, acoustic panels

Lesson learned

- Innovative techniques can open the door to new sustainable materials
- Waste is reworked into new materials without producing new waste – 100% circular
- Sharing their knowledge and techniques is in the true spirit of social entrepreneurship

INDIVIDUAL/GROUP WORK

Working tasks – 2.5 hrs

- Find three good practice examples in your country or in Europe.
- Choose one favorite example and sum up the key facts about this CE business model.
- Explain it to one of your colleagues and describe the most fascinating aspects.

CONSULTATION

Working task – 1 hr

- Tell your supervisor what you found out so far and where you had difficulties.

TRAIN-CE-FOOD project

https://traincefood.si/en/home-english

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