Story

The food waste is constantly increasing and ranges globally between 30% and 50% of the produced food. It can occur at any stage of the food value-chain, comprising production, processing, retailing or consumption. The causes of food waste are numerous, and the waste patterns vary between countries. The largest food waste in the developing countries is made at the production and processing stages. On the other hand, in the developed countries, most of the food waste happens in retail and consumption stages.

We have to underline that food waste has a large impact on sustainability as it affects many environmental, social and economic issues. Food production and food waste are closely related to depletion of natural resources, fresh water use, land, energy, wildlife and ecosystem balance. Moreover, food production and food life-cycle management are largely affected worldwide by climate changes, natural disasters. Furthermore, food quality is critical issue for healthcare, for social and economic regional development.

The specific idea concerns development of a standardized ready-to-use IoT solutions and platform in order to reduce food waste and to improve regional food value-chain management.

The platform will improve regional food management practices, covering all aspects of the food life-cycle chain management. By promoting better coordination and communication mechanisms between various stakeholders, it will use Big Data Analysis and ML solutions to facilitate decision making by providing prescriptive and proscriptive solutions.

The platform can comprise the following features:

- Production stage: IoT sensors and ML solutions operating in local farms and food-producing companies. IoT will collect various sensor data about food production, managing better water and land use, coordinating weather forecasts, context-related process management and planning, equipment maintenance, delivering best practices and knowledge solutions;
- Processing and logistics stage: implement IoT solutions for improving all elements of the processing and logistics: packaging, storage, transportation, delivery, stock;
- Retail: improve storage facilities, expiration dates management, combine potential strategies for involving B2B users and stakeholders (markets, shops, restaurants, hospitals, foods banks, etc.)
- End-users: Raising awareness and customer education. Consumers can reduce spoilage by planning their food shopping, avoiding wasteful spontaneous purchases, and sharing practices how to store foods properly.
- Final pre-processing of the food-waste – facilitate collection and processing of the food waste by composting, in order to produce soil and fertilizer, fed to animals, or used to produce energy or fuel.

The platform could support different business models of the intelligent enterprise, including for example:

- Private company, operating the platform as a business project and collecting fees from different stakeholders.

- NGO, operating as platform for minimizing food waste. It can promote better regional food management by increasing coordination and communication from public and private sectors;
- Public (regional) authority, coordinating and managing food waste reduction, sharing good practices for sustainable regional food management. This platform can be integrated to Smart city platform (or any smart waste disposal).

All of these use cases or business models can improve access to new intelligence and creation of many new value-adding mechanisms by integrating ML and big data management.

The idea will affect the business as follows:

- Reduce and prevent food waste – economic, social and environmental impact;
- Reduce business/personal/public and environmental costs from food waste;
- Improve efficiency in food management by improving coordination mechanisms between different stakeholders;
- Work on regional level, making it easy to organize and implement.
- The idea for the platform can be modular and can be adapted to specific regional and public requirements.