# AI TALENTUM

# PREDICTIVE ANALYTICS FOR SMART COMPANIES

**About AI Talentum**

AI Talentum is an innovative technology-based company specialized in artificial intelligence, machine learning and high performance computing, with a set of algorithms for providing predictive insights in a wide range of fields. Our team of data scientists and computer experts get the most of your data to improve and accelerate your decision making processes. With proven experience in raw materials prices, electricity market, industry 4.0 and food, trough full-stack solutions to make the most of the data generated in your company.

A team of **multidisciplinary** professionals from technological sectors and experimental sciences.

Experts in algorithm development, **artificial intelligence** and advanced data analytics.

Focused on the design and development of simulation, **forecasting** and recommendation models.

**Competences**

We develop predictive models using techniques of artificial intelligence and machine learning. Our expertise and technology is focused on the development of simulation, forecasting and recommendation models in real time, through expert systems, algorithm development and the processing of internal and external data.

- Artificial intelligence, Machine learning & Deep learning
- Data mining, Data intelligence (integration, management, analytics , insights and visualization)
- Algorithm development, Metaheuristic optimization, Parallel programming
- Image-to-text, Artificial vision, Vehicle route optimization and GIS
- Web services, Apps, Graphic interfaces and Chatbots

**Fields**

Food, Food quality, Food safety, Food waste, Carbon footprint, Water footprint, Price forecasting, Industry 4.0, IoT, Predictive quality control, Electricity market

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# Data analytics and ITC services

**Data analytics and ITC services**

The automation of processes, the massive use of ERP, the wave of technological changes and the constant and sustained increase in the volume of transactions of companies, have led to a large part of their information being stored in their system. Normally, such information is not reviewed, much less analyzed since, erroneously, it is believed that it is difficult to obtain or that it would require a great effort to process it in contrast to the benefits it could provide. However, companies have observed that this data can become very valuable information to boost their businesses.

In this context, AI Talentum provides processes and/or techniques of Data Analytics that, with access to internal and/or external information (quantitative and qualitative) allow to obtain a better information about processes.

In addition, we provide different ICT services to fully cover projects' needs.

a) **Data intelligence**. Descriptive, Diagnostic, Predictive and Prescriptive analytics. From integration of available information, to management, analysis and insights from that.
b) **Different levels of specification**. Classification, simulation, predictive and recommendation models.
c) **Mathematical modeling and Algorithm development**. Adapted to project needs.
d) **Web services**. For exchanging data between applications or systems. SOAP and RESTful.
e) **Web and mobile applications**. Multiplatform and Multilanguage.
f) **Chatbot development**. Robust, industry-specific Chatbot applications based on specific customer requirements.
g) **OCR (Optical character recognition)**. Recognition of text inside images, such as scanned documents and photos.
h) **Artificial vision**. Acquisition, processing and analysis to understand real-world images in order to be processed by a computer.
i) **Full-stack solutions**. We provide you with a complete product or service which handles the entire value chain of your activity.

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# Carbon and water footprint

**Carbon and water footprint**

The reduction of the carbon and water footprint is one of the priorities of companies and institutions. When planning how to reduce their environmental impact they can find that is difficult to calculate and it is more difficult to design an effective plan to be **carbon neutral**. That is why we are developing advanced models for the management of $CO_2$ emissions and water waste in organizations, and more specifically for the development of decarbonisation plans that entities will require in the coming years for their products and services.


Different operational actions could be integrated in new proposals:

a) **Development of an advanced platform for the evaluation of the carbon and water footprint**. It is not a simple calculator but a workspace that allows an active management of the emission sources and the methodologies for their evaluation, both standardized (DEFRA, BilansGes, GHG Protocol, Scope 1+2 Calculator, Carbon Trust, Global Water Footprint Assessment Standard…), and customized (formulas and own factors result of personalized studies of the sector). It is multi-sector, multi-company and multi-location system.

b) **Optimization of future scenarios**. Based on advanced algorithms that would look for possible solutions (heuristic) to the problem of selecting and comparing future emission scenarios an impacts. The expected result is a collection of possible emission scenarios and plans for the distribution of the investment, depending on the restrictions that are applied on the desired level of investments and the actions on emission reduction and the improvement of processes contemplated.

c) **Expert system for the search of the ideal reduction and compensation scenario incorporating the price component,** both current and future price. It would be the basis of decarbonisation plans and the proposal of economic incorporation of the effect of $CO_2$ in the real economic activity of the organization that applied it.

d) **Evaluation of the impact of new procedures**. By comparing the carbon emissions and water waste of a standard procedure and an improved one, we could see the effectiveness of corrective actions.

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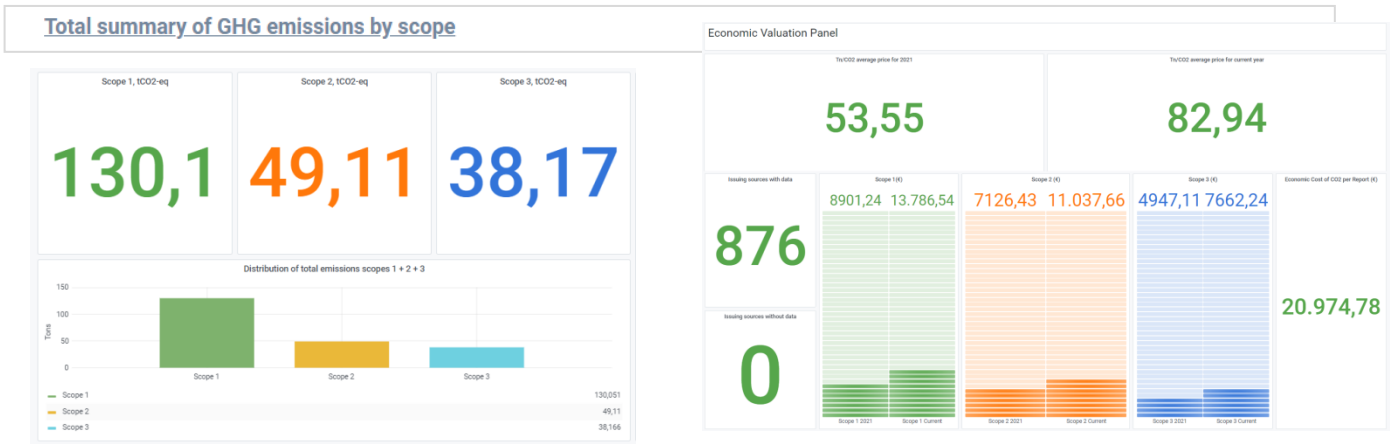
**GoGreen - Smart platform for quantification of $CO_2$ and $H_2O$ footprint in economic activities**

GoGreen simplifies the tasks associated to the calculation of GHG and Water footprint through support systems guided by artificial intelligence.

The tool is **based on approved standards** on commonly used conversion factors (DEFRA/DECC, GHG Protocol, BEIS, EPA, Carbon Trust, Global Water Footprint Assessment Standard) for the calculation of carbon and water footprint.

It allows a reliable base for companies to follow the path of the long-term strategy for GHG emissions reduction in the EU and helps making more informed green choices, based on **green taxonomy**.

GoGreen incorporates a **blockchain** module that allows the register of the environmental impact of the process, paving the way for **external certifications**.




European Factory Platform

Integrated in the **federated European platform EFPF**.

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# Life Cycle Assessment

**Life Cycle Assessment (LCA)**

The **LCA** measures the environmental **impacts of a product or a service**. This analysis tries to answer the question about what environmental impact one object or service has on the world around it.

LCA allow companies to **comply with regulations** in the case, for instance, of public projects. They are required to disclose the environmental data of their products. But also contributes with **new product development** by pushing companies to be more efficient regarding resources and offering products and services as low in emissions as possible.

The environmental impact of every step of the production process or service providing can be measured and assessed to help in decision-making processes regarding how a company can have a more positive impact on the environment.

**Who is an LCA interesting and useful for?**

- **Product Management**. To comply with regulations.
- **Research and Development**. To develop new sustainable products.
- **Supply Chain Management and Procurement**. To find better suppliers.
- **Marketing and Sales**. To act on customer demand for sustainability.
- **Executive Level and Strategic Management**. Incorporate sustainability in the entire business.

Our methodology for LCA supports companies with the quantification of the environmental impact of their products and services along the entire process, from the raw materials used to the logistics.

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# Fourth Range Digital Twin

**Intelligent monitoring software for fruit and vegetable companies**

The monitoring software is an intelligent system for vegetable processing plants, for an **eco-efficient production**. Having under continuous watching the different steps of the process give companies a better resilience in facing unforeseen events, alterations or internal changes in the plant, as well as changes in external parameters (such as demand, health alerts, etc.). The system uses **carbon and water footprint of the process** (from farming to logistics) as environmental impact indicators.

The complete and integrated system provides a wide range of benefits for fresh products producers:

ECONOMIC

- Reduction of the **consumption** of raw and auxiliary materials, packaging, water and energy.
- **Prevention and reduction** of losses, shrinkage, waste and discharges (volume and pollution levels).
- Reduction of production **costs**.
- Increase of the **competitiveness** of the company.
- Increase of the **resilience** of the company against internal factors or external factors.

ENVIRONMENTAL

- Reduction of environmental degradation.
- Better image of the company.
- Greater legal **compliance**.
- Improvement of the relationships with Administration and stakeholders.
- Path towards **sustainability**.
- Allow the improvement of the working method of all employees and favor the **transfer of knowledge** and "skills" between staff .

SOCIETAL

## Reduce your carbon and water footprint

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# Agricultural Carbon Credits

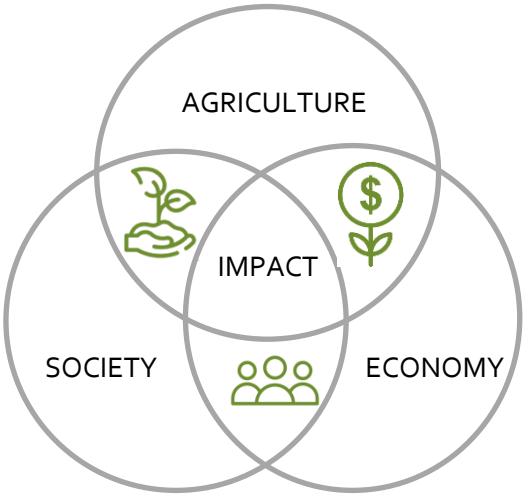
**Agricultural Carbon Credits**

By combining different layers of information, **we support farmers in the characterization of their agricultural parcels**. Farmers who wish to join to a compensation program are provided with a report that analyzes the exploitation of crops from the perspective of land use, adaptation and vulnerability of the crop, soil properties, geological and geomorphological data, areas susceptible to flooding, natural and climatic risks, and potential carbon sequestration.

The result of the analysis is registered in the **blockchain**. The use of blockchain is a key element for the democratization of the process and for data verification. It also allows:

- To provide real-time traceability of the indicators that make up certification
- To obtain the life cycle of the crop within the framework of the Program
- To guarantee the correct management of the credit inventory and its transactions
- To transparently distribute opportunities and resources among farmers

Local farmers can take benefits on turning their fields and crops into **carbon sinks** and being compensated for that.

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**Retail Intelligence for supermarkets**

**aifood** is the app for supermarkets that want to attract their customers towards **healthy, sustainable and environmentally responsible consumption**. By exploring the information shared by your customers you can strengthen your brand image and build long customer relationships.

**Personalize the experience for each customer**

Get to know their consumption habits and tastes and identify their purchasing trends to improve and personalize the experience with valuable content and products adapted to their needs..

**Discover the global purchasing behavior**

Take advantage of the shared information to create global purchasing profiles and learn about the behavior of your customers outside your supermarket, allowing you to create hyper-personalized strategies and targeted counteroffers.

**Build loyalty with your customer**

Offer personalized recommendations to your customers based on their user profile, their purchases and detected nutritional needs and build a communication channel between your brand and your customers.

**Build a community of healthy and responsible consumption**

Offer personalized recommendations to your customers based on their user profile, their purchases and detected nutritional needs and build a communication channel between your brand and your customers.

**Some features available:**

- Nutritional chatbot
- Personalized nutritional recommendations
- Recommendations for sustainable options
- App for scanning purchase receipts
- Multichannel: email, web, app...
- Connection with supermarket IT systems

aifood

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# European Projects

**EIT Food projects – 2020**

- **VITAL: Validation of Innovative Tools to Assess and to improve microbioLogical safety in the food chain**. Conventional microbiological testing takes time to get results. This impacts the supply chain, causing delays to get to market whilst results come back on finished but not shipped goods. Rapid methods solve this problem, but they need to be proven to work as well as the standard microbiological methods that they replace. AI Talentum developed an algorithm comparing historical standard microbiological tests against the rapid method tests, allowing food companies to radically reduce the number of verifying tests they will need to do, to ensure the rapid method works in their food matrix of interest.

- **Towards a smarter shopping list**. Development of an interactive platform for families with children from different countries (Spain, Italy and Finland) where they will have the opportunity to receive information and advice about how to improve their food habits and choices. AI Talentum was responsible of data analytics, personalized recommendation models, chatbot development and OCR mobile application for tickets. Visit the platform at https://t-assist.eu/.

# European Projects

**EIT Food projects – 2020-2022**

- **End-to-end digitised production test beds.** This joint Cross-KIC activity, coordinated by EIT Manufacturing together with EIT Digital and EIT Food, will establish innovative and future proof end-to-end digitized test beds, customer-centric, end-to-end scenarios at the food & beverage sector considering the whole product life cycle. AI Talentum participated in the following work packages:
  - WP1: Elaboration of an overview on maturity of AI innovations in manufacturing. 2020.
  - WP2: Elaboration of a concept for end-to-end digitalised test beds. 2020.
  - WP3: Selection of partnership for implementation process during 2021-2022.

- Implementation of the test beds: AI Talentum participated in two selected test beds:
  - **iFishCan**: Reduce food loss, food waste and environmental impact of fish canning manufacturing industry.

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  - **SAIFE**: Improve safety in food production environments by using AI optical sensors. The system aims to avoid collisions between people and forklifts by warning them before an accident occurs.

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- **Innovation Fast-Track: AI-FOOD: AI-based mobile app with recommender system for food retailers and clients.** Development of a pilot based in the experience acquired during a previous KAVA to optimize the result and fasten the go-to-market strategy.

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# European Projects

## TITAN

The TITAN Project is a 4-year Horizon Europe project aiming to increase food transparency in the food supply chain and provide consumers with healthy and sustainable food. The consortium comprises 28 partners including food-related SMEs that will contribute to the development of a wide range of innovations that aid transparency and address key-challenges identified in the European Green Deal, Farm to Fork and Sustainable Development Goals (SDGs).

The TITAN innovations will address the following themes:

- ✓ transparency of information to consumers for better food choices;
- ✓ transparency for enhanced food safety and authenticity of products;
- ✓ better information on health and sustainability of food products.


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