



WP1 Fact sheets potential living labs




This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 824769

1 FACTSHEETS OF POTENTIAL LIVING LABS

On the basis of the 23 regional interviews fact sheets for those potential members of the network of Living Labs were prepared. documents contain the short introduction of the potential Living labs e.g. their availability, their activity, expertise, references. These documents can be used for dissemination of Living labs network on the website of SS4AF.

2 BELGIUM- FLANDERS REGION


General information		
Name	Food Pilot	
address	Brusselsesteenweg 370 9090 Melle	
website	www.foodpilot.be	
type of organization	RTO - SME	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Fully equipped food processing plant – state-of-the-art equipment	Core business of the food pilot is to study the impact of different food processing steps: On pilot plant scale to study impact of processes on food quality. On lab scale to analyze food quality and the impact of processing steps on the food quality.	All types of expertise and services on food processing are provided at the Food Pilot. Covering the entire food processing value chain.
Sterilization	UHT, autoclave: fully sensed equipment with real time data processing to define F0 value and monitor the entire process in the data platform	
Vision inspection	Lab scale: all cameras to cover the entire electromagnetic spectrum (NIR, infrared, hyper spectral) Pilot scale: conveyor belt, hyperspectral cameras, NIR, robotic arm	
Digital platform	Connecting processing equipment to steer tasks and monitor processes. The system includes digital algorithms to monitor and do real time data interpretation.	They develop the digital platform with external specialists. Sensor producers, integrator (installing hardware), equipment and machinery suppliers, programmer in-house). Algorithms are developed by the food pilot itself. Data processing is done in-house, using machine learning technologies.
Modus operandi to address questions from SMEs		


They offer regular services and contracted testing. Infrastructures can be hired by third parties use of equipment must be done by Food Pilot Staff. Clear IP rules are in place to assure confidentiality.


The Food pilot is as well involved as project partner in different funded projects

Additional information

The Food Pilot is very wel linked with other RTOs in the agri-food value chain to elaborate custom made projects including all important stakeholders

General information	
Name	Sirris
address	Gaston Geenslaan 9, 3001 Heverlee, Belgium
website	www.sirris.be
type of organization	RTO - SME
	
Quick check basic Living lab requirements	
Expertise regarding food processing	Limited – automation of process flow steps
Expertise regarding industry 4.0 technologies	Yes
Provides easy access	Yes
Offers test before invest services	Yes
Offers training	Yes
Available technologies and services	
Flexible automatisation , operator support and transparent production	The infrastructures include: cobots, vision systems, force sensors, gripper systems, offline programming and simulation, AGVs , IoT devices to capture machine data
Smart data use	Smart use of data is a good way of gaining the competitive advantage nowadays. Whether you're aiming for more efficient processes, greater personalisation, or new products or services: you need good, substantiated data
Mechatronics	Your products, machinery and production equipment all have to meet ever more exacting requirements. How can you make your production more efficient, faster, more precise, quieter, cleaner and more flexible?
	The have inhouse expertise, technology surveillance, state-of-the-art equipment and can elaborated feasibility studies
	They offer industrial advice, joint R&D projects and individual or collective training sessions
	Is now the right time to integrate smart sensors into your machines? Model based product development
Modus operandi to address questions from SMEs	
They provide contracted services, consultancy, coaching and bilateral (subsidised) projects	
Additional information	
ColRobFood , SensInFood , Operator 4.0 are 3 examples of current collective research projects in collaboration with Flanders' FOOD.	


General information	
Name	Proeftuin AR/MR
address	Wetenschapspark 2 3590 Diepenbeek Belgium
website	http://www.ar4industry.be/proeftuin-ar-mr/
type of organization	RTO
	
Quick check basic Living lab requirements	
Expertise regarding food processing	limited
Expertise regarding industry 4.0 technologies	Yes
Provides easy access	Yes/No – conditions?
Offers test before invest services	Yes
Offers training	Yes
Available technologies and services	
Augmented and mixed reality framework	for a wide variety of production and lab related tasks
Demo cases	demonstrator cases that can be tested hands on and inspire companies
Helpdesk	to translate the questions and requirements of the application field and technical partners
Modus operandi to address questions from SMEs	
They involve in bilateral projects and contracted testing. Infrastructures can be hired by third parties use of equipment must be done by skilled technicians.	
Additional information	
They collaborate with consultants that have food processing companies as clients	

General information		 MANUFACTURING INNOVATION NETWORK
Name	Flanders Make	
address	Gaston Geenslaan 8, 3001 Heverlee Belgium	
website	https://www.industrie40vlaanderen.be/proeftuinen/collaboratieve-werkcel-40 ; https://www.flandersmake.be	
type of organization	RTO – non profit	
Quick check basic Living lab requirements		
Expertise regarding food processing	No	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Operator support:	working instructions (visual and AR), quality inspections	Different technology stands are available for testing and demonstration purposes. They can easily be configured for different conditions
Advanced robotics:	robots, cobots, sensors, ease of programming (more intuitive), design of robot cells, man-machine interfacing	
Levers and lifting systems		
Ergonomics based on Sensor data		
Visual quality inspection,	anomaly detection, condition monitoring (especially for rotating parts), predictive maintenance	
Mobile robots for assembly and logistics	Automotive tests, maintenance, production and engineering, and assembly	3 different locations
Measurement systems, localisation		
IoT,	Cloud-based systems, data analytics. Platforms for capturing data in cloud system, Digital Twins.	
Model based design of production		
Other type of services	Testing of vehicles, AGV, power trains; An autonomous tractor equipped with different sensors;	


Electrification of vehicles and tooling; Indoor AGV (forklift)
Modus operandi to address questions from SMEs
Daily or /hourly fees has to be paid for assistance according to agreement
Additional information
Associated labs at the univesities and university colleges. Imec, Flanders Food, VIL, DSP Valley.

General information		
Name	3if	
address	Kasteelpark 10, Heverlee, Belgium	
website	www.3if.be	
type of organization	non-profit (no legal entity)	
Quick check basic Living lab requirements		
Expertise regarding food processing	No	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Condition based maintenance	Everything is carried out at the premises of the end-user. 3if does have the expertise:	Proeftuin (in cooperation VersaSense, Aloxy, crescent, e-watch
Agile manufacturing & Robotics		Indoor drone system for agile manufacturing (cooperation with EUKA)
Logistics & Packaging		
Tracking and tracing		some experience in projects with food safety and condition monitoring.
Process optimization and supply chain		FactorySense – collection of sensor data and to optimize process, (software for process monitoring and dashboarding)
All kinds of cybersecurity issues		Cybersecurity for industry (cooperation with L-SEC)
Modus operandi to address questions from SMEs		
<p>Agrofood has also a lot to do with regulations and certification. This is a limiting factor. In every step of the process one has to take into account the legislation and regulations regarding food safety. This is a very specific topic or domain.</p>		
<p>Projects are carried out at the premises of the companies</p>		
Additional information		
<p>3if does not have a physical location or a lab to demonstrate the technology or the competences. All projects are being done at the premises of companies, with a close involvement of the end-user</p>		

3 HUNGARY-CENTRAL-TRANSDANUBIA REGION


General information		 TECHNOLÓGIAI KÖZPONT
Name	BME FIEK Industry4.0 Technology centre	
address	Magyar Tudósok körútja 2. Budapest, Hungary	
website	www.ipar4.bme.hu	
type of organization	university	
Quick check basic Living lab requirements		
Expertise regarding food processing	partially	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes - The demonstration is free of charge. For the service and use of the facilities a fee has to be paid (it can be based on time or project according to the agreement)	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Industry 4.0 solutions	Internet of Things, Big Data, Digital Twins, 3DPrinting, Automated Guided Vehicles, RFID (Radio Frequency Identification), in-door positioning etc.	Implementation of Industry 4.0 technology in the sweet industry
Demonstrate more than 20 type of industry 4,0 solutions for the industrial digitalization	augmented reality, "green factory", complex dynamic simulation and monitoring, 3D printing, automated guided vehicles, fault identification, industrial robotics, virtual installation, digital twins, augmented reality on process line, monitoring of the production cell, data collection, big data, digital production planning, system integration, indoor positioning, RFID based electronic consignment note, logistics, "smart greenhouse", sensors application, production process control	Partners are Festo, SAP, Siemens, PTC, Balluff, S&T etc. develop the models in the lab Continuous following and analysing of production parameters (pharmaceutical factory)
3 types of training course	IT basis of Industry 4.0 technology Smart production (MES, production planning system, data analysis) Automation of Logistics	
Expert consultations for generating new project		
Modus operandi to address questions from SMEs		
The demonstration is free of charge for the companies, registration and prior agreement necessary		
Needs of Consultation and coaching and training courses		

Additional information	
Closer cooperation with food machine manufacturer regarding the data extraction from the PLC system	

General information		
Name	Antal Bejczy Center for Intelligent Robotics (IROB)	
address	1034 Budapest, Bécsi út 96/B.	
website	www.irob.uni-obuda.hu	
type of organization	University Research Lab	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes - All the stakeholders can access our facilities on contract based cooperation with our presence and with our operation of the equipment	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Development of robot- and artificial intelligence applications	With robot arms / mobile robots, sensors and grippers using our expertise we can manage experiments related to the process using test (substituting) materials.	Meet industry : H2020 ROBOTCHER project
System integration, industrial control	Sensors, robot applications, data acquisition, etc. We can develop complex process integrations and sensor technology validations.	Foreign material separation from dry material / e.g., grain, vegetables / in-lab pilot scale
Testing and validation of sensor technologies, preparation of research studies	Complete design of sensing and actuation systems. Design and implementation of experimental arrangements, developing calibration protocols, lab scale testing.	Integration of multiple analytical parameters e.g., gas analysis and NIR technology, etc.
Consulting and coaching for food processing SMEs and larger companies.		
Modus operandi to address questions from SMEs		
Integration of multiple analytical parameters		
It is necessary to demonstrate to SMEs the advantage of the digital solutions and their cost-efficiency.		
Education is needed to reach the optimal level of knowledge		


Additional information

We are open for project-based collaborations supporting proof of concept validations of various advanced technologies in lab-scale. We can also support the technology integration in large scale production.


General information		
Name	IoT&Data Innovation Lab	
address	1117 Budapest, Pazmany P. s. 1/c., Hungary	
website	www.eltesoft.hu , www.innovationlab.hu	
type of organization	non-profit enterprise	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes/ in application cameras	
Expertise regarding industry 4.0 technologies	Yes (AI, Data Analytics, ERP)	
Provides easy access	Yes – Project-based or with contract, but we offer free demonstrations	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Data Science	Data-Analytics, Artificial Intelligence, Data Visualization, Image Processing, Process Analysis, ERP (SAP) and Information Systems, Process Management, Blockchain (tracking and monitoring), IoT sensor processing, – IoT Sandbox, Robotics	EIT Digital project: „Modernisation of the food processing through digitalization and Industry 4.0" (Campden BRI Hungary, CNR Italy, ELTE) 2019: Innohealth Datalake
Camera systems - image processing		Mold detection in meat product.
Real time data visualization	AgriTech: bee voice Smart beehive: bee counter, Varroa destructor detection.	
Proof-of-concept solutions	Mangalica pig farm: unique identification, tracking and real-time monitoring. Duck farm digitalization (weight estimation with camera, real-time monitoring of the barn, voice analysis), Rabbit farm digitalization (alerting, real-time monitoring of the barn, smart cage, unique identification).	
Data Analytics and Innovation trainings	In cooperation with Microsoft Hungary, IBM Hungary, SAS Hungary, SAP AG.	
Coaching and mentoring (start-ups),	3 student founded and 1 startup founded by a professor.	

Research services + Research Sandbox, consultancy	Technical and business support, research	
Modus operandi to address questions from SMEs		
Cheap digital solutions are needed (lack of resources to start development and testing)		
Cross-domain experts and Tech transfer are missing.		
Additional information		
Digital education, trainings and expertise support are the most important		


4 SPAIN –ASTURIAS REGION

General information		
Name	ASINCAR Food 4.0 Pilot Plant	
address	Pol. de la Barreda, TL4, parcela 1, 33180 Noreña, Asturias, Spain	
website	https://www.asincarc.com/	
type of organization	Private non-profit Research Centre (RTO) and Business Cluster (ca. 100 members)	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes (workshops; R&D projects, private contracts, services)	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Circular belt with two Hyperspectral Imaging Systems	VNIR (400-1000 nm) and a NIR (900-1700 nm) cameras	Identification of foreign bodies in food Food quality for a wide variety of products as fruits (kiwi, tomato), vegetables (lettuce), fish (tuna, hake), meat, coffee
NIR (Near Infrared Spectroscopy) portable equipment	LabSpec4 ASD (350-2500 nm)) camera	Food safety: prediction of shelf life in fresh meat Food quality and raw material control for a wide variety of products Food fraud and authenticity: identification of fish species, beef burger adulterated with horse, % of glazing water in frozen fish
Advanced on-line scales	Advanced weighing system	Control and optimization of weight losses during fermentation and drying processes
Food ERP and MES layer	Multiple sensors are already deployed over the different equipment and processes of the plant. All integrated over a centralized data hub	Process control: Online optimization of pasteurization processes and cheese maturation; Energy efficiency: monitoring of energy consumption and efficiency Alert systems: identification of unexpected events (increase T, ...)
Digital consulting	Supporting Food SMEs for the initial digital diagnosis, establishment of roadmaps, key indicators (OEE), meet IT providers, concrete implementations	Services applied in more than 75 Food companies
Training	Train staff and managers from Food SMEs in future digital skiliving labs	More than 1.000 participants every year in our training courses
Modus operandi to address questions from SMEs		
Initial diagnosis, identification of the concrete need, challenge		

Identification of best-suited technologies and Tech partners in our network (or outside if needed)
Provision of a plan and a reply, solution to the company
Additional information
ASINCAR Pilot Plant is a demonstration place designed specifically for the Food Industry. Has ca. 600 sqm. And simulates perfectly the environment of a common food industry, incorporating main equipment and all the areas and working flows present in a company.
Food 4.0 Pilot end users: provides Food companies with a demonstration site where they will be able to see/test in a practical way the benefits of using a specific digital solutions; on the other hand, make Tech actor available a space for the validation, demonstration of their own technologies as well as the integration with other IT systems currently in the plant (ERP, energy efficiency monitoring system, ...).

General information		
Name	CTIC Industry 4.0 Demo site and Showroom - CTIC Technology Centre	
address	Paque Científico Tecnológico Gijón, Calle Ada Byron, 39, 33203 Gijón, Asturias, Spain	
website	https://www.fundacionctic.org/en	
type of organization	non profit RTO	
Quick check basic Living lab requirements		
Expertise regarding food processing		Yes
Expertise regarding industry 4.0 technologies		Yes
Provides easy access		Yes (workshops; R&D projects, private contracts, services)
Offers test before invest services		Yes
Offers training		Yes
Available technologies and services		
Artificial Intelligence and Computer Vision	Incorporate intelligence into equipment/machines/robots, automated image analysis and paper records, assistants (bots), predictive analysis of business and production data	Predictive maintenance of equipment and business decision support systems Demand prediction and logistics optimization
Big Data	Processing of big volumes of heterogeneous data: pre-processing, correlations, trend analysis	Planning and optimization of production Energy efficiency WoTo: proprietary web of things and Big Data interoperable platform for the advanced monitoring of industrial processes and data analysis on real-time and streaming
Internet of Things (IoT)	Exchange of information between different devices by using Internet	Food traceability along meat processing stages Monitoring of warehouses and silos
Virtual and augmented reality	digital twins, team training in manufacturing processes and procedures, safety and hygiene	Guidance for the development of industrial tasks using Augmented Reality

Blockchain	Traceability, trust systems in the food chain	Food traceability and trustability along whole value chain i.e with PDO Asturian cider
Modus operandi to address questions from SMEs		
Initial diagnosis, identification of the concrete need, challenge		
Identification of best-suited technologies and Tech partners in our network (or outside if needed)		
Provision of a plan and a reply, solution to the company		
Additional information		
CTIC owns is a Digital Assessment Tool named e-Industria 4.0 which consists on an integral assesment methodology to evaluate the level of digitalization of a company (7 analyses, 140 KPIs, > 200 enterprise/year, 20% agri-food)		
We provide continuous training in a wide variety of topics related to digitalization (from basics to advanced topics), also technical advice and we also organize workshops addressing the digital process in specific sectors, as Agrofood, or a specific technology		

General information					
Name	IDONIAL Pilot Line				
address	Parque Científico Tecnológico de Gijón, Zona INTRA. Avda. Jardín Botánico, 1345, 33203 Gijón, Asturias, Spain				
website	https://www.idonial.com/es/				
type of organization	Private, non-profit Research Centre (RTO)				
					
			Quick check basic Living lab requirements		
			Expertise regarding food processing	Yes	
			Expertise regarding industry 4.0 technologies	Yes	
			Provides easy access	Yes (workshops; R&D projects, private contracts, services)	
			Offers test before invest services	Yes	
Offers training	Yes				
Available technologies and services					
Sensors and electronics	Sensors based on Flexible Printed Electronics (roll-to-roll)	Smart packaging for quality control in fresh beef products (Ultra) Sound Interfaces and Low Energy iNtegrated Sensors			
Virtual and augmented reality. Simulations	Artificial vision, production control and management, simulation of industrial processes, digital twins, dimensional metrology and reverse engineering	Virtual Design of Cyber-Physical Production Optimization Systems for Long Production Factories Development of digital twins and virtual models in Industry 4.0 (MIRAGED)			
Bioprinting	Production of personalised food or food forms using 3D Printing	Production of Food through Additive Manufacturing (AM Food)			
Robotics	Process automation using robotics	New technologies for more automation in European manufacturing industry (SYMBIO-TIC) Technological demonstrator for evaluating the feasibility of implementing 4.0 solutions in precision agriculture (AGRIBOT)			
Modus operandi to address questions from SMEs					
Initial diagnosis, identification of the concrete need, challenge					

Identification of best-suited technologies and Tech partners in our network (or outside if needed)

Provision of a plan and a reply, solution to the company


Additional information


IDONIAL is a industrial Technology Centre specialized in Advanced Manufacturing, Digital Fabrication as well as Advanced Materials, always keeping Industry as our target sector.

IDONIAL is already part of a network of Pilot Plants, EPPN – European Network for Pilot Production Facilities and Innovation Hubs, and in the past was also part of ENoLL with a certified Living lab related to electric car.


IDONIAL is specialized on training in innovation management and Knowledge-transfer workshops

5 SPAIN-GALICIA

General information		
Name	ANFACO - CECOPESCA	
address	Estrada Colexio Universitario, 16, 36310 Vigo, Spain	
website	www.anfaco.es	
type of organization	private and non-profit business association	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes – contract of use is established	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
sophisticated technologies	Packaging technologies and food preservation	
robotics, cobots	Robotics for process automation	SpectTUNA Project
vision systems NIR, hyperspectral cameras	Hyperspectral vision for process automation	SpectTUNA Project
3D printing		Development of new healthy technological foods for new social needs.
augmented reality		Development of new healthy technological foods for new social needs.
Modus operandi to address questions from SMEs		
Directly through the operational management of R&D		
Additional information		
<p>The Center of Advanced Technologies of Investigation for the Marine and Alimentary Industry has a surface of 5.800 m² distributed in 5 plants destined exclusively to applied research and market-oriented technological innovation, which aims to provide companies in the sector with improved products and more competitive production processes.</p> <p>Collaboration cases with an agri-food sector partner in the scope of industry 4.0: SpectTUNA: Automated modular system for cutting and classifying frozen tuna using hyperspectral characterization. Thermal multiprocessing equipment.</p> <p>ANFACO collaborates with public and private institutions in numerous countries, carrying out external cooperation and technical assistance activities, mainly in Africa and Latin America, with the aim of promoting the scientific, technological and commercial development of the sector.</p>		


General information		
Name	Aula de productos lácteos y tecnologías alimentarias (APLTA-USC)	
address	Campus Universitario, 27002 Lugo - Spain	
website	www.aplta.es	

type of organization	university	
Quick check basic Living lab requirements		
Expertise regarding food processing		No
Expertise regarding industry 4.0 technologies		Yes
Provides easy access		No – Through the request of our services, both for the development of R+D projects and for advice
Offers test before invest services		Yes
Offers training		Yes
Available technologies and services		
Sensor technology	demonstrating in-situ the operation and capabilities of the technology	
Technical means that reproduce industrial processes	provide completely scalable data at industrial level	
Modus operandi to address questions from SMEs		
Directly through the R&D area		
Additional information		
<p>APLTA has more than 20 years of experience in the dairy and agri-food sector, from the point of view of training for companies in the sector, development of new technologies and processes at a semi-industrial level, and quality analysis and control of different products in the agri-food sector.</p> <p>In recent years knowledge and application of the technologies have been extended to different agri-food sectors</p> <p>We are open to collaboration for the demonstration of new technologies and implementation in collaboration with other centres that can provide us with knowledge in areas and transfers them to the SMEs</p>		

		
Name	CETECA – Centro Tecnológico da Carne	
address	Avda. Galicia, 4. Parque Tecnológico de Galicia. San Cibrao das Viñas. 32900. Ourense (Spain)	
website	www.ceteca.net	
type of organization	RTO	
Quick check basic Living lab requirements		
Expertise regarding food processing		Yes
Expertise regarding industry 4.0 technologies		No
Provides easy access		No – On demand and conditions are analyzed in each request
Offers test before invest services		Yes
Offers training		Yes
Available technologies and services		
Technical means that reproduce industrial processes	provide completely scalable data at industrial level	
Modus operandi to address questions from SMEs		
Directly through the Food Products, Processes and Packaging Technology Area		
Additional information		


CTC has 15 years of experience in the agri-food sector, from the point of view of training for companies in the sector, development of new technologies and processes at a semi-industrial level, and quality analysis and control of different meat and vegetable based products.

We have a complete pilot plant. With an area of 500 m², the pilot plant is divided into three areas: Cutting room, Elaboration room, Ready meals room. It is also implemented with auxiliary facilities, designed to enable the reproduction of industrial processes on a pilot scale.

General information		
Name	Galicia Institute of Technology (ITG)	
address	Cantón Grande, 9 – 3ª Planta, 15003 A Coruña (Spain)	
website	https://www.itg.es/en/19596-2/	
type of organization	RTO	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes -as a customer, by hiring our services; as a partner in a R&D project	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
sensors (electro-chemical, biosensors, visual, etc.)	Integration of different kind of sensors and implementation in the production chain of the company.	WICROPS Project: https://www.itg.es/8/ SMARTOM project: https://www.ctaex.com/transferecia-tecnologica/GOS-smartom/participantes
] IoT solutions	monitoring and control of industrial processes: quality control, monitoring of humidity, temperature, PH., etc.	https://www.itg.es/en/monitoring-iot-platform-flythings/
deep learnig and artificial intelligence; specific algorithms tailored to the needs of the client	Smart Data Management and Analytics	https://www.itg.es/en/monitoring-iot-platform-flythings/ https://www.itg.es/en/bigdata-analytics/
] vision systems	detection of product defects	https://www.itg.es/en/bigdata-analytics/
resource control	monitoring and optimization of water and energy consumption	https://www.itg.es/en/energy-optimization/
predictive maintenance	of machineries and equipments	https://www.itg.es/en/monitoring-iot-platform-flythings/
implementation of communication protocols	monitoring and optimization of the logistic chain	https://www.itg.es/en/monitoring-iot-platform-flythings/


remote control	remote support to the Logistics fleet	https://www.itg.es/en/monitoring-iot-platform-flythings
Modus operandi to address questions from SMEs		
<p>ITG has a Technology Transfer Unit, officially recognized by the Spanish Ministry of Economy and Competitiveness. Any question and services requirement coming from companies (among them, SMEs), is processed by this Unit and channelled to the different technology Departments. The Unit also includes a Ask@ service, which provide support about technical questions and funding opportunities.</p>		
Additional information		
<p>The centre provides close-to-the-market technology solutions and services to public and private organisations, mainly in field of agri-food, monitoring and optimization of industrial processes, energy efficiency, smart water management, sustainable construction.</p>		
<p>ITG is involved as centre of competence in 3 regional Digital innovation Hubs: "GIGAL: Galicia Factories of the Future Hub" (focused on Industry 4.0), "DataLife" (aimed to farming and bioeconomy sectors) and "AI4Galicia" (focused on the application of Artificial intelligence to different sectors).</p>		
<p>ITG has an Electronic and IoT laboratory, where we can simulate, demonstrate and test the application of an IoT platform integrated with VR to the monitoring of different industrial processes, among them the food processing and distribution</p>		

6 GERMANY- OST-WESTFALEN-LIPPE


General information		
Name	SmartFoodFactory OWL (planned name starting from 2021/2022: CIBUS FACTORY) Technische Hochschule Ostwestfalen-Lippe; University of Applied Sciences and Arts	
address	Campusallee 12 (ILT.NRW), Langenbruch 6 (inIT), 32657 Lemgo, Germany	
website	www.th-owl.de	
type of organization	university, RTO, non-profit	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes - partly free of charge and/or contract based and funding projects	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Big Data, artificial intelligence, machine learning, image processing & analytics software	predictive maintenance, realtime prediction of shelf life, SMARTPas (pasteurisation of beverage, tinned food); parameter-based quality management; smart vegetable cutting; packaging control, filling technology	beverage, meat, baking (pizza): Data analysis and autonomic prognostics (pizza production), Basic technologies for de-boning, assistance systems (meat technology), SMARTPasteurisation (TIN, beverage); Food shelf life monitoring; Quality management of beverages using digital twins
networked processing with smart sensors and sensorfusion	networked production modules; autonomous processes; assistance systems	beverage, meat, baking (pizza): VILP – networked manufacturing example (mainly pizza); KontRed (meat) (reduction of microorganisms in meat, e. g. using sensors); Level measurement in filling technology
augmented reality	simulation technology: no use of glasses, but work with overlays on tablets/screens and display of visual aids effects	beverage, meat, baking (pizza): information directly at the workplace
Modus operandi to address questions from SMEs		
Additional information		
<p>Two institutes, the ILT.NRW and the inIT are involved in the Smart Food Factory. Both institutes have expertise in the area Industry 4.0 / digital transformation in food industry.</p> <p>The Smart Food Factory is a Living Lab specialized in the food processing industry. The Living Lab is currently under construction and should be completed in 2022.</p>		

Special/unique equipment, facilities which can help testing of food application of Industry 4.0: In-line-NIR, electronic nose, electronic tongue, image processing software.


Mobile SmartFarm OWL is another Living Lab planned in the region with focus on precision farming; expertise in artificial intelligence for farming (currently: Bachelor course for precision farming)


General information	
Name	SmartFactory OWL - An Institut of the Fraunhofer IOSB-INA and the Technischen Hochschule Ostwestfalen-Lippe
address	Campusallee 3, 32657 Lemgo, Germany
website	www.th-owl.de
type of organization	RTO, non-profit, university
	
Quick check basic Living lab requirements	
Expertise regarding food processing	Yes
Expertise regarding industry 4.0 technologies	Yes
Provides easy access	Yes- partly chargeable workshops and seminars and/or contract based and funding projects
Offers test before invest services	Yes
Offers training	Yes
Available technologies and services	
robotics	
3-d-printer	
real production systems,	
flexible assembly areas	
Modus operandi to address questions from SMEs	
Additional information	
We are a demo factory: The facilities and production areas show the companies how a workplace with digitalization can look like; the demo factory is inspiration, shows concrete proposals for solutions from the demonstrations	
Modular systems for retooling are possible, depending on how it is required; therefore the equipment/plants are well suited for test purposes, also in the food sector.	
Our expertise in solutions that can potentially be used in the agri-food sector: networking data; data collection, smart sensor system; mapping big data/mass data management; data standardization (OPCUA), make data intelligent, digital twin; artificial intelligence; algorithms; artificial intelligence to optimize production and logistics processes; intelligent assistance system - data interface to humans; assistance systems for ergonomics (pick by voice) in production; cyber security; improve quality management; realization of flexible production by industry 4.0 technologies; image processing and image processing analysis; additive manufacturing (3-d-printing)	

7 FRANCE AUVERGNE-RHONE-ALPES REGION

General information		
Name	ADIV	
address	10 rue Jacqueline Auriol - 63100 Clermont-Ferrand (FRANCE)	
website	https://www.adiv.fr/	
type of organization	Association (for R&D projects)/SME	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes/No	
Expertise regarding industry 4.0 technologies	Yes/No	
Provides easy access	Yes/No – depends on the contractualization	
Offers test before invest services	Yes/No	
Offers training	Yes/No	
Available technologies and services		
Mechanization, robotization, automation	Topics addressed within the UMT AGROBERGO	Specificity of all the processes and equipment in the meat sector (with the possibility of agri-food diversification)
Exoskeleton and cobotic		
Sensors	Interfacing activities related to these technologies	
Artificial intelligence	Thinking about - perspective for the future	
Pilot lines	All the processes of slaughter, cutting, processing and manufacturing of elaborated products Sanitary safety, packaging	
Knowledge of process engineering, design office aspect, pre-engineering, estimated investments	We know the machines that fit for each step of production in meat industry	
Company training	Good hygiene and food safety practices	
Knowledge of regulations, technical characteristics of processes		
organizing demonstration days, workshops		
Modus operandi to address questions from SMEs		
Additional information		


8 FRANCE- BRETAGNE

General information		
Name	Photonics Bretagne	
address	4 rue Louis de Broglie, 22300 Lannion France	
website	www.photonics-bretagnes.com	
type of organization	RTO(non profit)	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes Free of charge for a 1st low effort access (2 days/company/year) Then as contracted services	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Agrophotonics	Spectral inspection of food samples	
Development of innovative photinics based sensors	Optical test and qualification of these sensors along with the existing one Engineering, Feasibility studies, Proof of concept (POC)	
At-line low level of biocide detection		DELBIA collaborative project (Valorial label) on biocide at-line optical detection
Optimisation of cleaning in place process (diary line),		[testimonial/ example case...]
Optical qualification of photonic decontaminating devices (UV-C)		PREMIUM collaborative project (agri-food Transition project) on Food shelf life optical qualification
Modus operandi to address questions from SMEs		
Additional information		


General information		 Prodiabio
Name	Prodiabio PFT	
address	Allée des Pommiers, 56300 Pontivy	
website	https://www.pft-prodiabio.com/	
type of organization	PFT (national label), MESRI	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes/ Free of charge for small companies (support from territorial funding (region; Department; city and state)) On contract for SMEs: business; partnerships; tutored projects...	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Specific expertise on 3D printing for food	(tools + expertise)	
in modelling unit operation		
sensors and digital twin expertise		
Process engineering	Drying; Separation; Grinding; Extraction / Concentration	
Chemistry / Biochemistry / Microbiology	Spectrofluorometer; Microscope Fluorescence, Epifluorescence, Raman, IR, MIR; Light diffusion analyser; Microcalorimeter.	Interreg project on microenergy – EERES4WATER
Biophysics / Chemical Physics		Policy framework to promote direct use of renewable energy sources and energy efficiency in the water cycle by introducing new processes and technologies.
R&D in food industry, Recipe development	R&D: Concentration; heat exchanger; centrifuge; Pulsed electric field generator; Band filter Food control equipment manufacturing; Sensory analysis room Recipe development areas: Food Engineering; Dairy products, Cooking, Vegetables, Liquid processing, Cold preparation, Packaging	

Maintenance and Industrial Automation	Automated mechanical systems: Welding; Mechanical manufacturing; Store; Wiring; Hydraulic bench; teaching systems; Maintenance and diagnostic systems: Safety, Tank and Vibration models; Oil analysis; Engine test; Milling, Lathe machines; Grinder	
Modus operandi to address questions from SMEs		
Additional information		


9 DENMARK-

General information		 <p>DANISH TECHNOLOGICAL INSTITUTE</p>
Name	Foodture-Lab - Danish Technological Institute (DTI).	
address	Kongsvang Allé 29, 8000 Aarhus C. Denmark	
website	https://www.teknologisk.dk/ydelser/foodturelab-giver-nye-muligheder-til-foedevarevirksomheder/40392	
type of organization	RTO, (non-profit)	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes/No –commercial base	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
DTI cover the entire value chain in the food and agri sector.		
Access to funding and relevant knowledge.		
Willingness to adopt new technology in the industry – too conservative		
Food processing technology	Extrusion, pill/tablet production, all beverage production, dough, bio proteins, green and blue proteins, and more.	
Scale up		
advice	advice about food legal, advice about production and more	
3D print of food		
Industry4.0 technology adaptation	fermentation, rheology, sensory science and more.	
Modus operandi to address questions from SMEs		
Additional information		

10 NETHERLANDS-NORTHEAST BRABANT

General information		
Name	Food Tech Brainport	
address	Scheepsboulevard 3, Helmond (NL)	
website	www.foodtechbrainport.com	
type of organization	not-for-profit entreprise	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes, For awareness facilities are public. For in-depth sessions & validation (including testing) a standard contract with mutual NDA is used.	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Various digital technologies demonstration	AR, VR, digital twins and hyperspectral sensing combined with collaborative robots and industrial robots	
Industry 4.0 solutions	Solutions to prevent 'dirty, dangerous, difficult and dull' work	
Food technology development	1) Mild separation, 2) Mild preservation, 3) Utilization of all raw materials from the product (prevention) and 4) Robotics, high-tech and sensing	Cotemaco FOX Food from food
Training facilities		
match making.		
Food industry 4.0 applications	High Pressure Processing, Agitated, Thin Film Dryer, Pulse Electric Fields, Radio Magnetic Freezing, Membrane technology	
Modus operandi to address questions from SMEs		
Additional information		

11 SPAIN-NAVARRA

General information		
Name	NULAB	
address	Poligono Mocholi, Plaza Cein, 5-Ocina n°6, 31110 Noain (Navarra)-España	
website	www.nulab.es	
type of organization	Profit Enterprise	
Quick check basic Living lab requirements		
Expertise regarding food processing	Yes	
Expertise regarding industry 4.0 technologies	Yes	
Provides easy access	Yes - If any company wants to go further and focus in any of this technology we would sign a NDA with them	
Offers test before invest services	Yes	
Offers training	Yes	
Available technologies and services		
Food Security	identifying critical points and microbiological control.	We are working in a project whose goal consists in developing new pathogens techniques improving the current times response (less than 8 hours)
Sensory and physical-chemical quality	control of quality specifications, defining quality standards and selection of quality product criteria.	We have developed a prototype with hyperspectral technology in order to monitor quality parameters and shelf life product prediction. With NIR technology we are currently working to develop a portable device in order to predict quality parameters in different fresh and dry product
Image 2D/3D applications	measurement of quality parameters, product classification	We have several equipment to evaluate the technical specifications required by the market
Image Hyperspectral	detection and prediction of product quality.	Explained above
NIR technology	detection of quality parameters, allergens, contaminants, fraud	Explained above
Training courses	Food safety, legislation and quality Innovation and process improvement Technology and processes in the food sector Analytical control of food	We collaborate with the "National Centre for Food Technology and Safety" - CNTA (https://www.cnta.es/servicios/formacion/) to delivery the training courses.
Modus operandi to address questions from SMEs		

Food companies themselves are the main collaborator since they generate the need to obtain a solution or improvement. Other Collaborators the providers of sensors, cameras as well as other technological providers that build the devices to be implemented in agri-food industries.

Additional information

We are really opened to collaborate with other labs since they are developing technology which being in compliance with the NULAB mission. At this moment we could move forward quickly working in a win to win MOU to develop partnership with others technological suppliers

We have participated in different European, national and regional projects in this field.