D4.3 New-to-firm products or services in the industrial ecosystem

Project number: 101074552

Silicon Eurocluster

Serving the electronics value chain for maintaining sovereignty in microelectronics, components and systems for a greener, more digital and resilient future Europe.

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Synopsis:	Detailed description of new products or services from SMEs in the electronic ecosystem that interacted with the activities of the Silicon Eurocluster project.
List of keywords:	Electronics, new-to-firm, technological domain, technological advancements, market impact, competitive advantage, strategic importance

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[1]

Dissemination Level	
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List of abbreviations

ECCP	European Cluster Collaboration Platform
FSTP	Financial Support to Third Parties
SME	Small and Medium Enterprise
WAM	We Are Minalogic platform
WP	Work Package

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1. Introduction

The aim of this report is to provide a detailed description of the "new-to-firm" products or services identified by the Silicon Eurocluster project in its programmatic interactions with SMEs of the European electronics components and systems value-chain.

New-to-firm products and services in the electronics ecosystem refer to innovations or offerings that are introduced by a company for the first time in the market. They can significantly impact the market and the company itself. These new products/services are new for the company but not necessarily new to the market.

In summary, new-to-firm products and services in the electronics ecosystem represent groundbreaking company achievements that leverage technology, target market opportunities, and provides competitive advantages. Successfully introducing such products/services in the market can drive growth and establish a company as a leader in the industry.

2. Methodological approach

2.1. Target universe of SMEs

The Silicon Eurocluster project aims to achieve increased self-sufficiency for Europe, with higher competitiveness and resilience in the electronics value chain, with an emphasis on SMEs. For the purpose of this deliverable we looked for new-to-firm products/services within the subset of those SMEs that have been exposed and interacted with Silicon Eurocluster activities for the electronics industrial ecosystem.

The target universe of SMEs to be questioned about whether they had any offer that fit the new-to-firm product/service concept was developed based on following approach:

a) SMEs that applied to the OpenCall,

b) SMEs that participated in the project Innovation Day,

c) SMEs from the business ecosystems of the Clusters partners of this project who ended up benefiting from all the dissemination and sharing of information promoted by Silicon Eurocluster project.

2.2. Questionnaire

Within this target universe of companies, we sought to identify both for SMEs that created new products/services that are innovative in the market, and SMEs that created new products/ services that already existed in the market.

The first type of SMEs includes companies that have introduced a product or service innovation that was developed by the company and that was not previously offered by competitors ("new to the market"). This group of companies more closely maps to the intuitive idea of an 'innovator' by creating innovative products/services and bringing them to market. Somehow these companies have increased innovation capacity and use it to compete in the market with new products, or even to create new markets.

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The second type of SMEs corresponds to the ones that introduced a product/service innovation that was internally developed by the enterprise but that is identical or very similar to products already offered by competitors ('only new to the enterprise itself').

We developed a questionnaire to capture information about new-to-firm products or services from the target universe of SMEs (see Annex A). The questionnaire was structured in order to capture information on:

- Designation of the new product/service and its market entry date.
- Main technological domains of product/service, based on the following categories:
  - ➢ Sensors&Industrial Internet of Things (IIoT) solutions
  - ➢ Radio Communications / 5G Connectivity for Industrial Use
  - ➢ Artificial Intelligence and Machine Learning
  - ➢ Robotics and Automation
  - ➢ Energy Harvesting / Energy Efficiency Solutions
  - ➢ Sustainable and Green Technologies
  - ➢ Cybersecurity Solutions
  - ➢ Photonics
  - ➢ Customized Electronics Manufacturing
  - ➢ Other
- Summary descrition of the product/service
- **Technological Advancements**: Capturing aspects as the level of technological advancement of the product/service, its significance in terms of differentiation or the level of novelty in the approaches or technologies used.
- **Market Impact and Benefits**: capturing aspects as the potential impact of the product/service on the electronics ecosystem, how it addresses specific market needs or challenges or on the perceived benefits it offers to customers, businesses, or industries.
- **Competitive Advantage**: Focused on measuring the impact of the new-to-firm product or service in terms of competitive advantage of the SME.
- **Strategic Importance**: capturing aspects on the strategic importance of this innovation within the company's overall vision and goals, how it aligns with the company's long-term strategy or how it fits into the broader product or service portfolio of the SME.

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3. Analysis of SMEs responses

In the following sections we present an analysis of the 37 responses to the questionnaire that were considered aligned with the purpose of this inquiry.

3.1. Distribution by Country

We were able to identify new-to-firm products/services from 14 different European countries. Austria and Spain stood out as the main origins of the identified products/services.
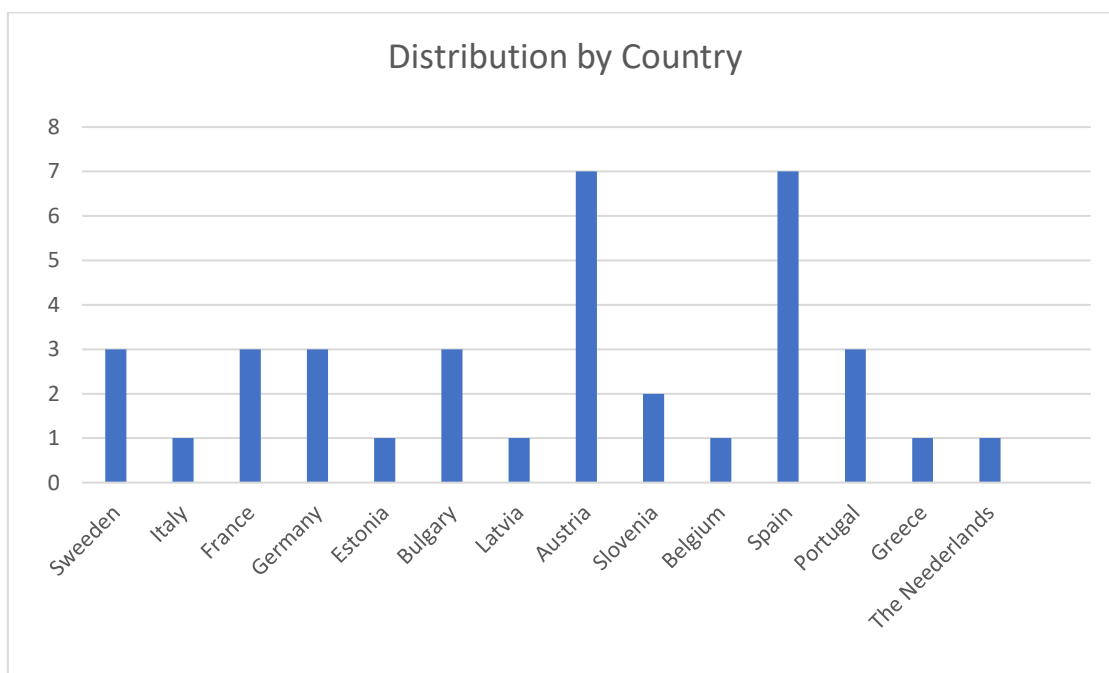
Figure 1 – Distribution by Country

3.2. Distribution between Services and Products

The next figure depicts the way the results divided between Services and Products.
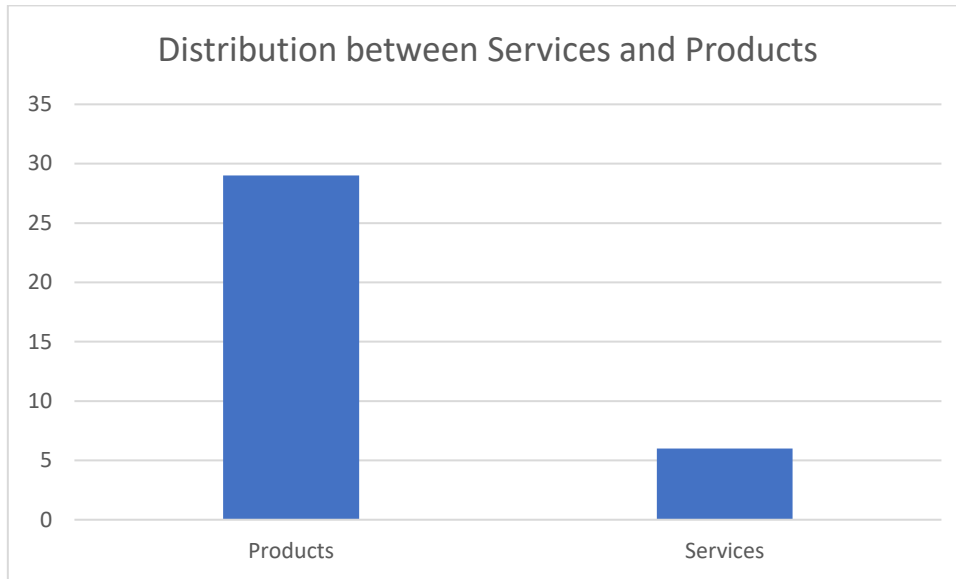
Figure 2 – Distribution between Services and Products

3.3. Main technological domains

The questionnaire suggested the selection of the 3 most relevant technological domains covered by the new-to-firm product/service. Figure 3 – Main tecnological domains, below, presents the results achieved where, clearly, Sensors & IIOT, Radio Communications/5G and Ai&ML were the most important domains.

Figure 3 – Main tecnological domains

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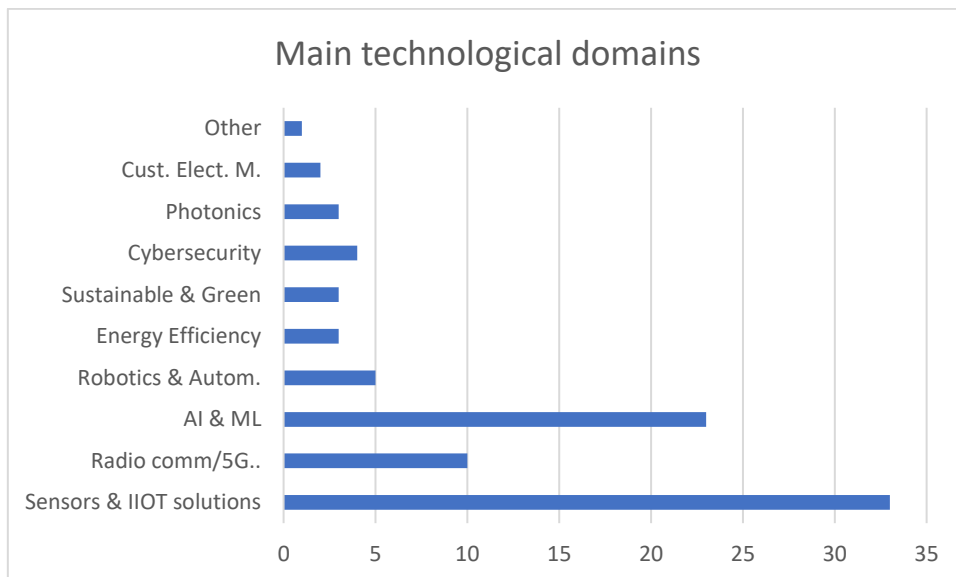
3.4. Market entry date

Although the majority of products/services identified present a market entry forecast aligned with the timeframe suggestion proposed in the questionnaire (2021-2024), a significant number of cases predict 2025 to complete market entry.

Having analyzed these cases, we found that the vast majority correspond to companies that participated in the Financial Support for Third Parties (FSTP) process but were not financed.

The interactions we had with these companies allow us to conclude the importance, not only of financing but also of the entire partnership process between technology supplier and recipient, of an FSTP program like the one established by Silicon Eurocluster.

The fact that they were not successful in capturing financing ended up determining the postponement of the evolution plans and the corresponding entry into the market.
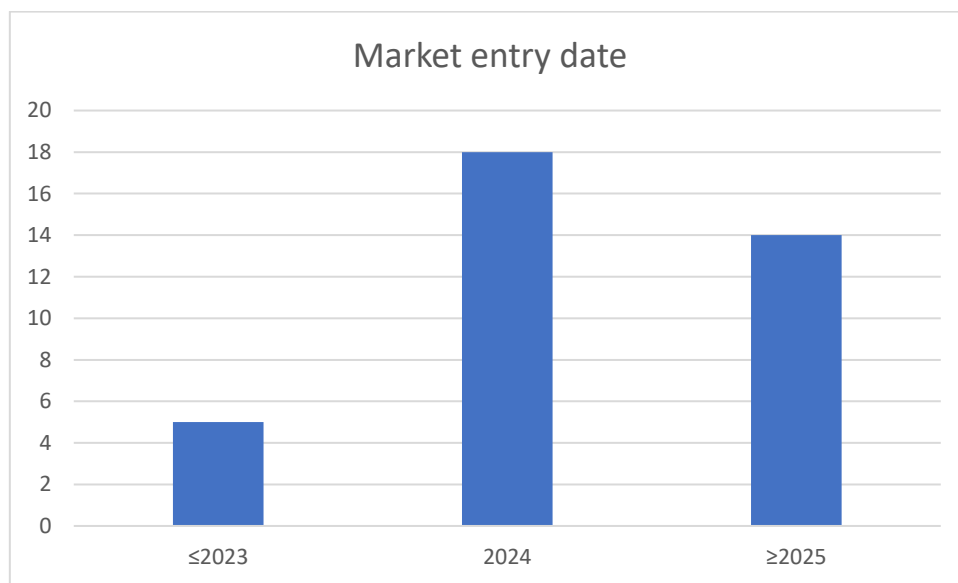
Figure 4 – Market entry date

3.5. Technological Advancements

Figure 5 depicts a set of graphics capturing aspects as the level of technological advancement of the product/service, its significance in terms of differentiation or the level of novelty in the approaches or technologies used.

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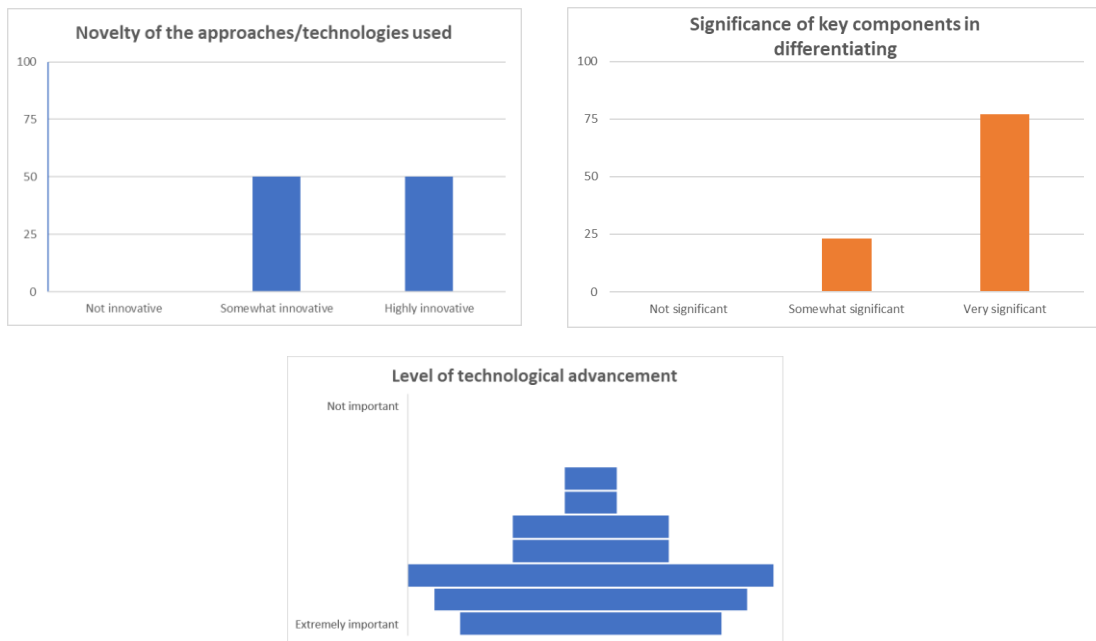
Figure 5 – Technological Advancement – support graphics

3.6. Market impact and benefits

For capturing the potential market impact and benefits that the SMEs expect to gain from the new product/service, the questionnaire included 3 dimensions, namely: a) potential impact of the product/service on the electronics ecosystem, b) how it addresses specific market needs or challenges and c) perceived benefits it offers to customers, businesses, or industries. Figure 6 shows the graphics resulting from those questions.
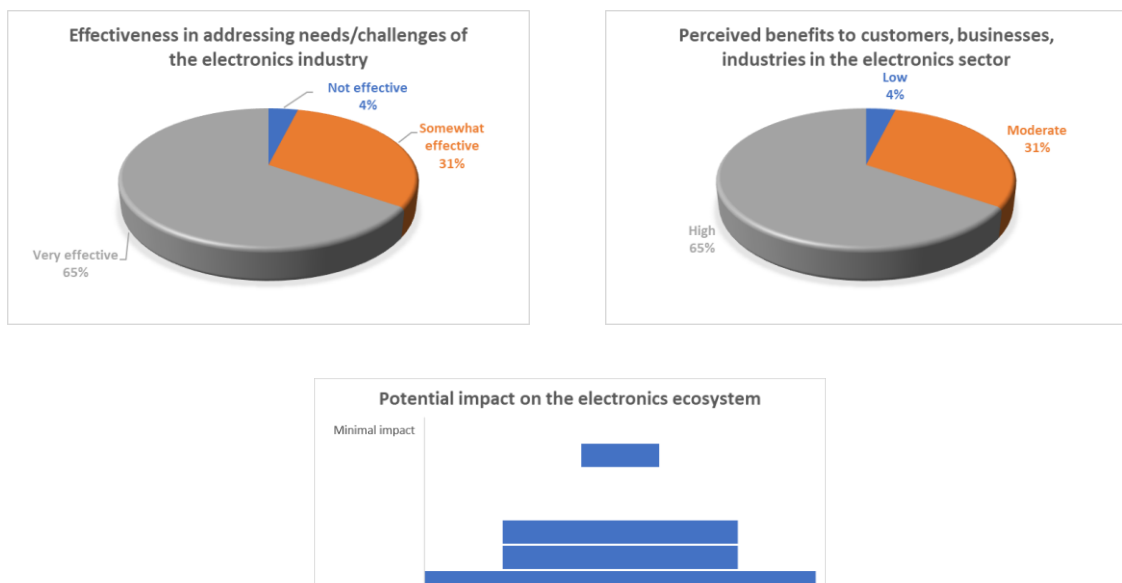
Figure 6 - Market Impact and Benefits – support graphics

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3.7. Competitive advantage

Figure 7 depicts the 3 graphics capturing the responses to the 3 proposed dimensions that intend to measure the impact of the new-to-firm product or service in terms of competitive advantage of the SME.
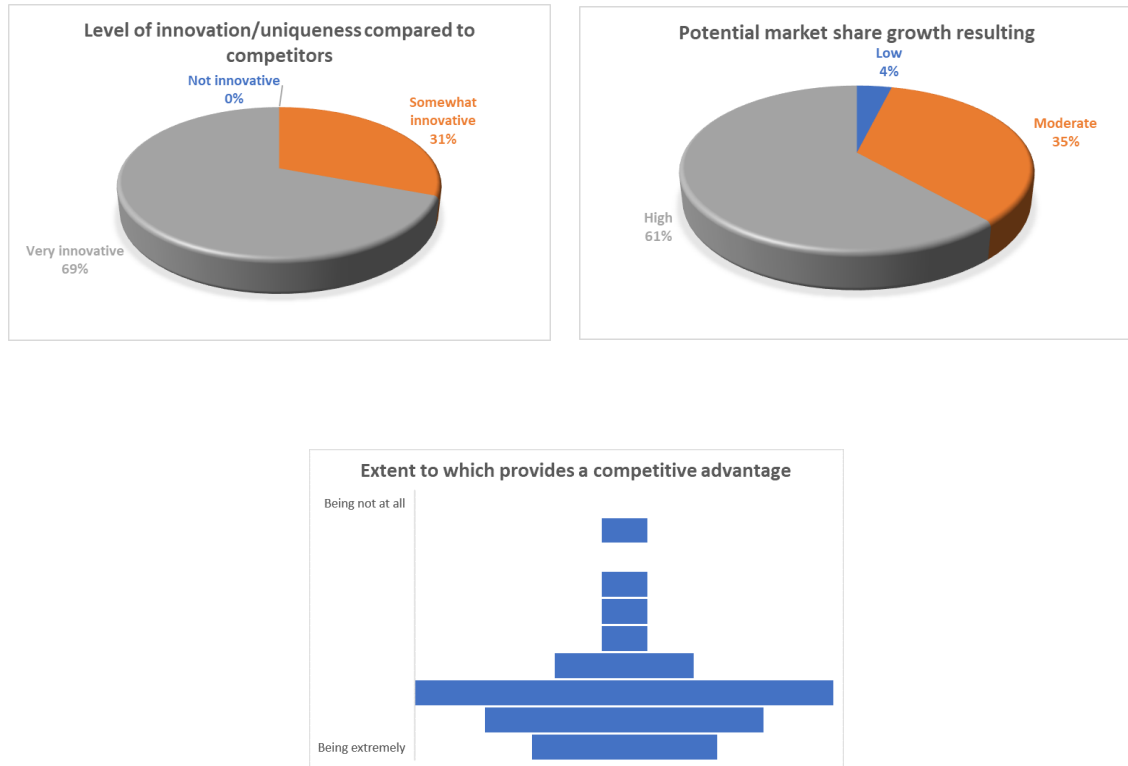
Figure 7 - Competitive Advantage – support graphics

3.8. Strategic importance

The last set of questions are related to capture aspects on the strategic importance of the new product/service with respect to a) the company's overall vision and goals, b) how it aligns with the company's long-term strategy and c) how it fits into the broader product or service portfolio of the SME.
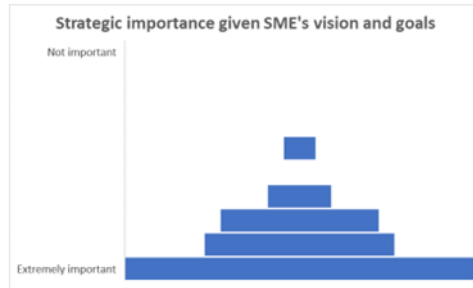
Figure 8 – Strategic Importance – support graphics

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4. New-to-firm products or services

This chapter aims to present the SME that were addressed as well as their new-to-firm products or services.

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4.1. LightBEE - IoT control of public lighting by NETBEE Cloud Control

Description:

The NETBEE CloudControl hardware by NET-Automation provides a modern, secure, and reliable solution for replacing ripple control receivers based on IoT technology.

The LightBEE equipment:

✓ Compact design (only 52 mm wide) for rail mounting ✓ Power supply via 230VAC 50Hz without grounding ✓ 2 x 10A switched output via bistable relays (half-night / full-night) ✓ 1 x door contact feedback ✓ 2 x switch contact feedback ✓ Data transmission via 450MHz LTE-M or CAT-1 ✓ Integrated GPS position data capture ✓ Built-in battery for "Blackout" operation ✓ Automatic detection of voltage outage ✓ Integrated power, voltage, and current measurement ✓ Preparation for M-Bus module (external meter) ✓ 2 processors for highest operational reliability ✓ Integrated temperature and humidity measurement ✓ Integrated RTC (Real Time Clock) ✓ Control via cloud system (CloudControl) ✓ Integrated local switching matrix for bridging in case of radio interruption ✓ API interface to your software ✓ Status LED for service technicians ✓ Very easy battery replacement ✓ Operating range -20°C to +60°C ✓ Connection for external mobile antenna ✓ Connection for external GPS antenna

Remote Management:

✓Switching and managing online with CLOUDCONTROL ✓View hardware status online ✓ Create and program logic online ✓ Switchoutputs online ✓ Visualize switching operations online ✓ Open API (json: api) to your management software.

Fallback With Edge Control:

✓Fallback in case of network failure ✓ Freely configurable switching matrix ✓ 2 bistable relays ✓ 2 processors for secure operation.

Market entry data / planned entry date: Q4 2023

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions

SME: NET-Automation GmbH

Website: https://netbee.cloud/index.php?&lang=eng

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4.2. Smart Waste Bin

Description:

This will be the first-of-its kind connected smart bin for outdoor usage, equipped with weight sensors, empowered with advanced user and waste identification capabilities, and achieving high levels of operational autonomy. It combines: a) energy autonomy with intelligent low-power design and solar harvesting; b) flexible radio connectivity supporting Cellular IoT and optionally Satellite IoT for remote outdoor deployment; and c) multiple sensors, i.e. load-cell for weight measurement, optionally fill level, promixity for identifying user presence, as well as NFC, RFID or 1D/2D scanners for waste product (barcode) and user (app) identification.

The product revolutionizes the way the public is engaged into the waste disposal process, by matching the actual waste stream generation with each user, based on an automated system that identifies the type and the exact weight of the disposed goods. It stands out in the competition as it uniquely combines the following features: real-time measurement of waste streams with high accuracy, traceability of waste, increase of public's engagement, and decrease of resources usage.

Market entry data / planned entry date: Q2/2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions

SME: insighio

Website: https://insigh.io/

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4.3. OAIBOX

Description:

The OAIBOX https://www.oaibox.com/ is a cutting-edge plug-and-play 5G network testing solution based on OpenAirInterface. It has a cloud-based Dashboard for real-time monitoring and control of gNB and CN5G. It facilitates the deployment and validation of various network functions and devices.

The OAI open-source stack enables the scientific community and company researchers in exploring and test 5G/6G network evolution

OAI code is available on a royalty-free basis, under the OAI Public License V1.1, as a starting point for the development of commercial solutions

The OAI code can be adapted to different deployment use cases and to include new functionalities

The OAI code is being constantly improved by the community including support for new features

Technical Details (What is in the Box):

- ✓ Plug-and-play 5G standalone OpenAirInterfaceTM distribution, documented and tested by Allbesmart (gNB + CN5G)
- ✓ State-of-the-art hardware platform for optimum 5G performance and stability
- ✓ Pre-assembled B200 NI SDR card [applicable to OAIBOX 40 only]
- ✓ OAIBOXTM Dashboard for real-time 5G network monitoring and management (RAN and CN)
- ✓ One year of software updates
- ✓ 5G Lab Manual with step-by-step lab exercises
- ✓ 1x User Equipment Quectel RM500Q-GL module with a 5G Qualcomm modem inside
- ✓ 1x 5G SIM card ready to be used
- ✓ 2x Antenna kit
- ✓ 3 Hours of support with configuration examples and training from key contributors to the OpenAirInterfaceTM code
- ✓ 1x Kit of RF cables and connectors in case a spectrum license is not available [optional]
- ✓ 1x Mobile phone configured to use the OAIBOXTM 5G network [optional]

Market entry data / planned entry date: Q1 2023

Main technological domains: Radio Communications / 5G Connectivity for Industrial Use

SME: Allbesmart

Website: https://www.allbesmart.pt/

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4.4. VPSCAN - Vapor Screener

Description:

Vapor detector screener is a new concept of cargo scanning that allows a complete scanner of a large volume (container/truck) in some minutes without the need for unloading and with a high detection rate and a very low false alarm.

VPSCAN - the EVD (Explosive Vapor Detector) developed by MION, has a Detection Rate higher than 90% and a FAR lower than 2%, has the capacity to detect in bulk mode (complete trucks and containers without the need of unloading the cargo), it is versatile with the capacity to adapt it to many scenarios like pallets, boxes, mail, etc, the database can be as large as needed, it is fully non-intrusive, the results are generated automatically without the need of interpretation from one operator and the complete analysis is done in 6 minutes for a complete truck.

Market entry data / planned entry date: Q1 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions

SME: MOBILITY ION TECHNOLOGIES SL

Website: https://miontechnologies.com/en/home/

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4.5. Flasher

Description:

Product line addressing personal safety while on the move or in dangerous working environments.

Product variant "micromobility": the first product, the patented wearable innovation Flasher, is a set of two easy-to-use smart wearables for micromobility users. Attached to the upper arms, Flasher offers gesture-controlled turn signals, automatic emergency brake lights and various night/visibility modes, reducing the risk of accidents on micromobiles.

Product variant "employee safety domain": Safe or dangerous areas can be marked dynamically with our hardware-software solution, split into small stationary devices and wearables. Based on the concrete position and movements of employees relative to a marked zone, light, vibration, wireless-notification events, or functional adaptions of nearby machines can be triggered automatically.

Market entry data / planned entry date: Q1 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Radio Communications / 5G Connectivity for Industrial Use; Artificial Intelligence and Machine Learning

SME: Flasher GmbH

Website: https://flasher.tech/

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4.6. SIMPRINT: software for mobile autonomous outdoor printing robot

Description:

ARTI provides the perfect software solution for businesses – robust enough for real-world operations and suitable for many different industrial fields. Depending on the business goals and existing infrastructure, it explores high-quality and cost-efficient **robotic ideas** for individual application. Whether you are looking for full turnkey products to set up the next generation of your business routines or you want to add **AI-kits to your robots** to profit from new autonomous functions – ARTI offers AI software solutions for various business fields and customized requirements.

In a recent partnership with Pixelrunner, a new automatic large-scale landscape printing solution is being developed. The aim is to provide the market with a complete solution for simple, fast outdoor printing of logos etc. on surfaces. That is why ARTI is developing autonomous navigation software for mobile robots in the outdoor sector that is highly modular and flexible, but also easily customizable.

Market entry data / planned entry date: Q2 2024

Main technological domains: Robotics and Automation

SME: ARTI - Autonomous Robot Technology GmbH

Website: https://arti-robots.com/

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4.7. Energiot Grid Analytics Platform

Description:

Energiot's Grid Analytics Platform is designed to leverage the data collected by Energiot's self-powered IoT devices installed on power grids to gather essential data like temperature, current, and humidity. It offers comprehensive analytics and insights, enabling grid operators to optimize operations and maintenance activities more effectively.

The Energiot Grid Analytics Platform represents a strategic expansion of our product portfolio. While the primary focus has been on developing self-powered IoT devices for grid monitoring, this platform extends the implemented capabilities into the realm of advanced data analytics. It integrates real-time monitoring data with predictive algorithms to facilitate dynamic grid management, including aspects like Dynamic Line Rating, Predictive Maintenance, and Smart Monitoring.

This platform is a critical step in our journey towards providing comprehensive solutions for smart grid management. It signifies our entry into a market segment that leverages data intelligence to enhance grid reliability and efficiency. The Energiot Grid Analytics Platform is not just an extension of our product line but a pivotal move towards becoming a holistic provider of smart grid solutions. This product is scheduled to enter the market in Q3 2024, marking a significant milestone in our growth trajectory and expanding our market presence.

How It Works:

Data Collection: The IoT devices collect real-time data from various points on the power grid. Each device is self-powered, harnessing energy from environmental sources using our improved piezoelectric energy harvester. This harvester employs an array design, enhancing energy density and enabling the device to operate in a wider range of conditions and use cases.

Data Analysis and Visualization: The collected data is transmitted to our Grid Analytics Platform, where it undergoes extensive analysis. The platform utilizes AI and machine learning algorithms to provide predictive insights, enabling grid operators to anticipate and prevent potential issues.

Unique Energy Harvesting Technology: What sets our devices apart is the advanced energy harvesting technique, utilizing an array design for piezoelectric materials. This innovation significantly boosts energy density, allowing our devices to function more efficiently and enabling broader application scope, such as in low-current environments.

Market entry data / planned entry date: Q3 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions

SME: Energiot Devices SL

Website: https://www.energiot.com/

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4.8. QRNGs - cybersecurity service

Description:

It provides a silicon based quantum random number generator service offer. At iQrypto, we recognize the paramount importance of data security in today's interconnected world. To fortify your data against even the most advanced cyber threats, we offer Quantum Random Number Generator (QRNG) Integration services. Our QRNGs introduce an unparalleled layer of unpredictability into your encryption, ensuring that your cryptographic keys and codes are genuinely random and nearly impossible to predict.

Market entry data / planned entry date: Q1 2025

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Cybersecurity Solutions

SME: iQrypto

Website: https://iqrypto.com/

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4.9. Xplorer Inline

Description:

CISC is working together with world-leading NFC/RFID producers throughout the whole value chain. There are several ways how we are supporting companies in developing their NFC/RFID solutions from beginning to end with our products & services:

• Automated NFC interoperability testbed (first prototype till final product)

• NFC/RFID test and measurement devices in manufacturing process

• Standardization & support in certification

• NFC/RFID rapid prototyping solutions (incl. hardware and antenna design)

The field where we see the most potential to support our customers in their NFC/RFID manufacturing process is the quality assurance check when producing labels. To guarantee a high quality of RAIN RFID tags, each label need to be tested in production. The testing of continuously moving tags need to be very fast, reliable and consistent, taking also into account newest security and crypto methods. Adjustments of antenna and different tags is time-consuming, costly and inefficient. In case of a failure in the system, the whole process needs to be redone. To achieve a high yield of functional labels, we need to detect degradation of quality. The whole testing procedure needs to be adjusted while running by monitoring sensor data and performance indicators, before quality runs out of boundaries, resulting in breaking the production process with subsequent necessary human interaction, causing delays, consistency issues or in an extreme case also breakdown of the machines.

In strong collaboration with our partners and customers we are striving to optimize the efficiency and flow (speed, resources, material..) on label producing machines as well to improve energy consumption, furthermore increase of production quality using predictive maintenance algorithms based on AI methodologies. Providing visualization and real-time feedback to the human workers, supported by cloud-platforms, the system will be trained and optimized. Additional data from sensors (temperature, humidity, optical, ..) will help to detect anomalies throughout the overall production, reducing material costs and increase consistency, speed and quality of labels. Our test equipment will provide these real-time data, seamless integrated into the production process, protecting the machines from damages. Using federate learning we will be possible to transfer the knowledge gathered from distributed production between locations and environments.

Market entry data / planned entry date: Q2 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Radio Communications / 5G Connectivity for Industrial Use; Artificial Intelligence and Machine Learning

SME: CISC Semiconductor GmbH

Website: https://www.cisc.at/

4.10. Itms784 Monitoring of high voltage transformers

Description:

Itms784 is an evolution of Itms500io series of Control and Monitoring Devices (CMD), a leading product from Itms Ltd. Itms784 is focused in the monitoring of high voltage transformers.

There will be 2 main versions:

1. For powerful high-voltage transformers used mainly in power plants, substations, and large enterprises. For them, more sensors will be monitored (oil temperature, load current, voltage, operation of the ventilation system, optional presence of flammable gases, etc.).

They are installed in a command room and controlled by a dispatcher together with other equipment. Limit values are controlled, events are generated, as well as prediction based on artificial intelligence. Process history is stored.

This device is based on a Raspberry Pi with a 7 inch touch screen display. Contains 6 relay outputs. 8 relay inputs and up to 8 analog inputs 4-20 ma. It works in a temperature range from -5 to 60°C. An industrial power supply in the range of 90-280VAC/VDC is provided.

The presence of Wi-Fi and Ethernet in RPi enables connection to other subsystems and generation of information to higher levels of management. The programming is in Python and the software is open source.

2. For high-voltage transformers with medium and small power installed mainly in substations, neighbourhood transformers, hotels, workshops, small and medium-sized enterprises. For them, the most important parameters will be monitored (oil temperature, load current, voltage). Sensors are installed at the transformer and are equipped with a radio connection and send the data to the corresponding server.

This device is based on Arduino MKR WiFi or Arduino Potenta. Contains 4 relay outputs. 4 relay inputs and 4 analog inputs 4-20 ma. It works in a temperature range from -25 to 60 degrees C. An industrial power supply in the range of 90-280VAC/VDC is provided.

The threshold values will be controlled the events will be generated and the process history will be stored. Predictions will be performed in server applications based on artificial intelligence algoritms.

Unique or groundbreaking quality:
• Prediction of emergency events with the help of artificial intelligence (AI);
• Monitoring of high-voltage transformers with medium and small power, which will increase the market realization, including the number of chips used.
• Relatively low price of the product (using a professional Arduino and RPi and turning them into devices for industrial application).

Market entry data / planned entry date: Q3 2025

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Artificial Intelligence and Machine Learning; Radio Communications/5G Connectivity for Industrial Use

SME: Itms Ltd

Website: https://www.itms500.com/en

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4.11. RoboWeeder- autonomous weeding services

Description:

It offers a fully automated weeding solution based on a light-weighted, solar-powered 4-wheeled rover platform. It uses AI image-recognition algorithms to spot the weeds among desired plants. Next it removes the weeds using several contact and contactless methods. Finally, our robot can self-navigate in and around the fields without human intervention or expensive precision-positioning equipment.

Market entry data / planned entry date: Q3 2024

Main technological domains: Robotics and Automation

SME: Smart Farm Robotix

Website: https://smartfarmrobotix.eu/

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4.12. ECOWIN-PRO I

Description:

Revolutionize Mobile Tourism with ECOWIN-PRO: The Future of Maintenance Solutions

ECOWIN-PRO by Sollstar, is an Autonomous Eco Administrator designed with the mobile tourism industry in mind, offering exceptional efficiency and durability. As a manufacturer, you recognize the significance of reliable components in your offerings and ECOWIN-PRO rises to this challenge, providing a blend of innovation and sustainability.

Effortless Integration: ECOWIN-PRO seamlessly fits into mobile units, ensuring optimal moisture management, mold prevention, and material protection.

Sustainable Power: With low energy consumption and optional solar panel integration, ECOWIN-PRO aligns with sustainability goals while saving costs.

Air Quality Assurance: ECOWIN-PRO not only controls moisture but also filters harmful particles, providing cleaner and higher-quality air within the space.

IoT Compatibility: Stay ahead with ECOWIN-PRO's upcoming IoT compatibility, offering advanced features for your units.

Market entry data / planned entry date: Q3 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions

SME: A-Star D.O.O

Website: https://ecowin-pro.com/

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4.13. Robotic Wind Turbine Care Services - Open Circuit Finder for Lighting Protection Systems (LPS-OCF)

Description:

The robotic solutions for wind energy automation are breakthroughs in usual operations. Overall, wind park operations and maintenance (O&M) is a less digitalised, automated industry, as the inspections and repairs are usually done manually. Aerones is the first company to introduce robotic wind turbine O&M solutions using a winch system. Lightning protection system (LPS) inspection and repair tools are one direction of the company's product development.

Aerones introduced in the wind industry robotic solution for checking connections between lightning receptors on the rotor blade and the hub of the WTG (Wind Turbine Generator), which is what most of the industry stakeholders currently do without an automatic approach. As mentioned earlier, LPS must be checked at least once every two years per standard IEC 62305-3 regulating lightning protection systems. Aerones already has the robotic solution to check the complete circuit of the WTG LPS to see if it is working. As a part of troubleshooting steps, Aerones robotic technology can also measure the connection between several other sections of the WTG, including between receptors and the WTG hub.

The next innovation and even further automation in LPS O&M is to develop LPS Open Circuit Finder to find a particular place of the LPS fault with a precision of at least 500 mm. That knowledge will provide a comparative advantage against the business-as-usual approach by locating the fault quickly and precisely. Also, it would be combined with the other robotic services by Aerones, providing a full scope of needed work. The project result would provide innovation in the LPS fault inspection and repair process.

General functional requirements that would create a comparative advantage over other used technologies:

1. The ability to detect a break in the LPS cable inside the blade with an accuracy of 500mm.

2. Wind speed up to 12m/s.

3. Operating temperature range 0°C ... +55 °C.

Aerones is the first company in the world to provide the services using robotic technology: the maintenance process does not require technicians to work in dangerous heights, and thus is much safer, more efficient, and the downtime of the turbines is decreased significantly. Aerones has developed a wide range of product portfolio based on this winch technology. This includes robots for visual inspection, inspection of the lightning protection system of the rotor blades, system for drainage hole cleaning, rotor blade cleaning, application of ice-phobic coatings and many more. Amongst the most recent developments is the system for leading edge repairs.

Market entry data / planned entry date: Q4 2024

Main technological domains: Robotics and Automation; Sensors & Industrial Internet of Things (IIoT) Solutions; Artificial Intelligence and Machine Learning

SME: Aerones Engineering

Website: https://aerones.com/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.14. PxLite 2

Description:

PxLite is a small and easy to use and service printing robot for printing huge pictures on surfaces like grass and asphalt. Due to minimalizing the complexity of the technology the robot is easier and cheaper to manufacture compared to the bigger robot already in use by our company. Therefore the robot is easier affordable for more customers.

Market entry data / planned entry date: Q2 2024

Main technological domains: Robotics and Automation

SME: Pixelrunner GmbH

Website: www.pixelrunner.com

4.15. IR-QAC (Intelligent RTI Quality Assurance Check)

Description:

The service expands the usage of quality assurance technologies from the UHF-Inlay and label production to the field of Intelligent Returnable Transport Items (RTIs), where the tags are already attached. This service is planned to be offered also for cryptographic RFID-tags, that are expected to be more and more used in the RTI industry because of security reasons.

By offering this service a much better quality control of RFID-equipped RTI pools will be achievable.

This will lead to less plastic waste and carbon reduction by optimizing the detection rate of RTIs along the supply-chain, as the phasing out of poor performing intelligent RTIs due to performance degradation of the attached RFID-labels can be steered in a much more efficient and fine-granular way. The service will have a clear advantage in comparison to current systems using standard RFID-hardware without advanced algorithms. To achieve this, the usage of a specialized, highly sensitive RFID testers at the customers RTI sorting facilities is planned.

Market entry data / planned entry date: Q3 2025

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Artificial Intelligence and Machine Learning; Sustainable and Green Technologies

SME: Lambda ID GmbH

Website: https://www.lambda-id.com/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.16. LAYER®, the 1st leading inkjet Printed Organic Photovoltaic Product

Description:

DRACULA TECHNOLOGIES has developed LAYER®, the 1st leading inkjet Printed Organic Photovoltaic (OPV) Product. DRACULA TECHNOLOGIES is the first in the world to print with photovoltaic ink, with more than 10 years of experience, from the laboratory to the industrial stage.

DRACULA TECHNOLOGIES has currently its 1st inkjet production line for OPV technology, called LAYER®. The printing process allows manufacturing of free-form OPV that can harvest both natural and artificial light with 12% and 25% Power Conversion Efficiency under outdoor and indoor illumination respectively. LAYER® is a customizable and eco-friendly technology, due to printing process that optimizes organic materials consumption.

DRACULA TECHNOLOGIES' formulation process is validated for indoor environment (TRL5). Within this project, DRACULA TECHNOLOGIES aims at adapting design and performances and scaling them to the production line (TRL8).

In 2023, DRACULA TECHNOLOGIES has launched the LAYER® Solution division to facilitate the transition to organic photovoltaic technology for indoor IoT applications. The division will create, and license fully functional products powered by innovative LAYER® technology, which not only eliminates the need for batteries but also reduces environmental impact and lowers costs.

This division leverages DRACULA TECHNOLOGIES' IP and know-how to serve developers of low-power electronic devices.

Market entry data / planned entry date: Q1 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions

SME: Dracula Technologies

Website: https://dracula-technologies.com/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.17. Viexpand AI

Description:

VIEXPAND AI is a real-time Edge-AI microelectronic embedded solution that complements and expands human supervision with 24/7 'smart eyes', as a smart video monitoring application. Following direct inputs from the glass industry (e.g., Vidrala SA), VIEXPAND AI tackles a known problem in the glass container industry, difficult to solve: in the Individual Section Machines (ISMs), where bottles are blown and formed from the melted glass gob, placed onto a production line conveyor belt, the number of moving bottles is ~400un/min, ~40m/min; there is one or more human operators inspecting the machine and bottle line-up, verifying the system to avoid possible incidents that arise from bottle misplacement or handling; such impairments are frequent and hard to predict, in a very hard work environment; such job is considered a Dull, Dirty, Dangerous, Difficult and Dear (5D) job, with temperatures >50°C, >95dB(A) noise, oils, moist, and in need for 24/7 supervision for non-stop ISM operation; as a result, an excessive number of bottles are broken, glass is lost, machines are stopped and excess heat energy is spent on non-productive effort.

VIEXPAND AI can alleviate this problem by offering a solution for remote supervision in real-time, with multi-video CODEC, high-performance Edge AI detection, remote FHD video transmission, flexibility in setup, flexibility in use, with low Size, Weight and Power (SWaP), with IP fully owned & developed in-house and patent filing under work..

Market entry data / planned entry date: Q1 2024

Main technological domains: Artificial Intelligence and Machine Learning

SME: Twevo, Lda

Website: www.twevo.net

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.18. LobX-1

Description:

Orioma LobX-1 is a next generation smart sensor ready for the future needs. It is a self-powered IoT Intelligent Smart Building sensor based on our SEEL: patented very-low-power infrared sensor.

This product is a sensor designed to work for 15 years, protect privacy and measure everything needed in offices to ensure Comfort, security and energy savings.

Market entry data / planned entry date: Q1 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Artificial Intelligence and Machine Learning; Sustainable and Green Technologies

SME: Orioma

Website: www.orioma.com

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.19. Trustzero - Enterprise cyber risk exposure report service

Description:

Cyber risk Exposure Report is a service that constantly monitor the exposure of the customer to risk induced by company online presence: Email, IPs, Accounts, everything is taken into account to produce a clear and easy-to-read report targeted to IT manager.

Market entry data / planned entry date: Q1 2024

Main technological domains: Cybersecurity Solutions

SME: Zerodivision systems s.r.l.

Website: www.zerodivision.it

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.20. HIgh frequency Vertical Nanowire Transistor technology

Description:

NordAmps technology is based on the integration of well-known technologies and materials to grow vertical self-aligned, nanoscale structures using III-V compound semiconductor materials directly on silicon. We put 20 years of research into our core nanowire growth process that comprises an InGaAs vertical nanowire and high-K metal gates. The resulting high frequency devices are delivering the necessary gain, noise and linearity performance needed to arrive at an energy efficient and cost-effective mmWave transceiver product.

Our minimalistic device design replaces costly lithography mask steps to produce nanoscale transistors with higher performance. Integrating NordAmps high frequency devices with standard CMOS technology is a very compelling feature thereby significantly lowering system on a ship cost giving NordAmps technology a competitive advantage compared to more exotic materials system like e.g. InP based devices.

Market entry data / planned entry date: Q2 2025

Main technological domains: Other - HIgh frequency Vertical Nanowire Transistor technology

SME: NordAmps AB

Website: https://nordamps.com/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.21. Urban Platform

Description:

The Urban Platform provides municipalities with a global and integrated view of their cities, presenting data from various domains, such as traffic, air quality and waste collection.

This information, presented in a single control panel, allows municipalities to obtain the data needed to make informed and targeted management.

In this way, they can ensure that the decisions taken are well-founded and provide empirical reports on their impact.

Market entry data / planned entry date: Q1 2020

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions

SME: ubiwhere

Website: https://www.ubiwhere.com/pt/inicio

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.22. UPWIS Low Power Sensors

Description:

Low power wireless sensors measuring and informing of unwanted gas and particles that pollutes private/public and industrial environments.

We customise data from our own sensors together with other sources and custom fit user presentations for different applications within many different markets:

- Smart Cities – sustainable environment, secured society, environmental control, traffic flow control,
- Smart Grid – energy network control, load balancing, small cooperating energy suppliers,
- Smart factories- resource thin automation,
- Intelligent vehicles, proactive "wear aware" maintenance, security functions, anticollision, transportation,
- Health care, home care, remote surveillance and sensors,
- Cooperating society, personal sensors, interactive systems,
- Security solutions, sensing and securing alarm and lock solutions, positioning,
- Smart buildings, homes – energy, comfort, alert and security solutions.

Market entry data / planned entry date: Q1 2021

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Energy Harvesting / Energy Efficiency Solutions; Sustainable and Green Technologies

SME: UPWIS AB

Website: http://www.upwis.com/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.23. Krakul - Prototype to Production Acceleration services

Description:

We support companies in developing winning IoT and Autonomy products. Our services are carefully analysed with the end-user in mind and brought to life with elegantly designed engineering and superior later-stage support.

IoT products: Internet of Things (IoT) can be used to collect and share any data type. This gives your business invaluable data to make better decisions and automate processes. Potential use cases include: Connected cars; Wireless inventory trackers; Smart farming; Space technology.

Autonomy products: Autonomous platforms, like robots and self-driving vehicles, expand the horizon of what businesses can achieve. Potential cases include: Autonomous vehicles; Self-driving vehicles; Automation; Maintenance robots.

Market entry data / planned entry date: Q1 2021

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions ; Artificial Intelligence and Machine Learning

SME: Krakul

Website: https://krakul.eu/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.24. Nayad IoT device

Description:

Nayad is an IoT device that offers a complete set of communication protocols and a built-in cryptographic hardware supporting a diverse range of stakeholders and use cases. Its embedded security serves as the fundamental pillar for cybersecurity, ensuring efficient cryptographic processes and robust device authentication. Additionally the integration with radio communication, WiFi, Bluetooth and GPS, provides a secure and affordable IoT device suitable for smart food chain, smart farming, automation, edge computing, gateways, and IoT network.

Nayad Hardware introduces innovation by offering Open Source Technology that incorporates a hardware-based Root-of-Trust (RoT) into a full-featured IoT device. This cryptographic hardware ensures the authenticity, integrity, and confidentiality of devices at both the edge and gateway levels.

In today's landscape, every production chain, whether related to food or industry, must safeguard the information collected by sensors and ensure its authenticity and accuracy for product certification, production practices, and product and worker safety. Nayad effectively addresses these issues with an affordable and secure embedded IoT solution, that expands accessibility for a diverse range of stakeholders, big and small industries, enabling them to benefit from secure IoT devices.

The features provided by Nayad are:

- Radio technology enabling IoT networks in low or no connectivity areas,
- Isolation of security codes and keys into the cryptographic hardware,
- Boot and firmware integrity,
- Data-logging,
- Protection against remote attacks,
- Enhanced Trust: On-chip secure key storage and reliable device authentication,
- Tamper-resistant memory,
- Reliable end-to-end data transmission,
- Anti-cloning: Protection against unauthorized replication and adversarial attacks on Nayad's embedded software,
- Offline and online network capability,
- High efficiency systems with low-power consumption.

Market entry data / planned entry date: Q3 2024

Main technological domains: Cybersecurity; Sensors & Industrial Internet of Things (IIoT) Solutions; Energy Efficiency Solutions; Radio Communications / 5G Connectivity for Industrial Use

SME: Hacking Ecology, S.L.

Website: https://hackingecology.com/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.25. Non cellular 5G DECT NR+ chipset for Massive IoT and Healthcare

Description:

Last Mile Semiconductor is revolutionizing IoT connectivity with our innovative, low-cost, ultra-low-power wireless chipset. Combining the high performance of cellular 5G networks the efficiency of Bluetooth, our chipset operates on the new non-cellular 5G DECT NR+ standard, ensuring long-range connectivity up to 6 km, data rates up to 10 Mbps, and ultra-low latency without the need for middle operators. Developed in collaboration with industry leaders and tailored to the needs of our customers, our chipset is set to transform the European IoT landscape. With an emphasis on digital sovereignty and environmental sustainability, our solution supports the massive deployment of IoT and contributes to Europe's economic growth.

Market entry data / planned entry date: Q1 2026

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions ; Radio Communications / 5G Connectivity for Industrial Use; Cybersecurity

SME: Last Mile Semiconductor GmbH

Website: https://www.lm-semi.com/

4.26. Sensor for free radicals and air quality

Description:

The solution is a unique disruptive innovative electronic sensor system to measure short-lived atmospheric radicals such as hydroxyl (OH), nitric oxide (NO) and nitrate (NO3). They are highly reactive molecules that exist in the Earth's atmosphere for only a short period of time before they undergo chemical reactions with other molecules. They play a crucial role in a variety of different atmospheric processes, such as removal of pollutants and greenhouse gases, as well as the formation and depletion of ozone. The electric sensor is based on silicon nanowire technology and will be highly power efficient.

The solution is in development and will be research-grade and highly accurate, and also cost-effective. It will not suffer from typical detection interferences from other species. Atmospheric radical detection techniques using on-chip, mass produced, mobile and self-powered sensors could lead to the formation of mobile global networks supplying real-time data on the vertical and the horizontal distribution of free radicals with high spatial and temporal resolution.

Market entry data / planned entry date: Q2 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions ; Energy Efficiency Solutions; Customized Electronics Manufacturing

SME: Smartcom-Bulgaria AD

Website: https://smartcom.bg/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.27. EUROSIP vibration SiP for condition-based predictive maintenance applications in tight spaces

Description:

EUROSIP is a commercial vibration SiP (System In Package) for condition-based predictive maintenance applications in tight spaces. It includes a 32-bit microcontroller and a precision triaxial accelerometer, seamlessly integrated in a miniaturized ready-to-use single package.

EUROSIP supports

a) embedded-edge capabilities, by using Region-Based Convolutional Neural Network (RCNN) training to analyze the Fast Fourier Transform (FFT) spectrogram. An anomaly detection model can be flashed in the microcontroller, to automatically detect certain conditions. For example propeller imbalance or bearing load damage.
b) high-speed Serial Protocol Interface (SPI) to output the data.

EUROSIP with its customs sensors featuring embedded-edge, A.I.-driven pre-processing capabilities is addressing, in special, the .. the UAV manufacturers market.

Market entry data / planned entry date: Q1 2025

Main technological domains: Artificial Intelligence and Machine Learning;

SME: Alteria Automation SL

Website: https://alteriaautomation.com/

Silicon Eurocluster
D4.3 New-to-firm products or services
in the industrial ecosystem

4.28. KnowYourNOx - EU platform for nitrogen & biodiversity monitoring

Description:

KnowYourNOx addresses global nitrogen pollution & biodiversity impacts through advanced technologies. With EdgeAI, remote sensing (satellite imagery), hyperlocal data, and AI-based analysis, it indicates long-term vegetation effects. The scalable technology stack integrates Sentinel-data into a web-portal, to foster evidence-based nitrogen policy and support a green economy.

The service consists of a scalable, real-time, and high-resolution atmospheric NOx mapping, accurate and scalable air quality and nature quality maps, offered to governments, business, and the public via the KnowYourNOx-portal.

Market entry data / planned entry date: Q1 2025

Main technological domains: Artificial Intelligence and Machine Learning; Photonics Solutions; Sensors & Industrial Internet of Things (IIoT) Solutions.

SME: Spheer AI BV

Website: https://spheer.ai/#/

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4.29. TEMPCARE - cooling system for semen preservation

Description:

TEMPCARE provides an innovative cooling system for semen preservation that surpasses the limitations of current methods. By combining cost-effective sensors, microcontrollers, and Peltier plates, we can achieve greater cooling efficiency and reliability. The integration of predictive technology adds an extra layer of intelligence, enabling us to monitor and manage the cold chain logistics with heightened precision. This solution represents a significant step forward in the field of semen and fluids transportation. Our cooling system offers improved performance, portability, and ease of use, empowering breeders and farmers, particularly smaller operations, with an affordable and efficient solution. By optimizing the cooling process and incorporating predictive monitoring, we ensure that the viability of bovine semen is maintained throughout its journey, ultimately contributing to the growth and sustainability of the industry.

Market entry data / planned entry date: Q1 2025

Main technological domains: Artificial Intelligence and Machine Learning; Radio Communications; Sensors & Industrial Internet of Things (IIoT) Solutions.

SME: Humeco

Website: https://www.humeco.net/

4.30. The LEVKART: a software-defined ultralight vehicle and collaborative robot for transportation of people and cargo

Description:

LEVTEK SWEDEN AB is developing the LEVKART, a software-defined ultralight electric vehicle/collaborative robot for transportation of people and cargo. The LEVKART is equipped with electric servo steering, computing capabilities and a suite of sensors including cameras, microphones and IMU, meaning it can support advanced and autonomous functionality such as person following, lanekeeping and autonomous navigation. One use-case is semi-automated warehouse picking where it will enable a worker to switch between riding the LEVKART, pushing it manually like a trolley, and walking freely, with the LEVKART autonomously following (in front or behind), freeing up both hands for picking. This kind of usage allows an increase in efficiency and reduces physical strain in the warehouse picking process.

Market entry data / planned entry date: Q2 2025

Main technological domains: Artificial Intelligence and Machine Learning ; Sensors & Industrial Internet of Things (IIoT) Solutions.

SME: LEVTEK SWEDEN AB

Website: https://www.levtek.io/

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4.31. COVILED – Intelligent Disinfection System

Description:

COVILED is an integral system for the intelligent disinfection of air circulating in ventilation ducts through the use of ultraviolet C (UV-C) radiation, combining photonic technologies, IoT and AI. The aim of this system is to implement prevention and mitigation strategies in an active way, acting dynamically and in real time on radiation systems based on data received from sensors and other sources of information.

Market entry data / planned entry date: Q1 2024

Main technological domains: Artificial Intelligence and Machine Learning ; Sensors & Industrial Internet of Things (IIoT) Solutions; Radio Communications;

SME: INSATI INNOVATION SL.

Website: https://insati.com/web/en/home-2/

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4.32. ASDAS active safety distance alert system

Description:

ASDAS is a digital low energy consumption system based on sensors, photonics and AI planned for use on public roads to help drivers by alerting them to their incorrect safety distance. This provides higher road security, has a positive impact on environment and is available to everyone - no matter the price range of their car.

Our solution will digitalise this sector with the use of AI, photonics and sensors, making it available for all drivers and increasing road safety for everyone. Besides digitalisation and safety, ASDAS also contributes to greater sustainability by: reducing the number of accidents (creating wasted materials, waste when repairing cars, road congestion, GHG emissions of running cars in traffic jams, etc); rReducing the need for hard braking (pollution like wear and tear of tyres, brakes and roads releasing microplastics in the atmosphere. Brake dust contributes 20% of fine particles matter pollution); being solar powered, off grid solution (no need for and supporting arches over roads, less construction cost, no on-grid connection).

Market entry data / planned entry date: Q1 2025

Main technological domains: Artificial Intelligence and Machine Learning ; Photonics; Sensors & Industrial Internet of Things (IIoT) Solutions.

SME: Trilobit d.o.o.

Website: https://trilobit.si/en/

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4.33. NovoAI - Advanced IIoT Sensor and AI Analytics solutions for smart factories

Description:

NovoAI provides scalable, cutting-edge IIoT Sensor and AI Analytics solutions that serve as a robust answer to optimization issues within the manufacturing sector, specifically production inefficiency and high energy wastage. Our sensor technology and optimized AI algorithms are designed with scalability in mind, making them attractive to SME companies.

Advanced IIoT sensor AVA: Novo AI's Acoustic and Vibration Analyzer (AVA) is a robust tool for digitalizing Computer Numerical Control (CNC) machines. AVA supports a sensing bandwidth from 800Hz up to 80Khz(vibration data) and 6kHz - 11kHz (acoustic data), enabling real-time or historical analysis of machine operations. As a AI-enabled edge device, it processes and securely stores data, granting users complete ownership of their machine information.

Edge Optimization: Powerful Edge AI models that, capitalizing on the broader bandwidth, streamline data processing and deliver improved precision in outcomes, providing superior efficiency for processing, and delivering insightful analytics.

Wireless Connectivity: AVA wireless connectivity supports currently WiFi and is evolving to support LoRa and ZigBee radio connectivity modules, ensuring the robust and reliable transmission of machine data from AVA to our edge device and further to the WatchMen platform.

Market entry data / planned entry date: Q1 2025

Main technological domains: Artificial Intelligence and Machine Learning; Radio Communications; Sensors & Industrial Internet of Things (IIoT) Solutions.

SME: Novo AI GmbH

Website: https://novoai.de/

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4.34. BELLE Biosensor-Enabled Leadership in Localized European vertical farming

Description:

BELLE incorporates phytosensing technology developed by Vertical Green Farming and aims to revolutionize the way plants are monitored and managed in controlled environments. By integrating advanced sensing capabilities with artificial intelligence algorithms, our system enables real-time and comprehensive tracking of plant physiological parameters. This data-driven approach enhances resource utilization, reduces environmental impact, and promotes sustainable agriculture.

Our ambition is to revolutionize global agriculture by empowering farmers and growers with innovative biohybrid sensing technology, driving the transition to sustainable and efficient vertical farming practices. We strive to be the leading provider of vertical farming systems that integrate sensing solutions, enabling precise monitoring, optimization, and resource management for enhanced crop quality, increased yields, and reduced environmental impact. BELLE is a key part of such strategy, by employing high-integrated sensing and AI components on a single PSOC chip with low energy consumption to a biohybrid system for sensing physiological state of plants in real operation environments.

The commercial potential of this innovative biohybrid system lies in its ability to optimize production costs, conserve water and energy, and reduce the use of chemicals in food production. By combining advanced sensing technology with AI-powered data analysis, the system offers a transformative solution that can enhance productivity, sustainability, and profitability in the precise agriculture industry. Prime target markets and customer segments that can benefit most from the BELLE phytosensing system in vertical farming, span from commercial farms, urban agriculture projects, restaurants, grocery stores, and food distribution centres.

Market entry data / planned entry date: Q1 2025

Main technological domains: Artificial Intelligence and Machine Learning ; Sensors & Industrial Internet of Things (IIoT) Solutions.

SME: Vertical Green Agritech SL

Website: https://verticalgreenfarming.com/

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4.35. SWIRLEDSORT

Description:

SWIR LED – Low energy, LED based IR Ligth solution, for Insort Sorting Machines.

Actually the light source of the sorting machines of Insort is halogene lighting to provide the Infrared Lightning needed for the Hyperspectral Imaging technology. The lighting power needed for a typical machine setup is approximately 5000 Watt on average. To avoid overheating the lighting has to be cooled by chilling units, which again need 1000 Watt of power.

The new innovative version of Insort Sorting Machines will use IR light source made from LEDs. It includes a special method developed by MTD Gmbh that mitigates the peaks across the wavelength needed (between 1000 nm and 1700 nm). With this innovative solution the lighting power needed should be reduced by a fraction of 80 %, that only 1000 Watts are needed on average. Therefore also the cooling can be made much more efficient. The temperature of the light source has to be kept very stable to assure a stable light distribution.

Market entry data / planned entry date: Q1 2025

Main technological domains: Artificial Intelligence and Machine Learning; Photonics; Sensors & Industrial Internet of Things (IIoT) Solutions.

SME: Insort GmbH

Website: https://www.insort.at/en

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4.36. MOSAICS-LP

Description:

Design platform to do IoT/IIoT/automotive/industrial/consumer chips based on chiplets, with very low entry barrier and universal use of existing chiplets.

Design a chip in 6 months for 10x lower cost than monolithic chips.

Market entry data / planned entry date: Q1 2026

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Artificial Intelligence and Machine Learning; Customized Electronics Manufacturing

SME: Menta S.A.S.

Website: https://www.menta-efpga.com/

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4.37. Pinta

Description:

Pinta is AI based Energy monitoring, testing and controlling with Digital twin capability.

This product can be used for integration of renewable energy, battery storage testing/grading, EU digitization drive using digital twin, smart grid management, mobile robotics operation & maintenance, improve energy efficiency, real time AI driven solution and Industry 4.0 IIOT ready.

Market entry data / planned entry date: Q3 2024

Main technological domains: Sensors & Industrial Internet of Things (IIoT) Solutions; Artificial Intelligence and Machine Learning

SME: Logiicdev e.U.

Website: https://www.logiicdev.eu/

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5. Conclusions

In conclusion, in Figure 9 it can be observed the distribution of main technological categories for these 37 new-to-firm products/services. Main answering SMEs are working on the field of sensors, both for IoT and IIoT, communication between them and servers and in the use of AI to process all the data providing insights, mainly for industries' operation and logistic optimization.
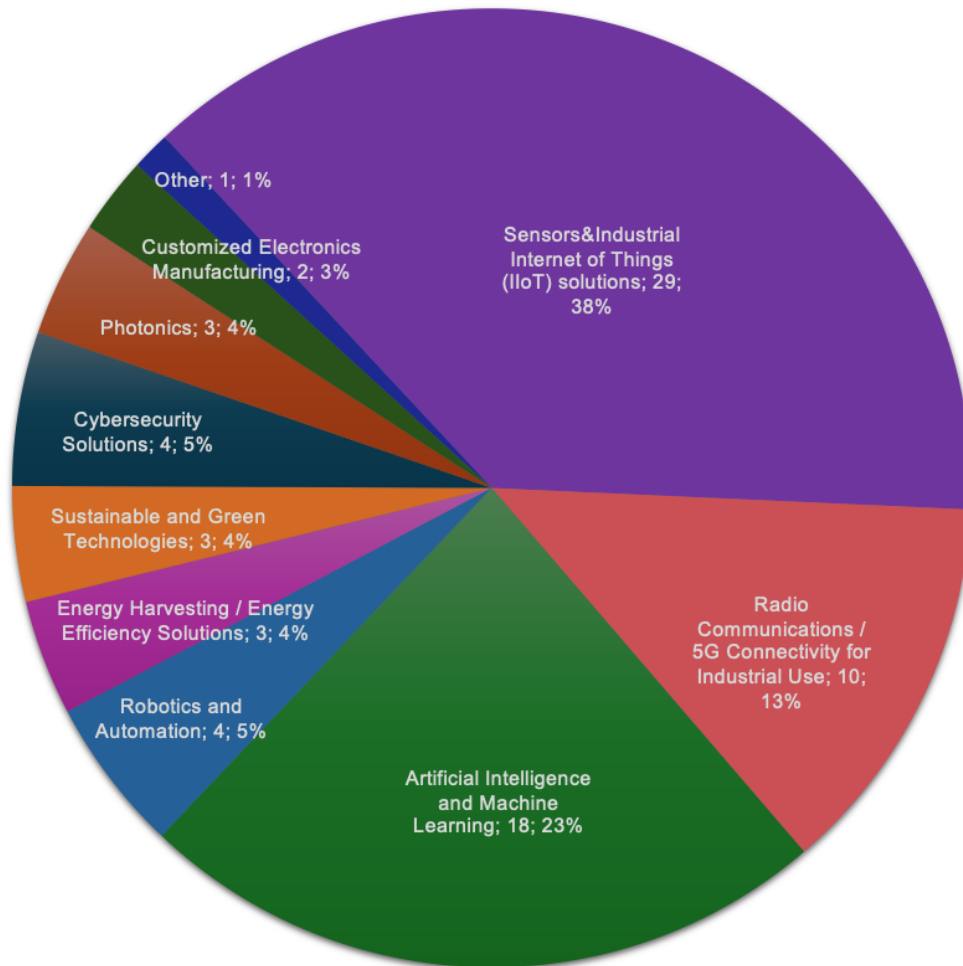

Figure 9: Technological categories distribution

Other result depicted in Figure 10 provide us with new-to-firm products being deployed at market by the Q2 and Q4 of 2024, where it is expected that a new surge of innovative solutions will begin being developed.

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Figure 10: Go-to-market time for the new-to-firm products and services

Figure 11 presents the trend of dominance for these kind of SMEs. It can be seen that the category of Sensors and IIoT solution is being stable since 2020 ant it is anticipated that this trend continues on the next couple of years. The same trend is the use of AI, that will leverage on the collected dataset and data spaces from multiple sources, and also solutions for increase energy efficiency.
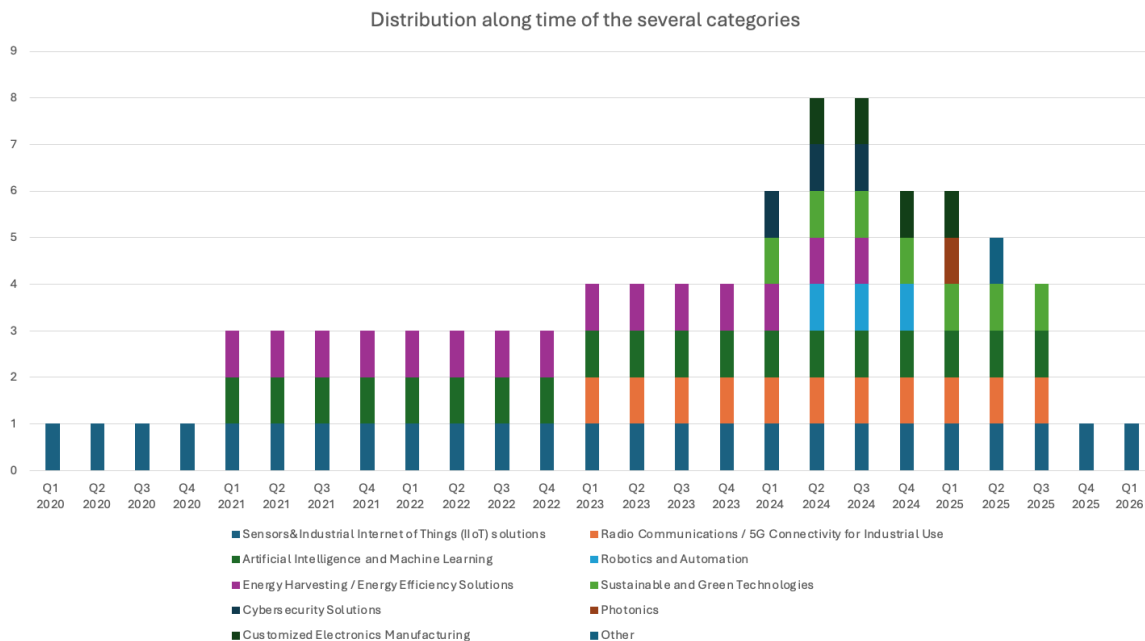

Figure 11: Distribution ot the several technological categories along time

As a corollary, we reinforce again that, based on the interactions we had with these companies we conclude the importance, not only of financing but also of the entire partnership process between technology supplier and recipient, of an FSTP program like the one established by Silicon Eurocluster.

Although the majority of products/services identified present a market entry forecast aligned with the timeframe suggestion proposed in the questionnaire (2021-2024), a significant number of cases predict 2025 to complete market entry. Having analyzed these cases, we found that the vast majority correspond to companies that participated in the Financial Support for Third Parties

(FSTP) process but were not financed. The fact that they were not successful in capturing financing ended up determining the postponement of the evolution plans and the corresponding entry into the market.

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Annex A: New-to-firm Products/Services Questionnaire

SILICON EUROCLUSTER: raise your hand

NEW-TO - FIRM PRODUCTS AND SERVICES IN THE ELECTRONIC ECOSYSTEM

Purpose: To identify and
provide a brief description of products and service offers of the SMEs in the
electronics ecosystem, that fit the concept of "new-to-firm products/services".

New-to-firm products/services concepts: Refer to
innovations or offerings that are introduced by a company for the first time.
These offerings can significantly impact the market and the company itself.
(They are new for the company but not necessarily new to the market).

Note 1: The information collected will be part of a
deliverable of Silicon Eurocluster project, with **public disclosure**.

Note 2: We plan to integrate the information collected
from each SME in 0.5-1.0 page. Please provide few paragraphs for each question
(suggested around 1000 characters for each question in Part 3).

New-to-firm Product/Service offer identification (suggested timeframe: 2021-2024). Please include in the reply: *

1_Name of the product/service offer:

2_Market entry date / planned data entry date:

3_We do not have a product/service that fits the "new-to-firm product/service concept"

i.e. Bolts - 2022- xyz service

A sua resposta

Product/Service Description: which is the main technological domain for the product/service? (Please write the 3 most relevant by taking inspiration from the examples below) *

1. **Sensors & Industrial Internet of Things (IIoT) Solutions:**
   - **examples:** IIoT platforms, sensors, and devices for data collection, analytics software, and predictive maintenance solutions.
2. **Radio Communications / 5G Connectivity for Industrial Use:**
   - **examples:** 5G networks for low-latency, high-bandwidth data transmission in industrial settings.
3. **Artificial Intelligence and Machine Learning:**
   - **examples:** AI-driven automation, quality control, and predictive analytics tools for optimizing industrial processes.
4. **Robotics and Automation:**
   - **examples:** Advanced industrial robots, collaborative robots (cobots), and automation solutions for tasks like assembly and logistics.
5. **Energy Harvesting / Energy Efficiency Solutions:**
   - **examples:** Energy monitoring and optimization systems to reduce energy consumption in industrial processes.
6. **Sustainable and Green Technologies:**
   - **examples:** Eco-friendly industrial equipment, renewable energy solutions, and waste reduction technologies.
7. **Cybersecurity Solutions:**
   - **examples:** Industrial cybersecurity tools to protect critical infrastructure from cyber threats.
8. **Photonics**
   - **examples:** fiber-optics communications, laser cutting and engraving, optical sensors and imaging systems, photovoltaic cells.
9. **Customized Electronics Manufacturing:**
   - **examples:** On-demand, small-batch, or customized electronics manufacturing services.
10. **Other**

A sua resposta

Please provide a clear and concise description of the new-to-firm product or service above. Explain what it is, how it works, and what makes it unique or groundbreaking. This should give a basic understanding of the offer: *

A sua resposta

Technological Advancements 1/3: *

On a scale of 1 to 10, how would you rate the level of technological advancement achieved in this innovation? (1 being low, 10 being high)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

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Technological Advancements 2/3: *

Please rate the significance of the key components or features in differentiating the innovation from existing solutions

○ Not significant

○ Somewhat significant

○ Very significant

Technological Advancements 3/3: *

How would you rate the novelty of the approaches or technologies used in the innovation?

○ Not novel

○ Somewhat novel

○ High novel

Market Impact and Benefits 1/3: On a scale of 1 to 10, how would you rate the *
potential impact of this innovation on the electronics ecosystem? (1 being minimal impact, 10 being significant impact)

1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○

Market Impact and Benefits 2/3 Please rate the effectiveness of the innovation in *
addressing specific market needs or challenges in the electronics industry

○ Not effective

○ Somewhat effective

○ Very effective

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D4.3 New-to-firm products or services
in the industrial ecosystem

Market Impact and Benefits 3/3 How would you rate the perceived benefits of the * innovation for customers, businesses, or industries in the electronics sector?

○ Low

○ Moderate

○ High

Competitive Advantage 1/3: On a scale of 1 to 10, how would you rate the extent * to which the new product/service provides a competitive advantage? (1 being not at all, 10 being extremely)

1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○

Competitive Advantage 2/3 Please rate the level of innovation and uniqueness * of the new product/service compared to competitors:

○ Not innovative

○ Somewhat innovative

○ Very innovative

Competitive Advantage 3/3 How would you rate the potential market share * growth resulting from the introduction of this new product/service?

○ Low

○ Moderate

○ High

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Strategic Importance 1/3: On a scale of 1 to 10, how would you rate the strategic *
importance of this innovation to the company's vision and goals? (1 being not
important, 10 being extremely important)

1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○

Strategic Importance 2/3: Please rate the alignment of this innovation with the *
company's long-term strategy

○ Very poor

○ Poor

○ Neutral

○ Good

○ Very good

Strategic Importance 3/3: How would you rate the current integration of this *
innovation into the company's product or service portfolio?

○ Not Integrated

○ Partially integrated

○ Fully integrated

○ Good

○ Very good