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Executive Summary

This deliverable presents the first batch of practice abstracts developed under the Horizon Europe-funded CATALYSE project, which aims to bridge the gap between food safety innovation and its practical application through a multi-actor, knowledge-sharing approach. The document showcases five practice abstracts derived from key activities across several work packages (WP), including stakeholder engagement, data-driven knowledge aggregation, business exploitation support, educational content development, and industrial-scale pilot testing.

The abstracts are structured in line with the EIP-AGRI format to ensure clarity, accessibility, and value for practitioners such as SMEs, food producers, innovators, researchers, and policymakers. They highlight concrete outcomes and lessons learned from early project activities and offer practical implications, supporting the transfer of research-based knowledge and innovation into real-world use.

Each abstract addresses a specific area of innovation—from AI-assisted database curation and antimicrobial trials in pilot plants to tailored training platforms and matchmaking between innovators and industry end-users. Together, they demonstrate how CATALYSE supports the uptake of food safety innovations by enhancing connectivity between science, industry, and society.

This document is the first of two planned practice abstract collections, with a second batch to be delivered at M36, reflecting the final results and broader impact of CATALYSE across Europe's food safety ecosystem.

INDEX

LIST OF ABBREVIATIONS 5

1. Introduction 6

2. Methodology 6

2.1 Methodology for the Development of Practice Abstracts 6

2.2 Alignment with EIP-AGRI Format and Guideline 7

3. Practice Abstracts – batch 1 9

3.1 Practice Abstract 1 9

3.2 Practice Abstract 2 12

3.4 Practice Abstract 4 19

3.5 Practice Abstract 5 21

4. Conclusions 24

LIST OF ABBREVIATIONS

CATALYSE, Catalysing scientific innovation into food safety action,

EFFoST, European Federation of Food Science and Technology,

ILSI Europe, International Life-Science Institute Europe,

UCSC, Università Cattolica del Sacro Cuore,

FIAB, Federación Española de Industrias de Alimentación y Bebidas,

CoP, Community of Practice,

ICT, information and Communications Technology.

WP, Work package

1. Introduction

The EIP-AGRI (European Innovation Partnership for Agricultural Productivity and Sustainability) project database features practice abstracts from innovative projects from across Europe that boost innovation and knowledge exchange related to agri-food and other thematic areas such as forestry and rural areas. The EIP-AGRI project database is updated regularly with Horizon multi-actor projects, which includes the CATALYSE project, as well as thematic networks and other innovative projects established after 2014.

Innovative and practice-oriented projects share their knowledge in a concise, harmonised and practice-oriented way. The current document shares intermediate results, knowledge and insights from the CATALYSE project, using the EIP-AGRI common format for Horizon Europe multi-actor projects including thematic networks and advisory networks, using the guidance and templates available at EIP-AGRI web site: https://eu-cap-network.ec.europa.eu/projects/practice-abstracts_en

Five individual practice abstracts are included as individual documents in section 3 of the present document *"Practice abstracts – batch 1":*

- Supporting Business Exploitation: From Innovation to Market for Agrifood Startups and SMEs
- Methodology for Data Collection on New Knowledge and Innovative Solutions: A First Pilot in Novel Microbiological Detection Methods
- Understanding the Needs and Priorities in Food Safety Innovations by Multi-Actor Stakeholder Engagement Approach
- Strengthening Food Safety Education and Innovation in the Food Sector: Development of a Digital Platform for Educational and Training Material
- Pathogen Pilot Plants: Bridging Laboratory Research and Industrial Application for Safer Food

A second batch with a minimum of 5 additional practice abstracts based on final project results is planned for December 2026 (M36), in order to reach the project's total target of 10 practice abstracts, as foreseen.

2. Methodology

2.1 Methodology for the Development of Practice Abstracts

The practice abstracts included in this deliverable were developed based on the intermediate results and insights emerging from multiple WPs of the CATALYSE project. Specifically:

- The practice abstract titled "**Supporting Business Exploitation: From Innovation to Market for Agrifood Startups and SMEs**" was developed from activities under WP7 – *Company support, Exploitation* particularly Task 7.2 – *Creating effective connections between*

solution providers and end-users, reflecting matchmaking and exploitation strategies deployed to promote commercialisation of food safety innovations.

- The practice abstract titled "**Methodology for Data Collection on New Knowledge and Innovative Solutions: A First Pilot in Novel Microbiological Detection Methods**" was derived from WP3 – *Database of knowledge and innovative solutions for food safety*, specifically from Task 3.1 – *Establishment of methodologies for data collection on new knowledge and innovative solutions from farm to fork*. It is based on a pilot implementation to test scientific knowledge mapping and automated workflows.

- The practice abstract titled "**Understanding the Needs and Priorities in Food Safety Innovations by Multi-Actor Stakeholder Engagement Approach**" was developed from WP2 – *Stakeholder management*, especially Task 2.1 – *Development of the comprehensive stakeholders-engagement strategy*, and summarises the process and key results of a multi-actor engagement strategy.

- The practice abstract titled "**Strengthening Food Safety Education and Innovation in the Food Sector: Development of a Digital Platform for Educational and Training Material**" was based on outputs from WP6 – *Education and Training*, including Task 6.1 – *Collect existing education materials for a link library and create governance system*, with a focus on reviewing and filling educational gaps in food safety knowledge transfer.

- The practice abstract titled "**Pathogen Pilot Plants: Bridging Laboratory Research and Industrial Application for Safer Food**" emerged from activities conducted under WP5 – *Deploy the CATALYSE CoP*, especially Task 5.2 – *Pilot on Cheese & Dairy Chapter*, and showcases practical testing on highly serious pathogenic microbial agents in high-security food-grade pilot plant environments.

Each practice abstract was created using a structured, collaborative process across the CATALYSE consortium. Authors followed a predefined template based on the EIP-AGRI abstract format, with guidance and editorial support from EFFoST to ensure clarity and consistency. The abstracts present results in accessible, non-technical language tailored to end-users such as SMEs, food producers, food safety practitioners, and other stakeholders.

All draft abstracts were subjected to a quality assurance process coordinated by EFFoST, involving internal peer review to ensure alignment with EIP-AGRI formatting, relevance for the target audiences, and readability.

2.2 Alignment with EIP-AGRI Format and Guideline

All five practice abstracts were structured according to the EIP-AGRI common format for Horizon Europe multi-actor projects. This includes:

- A clear, self-explanatory title summarising the opportunity or challenge.

- A concise, engaging summary for practitioners in accessible, non-technical language.

- Well-defined objectives, results, and practical implications of the innovation or solution.
- Links to dissemination materials, such as training content, webinars, tools, and websites.
- Specification of the geographical context of the innovation or data collection activities.
- A section for additional information, such as key messages for end-users, obstacles, or future directions.
- Proper listing of authors and affiliations.

Each abstract was reviewed for consistency, structure, and relevance to practitioner audiences. This alignment facilitates knowledge transfer, supports practical application, and ensures their successful integration into the EU CAP Network database.

To ensure maximum usability, research-oriented aspects that do not directly support the understanding or implementation of the practice were excluded. Instead, the abstracts focus on concrete outcomes and practical guidance, offering actionable knowledge for SMEs, producers, food safety professionals, and educators. By implementing the practices described, end-users benefit from improved market readiness, risk reduction, knowledge sharing, and access to educational tools.

A **practice abstract** is a targeted communication format intended to **translate research and innovation outcomes into practical knowledge**. Its purpose is to simplify and summarise project results in a form that is useful and applicable for real-world users—especially those who do not typically read academic literature. Unlike scientific publications, practice abstracts serve as concise, hands-on tools that support uptake and implementation by stakeholders across the agrifood value chain.

All practice abstracts will be made publicly available through multiple dissemination channels. They will be uploaded to the **EU CAP Network portal** (formerly the EIP-AGRI database) and published on the **CATALYSE website and Community of Practice (CoP) platform**, accessible here: https://thecatalyseproject.eu/join-our-community/. Promotion will also take place via project social media, newsletters, and stakeholder events. The first batch will be released in **June 2025**, followed by a second batch in **December 2026**, ensuring wide-reaching and sustained visibility across the European food safety community.

3. Practice Abstracts – batch 1

3.1 Practice Abstract 1

Business Support

Project 101136754 — CATALYSE

CATALYSE

Catalysing scientific innovation into food safety action

Supporting Business Exploitation: From Innovation to Market for Agrifood Startups and SMEs

Summary for practitioners

The main objective of CATALYSE project is to create a network of food safety actors with the aim to support adoption of knowledge and innovative solutions along the value chain. To ensure that innovations in food safety related with the agrifood sector reach the market and deliver real value, the project focuses on supporting the business exploitation of research results. This effort addresses key challenges faced by startups and SMEs, such as dealing with complexities associated to intellectual property rights (IPR), overcoming market barriers, and identifying the best commercial pathways for new technologies.

The **business support** from CATALYSE to these innovators involves creating an exploitation pathway that includes the development of a tailored IPR strategy, an assessment of the current market environment, and the definition of specific targets for each innovative solution. A good business support plan enables small companies and innovators to evolve from innovative ideas to market solutions. This begins by identifying the specific needs of food business end-users and mapping existing innovative solutions offered by SMEs and startups related to food safety.

Next step should focus on creating effective connections, facilitating matchmaking between solution providers and end-users through dedicated sessions to stimulate collaboration and uptake. This approach helps entrepreneurs and innovators better align their technologies with market needs, increases visibility among potential users, and accelerates the adoption of food safety innovations.

Practical implications

Practitioners such as agrifood entrepreneurs and food producers, technology developers, and innovation providers can directly benefit from this exploitation pathway, which offers a clear roadmap to both **commercialisation and knowledge sharing**. In addition to supporting market uptake, the approach encourages the **exchange of practical experiences, insights, and best practices** among stakeholders, fostering a stronger innovation community. Business plans and model recommendations can be adapted to specific innovations, saving time and resources while reinforcing collaboration across the value chain. Overall, this structured pathway strengthens the

innovation ecosystem by connecting actors, sharing knowledge, and supporting the successful commercialisation of new technologies in the agrifood sector.

Additional dissemination and exploitation materials

Link to the Community of Practice platform, a network of food safety actors developed during CATALYSE project with the aim to support adoption of knowledge and innovative solutions along the value chain. https://thecatalyseproject.eu/join-our-community/

Link to the project official website objectives for better understanding of the overall aim of the project: https://thecatalyseproject.eu/objectives/

Geographical location

The mapping of end-users' needs and innovative solutions from SMEs and startups was conducted at different regions of Europe, covering Mediterranean, Eastern, Central and Western Europe.

The matchmaking sessions between innovation providers and end-user were organised at existing events in different countries: FOOD4FUTURE fair in Bilbao, Spain; Alimentaria Barcelona Fair, in Barcelona Spain; the EXPO AGRITECH fair in Málaga, Spain; the EFFOST International Conference in Brugge, Belgium; the ILSI Europe Annual Symposium in Copenhagen, Denmark; or the Hygiene For Food conference (Flanders' Food symposia) in Flanders, Belgium.

Additional information

A key facilitator in implementing the business support strategy was the mapping of end-users and solution providers and the positive engagement of both, making it easy to reach all relevant stakeholders and ensure participation across matchmaking events.

Key messages for innovation providers:

- The mapping of food industry needs is a critical first step to ensure that innovations are relevant and capable of reaching the market successfully.
- Engaging with end-users increases the chances of success in the creation of tailor-made innovations.
- Matchmaking sessions are highly effective to align market demands with available innovations.
- Clear exploitation strategies and targeted business models significantly improve market uptake.

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About this practice abstract and CATALYSE

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Project website: https://thecatalyseproject.eu

3.2 Practice Abstract 2

Building the Database

Project 101136754 — CATALYSE

CATALYSE

Catalysing scientific innovation into food safety action

Methodology for data collection on new knowledge and innovative solutions: a first pilot in novel microbiological detection methods

Summary for practitioners

The CATALYSE project aims to bridge the gap between industry, academia, policymakers by the development of a Community of Practice platform. As part of this initiative, an **open-access database** was created to accelerate the dissemination of new knowledge and innovative solutions in the field of food safety. A first pilot of a reproducible workflow was developed to identify, organize, and translate relevant scientific data into accessible information for practical use.

This **pilot** tested a new approach for collecting and organizing recent innovations around the topic "*novel microbiological detection methods*", specifically those relevant to food safety. For this purpose, six major databases were selected: PubMed, Scopus, Web of Science, IEEE Xplore, OAIster, and Patentscope. For scientific materials published between 2020 and 2024, we gathered a large amount of information - more than 8,000 records- including thousands of scientific papers and thousands of international and European patents.

To manage this data, we removed duplicates and selected only high-quality, open-access research that described scalable or and validated innovative technologies in food safety. Human experts carried out the last screening step, and placed each selected item in a standard template, that included bibliography details, topic tags, and a simplified summary written by a large language model.

In order to speed up and simplify future processes, a comparison was made with an automated workflow in which the human screening phase, the most time-consuming step, was performed using the Lama 3.3 large language model. The results clearly show that with an appropriate human preparation step (pilot screening, precise prompting), more than satisfactory results (95% accuracy) can be achieved in this way.

This pilot showed that using AI tools combined with expert input, is an effective way to extract and organize useful knowledge. We also built a system that will keep the information updated using automated workflows with KNIME (a free, open-source data analytics platform), while still including human review to ensure quality and relevance.

Practical implications

Thanks to this work, we are successfully creating a searchable **knowledge database** that brings together different evidence and innovative data about food safety. The process is efficient, repeatable, and preserves scientific quality. Once fully implemented, the **CATALYSE platform** will give stakeholders—such as researchers, food producers, regulators, and public health professionals—fast access to the latest solutions, knowledge and technologies. This can help them respond more quickly to challenges in food safety and apply new methods across the food supply chain, saving time and resources while improving public health outcomes.

Additional dissemination and exploitation materials

Link to KNIME Software: https://www.knime.com/

Link to the Community of Practice platform, the place where database of knowledge will be available: https://thecatalyseproject.eu/join-our-community/

Geographical location

The knowledge database is designed as a **truly global resource**: the database is accessible from anywhere in the world—without restrictions or borders— in Europe, Asia, Africa, or the Americas, you can freely explore cutting-edge food safety innovations from a single platform.

Although the database is online and **open to all** and everyone, geographical context was considered only during patent collection. Since CATALYSE is a European project, with most of its members located across the region, the patents were selected considering these criteria, including the ones that can be used or applied within the European system.

CATALYSE pretends to offer an **inclusive space** where ideas can travel, inspire, and be applied across borders.

Additional information

The food safety innovation scene is growing rapidly, and a centralized, **user-friendly platform** like CATALYSE can greatly support faster identification and use of innovative solutions. The CATALYSE database brings together many types of scientific information—such as articles, reviews, patents, reports, and guidelines—on key food safety topics: control measures, detection methods, packaging innovations, digitalization and risk analysis, and hygiene by design.

The database is organized to make it easier to find and apply this information. It first classifies the literature by food sector (dairy, fish & seafood, meat & poultry, grains & cereals, fresh fruit & vegetables, plant-based and alternative proteins, processed and packaged foods); then, for each of these topics, the literature is further sorted by application (for example, detection methods, packaging, or digital monitoring) and by the specific focus within that application (such as pathogens detection, spoilage microorganisms, chemical contaminants, or allergens).

End-users are encouraged to explore and share this resource, stay up to date on the last trends like digital monitoring, active packaging, and mycotoxins, and help build a stronger, more connected food safety community.

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Project website: https://thecatalyseproject.eu

3.3 Practice Abstract 3

Stakeholder Engagement

Project 101136754 — CATALYSE

CATALYSE

Catalysing scientific innovation into food safety action

Understanding the needs and priorities in food safety innovations by multi-actor stakeholder engagement approach

Summary for practitioners

The stakeholder (SH) engagements conducted as part of the CATALYSE project aimed to understand the barriers and enablers for implementing innovative food safety practices, fostering knowledge exchange, and improving education and training initiatives. These activities also helped identify key focus areas to ensure project efforts are aligned with real-world needs. Furthermore, they laid the foundation for long-term engagement through the creation of a stakeholder list for the Community of Practice (CoP), designed to support experience sharing and collaboration throughout and beyond the project.

Engagements were carried out using a multi-method approach: online surveys, structured one-on-one interviews, interactive workshops (including world cafés), and webinars. This multi-actor methodology forms the core of the CATALYSE working model "Collect – Translate – Facilitate – Educate," ensuring stakeholder input is integrated into every stage of the project.

Practical implications

The stakeholder engagement methodology developed under CATALYSE can serve as a practical model for other food-related sectors looking to gather structured insights into stakeholder needs and priorities. By combining multilingual engagement tools with varied participatory formats (e.g., surveys, interviews, workshops), this approach can be adapted across subsectors—such as dairy, plant-based products, or packaging—to improve the relevance and uptake of innovations. Replication of this model in other contexts could promote greater alignment between innovation development and user demand, facilitating targeted research, education initiatives, and co-creation processes.

Additional dissemination and exploitation materials

Stakeholder engagement events have been documented and disseminated through the project website:

→ World Café Engagement at IAFP conference 2024: https://thecatalyseproject.eu/catalyse-presented-at-the-iafp-conference/

→ World Food Safety Day Webinar: https://thecatalyseproject.eu/catalyse-world-food-safety-interactive-webinar/
→ Interactive session at IUFOST conference 2024: https://thecatalyseproject.eu/catalyse-project-highlights-food-safety-innovation-at-iufost-2024/
→ World Food Day webinar: https://thecatalyseproject.eu/catalyse-world-food-day-interactive-webinar/
→ World Café hosted at Synergy Days event 2024: https://thecatalyseproject.eu/catalyse-world-cafe-at-synergy-days-2024/
→ Workshop at EFFoST International Conference 2024: https://thecatalyseproject.eu/highlights-of-food-safety-pressing-issues-and-new-approaches-workshop-at-effost-2024-conference/
→ Microorganisms Day Interactive Webinar: https://thecatalyseproject.eu/catalyse-webinar-international-microorganism-day-2024/

Geographical location

The engagements were conducted both online and in-person across multiple European regions. While online activities enabled pan-European and UK-wide participation, in-person events were hosted at:

→ Geneva, Switzerland (IAFP Conference)
→ Rimini, Italy (IUFOST 2024)
→ Barcelona, Spain (Synergy Days 2024)
→ Brugge, Belgium (EFFoST 2024)
→ Copenhagen, Denmark (ILSI Europe Symposium)

Additional information

Strengths and limitations
The stakeholder outreach process exhibited several significant strengths:

- **Extensive network reach**: the project partners leveraged well-established professional networks, enabling access to a broad spectrum of food system stakeholders across Europe.
- **Stakeholder group representation**: engagements were purposefully designed to include actors from different sectors (industry, research, policy), ensuring the breadth of perspectives necessary to define common challenges and opportunities.
- **Consistency of responses**: repeated identification of similar needs (e.g., digitalisation, pathogen control) across stakeholders validates the reliability of findings and demonstrates consensus on priority areas.
- **Language accessibility**: conducting interviews in local languages—including Ukrainian, Spanish, French, and German—helped reach SMEs and underrepresented communities more effectively, enhancing inclusivity.

Despite these strengths, the process also revealed certain limitations:

- **Variation in interviewers**: involvement of multiple facilitators may have introduced inconsistency in how data were collected and interpreted. Future iterations should include standardised training modules to reduce this variability.
- **Broad expertise spectrum**: while stakeholders' wide-ranging expertise allowed for generalised findings, this also made it harder to capture deep, technical insights on specific innovations. Additional targeted focus groups may be needed to complement broad engagement.
- **Underrepresentation of gender diversity**: less than 1% of respondents identified as 'other' genders, highlighting the need for future initiatives to adopt more proactive inclusion strategies.

Key messages

A multi-actor, multilingual, and adaptable methodology is essential for capturing diverse stakeholder input. Based on stakeholder feedback, the following innovation priorities were identified:

1. Control measures
2. Rapid detection methods
3. Digitalization and risk analysis (AI tools in food safety, big data)
4. Hygiene by design
5. Packaging Innovations

Future directions

Building on this engagement strategy, the CATALYSE project will further develop the Community of Practice as a sustainable, inclusive knowledge-sharing network. The platform will:

- Facilitate networking between end-users and innovation providers.
- Offer up-to-date educational materials and best practices.
- Promote early access to emerging food safety solutions.
- Support skills development through courses and webinars.

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3.4 Practice Abstract 4

Building the Education

Project 101136754 — CATALYSE

CATALYSE

Catalysing scientific innovation into food safety action

Strengthening food safety education and innovation in the food sector: development of a digital platform for educational and training material

Summary for practitioners

Objective

Food safety is essential across all stages of the food system, directly impacting public health and consumer trust. Stakeholders such as producers, processors, regulators, scientists, educators and consumers often view food safety differently based on their specific experiences, roles and background. These varying perspectives create challenges in ensuring consistent communication and dissemination of existing and new knowledge and innovations on food safety topics. Addressing these gaps through the review and development of educational and training materials can promote knowledge transfer, support clearer communication, harmonized practices, and broader adoption of food safety measures across the food sector and the different actors.

Results

The evaluation of existing food safety materials revealed a significant lack of training and education resources that are suitable and accessible for the diverse range of stakeholders in the food sector. Education and/or materials on topics such as rapid detection methods, emerging risks, digitalization, artificial intelligence, regulations, and food safety culture are often poorly covered or entirely missing. To help address this, a link library of existing educational resources has been compiled to provide immediate access to available materials. To further bridge the identified gaps, new educational content is being developed to be engaging, up-to-date, and easily understood by different actors. Leveraging audiovisual technologies, the materials will be offered in various formats such as webinars, workshops, and knowledge clips, to ensure broad accessibility and practical application across the food sector.

Practical implications

The new educational and training materials will help practitioners access clear, relevant food safety knowledge tailored to their roles and contexts. This ensures that complex food safety concepts are communicated clearly, regardless of background or technical expertise. By using diverse formats, practitioners can engage with the content in ways that best fit their learning preferences and schedules. These materials provide stakeholders with the tools to effectively address current and future food safety challenges, improving public health, minimizing incidents, and boosting consumer confidence.

Co-funded by the European Union

Additional dissemination and exploitation materials

Knowledge clip: Microbiological testing and performance of sampling plans
Online course: Biosafety measures for olive oil value chain operators
Link library: Resources-Educational material

Additional information

Obstacles

Much of the existing material is hard to access, as it is either unavailable online or not freely accessible. Additionally, the vast amount of information makes it difficult for users to easily find materials relevant to their specific interests. Many resources are outdated and do not cover recent developments in food safety. The frequent use of technical language further limits understanding and practical application for non-experts.

Future research directions

Establishing strong partnerships between academia, industry, and policymakers is essential to develop shared repositories and open access resources that provide up-to-date, reliable food safety information. These collaborations will ensure continuous updates and broad accessibility, reflecting the latest research, innovations, and regulatory developments. This integrated approach will enhance knowledge transfer and support the creation of practical tools tailored to the diverse needs of all food sector stakeholders.

Key messages

Since food safety is a shared responsibility-from farm to fork-knowledge exchange among all stakeholders is crucial. Building on these diverse insights, effective educational materials can be developed to support consistent practices and promote a safe food environment throughout the food system.

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3.5 Practice Abstract 5

Pilot Plants

Project 101136754 — CATALYSE

CATALYSE

Catalysing scientific innovation into food safety action

Pathogen Pilot Plants: Bridging Laboratory Research and Industrial Application for Safer Food

Summary for practitioners

Testing new antimicrobial technologies under real food processing conditions is essential to ensure food safety. However, typical laboratory environments cannot replicate industrial conditions, and actual food factories cannot allow testing with harmful microbes. To address this gap, pathogen pilot plants offer a solution: these are high-security facilities equipped with industrial-grade processing equipment, allowing safe testing of pathogens in realistic settings.

Objectives

The aim is to provide a safe and practical environment to evaluate how pathogens like *Salmonella*, *Listeria*, *Campylobacter*, *E. coli*, and moulds respond to different food processing and disinfection technologies. This helps bridging the gap between scientific research and real-world application in the food industry.

Results

Several innovative trials were conducted:

- **Steam treatment** on chicken carcasses effectively reduced *Campylobacter* and *Salmonella* without chemicals, preserving appearance and processing speed.
- **Hydrogen peroxide (H_2O_2) mist disinfection** significantly controlled *Listeria* and food-related moulds on industrial surfaces.
- **Dry-fermented sausage testing** showed that heating, freezing, and storage reduced Shiga toxigenic *E. coli* effectively proving that lab-based results don't always reflect real processing outcomes.

These studies demonstrate the value of testing under real-life conditions before market implementation.

Practical Implications

Practitioners gain access to reliable data on how effective disinfection and processing methods are under industry-relevant conditions. Technologies tested in pathogen pilot plants can be integrated more confidently into existing processing lines, reducing contamination risks. While more expensive and time-consuming than laboratory testing, pilot plant trials are a key step toward commercial adoption and improved food safety.

Co-funded by the European Union

Additional dissemination and exploitation materials

Steam treatment to remove *Campylobacter* and *Salmonella* from chicken carcasses

- The effects of a pilot-scale steam decontamination system on the hygiene and sensory quality of chicken carcasses

Automatic peroxygen mist disinfection system to kill *Listeria* and mould on surfaces

- Whole room disinfection with hydrogen peroxide mist to control Listeria monocytogenes in food industry related environments
- Efficient Reduction of Food Related Mould Spores on Surfaces by Hydrogen Peroxide Mist

Survival of pathogenic *E. coli* in Salami – effect of processing and storage conditions:

- Shiga toxigenic Escherichia coli shows strain dependent reductions under dry-fermented sausage production and post-processing conditions

Geographical location

Research conducted primarily in Norway, within the first high-security food production pilot plant in Europe.

Additional information

Facilitating elements

- **Controlled pilot plant environment**: the high-security design of the pilot plant, including strict biosafety protocols and industrial-scale equipment, enables realistic yet safe testing of pathogens. This environment is uniquely suited for bridging the gap between laboratory results and industrial application—something not feasible in either academic labs (due to scale limitations) or real factories (due to biosafety risks).
- **Scientific and technical expertise**: the pilot plant is operated by professionals with deep experience in microbiology, food technology, and hygiene validation, ensuring that testing protocols are robust, reproducible, and industry-relevant. Their expertise adds significant value to interpreting results and adapting them to various food sectors.

Obstacles

- **High cost and resource demands**: pilot trials require more financial and human resources than conventional laboratory studies. This includes the cost of maintaining secure facilities, using real food matrices, and executing complex disinfection processes. However, these investments are justified by the high quality, external validity, and industry relevance of the results, which directly support regulatory approval and faster market adoption.
- **Time-consuming setup and execution**: the need for specialised biosafety approval, thorough risk assessments, and complex experimental design can extend project timelines.

Yet, this is a necessary trade-off to ensure public and worker safety and obtain accurate data that reflect real-world processing conditions.

Future directions

The facility will continue to evolve with new tools tailored to industry needs, offering opportunities to test next-generation food safety solutions. Future efforts will focus on broader collaborations and expanding access for more sectors.

Key messages for end-users

Safe and effective food processing solutions require validation under real-life conditions. Pathogen pilot plants provide a critical link between lab discoveries and practical industry adoption, ultimately enhancing food safety across the value chain.

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About this practice abstract and CATALYSE

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4. Conclusions

The first batch of practice abstracts produced within the CATALYSE project is a first approach to support SMEs in market adoption, to build a curated database, enhancing education, engaging stakeholders, and testing solutions in pilot plants; these abstracts highlight a wide range of practical, scalable interventions.

Each abstract not only showcases intermediate results but also provides a clear roadmap for practitioners to benefit from the tools, knowledge, and platforms developed by the project. Collectively, they reinforce CATALYSE's mission to strengthen Europe's food safety ecosystem through collaboration, co-creation, and multi-actor engagement.

All practice abstracts will be published on the CATALYSE website and Community of Practice (CoP) platform and can be accessed via registration here: https://thecatalyseproject.eu/join-our-community/. They will also be disseminated through the EU CAP Network portal, social media, newsletters, and relevant stakeholder events to reach target practitioner communities across Europe.

The next batch of abstracts, planned for December 2026 (M36), will build upon these early insights and showcase matured results and tested applications. These efforts will continue to support the uptake of innovations and foster a connected, resilient, and informed food safety community across Europe.

This deliverable D8.5 Practice Abstracts – batch I was achieved as planned.

HISTORY OF CHANGES		
Version	**Publication date**	**Change**
1.0	30.06.2025	▪ Initial version