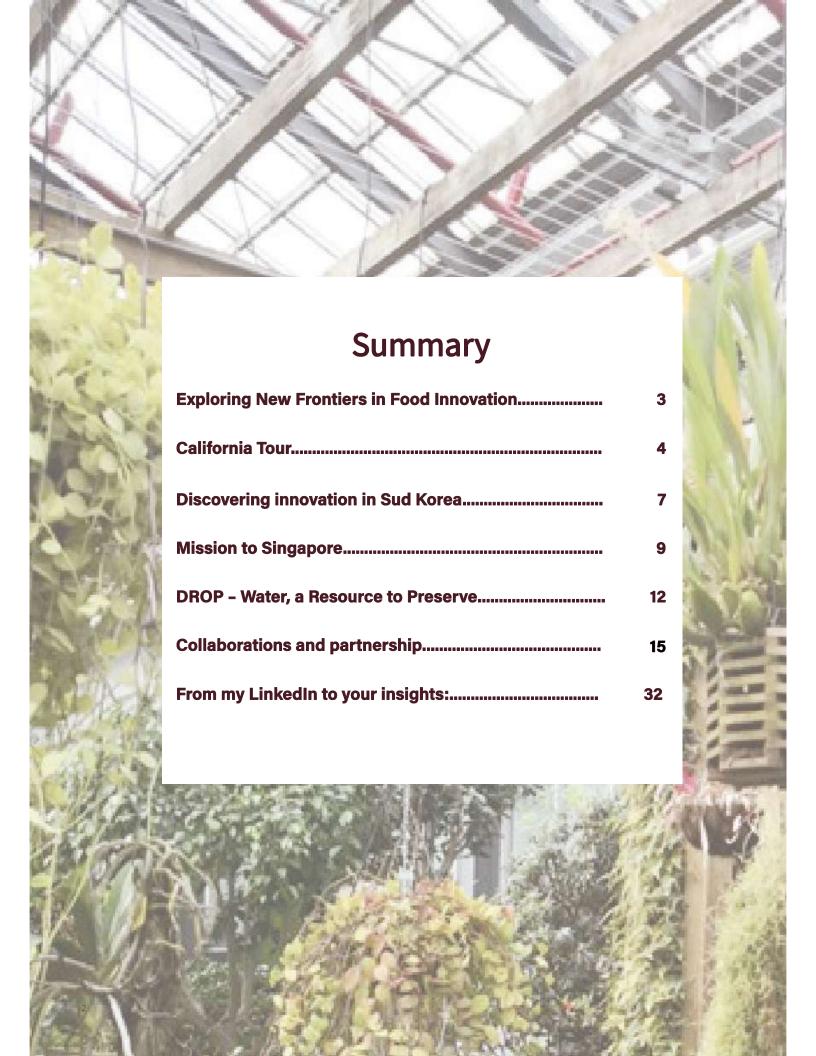
Il Futuro del Cibo





Exploring New Frontiers in Food Innovation

Francesco Fenga

At Fenga Food Innovation, we believe that every journey begins with a question: How can we push the boundaries of what's possible in the food industry?

This year, we're thrilled to share the answers we've been uncovering in our latest magalog—a collection of stories, insights, and groundbreaking collaborations formed during our extensive research trips around the globe.

Our first stop is the bustling tech hub of San Francisco and Silicon Valley, where brilliant minds converge to shape the future of food with cutting-edge technology and bold entrepreneurial ideas.

We'll delve into how these innovations are transforming the way we produce, distribute, and enjoy what we eat. Next, we head to Seoul, a city that harmonizes tradition and modernity, offering us a fascinating blend of ancient culinary heritage and futuristic food trends.

Moving on to Singapore, we discover a cosmopolitan melting pot of flavors, exploring the city-state's commitment to sustainable food solutions and advanced research facilities.

Finally, our journey takes us to the west of France, where centuries-old gastronomic excellence meets contemporary experimentation—underscoring the region's role as a global inspiration for culinary arts.

In this magalog, we will also spotlight the new collaborations we've established along the way—partnerships that unite academic institutions, forward-thinking startups, and established industry leaders to pioneer the next generation of sustainable and exciting food experiences.

Join us as we share behind-the-scenes stories from these vibrant food destinations and offer a glimpse into Fenga Food Innovation's relentless pursuit of excellence.

Welcome to our magalog: your gateway to discovering how curiosity, collaboration, and innovation can reshape the way the world eats. Let's embark on this journey together!

California Tour

Discovering the Future of Agriculture: Fenga Food Innovation's Journey through California



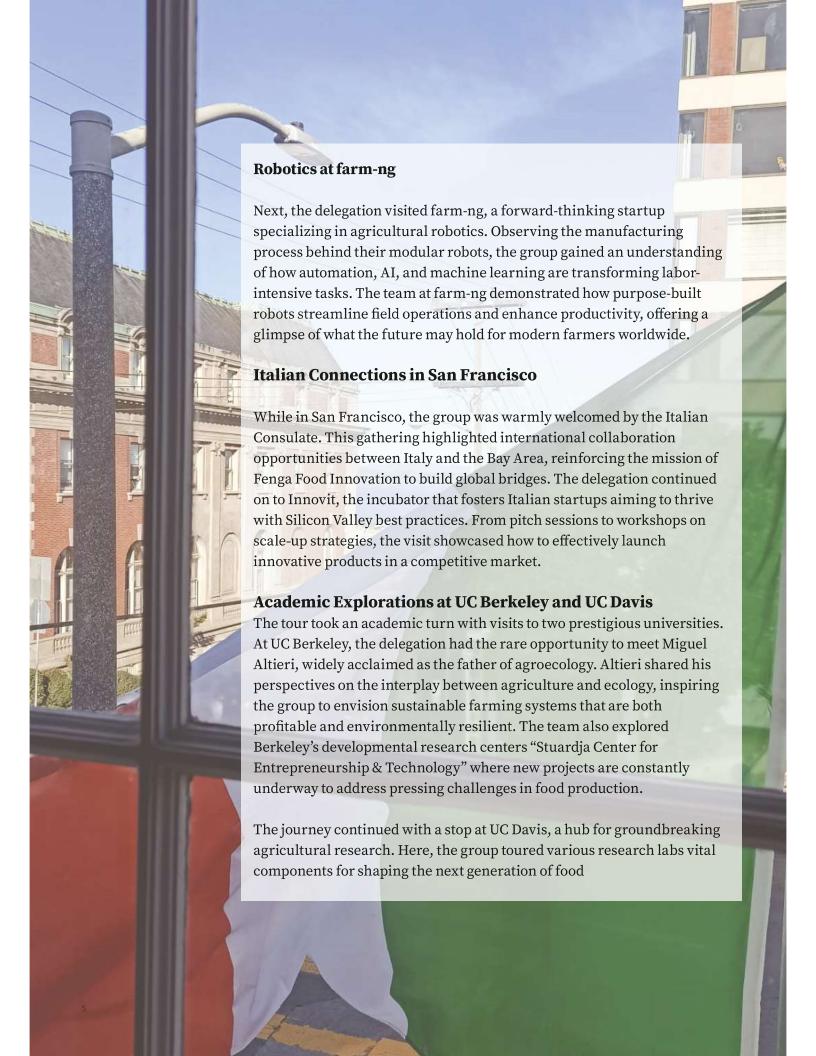
Fenga Food Innovation recently embarked on a transformative trip to California together with fellow members of the Cluster Agrifood.

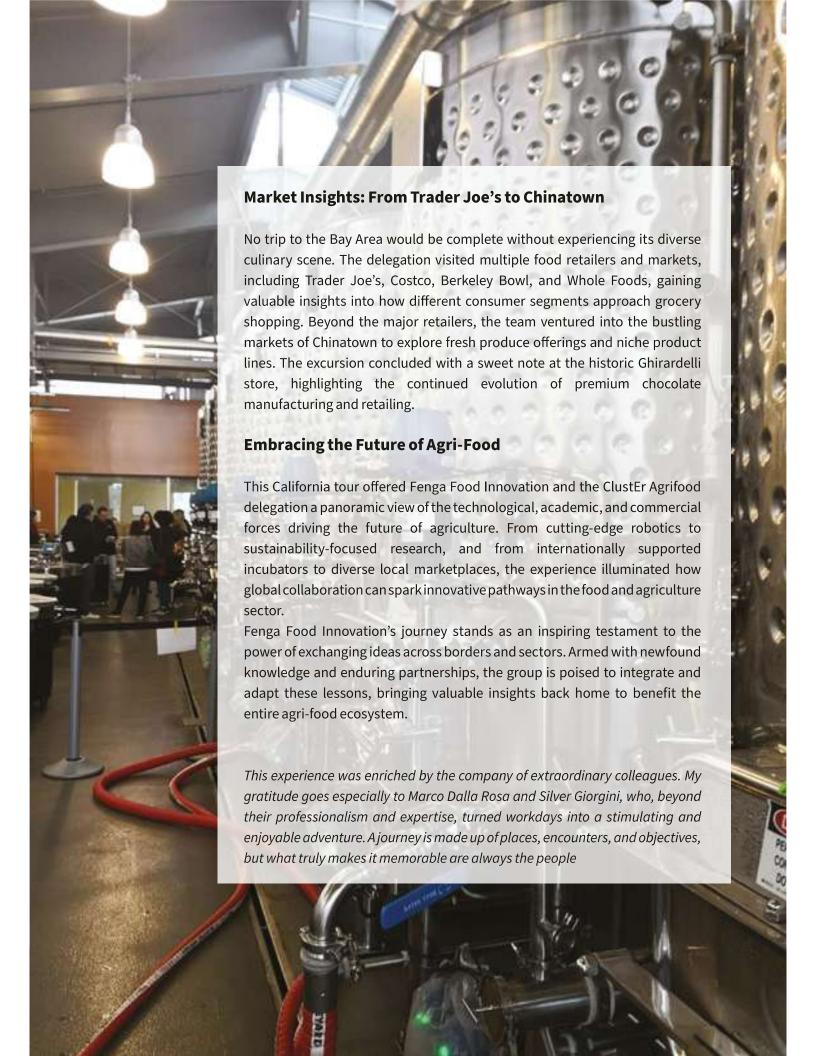
The objective was clear: explore cutting-edge research, technological advancements, and novel business models in one of the world's most dynamic agtech hotspots.

The group's itinerary included visits to renowned institutions, leading startups, and iconic marketplaces—each stop offering fresh insights into the future of food and agriculture.

The journey began in Salinas with a full day at the Western Growers Association, where Fenga Food Innovation and the Cluster Agrifood delegation witnessed firsthand how traditional farming is rapidly evolving thanks to emerging technologies.

Discussions with industry experts and on-site demos showcased the latest solutions in precision agriculture and robotics, emphasizing how collective efforts between academia, private sector, and local communities can accelerate positive change.







Seoul, South Korea – As part of a broader mission organized by the Emilia-Romagna Region, Fenga Food Innovation joined an official delegation led by the Region's President and his staff on a week-long study trip to South Korea.

The visit aimed to foster collaboration and exchange best practices in innovation, and market opportunities between Italy and South Korea.

During the trip, the delegation had the privilege of touring several key research institutions, each offering insights into cutting-edge agricultural techniques and innovations:

- 1. Rural Development Administration (RDA) Renowned for its extensive research programs in crop management and agritech solutions, the RDA showcased projects focused on sustainable farming methods and smart agriculture. The team at Fenga Food Innovation gained valuable knowledge regarding data-driven crop optimization and resource management.
- 2. Kamico (Korea Agricultural Machinery Industry Cooperative) Kamico exemplifies South Korea's leadership in developing advanced agricultural machinery. Its latest equipment and prototypes—designed to boost productivity and efficiency—were of particular interest to the Emilia-Romagna delegation, aiming to integrate similar advancements into Italy's agrifood sector.
- 3. National Institute of Horticultural and Herbal Science Here, the delegation learned about novel horticultural methods. For Fenga Food Innovation, the visit highlighted promising research on innovative greenhouse solutions that could enhance both yield and quality in Italy's vibrant horticultural landscape.



Mission to Singapore:

looking for new opportunities and international collaborations

Singapore, December 2024 – The business mission of Fenga Food Innovation in Singapore has successfully concluded, carried out as part of a delegation from the Emilia-Romagna Region and ART-ER, with the participation of representatives from ClustEr Agrifood and Mercati Rete di Imprese.

This was an intense and eventful experience aimed at initiating strategic collaborations in the Food & Beverage sector and promoting the excellence of Emilia-Romagna on an international level.

Among the most significant events were the meeting with the Italian Ambassador to Singapore, an opportunity to strengthen diplomatic ties and present the potential of the Italian agri-food sector, and the visit to the European Union Delegation in Singapore, where innovation support programs and potential collaboration pathways with Southeast Asian countries were explored.

FOODPLANT

Particularly noteworthy were also the stop at the FoodPlant laboratories, a reference hub for the research and development of agri-food products tailored for the Asian market,

FoodPlant is licensed by the Singapore
Food Agency. Their facility is ISO 22000:2018
and ISO 45001:2018 certified, adhering to the
highest standards of food and workplace safety
requirements. They provide companies with access to
affordable industrial food processing and manufacturing equipment to pilot food products for market testing
and commercialization.

Their team of food technology specialists enhances value for customers by offering consultations on food innovation, utilizing both conventional and cutting-edge food processing technologies.

They assist their partners in scaling up and preparing for commercial production.

Additionally, they design and offer interactive training courses to keep practitioners updated on emerging technologies, strengthening the capabilities of food companies.

and the visits to the A*STAR Singapore Institute of Food and Biotechnology Innovation (SIFBI) laboratories, where the team had the opportunity to learn about the most advanced technologies and emerging trends in the sector.

The mission provided the opportunity to connect with an innovative local start-up, with which Fenga Food Innovation is evaluating potential collaborations.

Through this initiative, joint research projects, product testing, and co-marketing initiatives aimed at the Asian market, increasingly sensitive to food quality and sustainability, could be developed.





The ASTAR SIFBI envisions being an innovation engine for health and well-being, with a focus on the Asian phenotype. Their two strategic pillars are: 1) Developing sustainable, value-added ingredients for food and consumer care, and 2) Optimizing health and wellbeing within the Asian phenotype.

They prioritize consumer acceptance by considering taste, texture, and nutrition, alongside sustainable and safe food production. By understanding sensory preferences and the Asian phenotype, they tailor food designs to meet consumer needs and improve population health and wellness. Their work directly impacts food resilience, population health, economic growth, and talent development.

A*STAR SIFBI aims to position Singapore as a leading hub for Asian food and nutrition research. They foster industry partnerships and regional collaboration to advance this critical field, achieving their goals through public-private partnerships both locally and globally.

At the conclusion of activities, the delegation visited the local branch of Meatable, a pioneer in cultivated meat production, exploring alternative and cutting-edge solutions to reduce the environmental impact of the sector.

Subsequently, the team participated in the "Toward 30 by 30: Addressing Challenges and Harnessing Innovation" event at the National University of Singapore, organized by the Italian Culinary Academy. During the meeting, businesses and researchers discussed goals and strategies to increase local agri-food production by 2030, focusing on innovation and sustainability.

A fundamental support throughout the mission was provided by the Italian Chamber of Commerce in Singapore (ICCS), which facilitated contacts with local institutions and supported the delegation in organizing meetings and events.

Thanks to the assistance of ICCS, Fenga Food Innovation and the other entities involved were able to strengthen their network of relationships, laying the foundation for future internationalization projects.



DROP – Water, a Resource to Preserve. Challenges in the Agri-Food Industry

First Regional Mission #1 - Nouvelle-Aquitaine & Brittany

From February 13 to 15, 2024, the first phase of the "DROP" project took place, an initiative involving four prominent European regions—Emilia-Romagna, Nouvelle-Aquitaine, Brittany, and Murcia—united by the goal of optimizing water use in agri-food processes. This mission in France, divided between the Nouvelle-Aquitaine and Brittany regions, provided opportunities to visit various local companies recognized for their virtuous approaches and innovative technologies in water resource management.

The "DROP" project arises from the awareness that water is a fundamental resource and that, in the context of climate change, effective strategies are necessary to preserve it. The objective is to share challenges and best practices among European regions and companies, fostering cooperation to reduce waste, improve recycling systems, and innovate production processes.

Fenga Food Innovation participated, even though it is not officially part of the project, as it is highly interested in supporting the ClustEr Agrifood in many of its initiatives.

The "DROP" Delegation's Itinerary

Visit 1 – Caves de Tursan (Geaune)

Caves de Tursan is a historic winemaking cooperative located in the heart of the Landes region. Here, attention to grape quality is combined with sustainable irrigation practices aimed at reducing water consumption during cultivation and winemaking. During the visit, participants explored wastewater recovery systems, micro-oxygenation technologies, and water-saving methods in machine cleaning processes.

Visit 2 – Maison Lafitte (Montaut)
A long-standing leader in meat and foie gras processing, Maison
Lafitte integrates environmentally conscious production processes, particularly in water management for equipment cleaning and waste reduction along the supply chain.
Visitors learned about water recycling projects for cooling systems and quality

control measures within the laboratories.

Lunch at Agrolandes (Haut-Mauco)
A lunch break was held at Agrolandes, an innovation campus dedicated to agri-food and agritech, where startups and companies collaborate to develop sustainable solutions.
The delegation then traveled to Brittany, visiting several companies in western France.

Visit 3 – Les Jardins de l'Orbrie (Bressuire)

Les Jardins de l'Orbrie specializes in fruit and vegetable cultivation and the production of natural fruit juices. The company employs drip irrigation systems and soil monitoring technologies to optimize water use, reduce waste, and ensure high-quality final products.

Visit 4 – Sojasun (Châteaubourg)

A French leader in soy-based products, Sojasun has developed a "water-friendly" production cycle: from soy cultivation, which requires less water, to facilities where wastewater recovery and filtration play a strategic role. The aim is to maintain high food safety standards while minimizing overall water consumption.

Visit 5 – Geldélis (Torcé)

The day concluded at Geldélis, a producer of frozen foods. Participants discovered water management methods used in the freezing process, including filtration and recycling treatments for washing raw materials. A networking aperitif followed, facilitating an exchange of experiences among participants.

The delegation then proceeded to visit some of the most significant agri-food companies in Brittany.

Visit 6 - Cooperl

(Lamballe)

One of Europe's largest cooperative groups in the pork sector, Cooperl stands out for its integrated production system, encompassing farming, meat processing, and marketing. In the fight against water waste, Cooperl has implemented innovative purification processes and adopted a circular economy approach by reusing processing water and employing continuous consumption monitoring solutions.

Visit 7 – Laïta (Créhen)

Laïta is a major dairy cooperative producing milk, cheese, and derivatives exported worldwide.

The main challenge is ensuring strict hygiene standards while minimizing water usage for equipment cleaning. During the visit, participants explored ultrafiltration facilities and water recycling protocols aimed at reducing environmental impact.

Looking Ahead

This mission in France marked the first step in a journey that will see partner regions engage with other leading European entities.

Through knowledge-sharing and the networking of innovative experiences, the "DROP" project aims to promote a new model of agri-food development focused on sustainability and water resource protection.

Water is a shared heritage that must be safeguarded: collaborating to find the best solutions is not just an opportunity but a responsibility toward future generations and the entire ecosystem.

Fenga Food Innovation has continued to closely follow the developments of the "DROP" project, also participating in subsequent visits by the working group in Italy at Orogel and Caviro, with the hope that these best practices can spread and transform the agri-food industry into a more sustainable sector.



Fenga Food Innovation is pleased to announce a strategic partnership with e-Plato, a leader in advanced technological innovation and specialized in artificial intelligence-driven research and data analysis.

The crown jewel of e-Plato is the "Socrate" platform, an advanced solution that combines artificial intelligence and machine learning to collect, analyze, and interpret large volumes of business data.

Through this collaboration, "Socrate" will be optimized to meet the specific needs of companies in the food industry, providing high-precision analytical tools to support process management, strategic planning, and the improvement of operational performance.

Socrate achieves all of this while ensuring full data sovereignty, meaning that both the data and the research outcomes remain the exclusive property and under the complete control of its users.

In fact, Socrate has already been adopted by some leading industrial companies.

As part of the partnership, Fenga Food Innovation and e-Plato will develop a training program that includes workshops, webinars, and other initiatives aimed at showcasing the potential of "Socrate."

These events will focus on practical applications and case studies, demonstrating how advanced data analysis can optimize business strategies, improve resource efficiency, and generate a sustainable competitive advantage.

This partnership reflects Fenga Food Innovation's commitment to promoting cutting-edge technologies that foster sustainable and innovative growth in the food industry.

This agreement strengthens our vision of driving digital transformation and transferring technological know-how to companies eager to innovate and remain competitive in an ever-evolving market.



Food & Flavours: Exploring Advanced Processing Technologies

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to expand your market and to get p

The partnership between Fenga Food Innovation and Food & Flavours provides a unique opportunity to harness cutting-edge food processing technologies.

Through this collaboration, the use of specialized pilot and semi-industrial equipment allows for the development and optimization of innovative food and beverage products.

The technical facilities available at Food & Flavours provide unparalleled versatility for research, prototyping, and small-scale production trials.

Advanced Technologies Available for Testing and Development

The collaboration enables access to an array of advanced processing equipment, ideal for exploring new techniques, enhancing product functionality, and improving efficiency. These include:

1. **Aroma Recovery Unit:**

- •Designed to capture volatile aromatic compounds during processing, preserving flavor profiles in juices, beverages, and aromatic extracts.
- •Enables the recovery of natural flavors for use in clean-label and premium product formulations.

2. Subcritical and Supercritical Fluid Extractors

(Semi-Industrial and Pilot Scale):

- •Allows precise extraction of bioactive compounds, essential oils, and natural pigments using CO₂ or other solvents.
- •Offers sustainable and solvent-free alternatives for high-purity ingredient extraction.

EXAMPLES OF APPLICATION:

AROMA RECOVERY UNIT

Our special system extracts aromas and essences from of natural juice, composed by a series of vacuum conditional columns which condense the aromas using cooling fluidifferent temperatures.



FOR FOOD & BEVERAGE, COSMETIC AND PHA



VACUUM DRYER

It works at lower temperatures thanks to the lowering of lower installation and management costs than other syhot, infrared drying). The lack of oxygen prevents the overteenal surfaces of the product, keeping the color of thalmost intact.



FOR FRUIT, VEGETABLES IN PIECES OR SAUG



CONTACT US

TROPICALFOOD





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TICAL AND SUPERCRITICAL XTRACTORS

solution the components from a biomass thanks to a control subcritical or supercritical temperature. Sare designed to guarantee high extraction efficiency with lo

OOD & BEVERAGE, COSMETIC AND PHARMA



3. Vacuum Dryers:

- •Facilitates gentle dehydration of sensitive products while retaining color, flavor, and nutritional properties.
- •Particularly suitable for developing powders or concentrates from fruits, vegetables, or herbal extracts.

4. Sonicators (Ultrasound and Hydrodynamic Cavitation):

- •Innovative tools for enhancing extraction, emulsification, and homogenization processes.
- •Effective in reducing processing times and improving yield while maintaining product integrity.

5. Pulsed Electric Fields (PEF):

- •Disrupts cell membranes to enhance juice yield, extraction efficiency, and microbial inactivation.
- •Supports non-thermal processing for improved retention of fresh-like qualities in beverages and plant-based products.
- Mechanical Extractors (Grinders, Peelers, Centrifuges, and Decanters):
- •Versatile mechanical systems for the efficient processing of raw materials into intermediate or final products.
- •Particularly useful for separating solids and liquids, peeling, or grinding during the preparation phase.

7. Aseptic Bag-in-Box Filling System:

- •Advanced aseptic filling technology for sterile packaging of liquid products.
- •Suitable for juices, concentrates, and other highvalue products requiring extended shelf life.

Applications and Benefits

TFM2 - rel.0

The combination of these technologies allows for a comprehensive exploration of innovative product development approaches, including:

- •Extraction and concentration of natural flavors, colors, and bioactive compounds.
- •Preservation of nutritional and sensory properties through non-thermal and mild

processing techniques.

- Process optimization for clean-label and sustainable product development.
- Pilot-scale testing for validating industrial scalability and market readiness.

How This Collaboration Works

By utilizing Food & Flavours' state-of-the-art facilities, Fenga Food Innovation can offer tailored solutions to industry challenges. The Test Area provides a flexible platform for:

- Prototyping and refining formulations under controlled conditions.
- •Simulating industrial-scale processes for accurate performance evaluation.
- Collaborating with clients to customize product and process innovations.

Looking Ahead

The partnership between Fenga Food Innovation and Food & Flavours exemplifies a technical synergy aimed at driving innovation. By leveraging advanced equipment and expertise, this collaboration not only supports research and development but also helps companies bring groundbreaking products to market efficiently and sustainably.



NEW TEST AREA

💡 Busseto, Parma - ITALY

Are you interested in empowering your we offer you a complete test area work brand new technologies which could to expand your market and to get provide the control of the

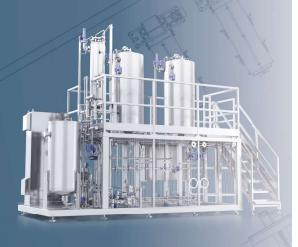
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FOR FRUIT, VEGETABLES IN PIECES OR SAUG



CONTACT US

CoFood

A synergy for the food sector

We are pleased to announce the start of a new collaboration between Fenga Food Innovation and CoFood.

This agreement aims to combine the skills and resources of both organizations to promote concrete solutions in the food sector, meeting the needs of an ever-changing market.

The partnership arises from the complementary strengths of the two companies: Fenga Food Innovation, with its experience in food consultancy, product and process research and development, and CoFood, an interprofessional network that offers technical, legal, R&D and commercial consultancy in the food and feed sectors.

Together, they intend to address the challenges of the sector with a synergic and practical approach focused on the availability of solutions with high technical know-how, supported by a strong legal expertise in the field, and on continuous improvement.

Their common goal is to develop technologies, ingredients and production processes that meet the needs of modern consumers: product quality, technical-legal compliance, sustainability and traceability.

CoFood, with its regulatory and technical expertise, will ensure compliance with all relevant regulations, while Fenga Food Innovation will focus on designing and optimizing practical solutions.





Collaboration objectives

The partnership aims to create sustainable products, improve supply chain transparency and support expansion into new markets.

Their joint efforts will be strengthened by sharing technical and scientific expertise, working on joint projects and hosting training sessions for their teams.

A concrete project

This collaboration is more than just a formal agreement; it is a real project designed and implemented to deliver tangible and highly innovative results to the food sector.

CoFood brings its working methodology, based on precise technical and regulatory support, while Fenga Food Innovation will leverage its great experience in product and process development.

We are confident that this path will bring significant benefits not only to the two Companies but to the entire sector, improving the sector's performance and the quality of life of those who choose healthy and sustainable products.

Together, we are ready to shape the future of food Beyond food's future, together!



Fenga Food Innovation and Packtin:



a strategic collaboration for innovative solutions in the Agri-Food Sector

Fenga Food Innovation has launched a new collaboration with Packtin, a company specialized in developing sustainable materials and solutions for the agri-food industry.

By using industrial by-products, Packtin creates functional and sustainable ingredients that meet the sector's needs for innovation and sustainability. This agreement strengthens a synergy already established within the European project B-Resilient, aimed at promoting a more resilient and sustainable food supply chain.

The collaboration aims to market the solutions developed by Packtin, which include natural ingredients derived from agro-industrial residues and customized R&D on edible coatings and films.

The goal is to offer products that satisfy the growing demands for sustainability and innovation in the food sector.

The Legacy of B-Resilient

This agreement builds on the experience gained through the European B-Resilient project, which involved both companies in developing innovative solutions to foster resilience in the agri-food sector. The project demonstrated how the integration of scientific and strategic expertise can deliver concrete, sustainable results.

Commercialization: Strategies and Objectives

The focus of the collaboration revolves around three main areas:

Promotion and Awareness: Organizing events, webinars, and informational campaigns to educate agri-food companies on the use of sustainable materials and the importance of the circular economy.

Market Positioning Support: Fenga Food Innovation will help identify market opportunities, outline positioning strategies for Packtin's products, and build an effective distribution network.

Collaboration with Industrial Partners: Involving food companies to test and adopt Packtin's solutions, highlighting the benefits in terms of sustainability and competitiveness.

A Future Based on Innovation

The partnership between Fenga Food Innovation and Packtin is not limited to commercialization.

The two companies are already exploring new joint research and development opportunities to expand their range of solutions and address emerging challenges in the agri-food sector.

Fenga Food Innovation is committed to promoting Packtin's technologies, confident that this collaboration will significantly contribute to innovation and sustainability within the agri-food industry.

Follow our official channels for updates and news on this initiative and the opportunities it will generate.







Collaborate to Introduce Advanced Technologies in the Food Machinery Sector

The collaboration between Fenga Food Innovation and Nanoprom@, a leading company in advanced material science and a specialist in Glass Coating@ technologies, aims to encourage the adoption of Nanoprom@'s solutions by manufacturers of food processing machinery. These technologies, already established in high-level industrial fields, represent a significant opportunity to enhance operational efficiency and performance in the food machinery sector.

They provide exceptional durability, anti-corrosion properties, and superior operational efficiency.

By applying these advanced coatings to food processing machinery, manufacturers can achieve significant improvements in hygiene, energy efficiency, and equipment lifespan, while simultaneously reducing maintenance costs.

The initiative seeks to leverage Nanoprom@'s expertise in the food machinery sector, fostering a culture focused on innovation and sustainability.

Proven Success Across Various Industries

Nanoprom@'s Glass Coating@ solutions have already delivered outstanding results in sectors such as aerospace, automotive, and energy.

These coatings offer unparalleled resistance to extreme conditions, reduce wear, and improve operational performance.

Key Objectives of the Collaboration

Industrial matchmaking: Fenga Food Innovation will identify manufacturers committed to innovation and facilitate the integration of Nanoprom@'s solutions through customized testing.



Knowledge sharing: The two organizations will collaborate to create educational materials, such as white papers and case studies, to highlight the benefits of Glass Coating@ technologies for the food sector.

A Shared Vision for Innovation

Fenga Food Innovation and Nanoprom@ share a commitment to developing technological solutions that address the key challenges of the food processing sector.

Together, they aim to promote sustainable practices, enhance equipment performance, and raise food safety standards through the application of advanced materials.

Looking Ahead

As the collaboration progresses, Fenga Food Innovation and Nanoprom@ plan to expand the project by involving additional industry stakeholders and exploring new applications for advanced coating technologies.







How ByproTrade Empowers Companies to Meet ESG Goals

As global attention intensifies on environmental, social, and governance (ESG) standards, the food industry faces mounting pressure to address one of its most significant challenges: food byproducts.

ByproTrade, an innovative digital platform, offers a transformative solution by enabling companies to efficiently manage food byproducts, minimize by-products, and unlock new value streams—all while aligning with ESG priorities.

A Growing Imperative for Sustainable By-product Management

Food by-products is a critical issue with farreaching environmental and social impacts. According to the United Nations, nearly onethird of all food produced globally is by-product, contributing to greenhouse gas emissions, resource inefficiencies, and economic losses.

Companies in the food sector are increasingly recognizing the importance of adopting sustainable by-products management practices, not only to reduce their environmental footprint but also to meet the rising expectations of consumers and investors regarding ESG commitments.



Collaboration and Education

Beyond providing technology, ByproTrade is committed to fostering collaboration and education within the food industry. The platform organizes webinars, publishes case studies, and facilitates partnerships that showcase how businesses can collectively address the global food by-product challenge.

Realizing a Sustainable Future

As the food industry evolves to meet the demands of a sustainable future, ByproTrade is poised to become an essential tool for companies committed to reducing by-product and maximizing value. Its innovative approach empowers businesses to turn a challenge into an opportunity, all while reinforcing their dedication to ESG principles.

Join the Movement

Companies looking to enhance their sustainability practices and make a meaningful impact are invited to explore ByproTrade. Through this platform, companies that make their by-products available to the market will be directly connected with customers. Together, we can create a future where food by-product is not a burden, but a resource for innovation and growth. For more information on ByproTrade and how it can help your company meet its ESG goals, visit our website or contact our team. Let's work together to build a more sustainable food industry.



Food Revolution

Fenga Food Innovation Takes Center Stage at the Food Revolution 2024 Conference in Parma: Innovative Technologies and Solutions for a Sustainable Food Future

Parma, a City Symbolizing Italian Gastronomic Excellence, Recently Hosted the Highly Anticipated *Food Revolution* Event, a Benchmark for the Agri-Food Sector, Dedicated to the Most Cutting-Edge Trends in Food Production, Safety, and Sustainability.

The Conference, organized by *Affidia* (Trieste) in collaboration with the Dutch company Bastiaanse Communication and under the patronage of the University of Parma and the Association of Food Technologists, was a resounding success.

It featured approximately 50 speakers from 10 different countries, over 150 participants, and a significant presence of product and service providers showcasing their innovations. Among the standout participants of this edition was *Fenga Food Innovation*, a company specializing in developing innovative solutions in the food sector, which brought its expertise and vision of the future of food to a captivated audience of experts, businesses, and enthusiasts.

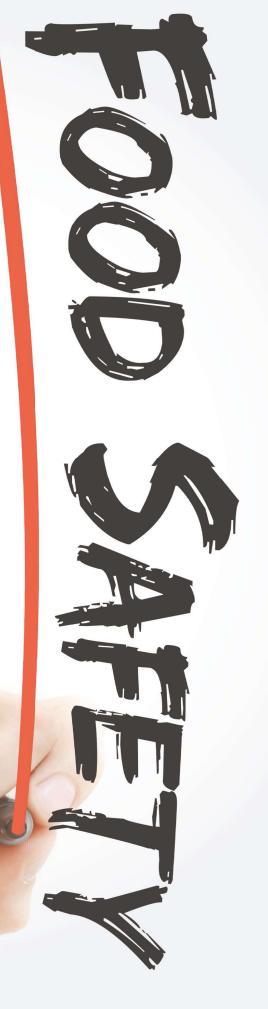
A Discussion on the New Frontiers of Food

Food Revolution offered a comprehensive overview of the most pressing issues and emerging technologies in the food sector. Key topics included:

Regenerative Organic Agriculture: Agricultural practices that protect biodiversity and soil health.

Precision Fermentation: Technologically advanced fermentation processes to create high-nutritional-value ingredients with minimal environmental impact. **New Genomic Techniques (NGTs):** Next-generation

New Genomic Techniques (NGTs): Next-generation biotechnologies applied to crops to enhance yield and resilience while ensuring food safety.





Sustainability Assessment Methods and Green Claims: Tools for evaluating environmental impact and guidelines for transparent communication on products' "green" performance.

Within this broad framework, significant emphasis was placed on new food products, focusing on production technologies, emerging challenges, hidden risks, and related regulatory issues. Discussions also highlighted how risk management and certifications are crucial for businesses aiming to promote sustainable, traceable, and safe approaches.

The Contribution of Fenga Food Innovation

Fenga Food Innovation stood out with a pioneering approach aligned with the event's objectives. During the discussions, the company's representatives showcased their projects, including:

Functional Food Formulation: Developing ingredients and supplements that support human health through advanced biotechnological processes, with a strong focus on food safety. **Sustainable Production Technologies:** Solutions that optimize resources and reduce waste within a circular economy perspective.

Sustainability Analysis and Evaluation Methods: Scientific approaches to monitor products' environmental and social impacts, essential for ensuring transparency and substantiating green claims.

The company also highlighted its actions aimed at reducing food waste. Fenga Food Innovation is actively working on systems for *recovering and recycling* by-products and *production waste* to create new opportunities for raw material utilization and promote a culture of food waste reduction.

The Future of Livestock and Aquaculture

Another hot topic at *Food Revolution* was the *future of livestock farming and aquaculture*. Fenga Food Innovation demonstrated particular attention to these aspects by researching methodologies to improve animal welfare and promote responsible resource use. This includes leveraging digital tools and data analysis (IoT, artificial intelligence, blockchain) to ensure traceability and safety across the supply chain.

Standards, Certifications, and Regulatory Aspects

An increasing number of companies are recognizing the importance of adhering to recognized *standards* and obtaining authoritative *certifications* in quality and sustainability. During the sessions, Fenga Food Innovation shared its experience collaborating with regulatory bodies and research laboratories, emphasizing the importance of *risk assessment* and *risk management* throughout the product lifecycle.

Looking to the Future

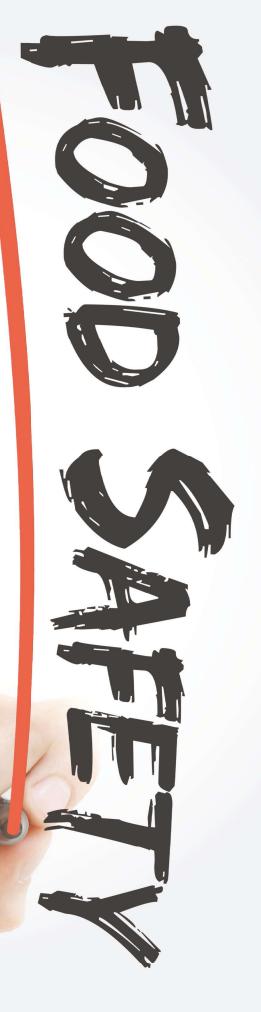
Fenga Food Innovation's participation in Food Revolution highlighted the critical role of collaboration among research institutions, industries, and policymakers in addressing global challenges in the food sector. From land regeneration to advanced fermentation processes, new genomic techniques, and strategies to reduce waste, the shared goal is to build a sustainable, safe, and health-oriented model of production and consumption.

Fenga Food Innovation reaffirmed its commitment to investing in research and development, fostering synergies with other companies and leading scientific institutions. This forward-looking vision is the driving force behind its growth trajectory, setting an exemplary benchmark for the Italian and international agri-food sectors.

In conclusion, Food Revolution confirms itself as a premier stage for exchanging knowledge and best practices. Fenga Food Innovation was among its key players, with its concrete proposals, innovation drive, and dedication to addressing the challenges of today and tomorrow.

For those interested in these topics, the 2026 edition of Food Revolution will soon be announced. For updates, visit www. foodrevolution.events and the LinkedIn page "Food Revolution – Event Series." The proceedings of the 2024 edition will also be available shortly.



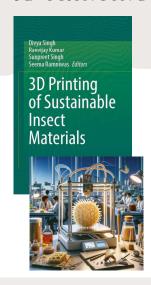


From my LinkedIn to your insights:

A personal collection of my LinkedIn posts featuring curated reviews and resources for food industry professionals

One of my favourites book from my technical library of over of 1800 books

3D PRINTING OF SUSTAINABLE INSECT MATERIALS



This book gathers a diverse and interdisciplinary collection of scientific literature, laboratory developments, industrial implications, and future perspectives covering entomophagy in 3D food printing, to combat hunger and nutritional deficiencies. It comprehensively addresses recent advancements in entomophagy and the 3D printing of materials based on Drosophila, along with their nutritional, social, economic, scientific, and environmental aspects.

Readers will also find insights into challenges, guidelines, and industrial prospects for these materials, with a focus on sustainable material extraction methods through 3D food printing.

It offers valuable insights even for those working with 3D printing but not specifically interested in insects. The book is enriched with explanatory images and data-filled tables.

For more information francesco@fengafoodinnovation.com

One of my favourites book from my technical library of over of 1800 books

RELEASING SYSTEMS IN ACTIVE FOOD PACKAGING

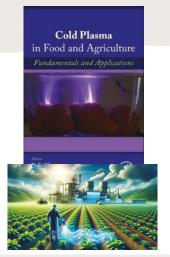


Significant advancements have been achieved in the realm of food packaging over the last twenty years, highlighting progress in processing efficiency, enhanced safety and quality across the supply chain, and the imperative to diminish product wastage and ecological footprint. The advent of a new wave of food packaging solutions, including active and intelligent packaging, is on the rise, propelled by technological innovations that promise extended shelf life, minimized food waste, and the ability to track changes within the food product itself.

The publication "Releasing Systems in Active Food Packaging" delves into one such technological innovation: active releasing systems. These systems introduce substances such as antimicrobials, antioxidants, flavors, colorants, and various other additives directly into the food items within their packaging. The book provides a comprehensive overview of the latest developments in active releasing systems, systematically covering their utilization across various food categories. This thorough examination serves as a valuable resource for researchers, health experts, and professionals within the food and packaging industries who are keen on exploring cutting-edge food packaging technologies.



COLD PLASMA IN FOOD AND AGRICOLTURE



Cold Plasma in Food and Agriculture: Fundamentals and Applications is an essential reference that provides a comprehensive perspective on a new, exciting, and growing field for the food industry. Written for researchers, industry professionals, and students interested in non-thermal food technology, this book helps readers understand the fundamentals of plasma physics, chemistry, and technology, along with their biological applications.

Food technologists seeking to grasp the theory and application of non-thermal plasma for food will find this book invaluable, as it offers a roadmap for future developments in this emerging field. This reference is also useful for biologists, chemists, and physicists aiming to understand the basics of plasma physics, chemistry, and technology and their biological interactions through the application of new plasma sources to food and other sensitive biomaterials.

For more information francesco@fengafoodinnovation.com

CEREAL PROCESSING TECHNOLOGIES

IMPACT ON NUTRITIONAL, FUNCTIONAL AND BIOLOGICAL PROPERTIES



This book examines cereal processing technologies and their impact on the qualitative attributes of cereals, detailing processing techniques with recent advancements and their consequent effect on nutritional, functional, and biological potential.

What you will find:

- •An overview of various cereals and their nutritional and functional characteristics
 •A description of mechanical, biological, thermal, and non-thermal treatments of
- •The impact of different treatments on the biological and techno-functional properties of cereals
- •The characteristics of processed cereal products

For more information francesco@fenga.com

CACAO, CIOCCOLATO E AFFINI



«Cacao, Cioccolato e affini» is an excellent source of information on the subject. Written by the outstanding industry professional Ernesto G. Carrega, who brings together the wealth of his extensive experience in numerous companies. You will find everything: from the history of chocolate to the production of creams. It is a text rich in illustrations, diagrams, and tables that guide the reader in understanding the subject.

The final section offers a remarkable overview of equipment manufacturers. A book to read and reread; in fact, I will use it as a textbook for my course on confectionery technologies at the Catholic University (which Carrega taught for many years).

I would say it is a must-read for anyone wishing to work in the field.

For more information francesco@fengafoodinnovation.com

CONDUCTIVE HYDRO DRYING OF FOODS



This book explores a specific method of food drying based on heat transfer through conduction in a water-based (or high-humidity) environment, aimed at accelerating the process and avoiding some disadvantages typical of conventional hot-air drying.

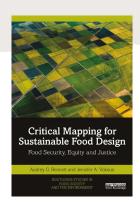
The book describes the theoretical principles, practical aspects of equipment design, and implications for the final product's quality (nutritional value, texture, and flavor).

It is a valuable resource for researchers in the field of food engineering as well as professionals interested in innovative drying techniques.

The approach is both practical and scientific, with examples and case studies that help to understand how conduction drying in a water-based environment can make food treatment more efficient while preserving their organoleptic properties.

For more information francesco@fengafoodinnovation.com

CRITICAL MAPPING FOR SUSTAINABLE FOOD DESIGN



This work presents critical mapping as a reflective and analytical method to examine systemic issues in society, such as food insecurity, evaluating current solutions and identifying intervention possibilities through sustainable design.

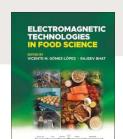
The text introduces an approach termed "intricate solutions" to identify the challenges designers face in making meaningful and lasting changes. It explores the current contribution of design in achieving sustainable, fair, and equitable food security. This book illustrates the use of specific design tools to uncover solutions and plan the development of innovative outcomes in a complex and interdependent context. In addressing the intricate issues of food insecurity, inequality, and injustice, the book highlights 73 sustainable design projects in the food sector.

These include sustainable design initiatives at local and regional levels, funded or supported by public or private entities, as well as large-scale projects promoted by citizens.

In doing so, this work lays the foundation for a future in design that helps designers envision ingenious solutions to tackle complex social challenges, such as food insecurity.

For more information francesco@fengafoodinnovation.com

ELECTROMAGNETIC TECHNOLOGIES IN FOOD SCIENCE





Electromagnetic Technologies in Food Science provides a comprehensive and up-to-date overview of the use of the entire electromagnetic spectrum in food processes.

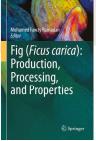
The book, structured in four sections, delves into both theoretical aspects—such as the physics of infrared radiation, microwaves, and other forms of advanced heating—and practical applications in non-thermal processes.

Numerous examples and case studies illustrate dosimetry methods and the use of techniques such as gamma irradiation, electron beams, pulsed light, radio frequencies, and ultraviolet rays.

The final section demonstrates how quality analysis, through hyperspectral imaging, infrared spectroscopy, and Raman spectroscopy, contributes to rapid and effective control of food products.

For more information francesco@fengafoodinnovation.com

FIG (FICUS CARICA): PRODUCTION, PROCESSING AND PROPERTIES





The book provides a multidisciplinary analysis of **Ficus carica**, exploring aspects such as horticulture, post-harvest management, market trends, phytochemistry, and processing techniques.

It discusses the impact of both traditional and innovative processing methods on the recovery of high-value compounds from **Ficus carica** by-products, with a focus on its applications in the food, cosmetic, and pharmaceutical sectors.

The text serves as a comprehensive reference for those studying the properties and uses of **Ficus carica**, a fruit of growing importance due to its industrial and medicinal applications.

For more information francesco@fenga.com

FOOD SCIENCE AND TECHNOLOGY TRENDS AND FUTURE PROSPECTS



The book explores various fields of food science, including microbiology, food chemistry, nutrition, and process engineering, which are essential for selecting, preserving, processing, packaging, and distributing high-quality food products. The authors focus on the essential elements of the food sector, highlighting new technologies and innovations that are transforming the industry. The texts are authored by eminent researchers, professors, and professionals specialized in food chemistry, food microbiology, biotechnology, nutrition, and management. This volume represents a valuable resource for researchers and students in the fields of food science and technology. It is also a practical tool for food industry operators, entrepreneurs in the food sector, and farmers.

For more information frances co@fengafoodinnovation.com

GLUTEN-FREE BREAD TECHNOLOGY



Market trends and the rise in celiac disease diagnoses have driven extensive research into the development of gluten-free bread.

Typically, creating these products involves the use of various ingredients and additives aimed at replicating the viscoelastic properties of gluten to produce quality bread. However, developing gluten-free bread remains a technological challenge due to the crucial role of gluten in the baking process.

The book "Gluten-Free Bread Technology" provides a comprehensive overview of the fundamental issues and key factors related to gluten-free bread technology, highlighting the latest discoveries in this field.

The promising results of the reviewed research show that gluten-free bread can achieve sensory attributes comparable to standard products.

The chapters of the book analyze the role of additives, dough manipulation, and the physical, structural, sensory, and nutritional properties of gluten-free bread, while also explaining the science of gluten intolerance. There are also interesting insights for those working exclusively with traditional bread.

For more information francesco@fengafoodinnovation.com



Did you know that over 90% of new products fail within the first 12 months?

What causes this high failure rate of new products?

The reason is the lack of fundamental conditions necessary to sustain a presence in the market

Launching new products is a discipline that cannot be left to chance

Would you embark on a long boat journey relying on outdated, unverified nautical charts and a skipper who couldn't read even the most accurate maps, and perhaps doesn't know the difference between a mainsail and a jib?

Yet, **that's exactly what many do**. They rely on their cousin who happens to be a cook, or the pastry chef of the moment (I know some very skilled cooks and pastry chefs, but few truly understand the science behind what they do), and then they complain that the failure is due to... well, you name it.

Then there are shortcuts. Do you know what they are?
A shortcut, they say, allows you to take less time and put in less effort

But what if it leads you in the wrong direction?

You might have saved some effort, apparently; but by taking the wrong path...

- · You've wasted time (and money).
- You've missed opportunities to do something useful in the meantime... and, on top of that,
- you've fallen behind your competition.

So, you need an updated map and a skipper who knows how to read it.

The challenge is how to find one:

- Do they have enough experience?
- · Will they know how to adapt to changing weather conditions?

These and many other questions will naturally arise.

But what types of storms could be heading your way?

Let's explore some unusual scenarios—unusual today, but who knows what the next 10–30 years might bring...

It has been reported that 30% of people infected by the coronavirus temporarily lost their sense of smell. **What if** the next virus caused a loss of smell for much longer periods?

What if, by 2050, new technologies made it unnecessary to eat every day?

What if, by 2050, people only consumed food in the form of pills?

And **what if** 3D food printers became a household staple, and the only viable business was selling specific and specialized ingredients? (Think about what happened to the yeast market during the pandemic when everyone started baking at home, making yeast nearly impossible to find in many stores.)

Fascinating food for thought, isn't it?

But you don't need to look for the skipper—they're already here: it's you.

How many storms have you already weathered? How much experience have you gained? Surely, you have the character and instinct to navigate the many situations and variables that come with running a business.

You haven't lacked courage, nor the ability to assemble and manage your crew.

The political and economic context hasn't always been in your favor, but somehow, you've managed to stay afloat—more or less successfully

But the storms ahead could be of a completely new kind (and so could the opportunities)

A good skipper always checks the weather conditions before setting sail—both for the short



and medium term. It's essential to know whether it's wise to head out and, if so, what precautions to take (adequate food and fuel, a thorough check of safety equipment, and a proper briefing for the crew). But what do we know about the new weather conditions, with their increasingly sudden and violent changes?

How do you prepare? How do you read the new data, and interpret it?

In the America's Cup races, there is the figure of the tactician.

Who is the tactician?

He is the one who supports the skipper (who, in your case, is often also the owner, meaning the one financing the operation) in making decisions about the course to take.

What are the skills of the tactician?

The tactician knows how to interpret the racing area and weather conditions correctly to achieve the best performance (and to go faster than other competitors).

The tactician must have a good understanding of the characteristics of the boat, the winds, the racing area, and even the competitors.

How do you choose the "right" tactician?

The right tactician is someone who has already proven their ability to read the racing area ahead of others.

An experienced tactician can spot an opportunity to win a race in a barely noticeable gust of wind. From small, distant ripples, they can tell if wind is coming, the type of wind, and how to prepare the sails (and everything else).

But metaphor aside, what does all this mean?

New times demand new

approaches and new skills. Among these, one of the most important is the ability to adapt your product offering to future market conditions.



I imagine that right now you're probably thinking:
"But how do I figure out which product development projects I should pursue?"

You need to understand how to direct your efforts.

Which projects should you complete?

The short-term ones or the long-term ones?

It requires balance, but above all, choosing those that truly matter to the customers.

You must avoid the mistake of working on projects that are flawed from the start.

Do you also make these mistakes in product development?

- 1) **Not having direct knowledge of the market;** the market moves quickly, and it's essential to frequently "go shopping" yourself.
- 2) Not encouraging the **creative contribution** of all employees; estimates suggest that less than 50% of the creative potential of company staff is utilized.
- 3) Not drawing inspiration **from other sectors**; good ideas (and even new competitors) can often emerge from different markets.

- 4) Continuing to spend money developing **useless products** just to please marketing by chasing the latest trend.
- 5) Continuing to invest in **unsustainable product lines;** it's not easy to accept that some products are dying, and market signals that don't suit us are often ignored.
- 6) **Lacking ambition;** failing to allocate resources to research that could solve real problems.
- 7) Not having a **balanced research and development plan** between short-term and long-term expected outcomes. Both are necessary, and it's crucial to understand how to secure the required resources.
- 8) Starting research and development activities just **because they are funded by a grant**; if the grant didn't exist, would you still pursue those activities? Do you truly believe that certain R&D activities will lead to tangible results in the market?
- 9) **Not seriously considering the possibility of creating R&D** joint ventures with other companies; in Italy, the willingness to collaborate between companies is very low, resulting in many missed opportunities.

These mistakes can only be avoided if company leadership is truly aware of the importance of innovation. In Italy, there are companies that fully understand this (and, in fact, they are doing well).

I have been working in Research & Development for many years, and I am available to support those who have the courage to make innovation one of their company's priorities. If you would like to book a strategic diagnosis visit, feel free to contact me at:

e-mail: francesco@fengafoodinnovation.com

Francesco Fenga



Technological innovation in the food industry cannot be entrusted to pastry chefs......



... reach out to the right professionals.





Fenga Food Innovation

www.fengafoodinnovation.com