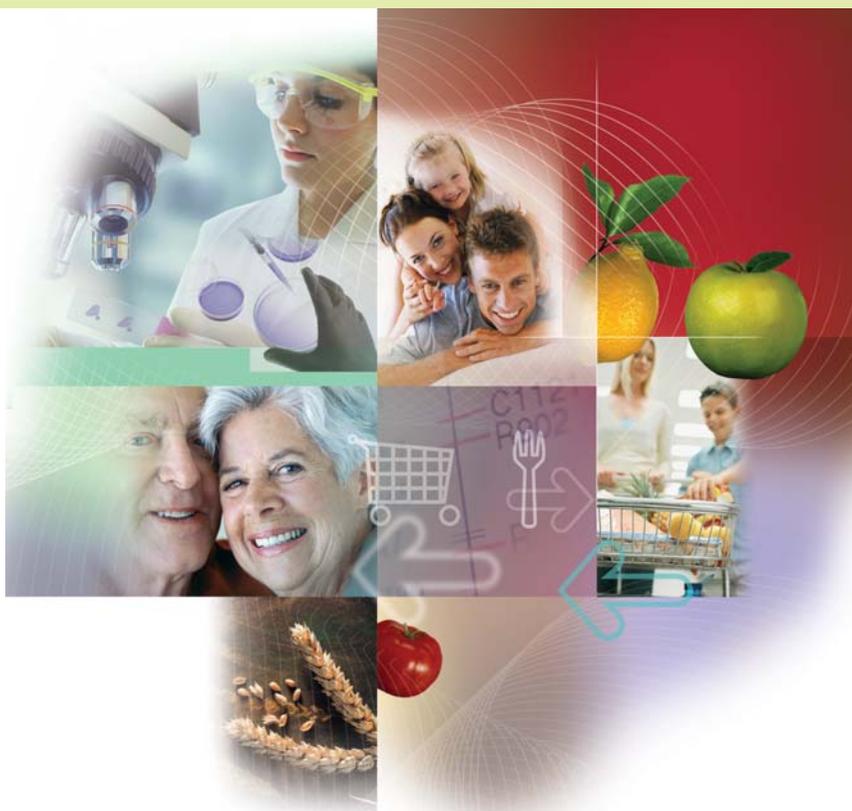




Vision and Strategic Research Agenda





CIAA

Confédération des industries agro-alimentaires de l'UE
Confederation of the food and drink industries of the EU

For more information on the ETP, visit our website <http://etp.ciaa.eu>

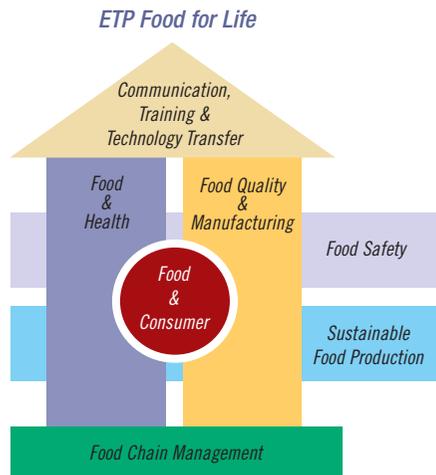
Food for Life

The European Technology Platform¹ Food for Life, under the umbrella of the Confederation of the Food and Drink Industries (CIAA), brought together stakeholders to engage in a Europe-wide initiative that addresses the innovation challenge throughout the food chain - from fork to farm. Together, these stakeholders, including consumers and society, food-related industries, and the research community, agreed on a shared Vision for 2020 and beyond.

The Vision document, published in July 2005, sets out the issues to be addressed in order to make the European agro-food industry more competitive, to meet and even anticipate changing consumer needs and to continue to sustain the industry's vital contribution to the European economy. This significant challenge to strengthen European food industry's innovation and competitiveness as a direct response to the consumer's wish for safe, healthy and affordable foods and beverages, requires a major increase in research intensity and investment.

Based on the shared vision of the different stakeholders, a flexible and coherent research strategy has been proposed; this covers activities in the areas of food and consumer; food and health; food quality and manufacturing; food safety; sustainable food

production and food chain management. To deliver the greatest impact these initiatives must be supported by creative and effective communication, training and transfer of knowledge from scientists to industry throughout the entire food chain.



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(1) European Technology Platforms were introduced by the European Commission for stakeholders in key economic sectors to commit to working together to identify the innovation challenge, to develop R&D priorities and action plans that will shape Europe's future growth, competitiveness, and sustainability.

Vision on Food for Life

The European Technology Platform on Food for Life seeks to deliver innovative, new and improved food products to national, regional and global markets in line with consumer needs and expectations. This will be achieved by effectively bringing together research in nutrition, food and consumer sciences, sustainable production and food chain management. These products, together with recommended changes in dietary regimes and lifestyles, will have a positive impact on public health and overall quality of life of consumers in Europe and beyond - adding 'life to years'. Such activities will support a successful and competitive pan-European agro-food industry which will be successful in global business activities, lead to job creation, improve national and European economies, promote sustainable and ethical production systems and increase consumer confidence in Europe.

Stakeholders

We are all consumers and so we are all stakeholders in the food sector; in general, three key groups of stakeholders are involved in improving the innovative power of the European food industry - consumers and society, food and related industries, and the research community. Consumer needs and responses are central to the success of new food concepts and innovations and therefore determine the focus of efforts made by the food industry and scientists. Getting this right will ultimately determine the success of new product development and innovation.

Consumer, Society and Public Policy

Many consumers are passionate about their food, how and where it is produced, its quality, its price and its effect on their health and that of their families. Consumers want foods that contribute to a healthier lifestyle and that taste good, are convenient to prepare, and of course, are affordable. At the same time, European governments are struggling with the growing social and economic consequences of the alarming increase in obesity and related diseases. Consequently, food and dietary issues are now important topics of debate throughout the European Union.

Despite security of supply, diversity and increasing affordability of food products, over the last two decades consumer concerns have increased dramatically with various safety issues in the food supply chain, creating demands by consumer groups for political action. Consumers are also becoming increasingly aware of the importance of food and diet to healthy development, well-being and longevity. In addition, consumers are also demanding assurance from food producers that ethical and environmental concerns are reflected in the food products they purchase and consume. While these factors are exerting

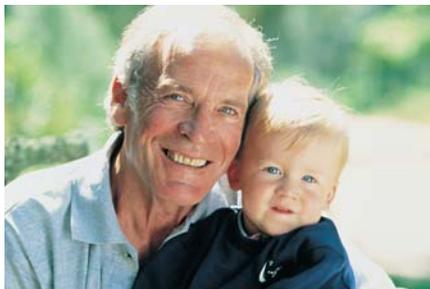
pressure for change, consumers remain steadfast in their demand for affordable foods. This poses a great challenge to industry.

Thus, new technologies and novel products need to be introduced together with establishing and maintaining consumer acceptance and confidence.

Public health

The importance of diet in relation to health and lifestyle is now a key priority for most EU Member States seeking to deal with an increase in obesity of almost epidemic proportions and diet-related chronic diseases in their ageing populations. Over the last decade, obesity has risen alarmingly in children. Yet more distressing is the growing evidence that once established in the young, obesity continues into adult life with associated health-related problems, such as type 2 diabetes, cardiovascular diseases, hypertension, and a range of cancers. These lifestyle-related diseases are significant causes of disability and premature death and are leading to ever-increasing medical and related costs.

There are many other health benefits of better diets that will contribute to preventing illnesses and reducing the high costs to health services. Such benefits include better nutrition leading to optimal development of bone and brain function, better intestinal health, improved dental health, and sustained mobility for the elderly with fewer bone fractures.



Personalised health and nutrition

Traditionally, nutrition goals have been set at the population level. However, powerful new research techniques are increasingly showing that the risks, benefits and nutritional requirements may vary between different population groups. Better understanding of these requirements is necessary so that dietary advice could be more focused on the needs of particular consumer groups and could even lead to development of specialised food products ('personalised nutrition').

Consumer behaviour

Until now, attempts to increase public awareness of how best to eat more healthily have not led to major changes in patterns of food purchase and consumption. This means that the food industry must find new ways of introducing tasty and enjoyable foods that contribute to a healthy lifestyle. In order to ensure consumers are able to make well-informed and healthy choices, more attention must be given to consumer education, information and communication. To do this effectively, research is needed to discover why consumers make certain choices; what consumers understand about food; what type of information is wanted; and how this information can best be presented.



Agro-Food Industry

The agro-food industry is the largest manufacturing sector in Europe and is essential to Europe's wider economic development. The sector offers scope for economic growth, especially in the new EU Member States, development of regional economies and big opportunities to exploit Europe's rich cultural and culinary diversity and traditions.

In 2006, the European food and drink industry had a turnover of € 870 billion, processed over 70% of the EU's agricultural raw materials and employed over four million people, mostly in companies employing less than 250 people that make up 99% of the sector. A highly diverse range of products is produced, often using methods based on craft techniques rather than technology.

Sector under pressure

The competitiveness of the European food and drink industry is at risk. Over the last decade, Europe's share of the global market has declined from 25% to 21% in the face of competition from emerging economies, such as China, India and Brazil. Increasingly unable to compete on cost alone, the European food industry needs to be able to add value by creating healthier and more convenient products if it is to reverse this decline.

With the exception of ingredient suppliers and food equipment manufacturers, investment in European R&D in the food sector is low, lagging behind Japan, USA and Australia, and is also below the average for other EU manufacturing industries. The European Commission has urged the food sector to invest more in innovation by increasing R&D funding as a means to introducing new products and processing techniques.

The industry recognises its role in preventing lifestyle-related diseases; this implies new and innovative concepts of foods and diets, which

require substantial research investments to introduce and exploit results coming out of Europe's universities and research centres. The industry's future lies in producing value-added, quality products.

In order to capture the vast new opportunities for innovation, especially in healthy foods, investment is urgently needed in skills and resources currently not widely available in a sector dominated by small companies. Individual food companies cannot take on the innovation challenge alone: a joined-up initiative is required. Effective partnerships built on public and private links and funding are, therefore, necessary to identify the most important research needs and to pool resources. Furthermore, improving the flow of information and technical skills in the small business sector are vital challenges that must be given priority, especially in the light of the overall contribution of these companies to the European food production and food supply chain.

Research Community

The research community in Europe is at the forefront of developing knowledge to enable production of safe, varied and nutritious foods. Research is undertaken in university faculties and research institutes, and in agro-food companies. While excellent research has been carried out throughout Europe, this has not been transferred to industry in a way that has happened in other parts of the world. Without this knowledge transfer, the food industry is unable to compete effectively in world markets. There is, therefore, an urgent need to improve communication and other processes in effective knowledge transfer between the research community and the food industry; in particular, this must be done for small businesses.

Making advances in the food, nutrition and health research will require close interactions between physical and biological sciences, and social sciences. Such interaction also poses unique challenges because the skills required cross traditional academic boundaries. Europe as a whole would benefit considerably from a new generation of young, enthusiastic, multi-disciplinary professionals aware of the advantages of such a broad approach.

Research in sectors across the food chain will require support from funding sources at both national and European level. Close cooperation is needed to ensure resources are targeted effectively and efficiently to scientific challenges, without duplication of effort or leaving gaps that would reduce opportunities for innovation.



The Way Forward

The Strategic Research Agenda of ETP Food for Life lists the activities which are considered to be most important by stakeholders and it identifies research priorities covering all scientific and technological areas within nutrition, food production, manufacture and distribution. It also pays special attention to studies to ensure and maintain consumer trust and confidence in the food supply.

A research agenda with the following **six Key Challenges** has resulted:

1. ensuring that the healthy choice is the easy choice for consumers,
2. delivering a healthier diet,
3. developing quality food products,
4. assuring safe foods that consumers can trust,
5. achieving sustainable food production, and
6. managing the food chain.

From these research challenges, **three Key Thrusts** emerge which involve research developing new processes, products and tools that:

- improve health, well-being and longevity,
- build consumer trust in the food chain, and
- derive from sustainable and ethical production.

Improving health, well-being and longevity

To continue providing social and economic benefits, European public health policies are focusing on healthy ageing, not only on increasing the chance of survival for more years but also delaying deterioration in health status. The long-term challenge is to provide foods to assist people to live a healthy and active life, thus adding life to years. There is a major opportunity to develop foods that meet

the needs of specific population groups but vital research is needed to gain greater insight and understanding of the mechanisms underlying the effects of food intake on health. Better insights into such mechanisms will be provided with the application of new and advanced technologies now available. Improved understanding of such mechanisms is required to substantiate health claims and protect consumers from false claims.

The challenge is to provide foods to assist people to live a healthy and active life, thus adding life to years.

However, for this research to have an impact on improving consumer health, inputs are also required from consumer sciences and humanities, particularly in relation to changing food habits and healthier eating. While consumers have considerable difficulties in changing habitual diets, the process will be made easier by extending the range of healthy food products available. However, the food industry will have to find new ways of introducing tasty foods that contribute to a healthy lifestyle. This situation offers significant opportunities to work with social scientists to identify barriers to and opportunities for change, and to effectively disseminate information to all sections of society. This is particularly important because of ethnic minorities, economic migrants and refugee populations across Europe.

Progress in food and health research will need the support of technologies used in biomedical and social sciences. Priorities have been chosen where European science has a global lead, where the food industry is already exploiting products based on this knowledge, or where future opportunities for exploitation are likely to be successful if more basic research were to be carried out.

Building consumer trust in the food chain

The consumer's response to food safety issues is most important for the competitiveness of European food products. Thus, high standards

The challenge is to communicate to consumers a balanced assessment of the benefits and risks of foods for their well-being and healthy living.

of food safety will continue to be important. Consumers want clear messages and, in turn, the media and politicians are expected to convey complex issues in a simple and direct way. Better communication is needed and an environment of trust and mutual confidence must be established. While efforts continue to make food as safe as possible, consumers should understand that their food, like all human activity, poses a balance between benefit and risk. The challenge

will be to measure the benefit (which is rarely done, unlike in the pharmaceutical sector) and to communicate the concept of risk-benefit in a way that is well understood.

Counterfeiting and fraud is a major issue undermining consumer trust in the quality and safety of a branded food product and leading to a loss in market share. It is, therefore, essential to build effective systems of product tracing and identification that consumers can have trust in. The proposed research will help to tighten controls and provide consumers with greater assurance.



Supporting sustainable and ethical production

Modern food production has a high environmental impact. The tendency to produce high-yielding, disease-free, raw materials has led to less diversity and more intense production. This has resulted in a secure and affordable food supply. However, all parts of food production and the supply chain will have to be more aware of their future energy and water use and huge potential cost savings if usage can be reduced. Nonetheless, energy and water are vital components of safe food production and a fine balance between safety and environmental goals will need to be struck in order to ensure consumer trust in the food supply.

The challenge is to achieve sustainable food chains that serve consumer needs and that balance environmental protection, social fairness and economic growth.

The efficiency of the food supply chain is far from optimal with many supply sources and intermediate stages in production and distribution. Trends towards greater diversification mean that this work is especially relevant to small companies that will have an important role in ensuring food diversity in the future.



Key Challenges

1. Ensuring the healthy choice is the easy choice for consumers

To meet the challenge of making the healthy choice the easy choice, research is needed to increase understanding of consumer behaviour with regard to food and also to raise consumer understanding of healthy foods and food consumption patterns. The challenge involves measuring food purchase and consumption behaviour taking into account cultural differences, and subsequently, developing reliable models of consumer choice processes. Finally, effective communication strategies with consumers need to be developed to induce behavioural change directed to improving consumer health and social responsibility.

2. Delivering a healthier diet

New and effective food-based strategies are needed to optimise human health and to reduce the risk or to delay the onset of diet-related diseases. The priority areas identified for research are: 1) understanding of brain function in relation to diet; 2) the effects of diet-gut interaction on intestinal and immune functions; and 3) the link between diet and metabolic function (obesity and associated metabolic disorders).

3. Developing quality food products

The food industry is faced with the challenge of producing tasty foods that are consistent with health status and lifestyle, and which meet consumer preferences and thus ensuring repeat purchase. This requires research to establish reliable data on consumer food preferences and acceptance in order to develop new food products and to redesign how foods are produced. Furthermore, research-based innovation is needed to enable redesign and optimisation of food processing and packaging.

4. Assuring safe foods that consumers can trust

An integrated and overall approach to food safety is required, not only safe product manufacture, but throughout the food chain. Expertise must be developed to predict and monitor the behaviour and fate of known and emerging biological and chemical hazards. More attention will need to be given to improving risk assessment and risk-benefit evaluation. This requires information about food composition and consumption patterns, chemical

and biological contaminants, and the development of techniques and approaches to be used in risk-benefit evaluation.

5. Achieving sustainable food production

Sustainability will guide future developments in European food production and supply systems and will go hand-in-hand with strengthening the competitiveness of all stakeholders. To achieve this, sustainability must take into account economic growth, environmental protection and fair social conditions. We need to understand the essential parameters of sustainability, develop tools to determine the sustainability in different food production systems and drive more sustainable solutions. Scenarios describing the future of European food production and supply need to be developed as well as for sustainable processing, preservation, packaging and logistic systems. To succeed, sustainable food production must meet consumer expectations and preferences based on clear understanding of consumer behaviour regarding sustainable food production.

6. Managing the food chain

The challenge for food chain management is to integrate and balance the interests of all stakeholders taking account of key factors for successful integration - economic efficiency, environmental control, process organisation, food safety, and marketing. Increased transparency throughout the food chain is required to make advancements in governance, trust, efficiency and innovation. Small companies will need to be better engaged into global and regional food value chains. Serving the sector as a whole through better understanding is a critical success factor to improving the competitive performance and sustainability in times of globalisation and change.

Finally, in delivering the anticipated benefits to stakeholders effectively and timely, the research must be underpinned by communication and dissemination to all stakeholders. Equally important, the skills base of European scientists and technologists needs to be improved and an environment provided in Europe that promotes and embraces innovation.

Glossary

Innovation

Innovation is the development and dissemination of a new product, service or process that produces economic, social or cultural change. Innovation is the integration of scientific discoveries, new technology and creative activity leading to economic and social value.

Competitiveness

A competitive economy is an economy with a sustained high rate of productivity growth. European industry needs to be competitive if the Community is to achieve its economic, social and environmental goals and thus ensure an improving quality of life for Europe's citizens. To be competitive, the Union must outperform in terms of research and innovation, information and communication technologies, entrepreneurship, competition, education and training.

Stakeholder

A stakeholder is a person, group, or organisation that has a direct or indirect interest (stake) in a project or organisation.

Sustainable development

The concept of sustainable development refers to a form of development that meets present day needs without compromising the ability of future generations to satisfy their own requirements. It aims to improve individuals' living conditions whilst preserving their environment in the short, medium and - above all - long term. The objective of sustainable development is threefold: development that is economically efficient, socially fair and environmentally sustainable.





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