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Food, Health and Well-being - Research Priorities in FP7

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European Commission

Food,
Agriculture and **F**isheries,
and **B**io**T**echnology

Knowledge-Based Bio-Economy (KBBE)

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Outline

1. Prospects about the future & Challenges for the food industry
2. What does innovation mean?
3. How FP7 considers the needs
4. Conclusions

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The world's population in 2025-2030

- World: 8 billion inhabitants (today: 6.5 billions, +20%)
 - 97% of growth in developing countries (Asia, Africa)
 - 61% of population in Asia \Leftrightarrow 6.5% of population in the EU
- EU: 1/3 of population > 65 years (today: 1/5)
- EU: 20% of population will be obese (by 2020)
350 million will suffer from diabetes (2030)
- World: 1.2 billion obese – 860 million malnourished

The world's economy in 2025-2030

- Energy demand: 15 billion tons oil equivalents (+50%)
 - 90% carbon-based energy
 - 3% "modern" renewable energy (wind, solar, bio-fuels etc.)
 - EU: 70% of energy have to be imported
 - stable energy prices unlikely
- World production doubled,
Asia will produce >30% of the world GDP (EU: 20%)
- World trade doubled,
share of Asia will increase up to 35% (from 29% today)
- Food (processed) represents only 25% of global trade



Changing nature of production: cause of consumer concerns

Production separated from Consumption

physically – culturally - geographically

- Accumulation
- Transformation
- Global competition
- Personal choice
- Satisfaction
- Rising incomes

FutureFood6: Visions 2020



Homogeneous and traditional demand

Demand for regional products

Sophisticated demand & well-informed citizens

Leader in the healthy and safe food market

Increased knowledge R&D

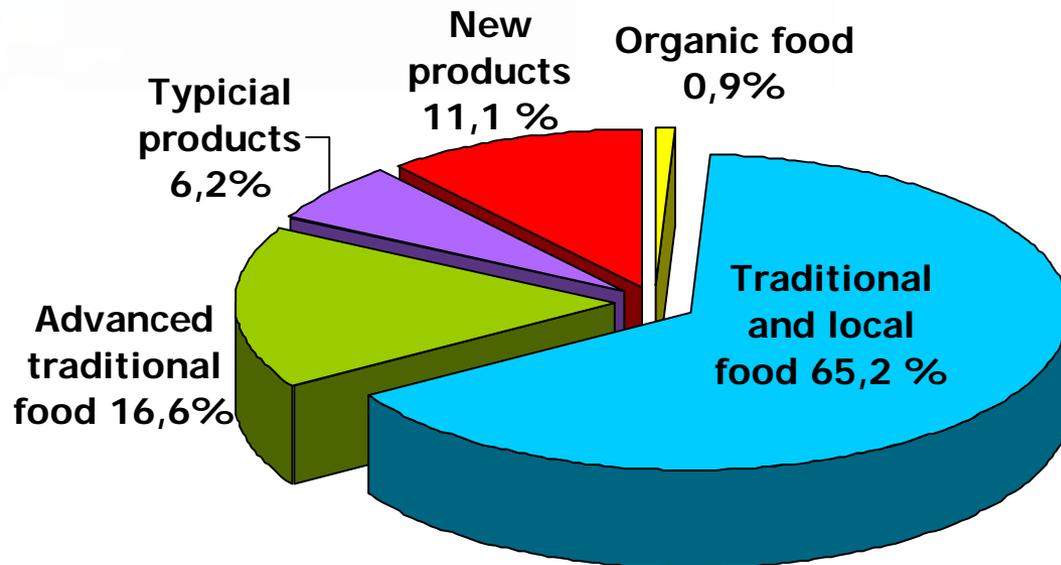
Cooperation in the food chain

Advanced knowledge and favourable context

Competitiveness of the food industries

Economic significance of the European Food and Drink industry

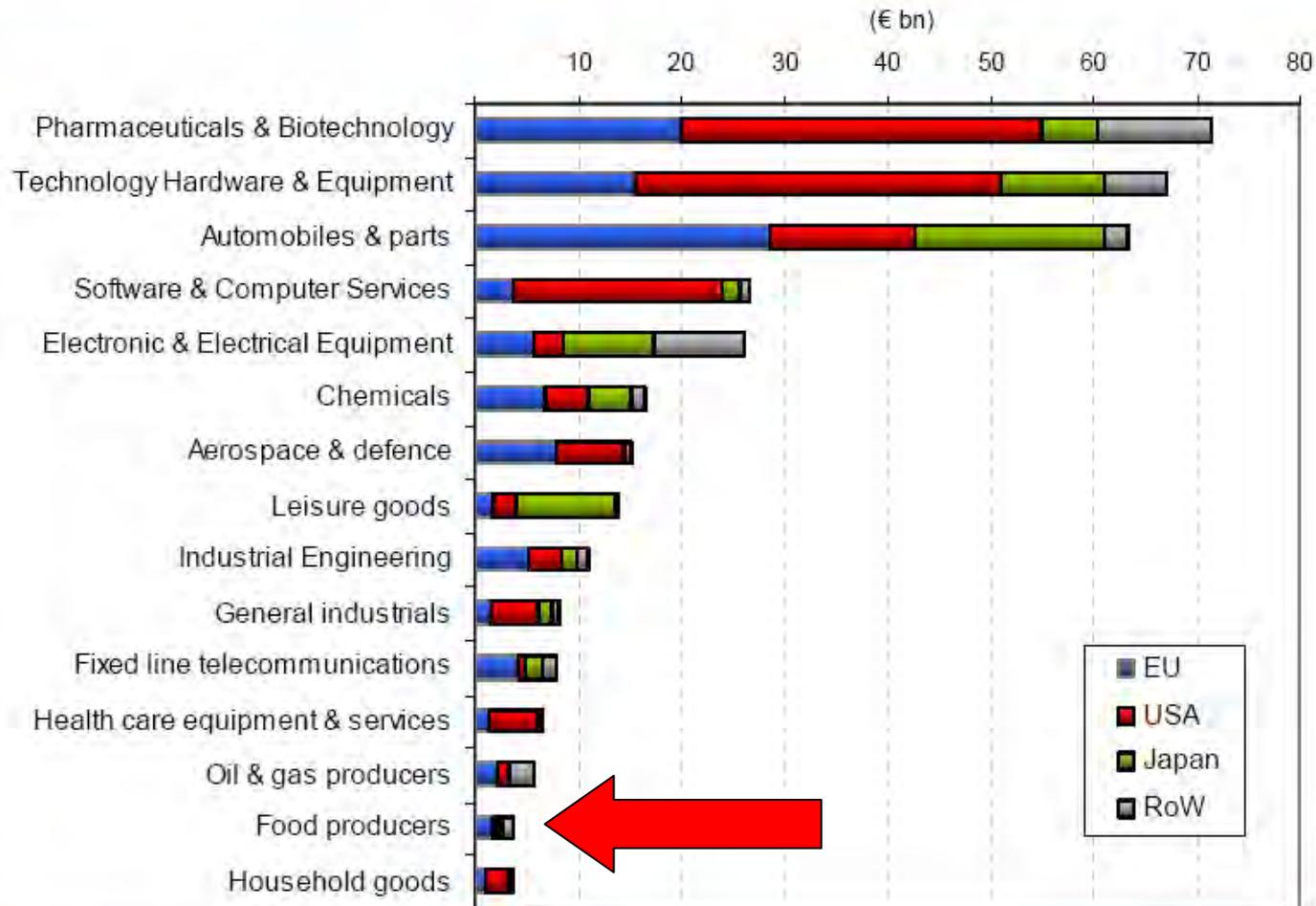
- TOTAL TURNOVER BY PRODUCT



EU25 -CIAA benchmarking report 2007 update

**The largest
manufacturing sector
in the EU**

Figure 4. Ranking of industrial sectors by aggregate R&D by main world region for the world top 1402 companies in the 2008 Scoreboard (€ bn).



Note: Ranked by total worldwide R&D investment of the sector.
 Source: The 2008 EU Industrial R&D Investment Scoreboard
 European Commission, JRC/DG RTD.

Economic strategies

Applying processes
that have been developed
elsewhere

Developing
new innovative
products and processes

Imitation

Innovation

Growth

Source: Adapted from A. Sentence,
Economic Outlook 20 (1996) 14



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Role of the food chain

Most of the value is developed in the processing rather than in the commodity itself !

Farmer

Custodian of land and water resources and an applier of technologies that provide for long-term sustainability.

Assembler

Ensures origins and safety at all levels of the food chain.

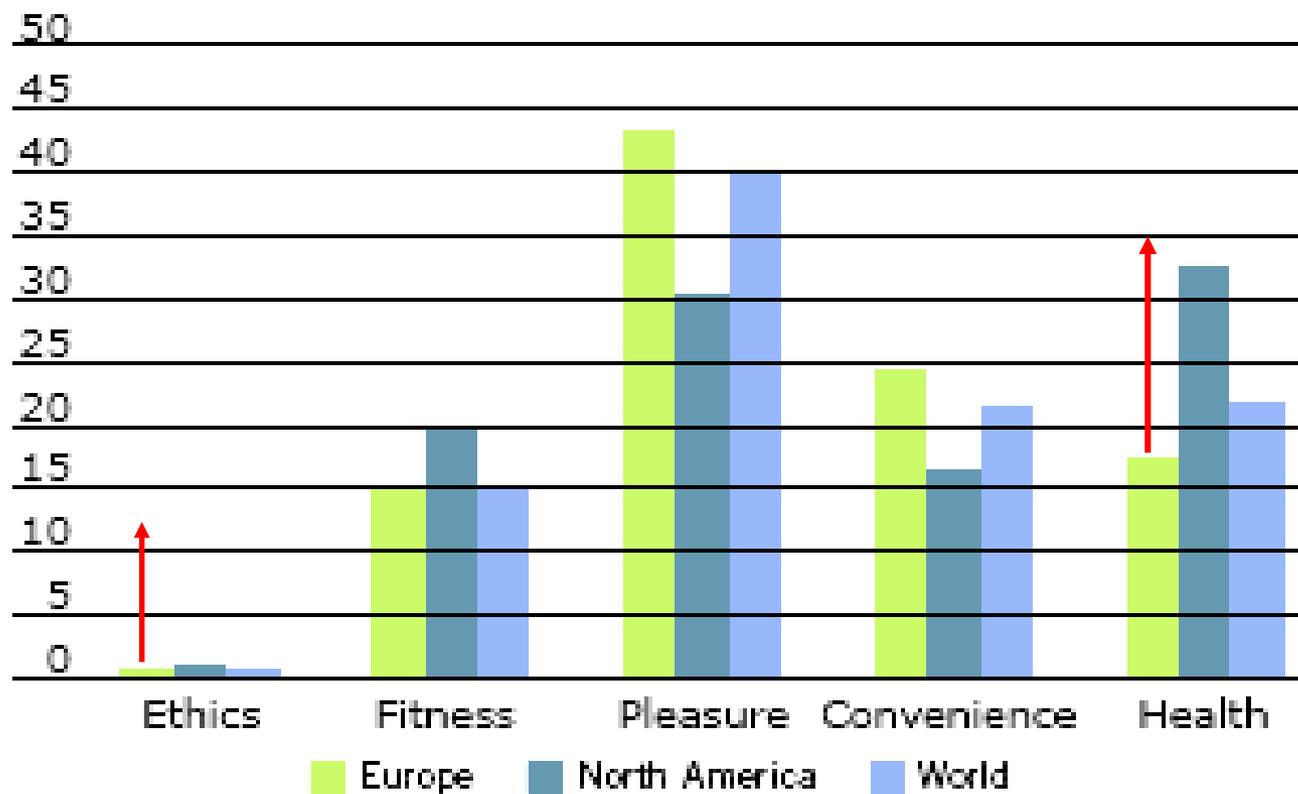
Processor

Developer of branded and own-label products that now provide not only caloric content but also health and nutrition alternatives.

Distributor

Provider of unique foods for people to manage the health and nutrition of the general population.

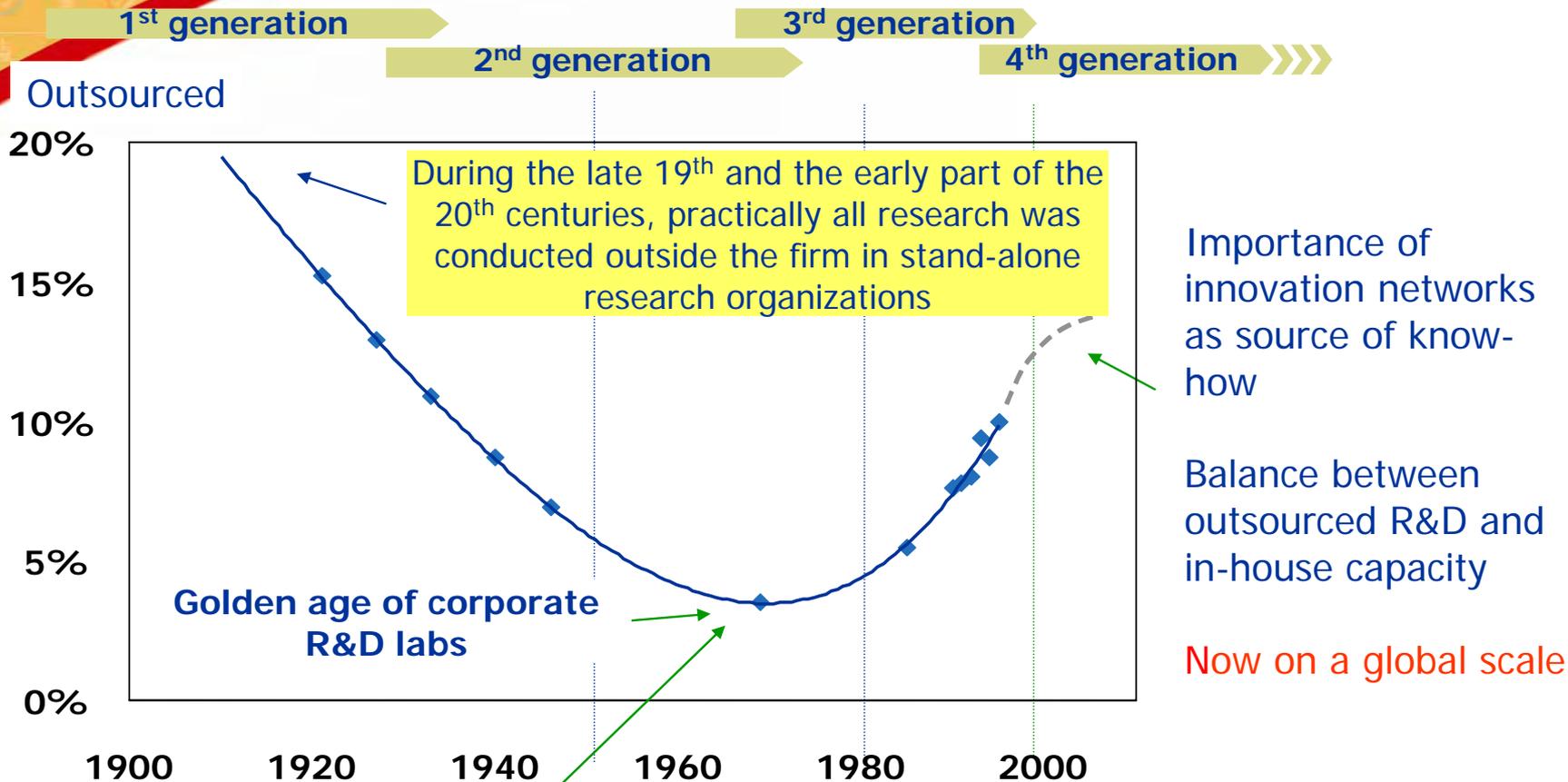
Share of the drivers for innovation in Europe, in North America and in the World 2005 (%)



Source: World Innovation Panorama 2006, Int. trends & innovation book, SIAL 2006

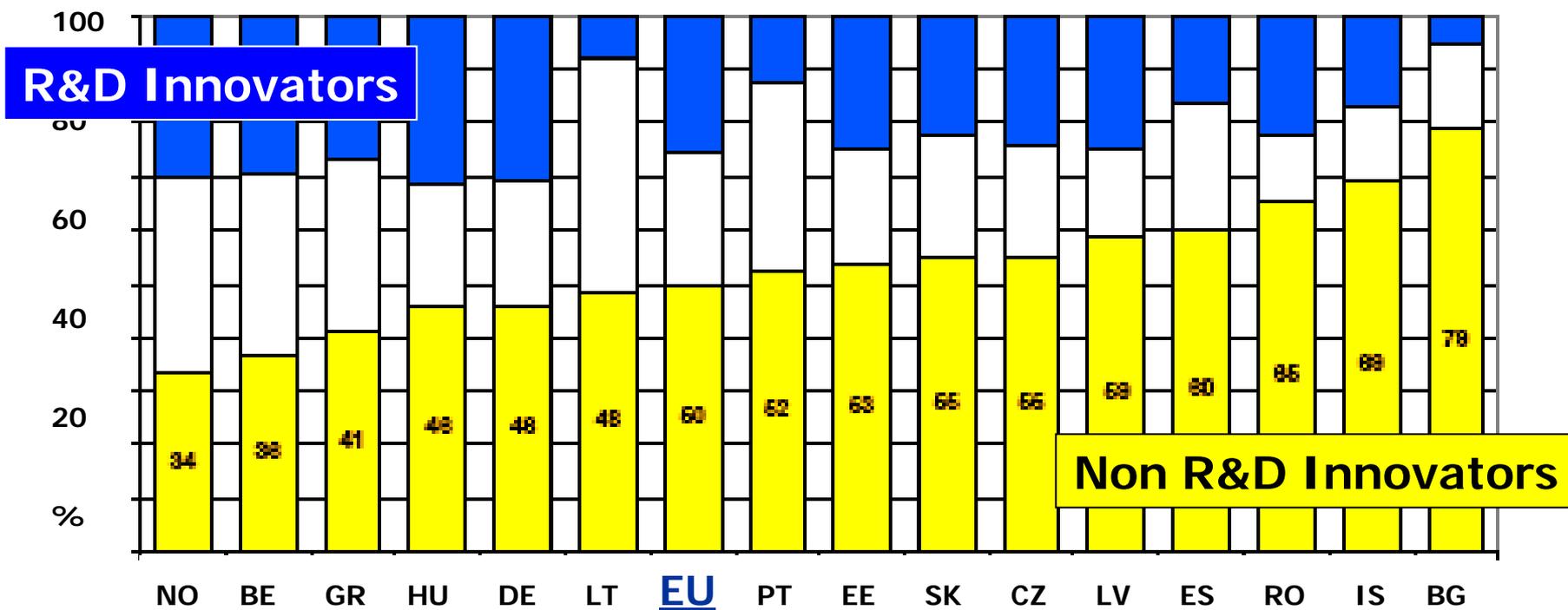
Trends in Business R&D Practice

Trend towards greater outsourcing



“Roughly 3% of research is bought outside the firm” – EIRMA study

Innovative firms that did not perform R&D in 2000: Breakdown by Country



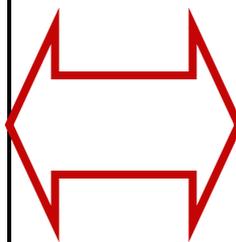
Source: Adapted from "Neglected innovators: How do innovative firms that do not perform R&D innovate?", INNO-Metrics Thematic Paper No. 215 (2008)



Types of innovators

'Radical' innovators

Bigger companies
With R&D department(s)
Effective networks



'Incremental' innovators

Smaller companies
No R&D department
No or less networks

Innovation from
own resources

Innovation by:

- Adoption
- Incremental change
- Combining knowledge
in new ways

Specific Programmes

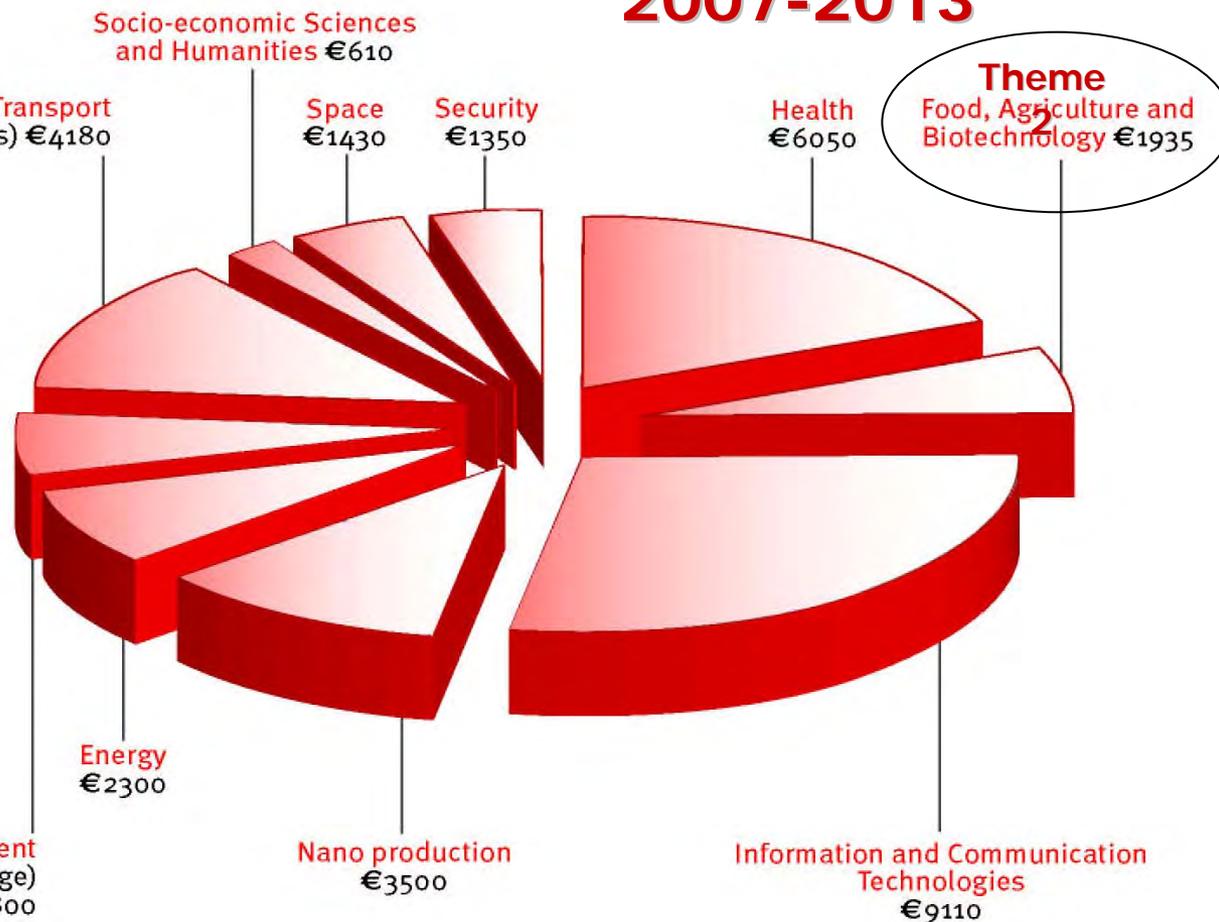




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Cooperation programme – 10 thematic areas, 32.365 € million 2007-2013



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Special Programme COOPERATION

KBBE - Activity 2.2:

“Fork to farm”: Food (including sea-food), health and well-being



Food, Agriculture and

EU food facts and figures

- Leading manufacturing sector
- Employs 4.1 million
- EUR 800 billion annual turnover
- 283 000 food companies (99% SMEs)

The food and drink industry is one of Europe's most important and dynamic economic sectors. The European Commission aims to maintain its competitiveness while taking account of the requirements of the Community's policies and the European Union's international obligations.

- Consumer, societal, industrial and health aspects of food and feed
- Nutrition, diet related diseases and disorders
- Innovative food and feed processing
- Improved quality and safety of food, beverage and feed
- Total food chain concept

Optimisation of resource use: research can provide solutions

Supplier	Processing	Distribution	Consumer
Losses in field, transport, storage	Conversion losses, storage	Spoilage and distribution losses	Storage, preparation, waste Overeating

————— Technological advances to reduce losses —————

————— Reducing waste —————

Sustainable production ————— Sustainable consumption

————— Strategies against malnutrition

————— Development and harmonisation of standards ————

————— Tailored food products —————



Research can provide solutions

Supplier	Processing	Distribution	Consumer
Losses in field, transport, storage	Conversion losses, storage	Spoilage and distribution losses	Storage, preparation, waste Overeating

Food markets and price volatility

Price stickiness

Eco-challenges and climate change

Sustainability assessments and life-cycle analyses

Food safety and environmental health:

food hazard monitoring

Special Programme COOPERATION

Examples of funded projects (Safety and Quality)

FP6	<ul style="list-style-type: none"> • Safer and environmentally friendly production methods and technologies and healthier foodstuffs ⇒ EU-SOL, BIOEXPLOIT • Impact of food on health ⇒ LYOCARD • Total food chain ⇒ NOCHEMFOOD, SEAFOODPLUS • Development of methods ⇒ PATHOGENCOMBAT • Traceability processes along the production chain ⇒ CHILL-ON 	<p>Total budget: 77.8 m€</p>
FP7	<ul style="list-style-type: none"> • Contaminants in the food chain ⇒ FACET • Nano-devices ⇒ NANOTECT • Food labelling ⇒ FLABEL 	<p>Current budget: 10.9 m€</p>

Supporting innovation in nutrition science

FP6	<ul style="list-style-type: none">• NEW TOOLS for nutrition science:<ul style="list-style-type: none">-Nutrigenomics:-Information on food composition- Nutrient recommendations- Dietary assessment tool• DIET, FOODS and BIOACTIVE COMPOUNDS:	Total budget: 74 m€
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Supporting innovation in nutrition science

FP7

- **NEW TOOLS for nutrition science:**
 - Systems Biology and bioanalytical tools for nutrition research
 - Optimal human cell function and nutrition
 - Development of biomarkers for health-promoting functions
- **DIET, FOODS and BIOACTIVE COMPOUNDS**
 - Bioactive compounds in traditional food products
 - Development of functional foods and ingredients
 -
 - Role and mechanisms of action of plant bioactive compounds

Current
budget:
32 m€

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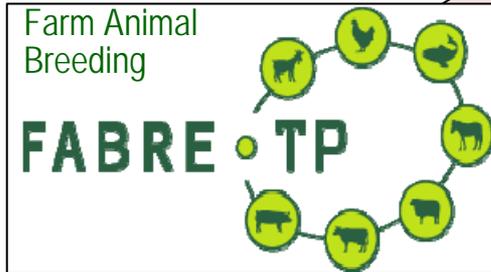




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European Technology Platforms (ETP)



K B B E



Food, Agriculture and Fisheries, and Biotechnology

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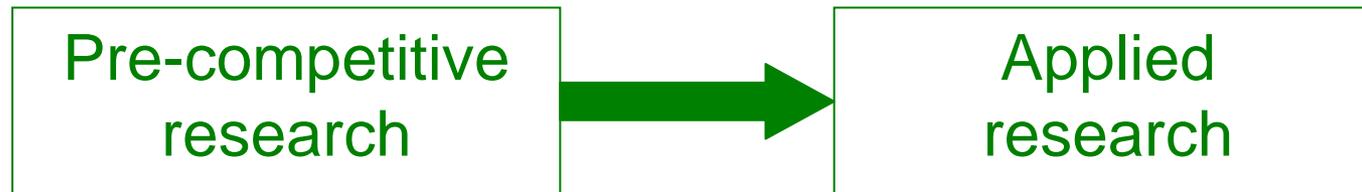
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Public-Private Partnerships (PPP)

- Leveraging private investment with the support of public funding
- At regional, national and transnational level





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Approaches to “Better Funding”

- Topics chosen according to current needs
 - EC regularly seeks advice from stakeholders (PC, ETPs, AG ...)
- Promotion of key technologies
 - e.g. Bio- and emerging technologies in the Work Programme
- More attractive conditions for industry (and in particular SMEs)
 - Applied research & demonstration
 - Special funding conditions for SMEs
- Foster co-operation
 - Co-operation is core for the funding schemes in FP7



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Challenges

- Shift from low to high knowledge intensive activities
- Positively associated with income per head
- Creating a ready market for new and innovative products
- At the heart of the wealth generating process

Source: Adapted from A. Sentence,
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Contributions

- The current challenges for the agro-food industry (innovation) and consumers protection will rely on more robust scientific data .
- Innovation can be 'radical' or 'incremental'. Both contribute to the development of the food sector.
- EU food research programmes try to respond to the needs of increasing public health (prevention), wealth (occupation) and competitiveness (Innovation).



Useful links

- EU Research: <http://europa.eu/pol/rd>
- Sixth Framework Programme: <http://cordis.europa.eu/fp6/>
- FP6 project catalogue for food quality and safety: <http://cordis.europa.eu/food/projects.htm>
- Food quality and safety research in FP6: http://ec.europa.eu/research/fp6/index_en.cfm?p=5
- Seventh Framework Programme: <http://cordis.europa.eu/fp7/>
- Research DG Site: <http://ec.europa.eu/research/>
- RTD Info Magazine: <http://ec.europa.eu/research/rtdinfo/>
- Information Requests: <http://ec.europa.eu/research/index.cfm?pg=enquiries>
- Network of National Contact Points: http://cordis.europa.eu/fp7/get-support_en.html

