Innovation Research for the Food Sector

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Optimization of Knowledge Transfer / Exchange in the Common Strategic Framework

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FOOD & DRINK SMES: A DRIVING FORCE FOR DIVERSITY

310,000 companies: more than 95% are SMEs.

SMEs generate:

49% of Food & Drink turnover
63% of Food & Drink employment

32,300 companies of which
6,500 companies > 9 employees
2,600 companies > 19 employees

Source: The EU Food and Drink (F&D) Industry in Figures
9/06/2010

Source: Data & estimates Federalimentare 2010
INDUSTRY COMPETITIVENESS DEPENDS ON INNOVATION & KNOWLEDGE TRANSFER

- Increase the **SPEED** and **QUALITY** of **INNOVATION**;
- Increase **R&D SPENDING**;
- Focus, align and **COLLABORATE** between stakeholders;
- Optimise **KNOWLEDGE CAPTURE** and **DISSEMINATION** of knowledge towards SME’s;
- Adapt and incorporate **MODERN PRODUCTION PHILOSOPHIES** which have proven successfully in other market sectors and which allow producers to remain at the forefront of the market change.

Source: Food for Life
**EUROPE**

**INNOVATORS GROUPS**

Major innovators: 41%

- Process major innovation: 23%
- Product major innovation: 31%
- Both: 13%

Only 15% of all F&H firms did not introduce innovations in the last 3 years

**Improvers who did not introduce major innovations:** 44%

Source: SSA “SMEs-NET” 2006
BARRIERS & CONSTRAINTS OF INNOVATION OF FOOD INDUSTRY SMEs

1. Emotional, cultural barriers;
2. Trust, social capital;
3. Lack of information;
4. Lack of knowledge / skills;
5. High cost compared to available resources;
6. Limited resources;
7. Time constraints;
8. Legal barriers;

SOURCE: SMEs TASK FORCE 2008
WHAT IS KNOWLEDGE TRANSFER?

• Knowledge transfer is a **wider concept** than "technology transfer": it includes other transfer channels, such as mobility of staff, publications.

• Knowledge transfer involves the process of **capturing, collecting** and **sharing knowledge, skills** and **competence**.

• It includes both **commercial** and **non-commercial activities**.

• Knowledge transfer can be defined as a **multi step process** that can **facilitate** the **transfer** of:

  – information;
  – technological methodologies;
  – results;
  – products;
  – practical tools

  from research providers to food industry/SMEs.
REQUIREMENTS FOR SUCCESSFUL KNOWLEDGE TRANSFER

• If we want to achieve that research results should be exploited by the SMEs for innovative
  – products
  – processes
  – services
  – systems
  – markets
we need to convince the SMEs about the benefits and feasibility for investing time, efforts and money into the application of these results in the R+D activities.

• The industry/SME is the one of the main clients of research activities.
In today’s global world, generating new knowledge and turning it into new products and services is crucial to maintain and enhance the EU’s competitiveness.

The importance of improving knowledge transfer between public research institutions and third parties, including industry and civil society organisations is a main key area for action for the Commission.

The importance of knowledge transfer in boosting competitiveness and contributing to the effectiveness of public research is increasingly recognised by Member States, and is reflected in their National Reform Programmes developed under the Lisbon strategy.

Source: European Commission
KNOWLEDGE TRANSFER, IN THE COMMISSION VIEW, INVOLVES:

“processes for capturing, collecting and sharing explicit and tacit knowledge, including skills and competence. It includes both commercial and non-commercial activities such as research collaborations, consultancy, licensing, spin-off creation, researcher mobility, publication, etc. While the emphasis is on scientific and technological knowledge other forms such as technology-enabled business processes are also concerned”.

Source: European Commission
**EU BACKGROUND**


- In order to follow-up and promote the implementation of this Recommendation and Code of Practice, a monitoring and reporting system is being set up: **Knowledge Transfer Study 2010-2012** (5.11.2010).

- In **Europe 2020 Flagship Initiative** Innovation Union SEC (2010) 1161 (6.10.2010): “The Commission will facilitate effective collaborative research and knowledge transfer within the research Framework Programmes and beyond”.

*Source: European Commission*
• **Recommendation n. 10** - Better support for SMEs (Small Business Act).

• **Recommendation n. 12** - Simplify access to funding research programmes (Make better use of some of the FP7 funded projects which support technology transfer and dissemination of results; Increase awareness of existing projects aimed at facilitating technology transfer to SMEs).

• **Recommendation n. 13** - Facilitate access of agro-food SMEs to global markets.

• **Recommendation n. 14** - Support effective integration of SMEs in the food chain.

Source: CIAA
EU COMMISSION HIGH LEVEL GROUP
RECOMMENDATIONS

- **Recommendation n. 17** - Increase attractiveness of European agro-food industry (Commission, Member States, Stakeholders to explore feasibility of setting up sector-specific prizes, such as the European Food Processing Implementation Award established within the project 'HighTech Europe' and targeted towards SMEs for food processing innovations that have been developed along a knowledge transfer chain within less than 3 years).

- **Recommendation n. 21** - Enhance research and innovation efforts.

- **Recommendation n. 22** - Better use the instruments available in research and innovation policy.

- **Recommendation n. 23** - Support development of new food technologies.

Source: CIAA
• According to the **Europe 2020 strategy**, research and innovation activities should be better linked and new instruments to strengthen the innovation dimension should be pursued.

• **SMEs important drivers of innovation**, their involvement in research and development must be increased with the urgent need for translational research, to shorten the time taken to move forwards research into practical application. SMEs and their Associations should be able to benefit from specific grants (i.e. new funding instruments) to foster the Transfer of Technology from Research to Industrial Application (**bottom – up approach**).

• Introduce **additional ad hoc SMEs programmes** and measures at EU level in order to foster the Transfer of Technology from Research to Industrial Application.
- Strengthening the Europeanwide innovation process,
- Improving knowledge transfer &
- Stimulating European competitiveness across the food chain

are important priorities of the European Technology Platform Food for Life, created under the auspices of the Confederation of the Food and Drink Industries of the EU (CIAA) in 2005, and of the network of 36 National Technology Platforms.

Source: ETP Food for Life
Improved competitiveness through:

- support of research exploitation by best practice transfer models for optimum impact.
- effective and direct communication strategies (between research, industry and consumers).
- promotion of “innovation use” by raising personnel expertise via specific training and education schemes.

➢ Special focus on SMEs

Source: ETP Food for Life
**KEY THRUST 1**
Improving Health, Wellbeing & Longevity

**COORDINATORS:**
- INRAN - U.ROMA1
- GRANAROLO UNILEVER

**WORKING GROUPS LEADERD:**
- BARILLA
- CON.BIO
- ERIDANIA SADAM
- GRANAROLO
- FATT. PETRINI GENTILINI
- U.DEL SANNIO
- U.ROMA1

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**THE NEW STRUCTURE MAY 2011**

**COMMUNICATION TRAINING TECH-TRANSFER COMPANY BUILDING**

**COORDINATOR:**
- TECNOALIMENTI

**CORE GROUP:**
- AGRICONSULTING,
- AITA, EURIS,
- FEDERALIMENTARE,
- NEXEN ENGINEERING,
- SAPLO PERONI,
- TECNOALIMENTI, U. NAPOLI FEDERICO II

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**KEY THRUST 2**
Build Consumer Trust in the Food Chain

**COORDINATORS & WORKING GROUPS LEADERS:**
- UNIBO
- BARILLA
- FERRERO

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**KEY THRUST 3**
Sustainable & Competitive Food Production

**COORDINATORS & WORKING GROUPS LEADERS:**
- ENEA
- INALCA
- CREMONINI
- SAPLO PERONI

Source: Italian Food for Life
COMMUNICATION
Establishing an effective dialogue with society

TRAINING
Providing training and dissemination services for different stakeholders in the agro-food sector

TECHNOLOGY
TRANSFER
Techno-Scientific Mediators

COMPANY BUILDING
Factibility of companies networks

Source: Italian Food for Life
TRUEFOOD
Traditional United Europe Food

Guideline on effective knowledge and technology transfer activities to SMEs in the food sector with particular focus on traditional food manufacturers
CONCEPT OF TECHNO-SCIENTIFIC MEDIATORS

– **Industry based mediators** can be very effective in knowledge and technology transfer:
  
  • understanding the needs, expectations, language of the industry
  • ability to convert research results into solutions.

– Establishing a “Training and Dissemination Unit” (TDU) at national food industry federations.

– **Additional benefits. Capitalisation on:**
  
  • the existing network of SMEs/food businesses
  • the existing communication channels
  • the trust of the SMEs in their own trade associations
ESTABLISHING SUSTAINABLE INFRASTRUCTURE

• Training & Technology Transfer Mediators in 35 countries (Truefood model)
  • long term commitment
  • functions, jobs at Food Industry Federations

• Innovation networks with the Industry and the researchers built up, strengthened in 35 counties.

• Concept of using mediators to improve knowledge transfer to SMEs is built in the Strategic Research Agenda + Implementation Plan of the ETP “Food for Life” and several NTPs.
ROLE OF NATIONAL TECHNOLOGY PLATFORMS MEDIATORS

- **NTPs training & technology transfer mediators** can significantly increase the effectiveness of innovation support activities for **SMEs** and provide food SMEs such support services, which meet their specific needs:

  - Provision of an **efficient service** to SMEs (identifying and dealing with appropriate partners).
  - **Screening SMEs needs** and **finding potential solutions** from **RTD providers**, including other sectors not targeted to supply food businesses.
  - **Assistance to researchers** to find commercial applications for their results.
  - **Matchmaking**: SMEs and RTD solution providers.
  - Provision of **balanced, independent view** and assistance to consider interest of all parties – fair agreement on **IPR**.
KNOWLEDGE TRANSFER PROCESS FROM THE POINT OF VIEW OF A COMPANY: MAIN PHASES

• **Identification** and **definition** of the problem to be solved or the opportunity to be exploited by innovation, and definition of the innovation needs;

• **Generation** of **new ideas** and/or gathering **new knowledge** from external sources;

• **Checking** the **feasibility** of the project;

• **Building** in the **new knowledge** and the **necessary resources** in new products, processes, services, systems, market solutions;

• **Diffusion** of the **new knowledge** and **skills** within the company;

• **Implementation** of the **new knowledge**;

• **Preparation** of the **market introduction** of the new products, services;

• **Integration** of the **new knowledge** into the existing knowledge base of the company and **combining** it with adequate resources to form a new competence and **dissemination** of those part of the results which can be made publicly available.
SMEs ARE THE REAL BENEFICIARIES OF THE NEW KNOWLEDGE & TECHNOLOGY

- SMEs have their own languages, local and regional markets and direct relationships with retail and consumers.

- Therefore every new techno-scientific knowledge must be declined to be transferred to SMEs in order to be received in:
  - products and processes,
  - entrepreneurial languages,
  - a serious analysis of the needs and of the market,
  - a serious cost-opportunity evaluation,

so that the relationships between knowledge producers (researchers, government agencies, academia, professionals, technicians) and concrete applications on an industrial scale are valid, efficient relationships which respect industrial realities and consumers.
THE TECHNOLOGY TRANSFER PROCESS


Figure 3a: Sources of innovation
PUSH VS. PULL

Figure 3b: Technology transfer – Technology push

Figure 3c: Technology Transfer – Demand pull
A SOLUTION?

Companies

Own R+D

Technology transfer

Research Institutes

Universities

MEDIATORS
SOME POLICY IMPLICATIONS

1. Flexibility for SMEs (local cultures and languages, differentiated approaches and informal relationships with SMEs);

2. Innovation in SMEs affects pervasively their organization, processes, products and skills;

3. Incremental innovation in SMEs must be given priority, as opposed to radical innovation which is more appropriate for other sectors such as: * Robotics, * Transport, * Energy, * ICT and * Pharmaceuticals;

4. The level of dynamism within a company is not dependent on its size. Product and process innovations are concentrated into SMEs which are real complete innovators;

4. European policymakers should not be afraid to allocate human and capital resources to “bottom-up” innovation processes which meet the needs of consumers: European policy has to facilitate the expansion of technology frontiers;

5. Benchmarking on technology transfer and tools promoting also company law and financial innovation are fundamental to understand success stories and efficient and innovative strategies for SMEs;

6. Networking and clustering are necessary to become a critical mass and transfer knowledge, but could be insufficient as SMEs lack in capitalization and marketing tools;

7. It could be crucial, in the long term, to keep cultivating business culture and risk-oriented culture.

SOURCE: SMEs TASK FORCE 2009
RECOMMENDATIONS ON TT FOR THE ETP “FOOD FOR LIFE”

• Technology Transfer services and coaching in innovation process should be offered to Basic SMEs (cca 85-90% of the SME population) under NTPs and the related technology transfer / technical centres.

• Priority has to be given to training of:
  – all types of food industry SMEs on techniques of managing innovation and commercialisation of outputs of R+D projects, business skills,
  – mediators and university technology transfer staff on technology transfer, commercialisation support, networking and knowledge management methods.

• Equal emphasis should be given to the distribution and enhancing the use of existing knowledge from R+D, than to the generation of new research results. Actions include developing best practice guides for enhancing innovation and technology transfer and put more emphasis on structuring of available knowledge from R+D activities on transferring and diffusion of it within the SME community.

• Promoting the idea of establishing National Food Industry Technology Centres under the umbrella of the NTPs.

SOURCE: SMEs TASK FORCE 2007
RECOMMENDATIONS ON TT
FOR THE
EU & NATIONAL FUNDING BODIES

- Support increasing the innovation absorption capacity of SMEs through public funding of training adequate number of TSMs on innovation coaching, knowledge management and networking.

- Encourage and support better transfer/diffusion of the available knowledge created by R+D to the SMEs through public funding of:
  - establishing and operating technology transfer centres governed by the food industry and related to NTPs;
  - schemes for providing personnel innovation coaching provided by the national technology transfer centres;
  - development of good practice industry guides, manuals and benchmarking tools for different technology disciplines and commercialisation activities;
  - converting existing knowledge into new products, processes and services.

- Change evaluation criteria for funding of innovation activities of SMEs and give priority to innovation aspects rather than to the aspects of scientific excellence:
  - acknowledge proofs of TT activities as reference for the knowledge of applicants at least as equivalent to scientific publications;
  - include the requirements of TT and training elements into the evaluation criteria for public funded research projects as well.

SOURCE: SMEs TASK FORCE 2007
• Information of SMEs about research results in itself has a low impact on the innovation of SMEs. A **systematic innovation management support** with **ongoing interaction** with the company is necessary for achieving successful innovation. Therefore research organisations should make efforts to understand the way of thinking of the industry and

• consider the use of mediators as interface between the industry and themselves or employ specialised staff for **technology transfer** and extension activities

SOURCE: SMEs TASK FORCE 2007
THANKS
FOR YOUR KIND ATTENTION!