June 20, 2011 (Monday) Pre-Congress Seminars

Ministry of Rural Development **Kossuth Lajos tér 11. Budapest V.**
CONFERENCE ROOM **Monday 10:00 – 18:00**

1.2. NEW QUALITY AND SAFETY REGULATIONS AND DEVELOPMENTS ON THE AGRIFOOD AREA

Seminar Chair: Zoltán Kálmán, Ministry of Rural Development, Hungary

12.25 Innovation in the Food Sector through Effective Knowledge Transfer to SME's: Approach and Experiences of the TRUEFOOD FP6 Project

András Sebők and Adrienn Hegyi, Campden BRI Hungary Ltd., Hungary

Sebők, András (Hungary)

András Sebők is the General Manager of Campden & Chorleywood Food Industry Development Institute Hungary, also a visiting professor of the Szent István University at Gödöllő on "Food Safety and Quality Management".

Graduated as chemical engineer (MSc) specialised in food science at the Chemical Engineering Faculty of the Technical University Budapest in 1975. Ph.D. in food science (thesis: on food rheology) in 1984 at the Technical University of Budapest / candidate of food science – Hungarian Academy of Sciences, 1984). Diploma in Management Studies (Brunnel University, 1994). From 1975 – 1997 he worked in the frozen food industry in different positions from development engineer to deputy director of the R+D Institute. He has 33 years practical research and development and management experience in the food industry, initially with special reference to all types of frozen foods including ready meals, later extended with chilled and ready-to-eat foods but in the last 16 years in an increasing number of important sectors including flour milling and baking, canning, poultry, ready-to-eat products, meat and snack products, ingredients. His experience includes the management of R+D, training and advisory and technology transfer programmes including several international ones and translation of results into new product development, new processing methods and market research, into industrial application especially at SMEs with main focus on frozen and chilled foods (7 patents). HACCP, GHP and quality management and auditing of food safety management systems. Registered auditor of BRC and IFS systems. His current research area is covering microbiological risk assessment related to chilled and minimal processed foods, shelf-life evaluation, validation and verification of processes, traceability, traditional foods, supply chain management techniques. He has also significant project management experience. He has participated in more than 40 Hungarian and 31 international projects as participant or project/subproject leader. He is author of several books.

How to enhance innovation of the food sector trough effective knowledge transfer to SMEs: approach and experiences of the TRUEFOOD FP6 and AgriFoodResults FP7 projects

András Sebők, Adrienn Hegyi
Campden BRI Magyarország Nonprofit Kft.

Specific character of innovation in the food sector (1)

- Industrial sectors are not uniform by the mode of innovation – at least 4 different types (Martin,S;Scott,J.T. 1999)
- In the food sector **incremental, regular improvement** is more typical than radical innovation

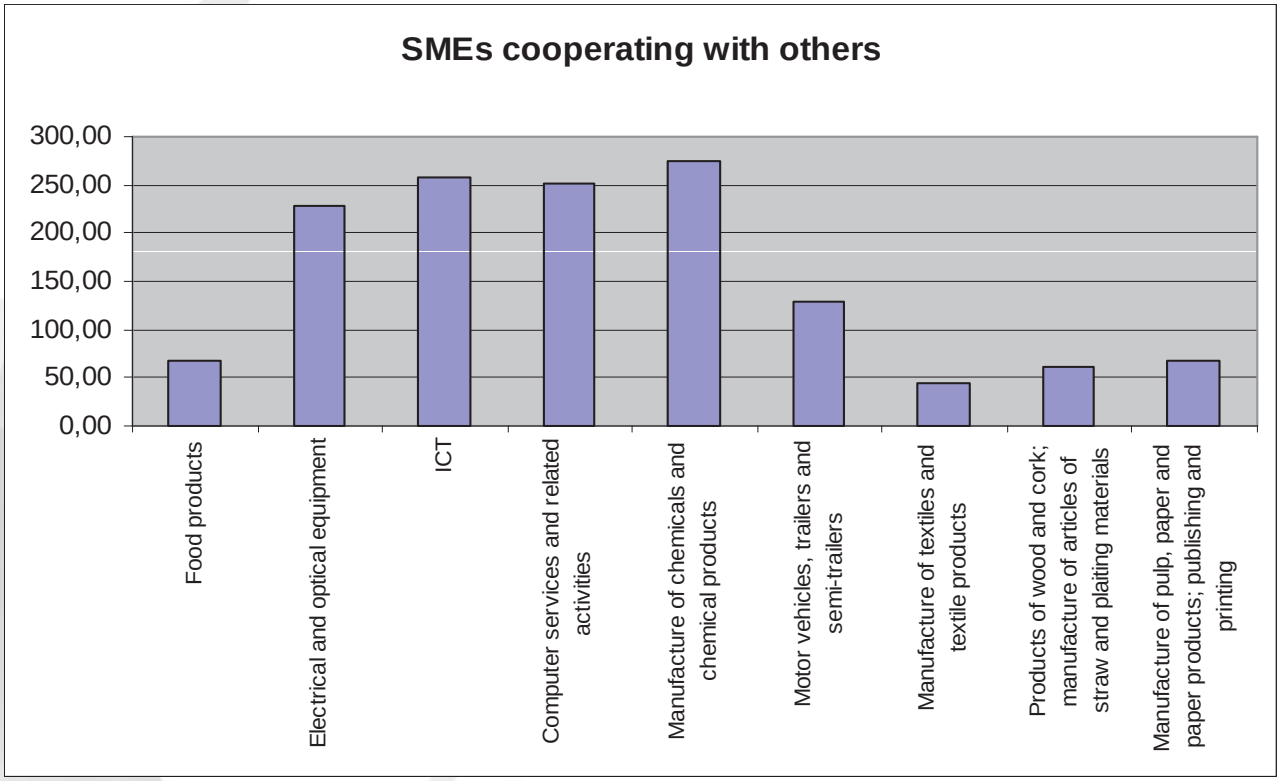
- Food will be eaten – impact on health,
- Radical innovation  **conflict with consumer's preferences**, especially when the character of the food is changed.
  - changes at molecular, sub-molecular level, in composition  food safety and health concerns
  - changes of sensory attributes  consumer rejection (learned nature of taste, food preference)

Specific character of innovation in the food sector (2)

- It is largely based on innovations in the supplying industries/sectors:
  - new raw materials, ingredients, packaging materials, process control techniques, management methods, ICT, etc.

- **Innovation** is based on the **whole value chain**
- Smaller number of breakthrough/high-tech innovations
- More product improvements, line extensions than new to world/new to market products –
  - their role in ensuring product diversity, profitability, growth is still significant
- Low profit margins

Benchmarking of food sector to other sectors



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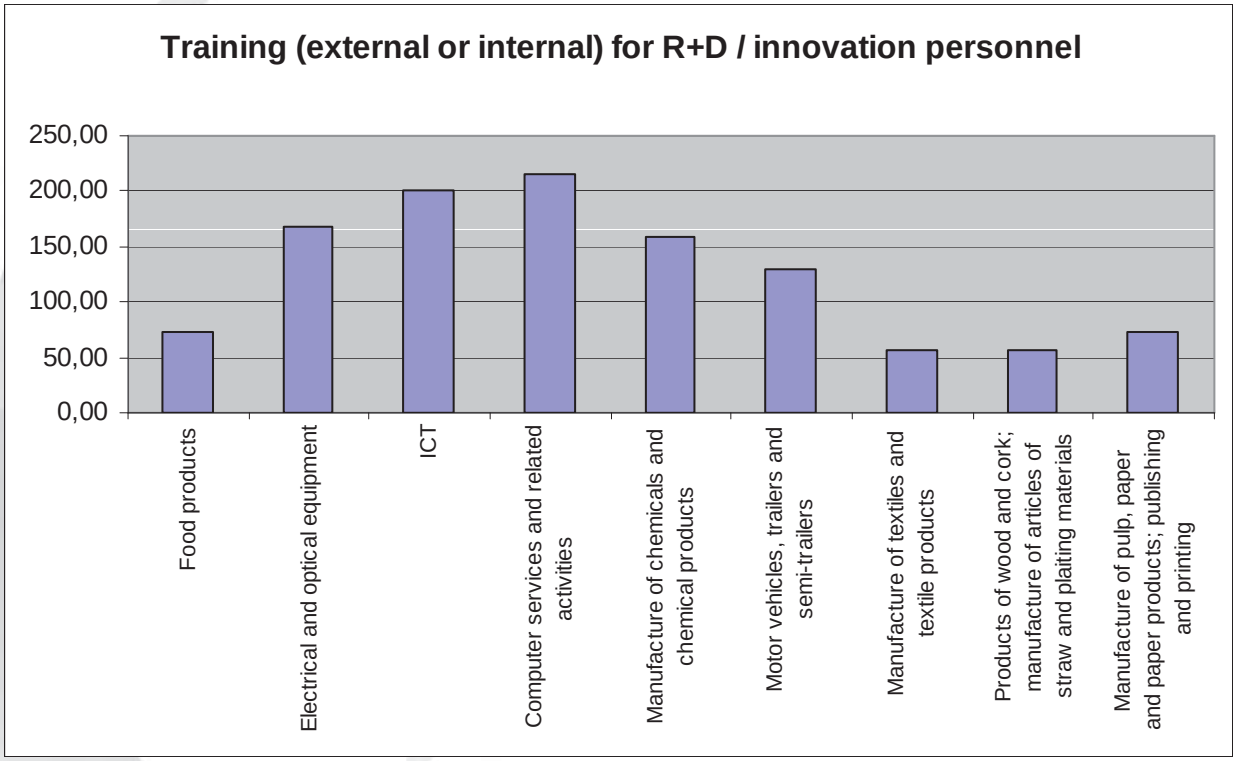
Benchmarking of food sector to other sectors



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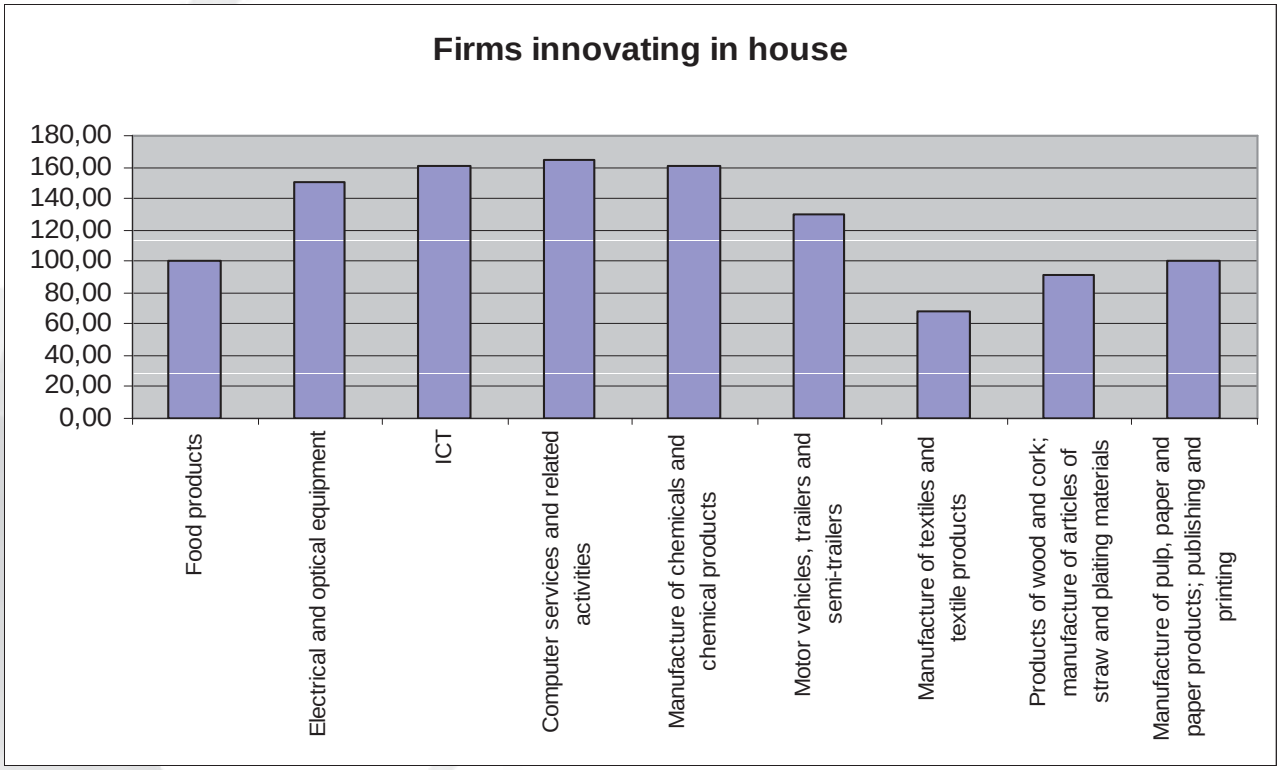
Benchmarking of food sector to other sectors



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SMEs and food industry innovation

- Users of research results are not uniform – segmentation is necessary (EURAB 2004)
- Relatively small number of real innovators (Technology pioneers) (cca. 2-3%), followed by ”Leading technology users (10-30%)”.
- ”Technology adopting enterprises (20-30%)” and ”Technology basic enterprises (non-innovators)” represent **the majority** (60-70%)
- These two groups (70-85%) are **reluctant to take risks**
  - prefer to adopt existing, tested knowledge
  - follow successful examples of real entrepreneurs
  - prefer to learn from each other, can use **collective activities (share costs) - networking**
- **Actions focused** on the **highly innovative** companies reach only a **small part of the food industry**

Requirements for successful knowledge transfer

- If we want to achieve that **research results** should be **exploited** by the SMEs for **new**
  - 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
  - results have to be made **accessible** for them in appropriate format, style, place, at the right time
- The **industry/SME** is the one of the main **clients** of research activities
- Lessons can be **learned from marketing**

Similarities in communication of research results and marketing

Marketing mix

Dissemination mix

Product: research results

- What is the product?
- Who are the targeted users?
- Which needs of the users will be served (e.g. for which problem can be solved)? What are their benefits: profit, legality, reputation, growth of business, market, other?
- How they will use the results?

- Research results have to be **converted to practical solutions** – integration into the state of the art

Product: types of research results having relevance for the industry, particularly SMEs

- Solution for a problem
- Identification of a new opportunity, which can be exploited trough the use of the new knowledge
- Assistance to a solution for a problem (tools, methods, systems, established rules / relationships)
- Information, data, which can be used for solving a problem,
- Timely identification of a problem before it is getting critical (breaking old beliefs, false trust)

Not only complete solutions, but parts, small bits of information, knowledge may be valuable

Price

- **Considerations** from the **design phase** of the project and the status should be **reviewed regularly** with the progress:
  - Identification of results, which form an intellectual property and need protection
  - Results publicly available vs. availability for a fee
  - Cost of converting the results into practically applicable format
  - Need of the clients for individual adjustment, support, services
  - What is covered by the original funding?
  - Price of competitive ”products”, services
  - Principle of calculation of the price:
    - Customer focused, competition based, cost based

Communication (dissemination) channels

Communication channels: means to ensure that the

- new knowledge, information, service is available
- for the target audience
- in right time

  right place

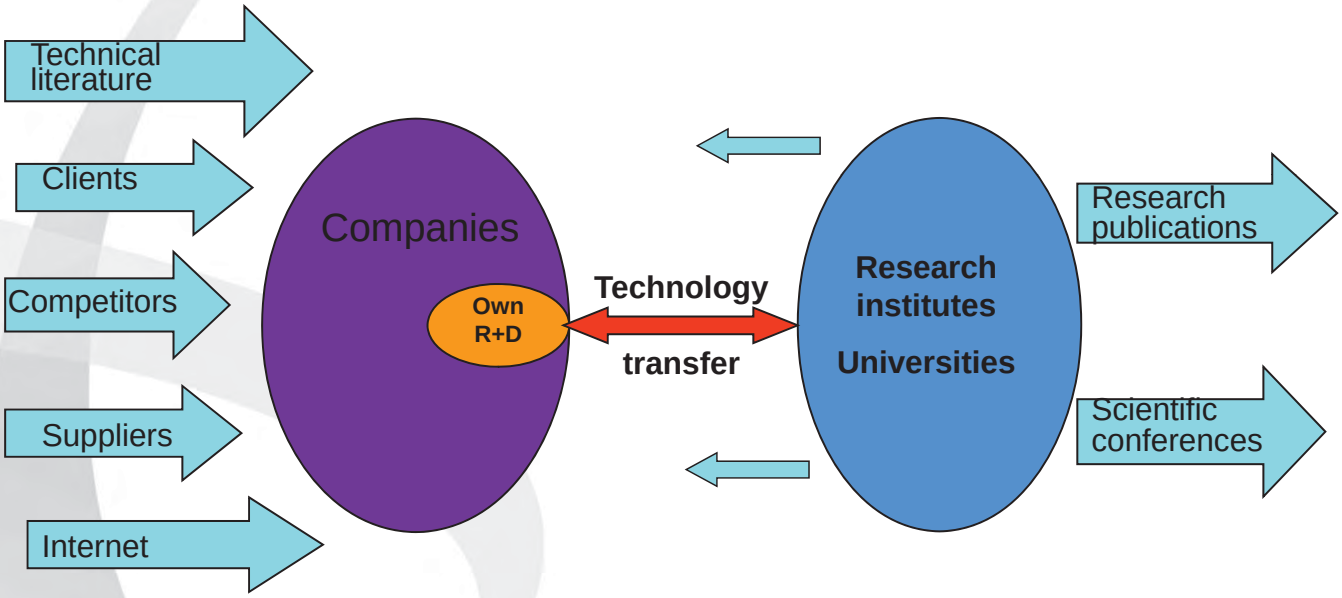
  at affordable costs/price
- Different communication channels are necessary for the food SMEs and the policy makers than for the scientists.

Communication (dissemination) channels

- Main communication channels
  - personal, personalised for the users, direct
  - personal, non-personalised for the users, direct
  - physical delivery of the information holder to the users
  - internet
    - passive
    - active
  - mass media
  - networks:

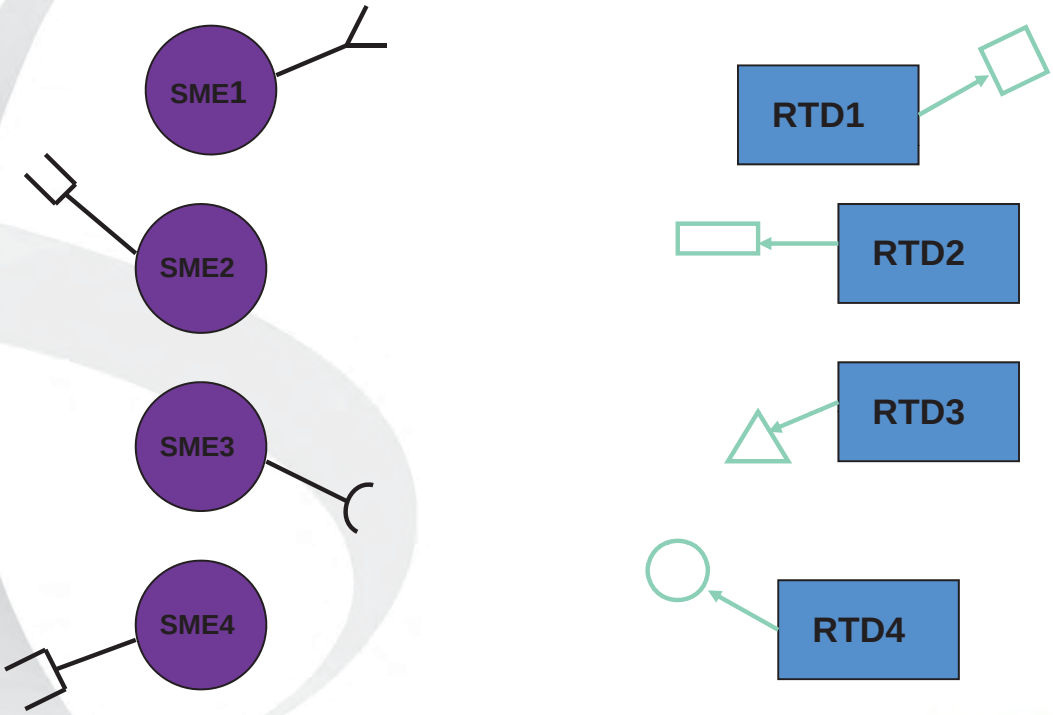
    clusters, national technology platforms, industry collective research panels

Sources of innovation



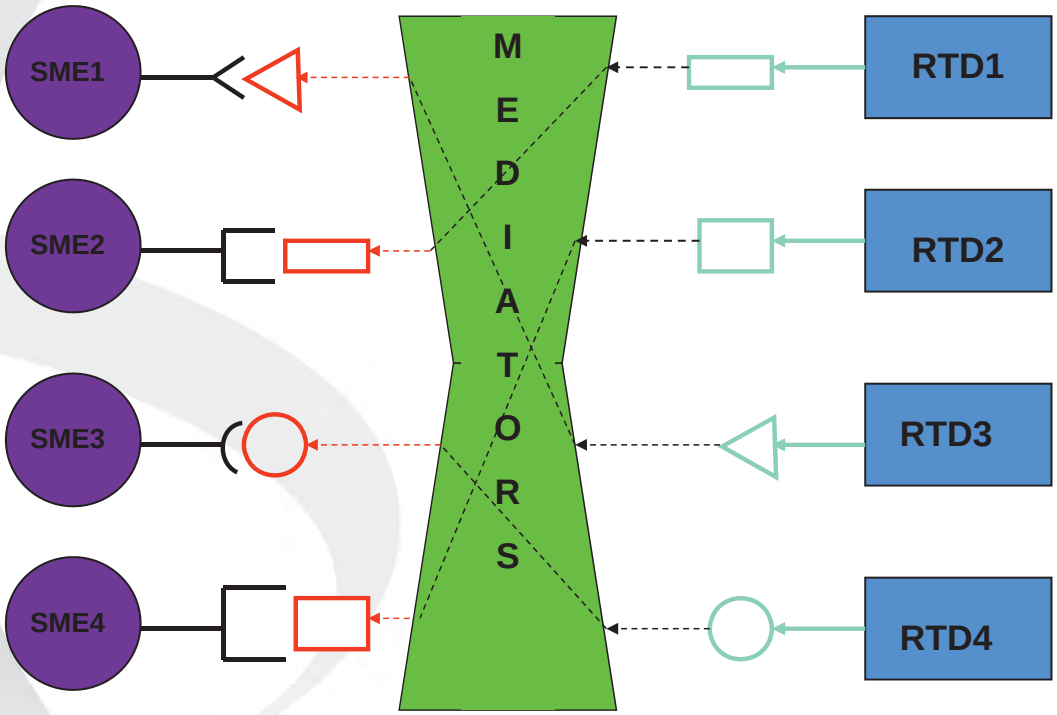
Source: SMEs-NET

Technology Transfer – Technology push



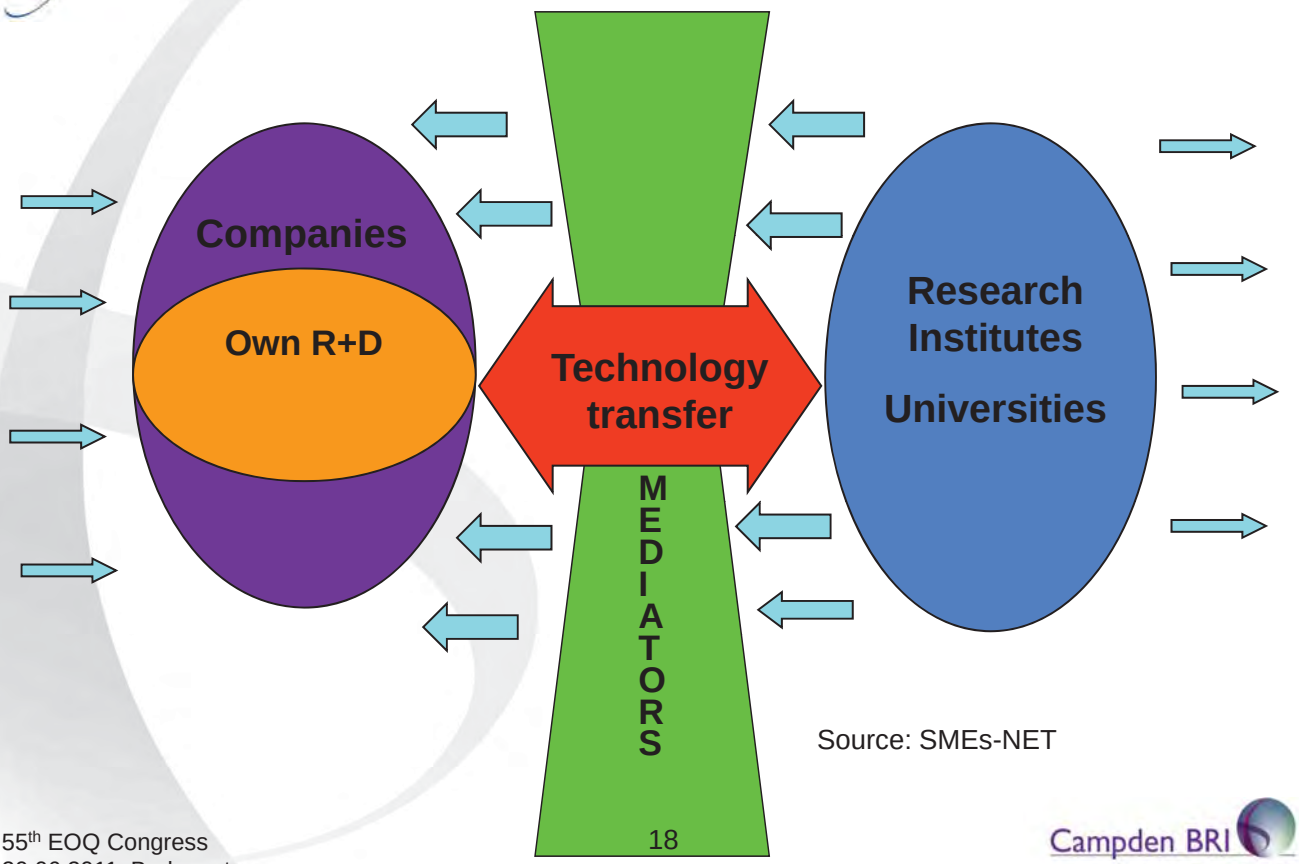
Source: SMEs-NET

Technology Transfer – Role of mediators: Demand pull



Source: SMEs-NET

Role of mediators: The solution



Source: SMEs-NET

Role of intermediaries

- **Matchmaking**: SMEs and RTD solution providers
- **Reducing** and **handling conflicts**, creating dialogue, assitance to develop **formal agreement**
- **Reduction of technical**, **financial**, **market risks** through effective, shared cost, innovation support services:
  - Not only technical, but project management, commercialisation, marketing, business development, innovation financing, IPR handling;
- Identifying **training needs** and proposing relevant training
- Need for a **one stop** access point for all support services - tailor made following a structured approach
- **Pilot trial** (TRUEFOOD-TDUs of 11 food federations)

Concept of ”techno-scientific mediators” (TSMs)

- 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

Networking

- Networking can generate innovation through enhanced communication and direct links between network members
- National Technology Platforms are nationwide networks focusing on the precompetitve stage of innovation– open to competitor companies
- Industry collective research panels are thematic networks focusing on the precompetitive stage of innovation – open to competitive companies
- Innovation clusters are focused on close to market innovation – more confidentiality, within limited geographical distance – exploitation of complementary resources, capabilities and resources

National Food Technology Platforms of ETP Food for Life

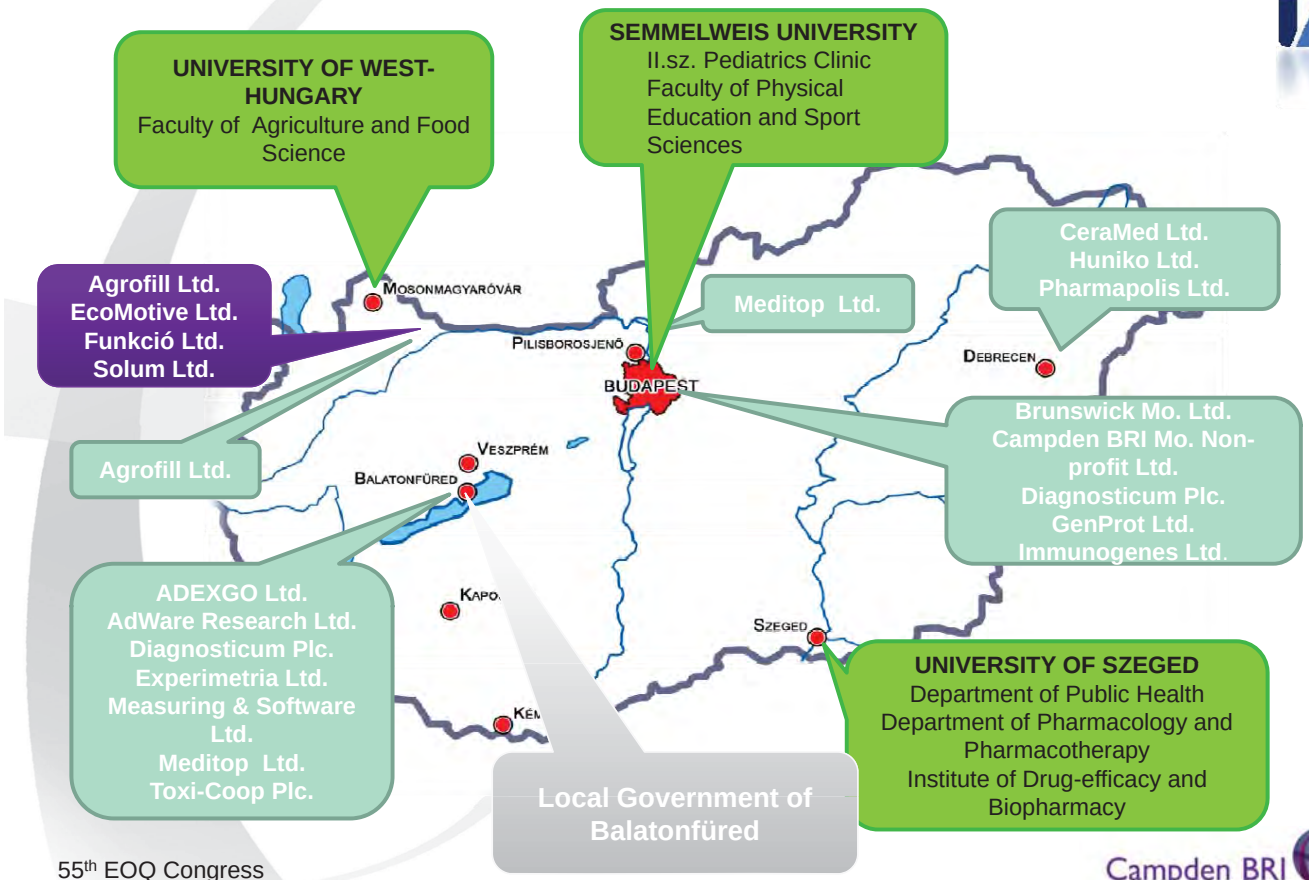
- National forums, for implementing the programme of the ETP, adjusted to national needs and facilities
- Dialogue between industry/SMEs, research providers, government/funding bodies, consumer's organisations, other food chain members
- Clusters can be members, contributors
- National languages
- NFTPs can act as hubs for consultations and dissemination

Example: PharmAgora cluster

- Aims: collaboration for more efficient market entry, strenghtening the market position and the lobbying power of the members
  - access to complementary knowledge
  - joint use of complementary resources, capabilities and competences
- Area: health including food and physical activity and pharmaceutical industry/ 2008 - 1st accreditation
- Systematic search for collaboration along the chain (members and external partners)
- Current members: 18 SMEs, 3 universities,1 non-profit research organisation, 1 large company, 1 local government

www.pharmagora.hu

PharmAgora Cluster



55th EOQ Congress
20.06.2011, Budapest

www.pharmagora.hu

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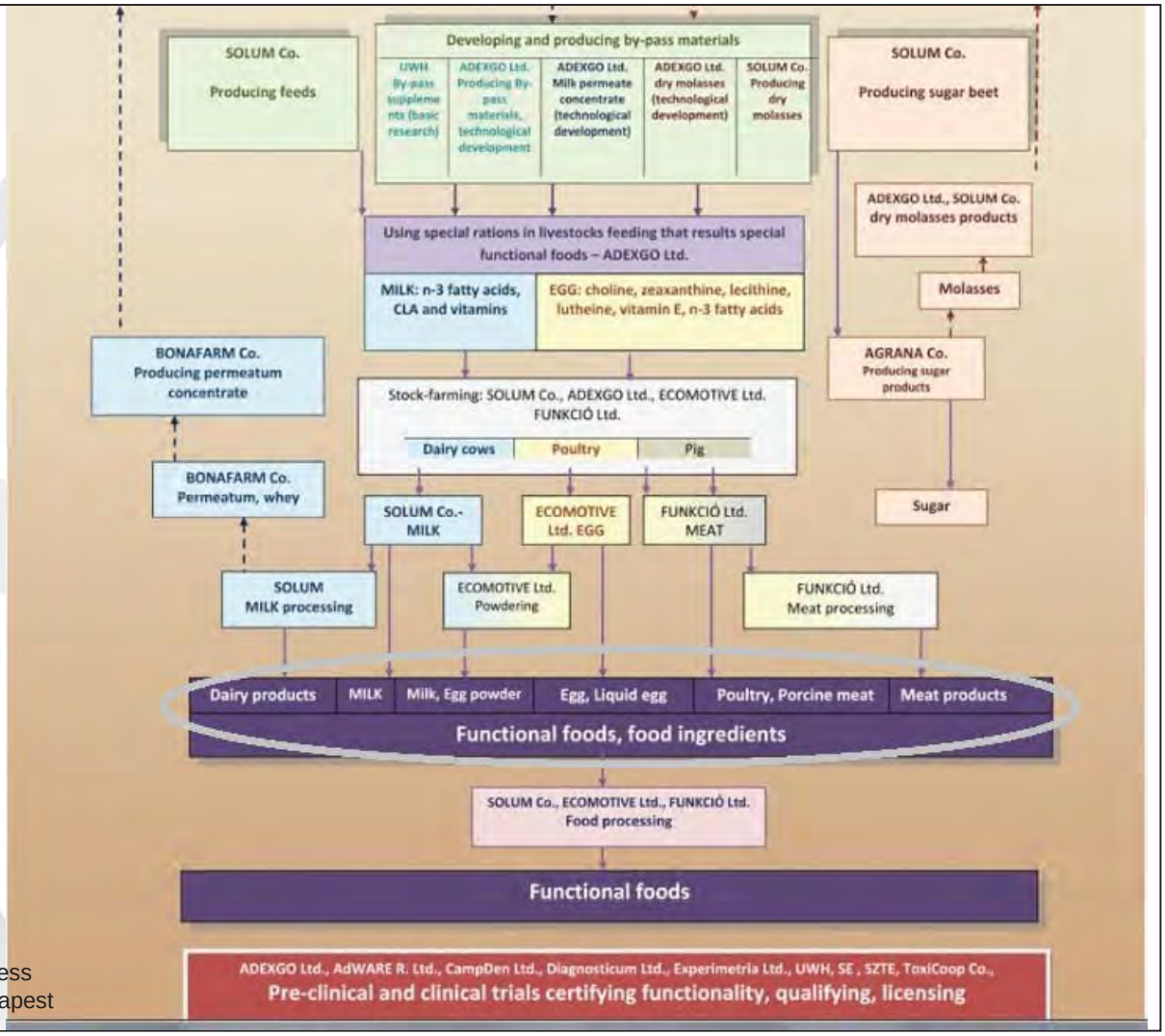
food and drink innovation

RESEARCH AND DEVELOPMENT	PRODUCTION	SERVICES
➢ Functional foods ➢ Dietary supplements ➢ Pharmaceuticals (generic) ➢ Pre-clinical methodology ➢ Pre-clinical equipment ➢ Medical diagnostic methods (devices) ➢ Hardware/software, data structure	➢ Food ➢ Pharmaceuticals ➢ Diagnostics ➢ Recording systems for pre-clinical studies ➢ Cardiovascular ➢ Gastroenterology ➢ Nervous system, behaviour ➢ Electrophysiology ➢ Cell biology ➢ Medical diagnostic devices ➢ Fittness systems	➢ Food technology: R&D related technical troubleshooting services, ➢ Food safety and quality management, ➢ Food chain management, ➢ Knowledge management, ➢ Organising pre-clinical, pharmacological and efficacy trials ➢ Organising and monitoring clinical trials ➢ Data-management and biostatistics ➢ Quality assurance beyond the food sector, ➢ Independent audit (GCP, GLP) ➢Hardware/software validation

PORTFOLIO



Outputs and products of the chain

- **Functional foods based on increasing the level of bioactive compunds in a natural way:**
  - Omega 3, and CLA rich fresh milk, dairy products, milk powder
  - Multifunctional egg (diabetes II., pre-mature birth giving prevention and supplementary therapy), liquid egg, egg powder
  - Pork meat with high CLA and Omega 3,
- **By-products recycling**
  - Molasses
  - Whey permeate
- **Medical device**
  - Digestion monitoring according to gut motility

Communication activities and tools

Communication actions: activities and practices carried out to deliver
- the intellectual products (research results)
- through the selected communication channels

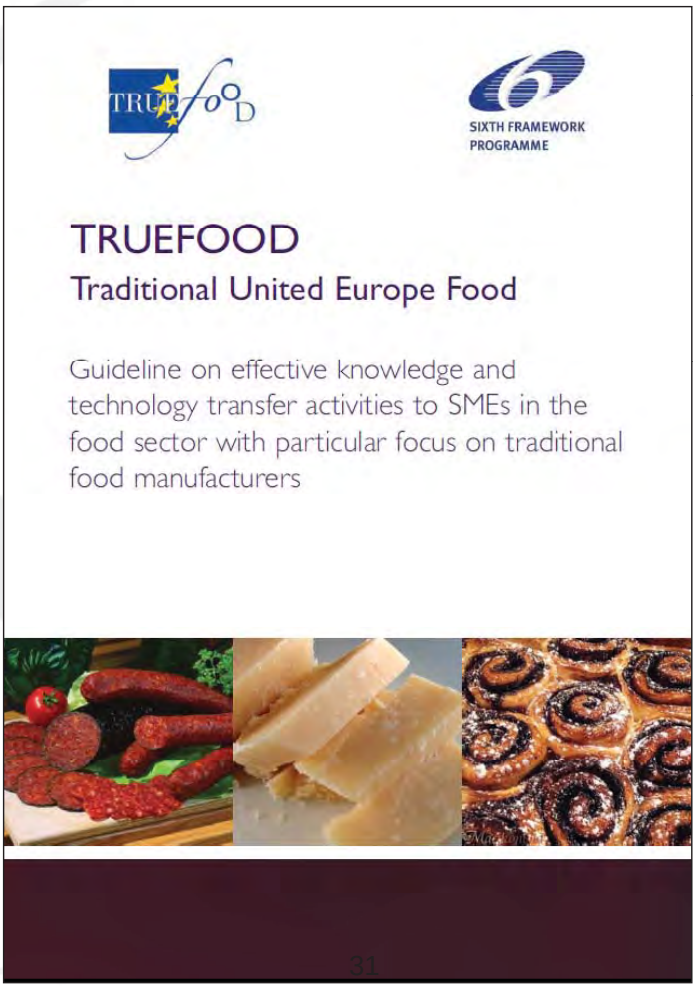
to the targeted users

Communications tools: means for transferring knowledge representing different
- formats
- structures
- style

of **presentation of the content** of the new knowledge
- to ensure proper perception and absorption in the right quality
- adjusted to the needs and level of knowledge of the target audience,

Communication tools

- for personal interactions
  - e.g. events, meetings, personal visits, trainings, etc
- for written information – printed
- for written information – electronic
- for audio-visual tools
- for mass media – printed
  – electronic
- for networking



Guideline on effective knowledge and technology transfer activities to SMEs in the food sector with particular focus to traditional food manufacturers (1)

- An overview of the key practices for effective knowledge and technology transfer to food SMEs
- Collecting and structuring practical experiences, successful practices of TSMs, industry based food research organisations
  - summaries with references to the available guidelines
  - considering specific aspects for food SMEs
- Process analysis approach
- Viewpoint of industry /SME users
- Assistance to reduce cultural barriers.

Guideline on effective knowledge and technology transfer activities to SMEs in the food sector with particular focus to traditional food manufacturers (2)

- Flow chart of the knowledge transfer process
- Identifying needs, hidden needs of food SMEs, creating trust
- Importance of personal contacts with SMEs
- Methods for structuring information
- Role of mediators / Dialogue with the industry
- Converting research results into solutions for industrial problems
- Knowledge and technology transfer tools
- Implementation of projects

Guideline on effective knowledge and technology transfer activities to SMEs in the food sector with particular focus to traditional food manufacturers (3)

- Managing the knowledge and technology transfer process: management and knowledge transfer practices for SMEs and research organisations:
  - complementary support services for SMEs: applications, funding, partner search, project management
  - contracting,
  - protection of IPR
- Success stories

- Available: www.campden.hu/kiadványok.php

Communication tools fitting best to the needs of the industry (1)

- Potential for personal interaction:
  - personal visits
  - presentations on industry meetings, annual assemblies of industry federations, associations
  - presentations on seminars, workshops, organised for the industry (short ones are preferred – cca. ½ day)
  - using meetings of the industry: annual assemblies, industry working groups of food industry federations / associations, national technology platforms
  - trainings, working parties – learning from each other
  - open days
  - consultancy
  - brokerage events (?)
  - socializing

Communication tools fitting best to the needs of the industry (2)

- Retrievable, concise, structured information
  - short summaries on practical results –creating awareness
  - best practices guides
  - short articles in newsletters
  - articles in trade journals
  - web-sites
  - exhibitions (?)
  - inventories of successful cases
  - databases
- Active approach
  - Contact initiated by the disseminating organisation actively – do not wait for the industry to make the first step

Tools: Additional Guidelines from the AgriFoodResults project

- Project Coordinator: ACTIA
- Guidelines of good practices for dissemination http://www.agrifoodresults.eu/guideline.php
  - Conceptual framework for dissemination of research results (dissemination mix)
  - Final guide of good practice for dissemination managers
  - Final guide of good practice for communication towards food SMEs
  - Template for preparation of a Dissemination Plan
  - Final guide of good practice for communication towards policy makers
  - Final guide of good practice for communication towards consumers

AgriFoodResults project: new communication tools

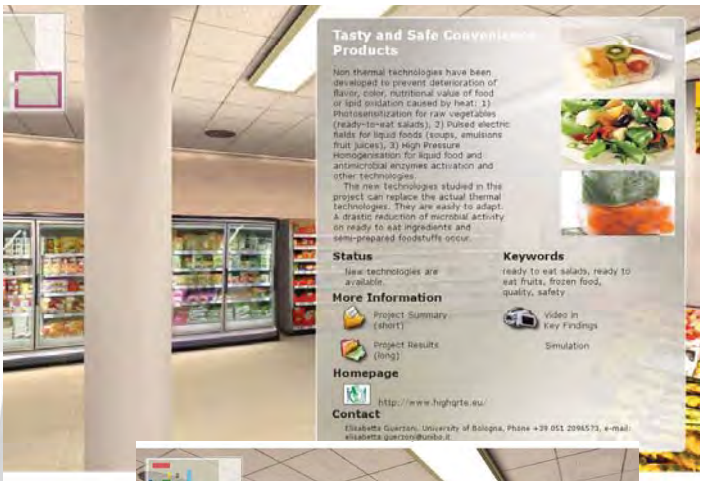
- AgriFoodResults wiki on results of the food research projects http://agrifoodresults.eu/wiki/index.php?title=AgriFoodResults_-_results_of_food_research_projects

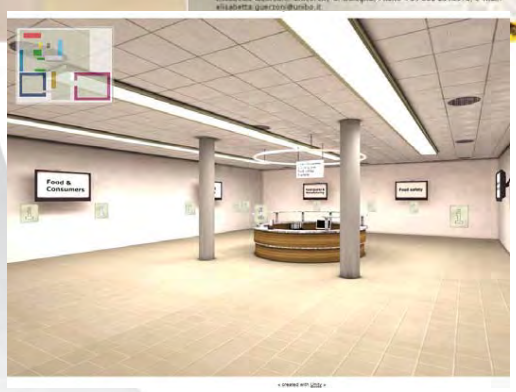
- Virtual supermarket http://www.agrifoodresults.eu/web-3d.php

What is a Web 3D-Knowledge Hot Spot?

Web 3D	=> virtual landscape where I may navigate myself
Hot Spot	=> public access point for easy information transfer
Knowledge Hot Spot	=> point of interest where I easily can access knowledge, e.g. from a digital library etc.

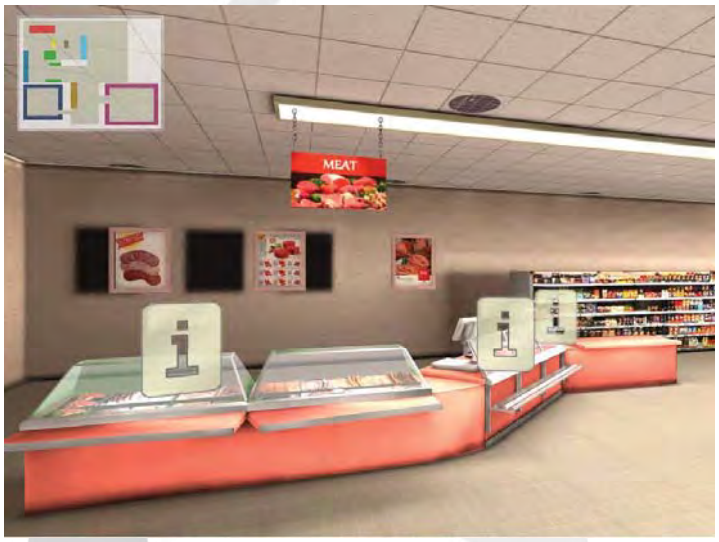
a supermarket with shelves for **product** oriented research results





a bakery representing a **process and technology** oriented approach

an info desk for **cross-sectoral** R&D projects and themes along the food chain



A **Meat Counter** to display the results in the meat sector

A **Feedback Terminal** to improve the super-market according to the needs of food companies

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Benefits for users

- Easy access to research results for „users“ (industry, research, policy)
- New approach – from linear to multimedia, game-like presentation of results
- New tool and support of technology transfer – independent from time and place
- Results easy accessible - always à jours
- Regional / national / European perspective – filter information towards end user’s needs
- Expert system – also for “internal” (EC/NTP/ETP) usage

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Additional measures to enhance innovation of food SMEs (1)

- A **sound balance** of funding of **generating new knowledge** and **implementing** the **exisiting** one
- Promoting and supporting **transfer and diffusion of existing knowledge** into SMEs
- Training researhers to get **practical experience in the industry/SMEs** - industry placements, apprenticeships
- **Benchmarking tools**, self assessment tools and guidance materials – for management, finance, business skills

Additional measures to enhance innovation of food SMEs (2)

- **Personal coaching** , innovation, project and business management, innovation financing, support services for all project activities with external partners / resources
- Improving the efficiency of using resources by **sharing costs**, learning from each other
  - collective research, marketing, clustering
  - collaborative activities, research, supply chain management, integrated approach, networking
- **Financial support** through **all stages of innovation** from the development of the concept to commercialisation and market introductionIn evaluation criteria for public funding
- **Acknowledging technology transfer** and **training activities** as a **performance indicator**

Conclusions

- Industry users, SMEs should be seen and served as clients
- Lessons learned from marketing
- Keep it simple, practical, focused
- It is a process, not an at once activity
- Trust

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