Innovation in the EU Agro-Food Sector

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Innovation in the EU Agro-Food Sector

Outlines:

- Definitions and types of innovations;
- Models of innovations;
- Diffusion of innovations;
- Drivers and barriers of innovations.
What’s an innovation? Definitions

“It is not competition which counts but competition from the new commodity, the new technology, the new source of supply, the new type of organization … competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and output of existing firms but at their foundations and very lives”

(Schumpeter, 1942)
What’s an innovation? Definitions

“Innovation is: an idea put into practice, with success”
(EIP guidelines, 2014).

“new idea turns into an innovation only if it is widely adopted and proves its usefulness in practice”
(EIP guidelines, 2014)

“An innovation is the implementation of a new or significantly improved product (good or service), process, a new marketing method, a new organisational method in the business”
(OECD and EUROSTAT, 2012).
What’s an innovation? Invention Vs Innovation

E.g. iPod by Apple

FIGURE 1.1 Inventions and innovations
Types of innovations

Some examples:

Process Innovation

Products Innovations
Types of innovations

Some examples:

- Marketing Innovation
- Organizational Innovation
Types of innovations

E.g. Organizational Innovation: “Think as a farmer”

Swiss global manufacturer that produces agrochemicals and seeds for agriculture.

Types of innovations

E.g. Organizational Innovation: “Think as a farmer”

Before 2010, Syngenta had a product leader strategy.

Types of innovations

E.g. Organizational Innovation: “Think as a farmer”

In 2010, productivity became a critical issue for many crops

Insights to solve production challenges came by looking to system as a whole.

Syngenta shifted its focus towards a more grower centric approach, rather than a product-oriented one.

Types of innovations

E.g. Organizational Innovation: “Think as a farmer”

Syngenta shifted to a crop-based focus.

Types of innovations

E.g. Organizational Innovation: “Think as a farmer”

Three value positioning (Treacy and Wiersema, 1995)

Types of innovations

Radical
- Significant breakthrough, representing major shift in design
- Swims against the tide
- Starts with the future and works backwards
- Transformation?

Incremental
- Minor modifications to existing product
- Swims with the tide
- Starts with the present and works forward
- Improvement?
Types of innovations

Examples of radical innovation in the Agro-Food sector

- Significant breakthrough, representing major shift in design
- Swims against the tide
- Starts with the future and works backwards
- Transformation?
Types of innovations

Examples of incremental innovation in the Agro-Food sector

- Minor modifications to existing product
- Swims with the tide
- Starts with the present and works forward
- Improvement?
How innovations are generated?

From the **linear models**:

**Science push** (1950-1960) or First generation Innovation Process:

![Diagram of the Science push process]

**Demand pull** (1960-1970) or Second Generation Innovation Process:

![Diagram of the Demand pull process]
How innovations are generated?

To the **interactive** model, or Third Generation Model: innovation as a process of **interactive learning** and collective entrepreneurship.
How innovations are generated?

New frontier to develop innovations, Open Innovation Model:
How innovations are generated?

New frontier to develop innovations, Open Innovation Model:
How innovations are generated?
E.g. Open innovation in the Agro-Food sector: P&G

Breakthrough:
A ground-breaking process to print edible dye images on potato crisps.
How innovations are generated?

E.g. Open innovation in the Agro-Food sector: P&G

P&G relied on internal resources and a network of trusted contacts (av. annual growth rate 4-6%).

In 2004 P&G decided to create “Pringles prints”.

Some challenges on the journey:
- crisp printed as it came out frying;
- multiple colours needed;
- high image resolution;
- comply with food safety requirements.

How innovations are generated?

E.g. Open innovation in the Agro-Food sector: P&G

P&G decided to introduce open innovation approach

Speeded innovative process and lowered financial investment needed to develop new ideas.

Nowadays, P&G is an open innovator giants, with more than 35% of their new ideas coming from outside sources.

How innovations are diffused?

- Innovators: 2.5%
- Early Adopters: 13.5%
- Early Majority: 34%
- Late Majority: 34%
- Laggards: 16%
Drivers of innovation: food sector specific

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<th>Drivers of innovation in Europe (2013-2014, %)</th>
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Food innovation trends in Europe

Source: Data & Trends of the European Food and Drink Industry 2014-2015
Drivers of innovation: food sector specific

**Food innovation trends in Europe (2013-2014, %)**

- Variety of senses: 30.1, 29.5
- Sophistication: 19.1, 19.4
- Easy to handle: 12.9
- Natural: 8.9, 10.3
- Medical: 7.9
- Time saving: 4.6
- Fun: 4.6
- Slimness: 4.5
- Exoticism: 3.3
- Nomadism: 1.8
- Energy, well-being: 1.4
- Vegetal: 0.9
- Solidarity: 0.6
- Ecology: 0.8
- Cosmetic: 0.2

**The 15 most innovative food sectors in Europe (2014, % of total European food innovation)**

- Soft drinks: 7.2
- Dairy products: 6.9
- Savoury frozen products: 6.2
- Ready made meals: 6.1
- Appetiser grocery products: 5.3
- Meat, delicatessen, poultry: 4.9
- Biscuits: 4.9
- Alcoholic beverages, appetisers: 4.3
- Chocolate products: 3.8
- Condiments and sauces: 3.6
- Cheeses: 3.4
- Desserts: 3.1
- Beers, ciders: 2.7
- Ice-creams: 2.6
- Cereals: 2.5

Source: Data & Trends of the European Food and Drink Industry 2014-2015
Drivers of innovation: food sector specific

Examples of innovations in variety of sense and sophistication:

**Investment the basis of ambitious growth programme**

2011 has been an exciting year so far for Border Biscuits, with investment in the capacity and capability of its plant, an extensive redesign of its packaging and website, and the launch of its first advertising campaign on STV. The company has also expanded its portfolio with the launch of its award winning, new Gourmet Goodness range.

- The new Gourmet Goodness range spans six varieties and blends wholesome ingredients such as fruit, seeds and nuts within an indulgent biscuit.
- The launch has been supported by investment in a TV advertising campaign and an extensive redesign of the packaging and the company website.
- A further £2.5m investment is planned to further increase their manufacturing capabilities.

“The Gourmet Goodness range has taken us three years to perfect, as we’ve experimented with a selection of different recipes to get the biscuits to be the best we could possibly bake. As with all of our ranges, the quality of biscuit comes first and we’ve carefully sourced ingredients - fruit, nuts and seeds with quality and taste our prime consideration.”

Louise Crevey
National Account Manager
Border Biscuits

**Scottish salmon features in Blumenthal recipe**

As a dedicated supplier to Waitrose, Macrae supplies over 90 per cent of their ready to eat seafood. The salmon industry is hugely important to the Scottish economy, so the creation of high value-added products in this market is vital. The Lapsang Souchong Tea Smoked Salmon, created as part of the “Heston from Waitrose” range, is the ideal platform to inject the market with a contemporary, exciting new product.

- Traditionally the smoked salmon market has attracted an older consumer. There is a challenge for manufacturers to attract the younger generation in order to maintain growth in this high value category.
- Waitrose is also keen to appeal to a younger consumer. Their passion for quality food is shared with Heston Blumenthal and together they have developed an exclusive “Heston from Waitrose” range.
- The result is Lapsang Souchong Tea Smoked Salmon which is produced by Macrae for Waitrose from Heston’s exact recipe at their factory in Livingston.

“We are extremely proud of our Waitrose range and particularly the unique nature of our Lapsang Souchong Tea Smoked Salmon which forms part of the exclusive range of products available to Waitrose based on Heston Blumenthal recipes.”

Ray Cunningham
Managing Director

Source: UK Food and Drink Federation, 2015
Drivers of innovation: food sector specific

Examples of healthy options innovation:

Source: UK Food and Drink Federation, 2015
Drivers of innovation: food sector specific

Others examples of innovative food products

Baxters Stay Full is a new range of soups that satisfy hunger for longer. The range has been crafted with Baxters culinary expertise and passion for great tasting soups. Each of the five recipes contain a selection of high protein vegetables, meats and pulses along with balanced carbohydrates.

- Baxters Stay Full is a delicious new range of super healthy, functional soups to satisfy hunger for longer, reducing the need to snack between meals.
- Independent scientific research demonstrates that respondents felt fuller for longer after tasting the Stay Full range
- Each soup contains at least 5 portions of the daily recommended 5 a day, with 4 recipes containing 5 of the recommended 5 a day.
- The range has no artificial flavours, colours or preservatives.

“We need to attract people to the ambient soup category through good innovation and really interesting, exciting flavours. We are always looking for new ways to offer our consumers something a little bit different and identify a growing trend towards functional food that makes you feel good.”

Nic Wheeler
Technical and Innovation Director
Baxters Food Group

Source: UK Food and Drink Federation, 2015
Drivers of innovation: supply chain specifics

- Farm resources management
  - Improve production systems
  - Sustainable production
  - Supply/demand forecasting
  - Reduce output price volatility

- Logistics
  - Minimally processed products
  - Retailers power
  - Healthy/sustainable production
  - Consumers needs

- e.g. precision agriculture
- e.g. minimally processed food
Drivers of innovation: supply chain specifics

An example of innovation at farm-level:

Improving the production through the use of drone.

A french farming cooperative, OCEALIA, uses a drone since 2015 to better assess and treat its crops, with an average gain of the 10% of yields.
Drivers of innovation: supply chain specifics

- Material research
- Packaging reduction
- Bio-packaging
- New formats
- Reuse/recycling materials
- Energy recovery systems
- Systems that reduce products damages
- Fuel efficiency/cleaner transport
  - e.g. recyclable packaging
  - e.g. drone delivery mode

- New retail formats
- Socio economics trends
- Organic food
- Energy and cost efficiency
  - e.g. new format retailers

Adapted from “Delivering Performance in Food Supply Chains” 1st Ed. Mena & Stevens.
Drivers of innovation: supply chain specifics

E.g. Apple producing farmers report

Concentration process of retailers in the 1990s was increasing.

Innovation in modernization storage and processing facilities was priority for producers.

Adapted by: Apple-producing family farms in South Tyrol - An agricultural innovative case study (FAO document, 2014)
Drivers of innovation: sector differences

Biscuits, cakes and breads sector:
- minimizing waste and consumption of raw materials;
- developing environmentally sustainable waste disposal;
- identifying low glycemic index products.

Dairy sector:
- improving processing and manufacturing efficiency;
- improving methods of food safety risk control;
- improving plant design.

Fruit & vegetable sector:
- “smart” packaging to increase shelf life;
- improving processing to match the quality of raw materials.
Drivers of innovation: sector differences

Ready meals sector:
- reducing the salt, sugar and/or saturated fat content of products.
- improving methods of food safety risk control and accessing new sources of protein (e.g. meat substitutes).

Soft drinks and mineral waters sector:
- assessing new & emerging technologies of production.

Oil and fats sector:
- Improving food safety risk and traceability control systems.

Source: Arthur D. Little, UK (2013).
Who innovates?

SMEs in the EU food and drink industry (2012, % by company size)

Source: Eurostat (SE), FoodDrinkEurope calculations
1 For definition, see page 23

Food and drink private investment in R&D as a percentage of output, 2010 (%)

Source: Data & Trends of the European Food and Drink Industry 2013-2014

R&D EXPENDITURE

€2.8 billion
Barriers

Top 10 barriers to R&D
Barriers

Top 10 barriers to R&D

Source: Arthur D. Little, UK (2013).
Summary

Agro food sector is typically described as low level of R&D area with relative mature technologies and as a slow growing area of business.

Consumers are quite conservative in food habits.

Incremental product/process innovation

Innovation agro-food sector remains highly challenging and complex process.
Thanks for the attention