



Italian Experiences in Food & Beverages Companies

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References:

L'industria alimentare in Italia. Aggiornamenti: Struttura del mercato, tendenze di consumo e nel confezionamento dei prodotti alimentari (con l'esclusione di bevande e prodotti ortofrutticoli freschi).

Plinio Iascone – Istituto Italiano Imballaggio

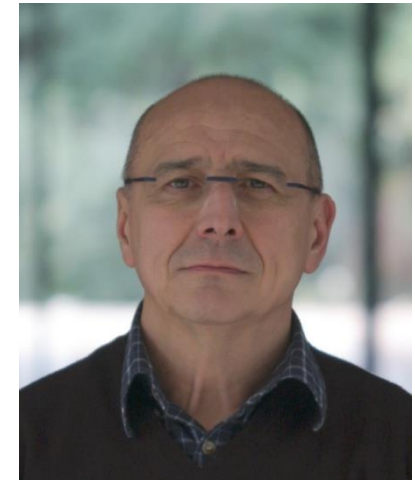
Industria alimentare italiana: quali prospettive di ricerca e sviluppo?

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The Italian food industry

- is the second manufacturing sector in the country, after the mechanical,
- with a total turnover of approximately 130 billion € (2012),
- equal to 17% of GDP,
- significantly higher than that of the primary agricultural and livestock production (2% of GDP);
- finally, export is about 24.8 billion € (2012).



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The sector is characterized by about 60,000 companies:

- Most are individual or micro-processing enterprises,
- 6,500 small businesses,
- 200 medium-sized enterprises and
- only 10 large companies.

The production of Italian food can be divided into five classes:

- traditional classic (65% of the total);
- evolved traditional (17%);
- protected designations (9%);
- new products (8%) and
- biological (1%). ↑



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As a whole, the food industry involves a still greater force employment.

Upstream, agriculture has an employment base close to 900,000 employees and sells more than 70% of its products to the food industry.

Downstream, the largest distribution, with over 420,000 employees, and shops specialized in consumer and grocery, with over 350,000 employees, based most of its sales on products and food drinks.



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In terms of wholesales,

food and beverages represent respectively 84, 5% and 15.5%.

As part of the food:

Dairy	→	14%,
Confectionery	→	11.5%
Meat processing	→	7.6%
Pasta	→	4.1%
Cooking oil	→	4%
Frozen vegetables	→	3.9%
Canned vegetables	→	3.5%

The remaining % refers to a wide range of foods.



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More than three-quarters of food products exported by Italy were brand industrial products, while small local products, such as niche craft, it is not successful or abroad to support the so-called ***Made in Italy***, nor to resist the challenge of the market overall due to the small and micro enterprise size Italian food.

Only large-scale distribution (GDO) has succeeded in developing appropriate processes dimensional consolidation, including through the central purchasing, so as to get to cover 2/3 of retail food sales.

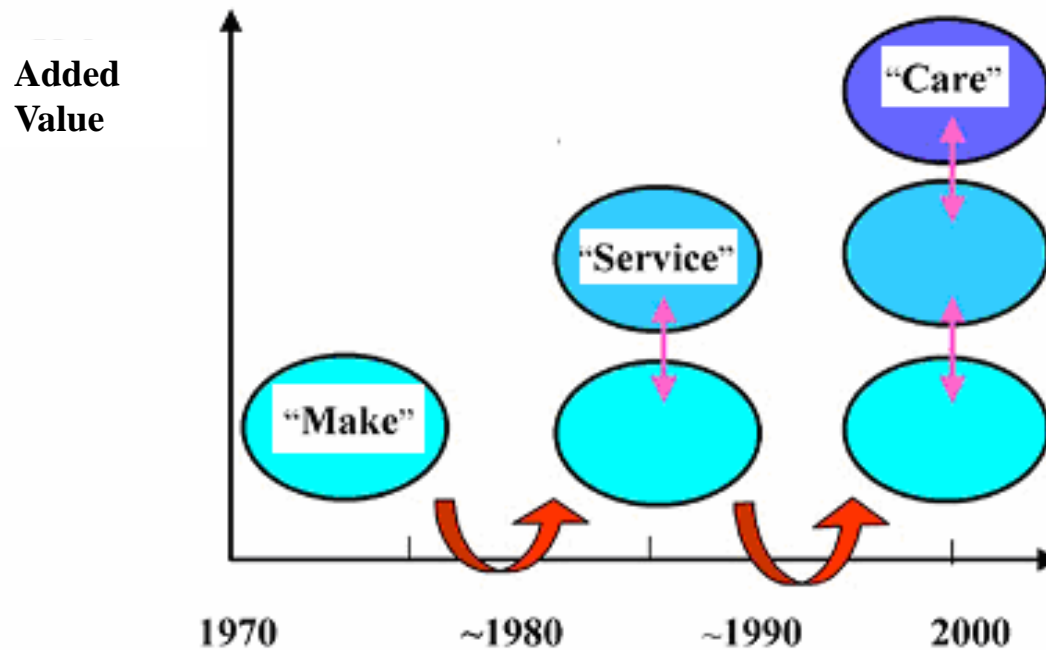
Given the absence of similar processes of aggregation in the first two rings of chain (primary production and processing), the trade was widely favored in the value chain, from agribusiness to the point that the GDO currently competes approximately half the value of a food product "on the shelf".



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Evolution of food products from the concept of do (Make) to that of providing a service (Service) and then a set of performance (Care).

From Bruin & Jongen, (2003).





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Consumers have become increasingly aware in the quality of the food and, in particular, their "freshness", which stands for healthy food, as excessive heat treatments caused the destruction of vitamins and antioxidants and these components are essential to prevent the cause of or other diseases.

Consumers shall however put into consideration that unprocessed foods or subjected to "mild" treatments may also contain high concentrations of essential nutrients, but their availability is typically limited, while the pathogenic microorganisms can survive "mild" heat treatment , which multiplies the poisoning food.



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Packaging

Given the diversity of product entries in the food, wrapping presents a significant variety of packaging solutions (of which remains fundamental to the function of communication tool, from which the frequent changes).

The changes in the total production of the twenty-two sectors monitored by the Italian Packaging in the food area has resulted in a job, in 2010, about 2,716,000 tons of packaging, including both disposable packaging which ones to make, as well as the primary, the secondary and those from transport.

Food sector represents about 70-75 % of all required packaging materials.



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Packaging

The development trend of packaging use in the last three years, always with reference to the areas monitored, is 0,8% per year

compared to a growth of the food industry related to food by 0.5% per year.

As you can see, the rate of development of packaging consumption is higher than the growth in the food industry.

The difference is attributable to several factors:

- increase of pre-packaged products (such as cheeses and meats);
- increase in fresh fruit and vegetables portioned and packaged (IV and V GAMMA vegetables);
- increase in single doses.

Notes

I GAMMA:	fresh vegetables to clean, cut and prepare;
II GAMMA :	preserves and semi, such as canned peas;
III GAMMA :	frozen;
IV GAMMA :	fruit and vegetables ready to use, already packed;
V GAMMA :	pre-cooked vegetables and fruit, not frozen.



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Packaging

Materials for primary packaging

□ paper and board packaging	43,2 % weight
□ glass	23,6 % “
□ plastics	17,2 % “
□ steel	12,0 % “
□ aluminum	1,0 % “
□ others	3,0 % “



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Normalization

Why does a Standardization exist?

To permit the free commercialization of products, materials and equipment.

In Italy there are

- 212 active standards regarding food and beverages,
- 229 for packaging (materials and equipment),
- 44 regarding general requirements and tools for food industry machines.

There are no needs for standardization of equipment!

.... but

German and Italian OEMs represent more than 50% of the world wholesales.

- OEMs - Original Equipment Manufacturers



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Normalization

Where does a Standardization start?

As for dimensions, from the width of tracks!

- pallets
- cartons
- shelves
 - in warehouses
 - in supermarkets
 - in refrigerators

As for quality,

- to preserve freshness and characteristics
- to prevent undesirable events
 - anti-tampering
 - pilfer proof
 - child proof
 - anti counterfeiting



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Brand and Patents

To protect the typicality of certain foodstuffs, the European Union has launched a precise legislation, establishing two levels of recognition:

- **DOP (Denomination of Protected Origin)** covers the protection of the national brand **DOC (Denomination of Controlled Origin)** in the whole of Europe and with international agreements **GATT**.

The brand designate a product originating in a region and a country whose quality and characteristics are essentially or exclusively due to the geographical environment (which term includes the natural factors and human). The entire production, processing and preparation of the product must take place in the defined area.

- **PGI (Protected Geographical Indication)** introduces a new qualitative level of protection taking into account the development of the industrial sector, giving more weight to the techniques of production compared to territorial restrictions.

So the code identifies a product originating in a region and a country whose quality, reputation and characteristics can be attributed to the geographical origin, and at least one stage of production, processing and preparation takes place in the defined area.



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What are the attended evolutions?

Also in Packaging Equipment will there be a transition
from **Make**

to **Service**

and **Care** ?

Is the development of the food products moving to a co-engineering among:

- Food manufacturer
- Packaging material providers
- Equipment manufacturer
- Logistics service provider

?



Packaging examples

Packaging machines may be of the following general types:

- Accumulating and Collating Machines
- Blister packs, skin packs and Vacuum Packaging Machines
- Bottle caps equipment, Over-Capping, Lidding, Closing, Seaming and Sealing Machines
- Box, Case and Tray Forming, Packing, Unpacking, Closing and Sealing Machines
- Cartoning machines
- Cleaning, Sterilizing, Cooling and Drying Machines
- Coding, Printing, Marking, Stamping, and Imprinting Machines
- Converting Machines
- Conveyor belts, Accumulating and Related Machines
- Feeding, Orienting, Placing and Related Machines
- Filling Machines: Handling dry, powdered, solid, liquid, gas, or viscous products
- Inspecting: visual, sound, metal detecting, etc.
- Label dispenser



Packaging examples

Packaging machinery may be:

...

- Orienting, Unscrambling Machines
- Package Filling and Closing Machines
- Palletizing, Depalletizing, Unit load assembly
- Product Identification: labelling, marking, etc.
- Sealing Machines: Heat sealer
- Slitting Machines:
- Weighing Machines: Check weigher, multihead weigher
- Wrapping machines: Stretch wrapping, Shrink wrap, Banding
- Form, Fill and Seal Machines
- Other specialty machinery: slitters, perforating, laser cutters, parts attachment, etc.
- Process Machinery (Product Preparation): Chopper, Crusher, Cutter, Moulder, Peeler, etc.
- Process Machinery (Special Product): Coating, Enrobing, Seasoning
- Process Machinery (Product Cooking, Heating, and Cooling): Aseptic



Packaging examples

Primary Packaging

Direct contact with the product

Requirements:

- Compatibility (not adsorption, not absorption, not desorption)
- Barrier to light (if required)
- Identification (colour, print)
- Others

Secondary Packaging

External to the primary packaging

Requirements:

- Identification
- Mode of use
- Anti-tampering (pilfer-proof, child-proof, ...)
- Stocking and transportation
- Others



Packaging examples

Security - Authentication and counterfeit

How can you limit the risks?



Hologram



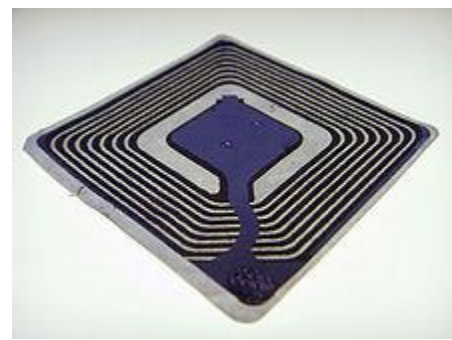
Barcode



Hologram + Barcode



Data-Matrix



RFID



Packaging examples

Security and Safety - Child proof

Child-resistant packaging or C-R packaging is special packaging used to reduce the risk of children ingesting dangerous items.

This is often accomplished by the use of a special safety cap.

It is required by regulation for prescription drugs, over-the-counter medications, pesticides, and household chemicals.

In some jurisdictions, *unit packaging* such as blister packs is also regulated for child safety.



Opaque blister are less attractive than transparent for children, with coloured tabs or caps inside



Example of two different types of child-resistant safety caps



Packaging examples

Security - Package pilferage

Pilferage is the theft of part of the contents of a package.

It may also include theft of the contents but leaving the package, perhaps resealed with bogus contents.

Small packages can be pilfered from a larger package such as a shipping container.

Broader and related aspects of theft may include taking the entire package, pallet load, truck load, shoplifting, etc.



Packaging examples

Security - Package pilferage

How can you limit the risks?

Some examples with aluminium / plastic caps and tapes.

