

The packaging cluster of Emilia-Romagna: framework and main features

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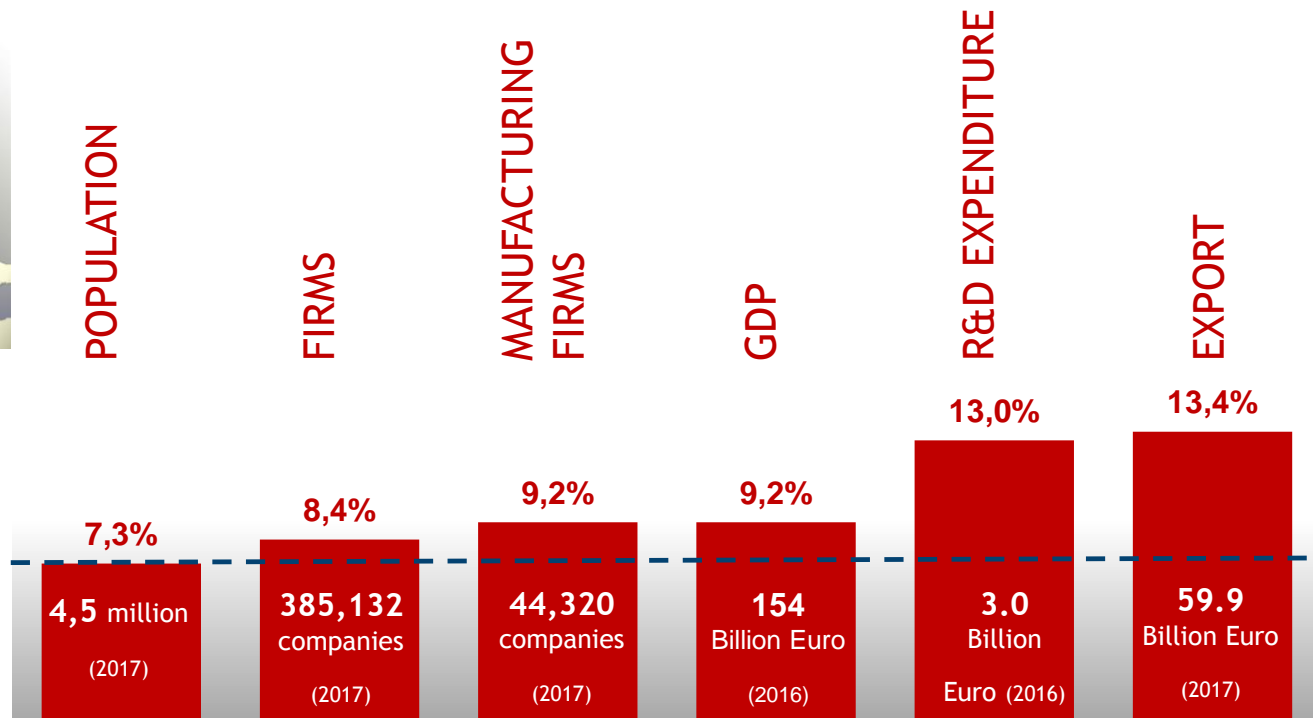
ERVET – Territorial Development and Attractiveness Unit
Emilia-Romagna Region

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“The packaging of food products in Emilia-Romagna: perspectives of innovation and sustainability”



EMILIA-ROMAGNA: SHARE ON ITALIAN TOTAL



High rate of entrepreneurship

Strong manufacturing system.

About 24% of GDP

GDP per capita: 34,600 euro

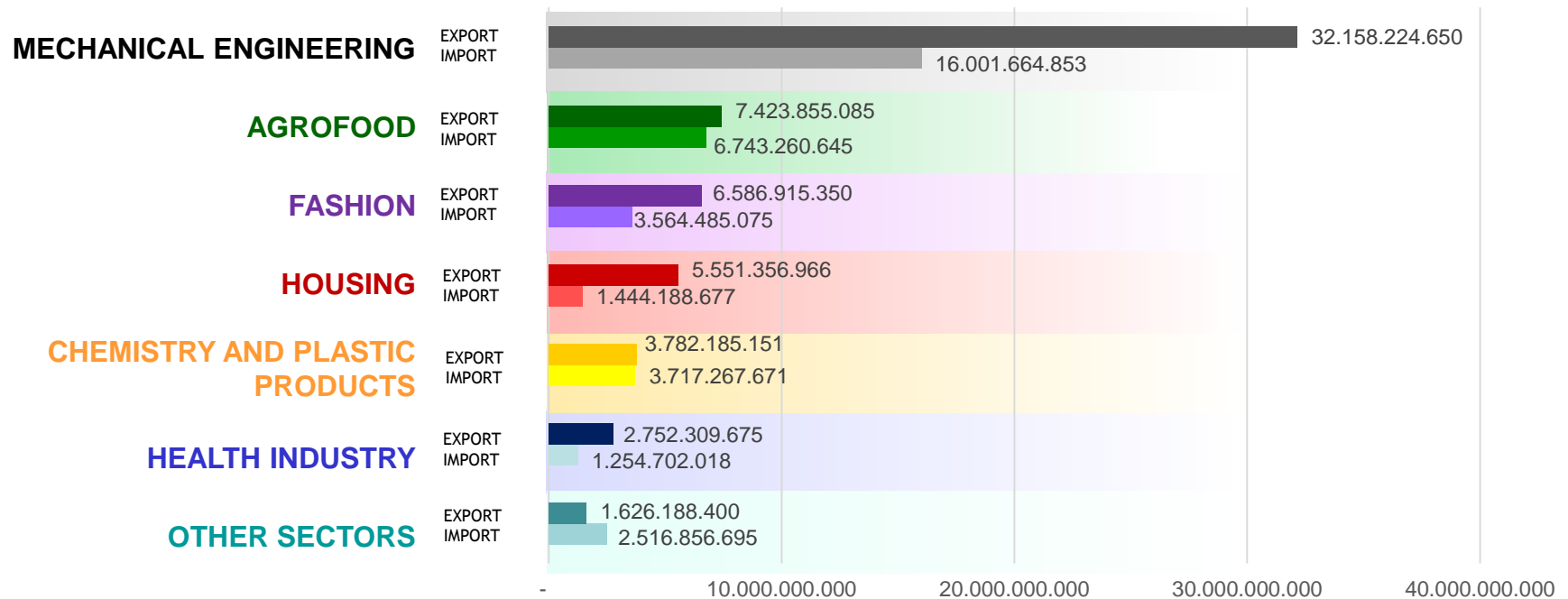
+21% than EU average

Innovative ecosystem

1st region Export per capita

EMILIA-ROMAGNA (2017, Istat-Coeweb)
Export: 59.9 billion (13.4% of the Italian total)
Import: 35.2 billion euro

FOREIGN TRADE EMILIA-ROMAGNA-WORLD BY KEY SECTOR (Istat-Coeweb 2017)



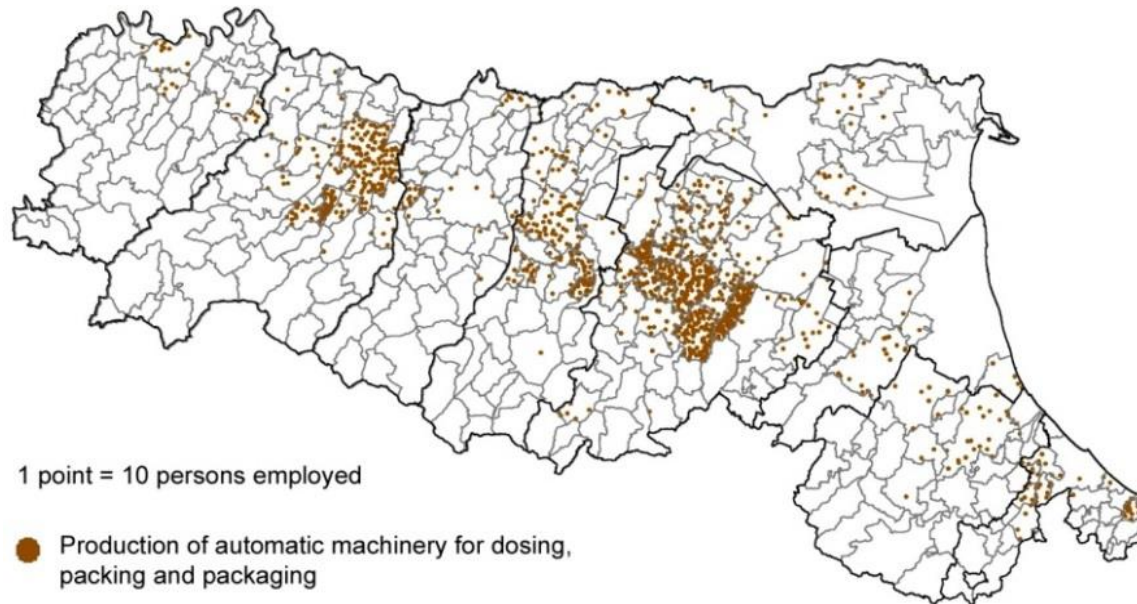
- **Export, some regional specializations related to agri-food (on the national total)**
 - **Meat and meat-based products: about 38%**
 - **Agricultural machinery (28%)**
 - **Other general purpose machinery (28%) – including **PACKAGING MACHINERY****
 - **Manufacture of dairy products (24%)**
- **Packaging and agricultural machinery, represents the main connections between Mechanical Engineering and Agri-food in Emilia-Romagna**
- **Innovation and competitiveness of the packaging sector are strategic for the whole agri-food sector**

- The **packaging** division is an important production specialization in the regional mechanical engineering cluster and numbers **899 local businesses with a total of 15,891** (Source: Smail 2017)
- **53.2% of the Italian employees in the machinery for packaging sector are in Emilia-Romagna**

Packaging division in Emilia-Romagna (source: Smail, June 2017)

	Local businesses	Employees
Production of machinery for packaging sector	486	12.026
Repair and maintenance of machinery for packaging sector	57	126
Packaging services for third parties	356	3.739
Total	899	15.891

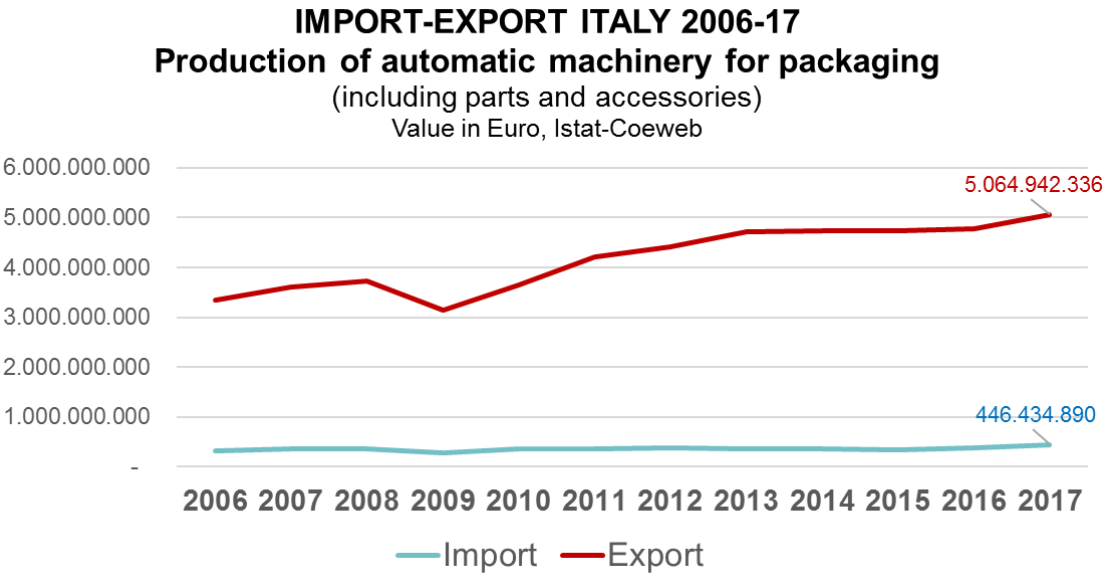
- The **highest concentration of people employed** is in the province of Bologna, followed by Parma and Modena. Other districts are also in Reggio Emilia and Rimini (source: Istat-Asia).



Sales turnover of the packaging division (source: Aida – Bureau Van Dijk)

- In 2017 there are 424 joint-stock companies in the sector with a sales turnover of over 900,000 Euros, boasting a **total turnover of about 4.61 billion € and a value-added of 1.67 billion €.**

- National exports of 'Machinery for packaging' boasts 5.06 Billion euro in 2017, +35% than the pre-crisis value in 2008



Variation regional EXPORT 2008-17: +35%

- **Favorable business environment** connected to agriculture and food industry but with global perspective
- For the regional agri-food, advantages related to **proximity and access to skills**
- The high technological level favors **diversification processes** also outside the agri-food sector: besides tobacco/cigarettes, regional packaging is leader also in other areas such as pharmaceuticals

- **Future challenges:** sustainability, safety, traceability, **industry 4.0 applications**
- The main regional packaging companies are in the partnership that led to the creation of the **Competence Center «Bi-Rex - Big Data Innovation and research Excellence»** proposed by the University of Bologna
 - The project ranked third on a total of 8 selected projects in a call of the Italian Ministry of Economic Development financed by the **Industry 4.0 National Plan**.
 - It will support companies, in particular SMEs, providing training and assistance on Industry 4.0.
 - The University of Bologna is leading a **group of 61 stakeholders**, including five regional universities, organizations part of the regional research system and **49 private entities**.
- The **Cipack laboratory** - part of the High Technology Network - is focused on the reserach concerning different packaging solutions related to food.

Some leaders in the Packaging Industry

The following companies achieved high turnover in the regional packaging sector

Company	Description
I.M.A. INDUSTRIA MACCHINE AUTOMATICHE S.P.A. (IMA SAFE, IMA FLAVOUR)	Produces packaging solutions, mainly with IMA SAFE S.R.L. and IMA FLAVOUR S.R.L. for the Pharmaceutical & Nutraceutical, Cosmetic & Other, Tea & Coffee sectors.
OCME / Robopac Srl	Company which specializes in the Beverage industry. It supplies complete production lines for: Beer, Mineral water, Soft drinks, Wine & liqueurs. It also focuses on FTC (Food, Toiletries and Chemicals) for which it supplies filling systems for viscous liquids, packaging and palletizing systems.
G.D. SPA	Leading international manufacturer of machines to produce and package cigarettes (maker and packer).
SACMI (SACMI FILLING, SACMI PACKAGING)	Produces a complete range of automatic machinery for labelling glass, plastic and metal containers for the beverage, food, detergent, pharmaceutical and packaging sectors; sorting lines, packaging and palletizing for the ceramic industry; refilling machinery.
MARCHESINI GROUP	Produces machines for: cosmetic labelling, phial labelling, flacons, thermoformers, wallets, cartoners, vertical type cartoners, Wrapping & Overwrapping, Case packing & Palletizing.
ACMA Spa	Designs and manufactures automatic packaging machine for products like: industrial bakery, confectionery, detergents and soaps, high-value products or dense/foaming, food and beverages.
AETNA GROUP S.P.A.	Produces and sells on an international level wrapping machines for fully automatic stretch film packaging, shrink wrappers, shrink wrapping machines with film thrusting systems, wrap around case packaging, taping machines.
TETRA PAK PACKAGING SOLUTIONS S.P.A.	Produces: containers, treatment systems (for milk and dairy products drinks, cheese, ice cream, convenience foods), refilling machines, distribution systems, assistance.

FOCUS

AN INTRODUCTION TO

GREEN PACKAGING

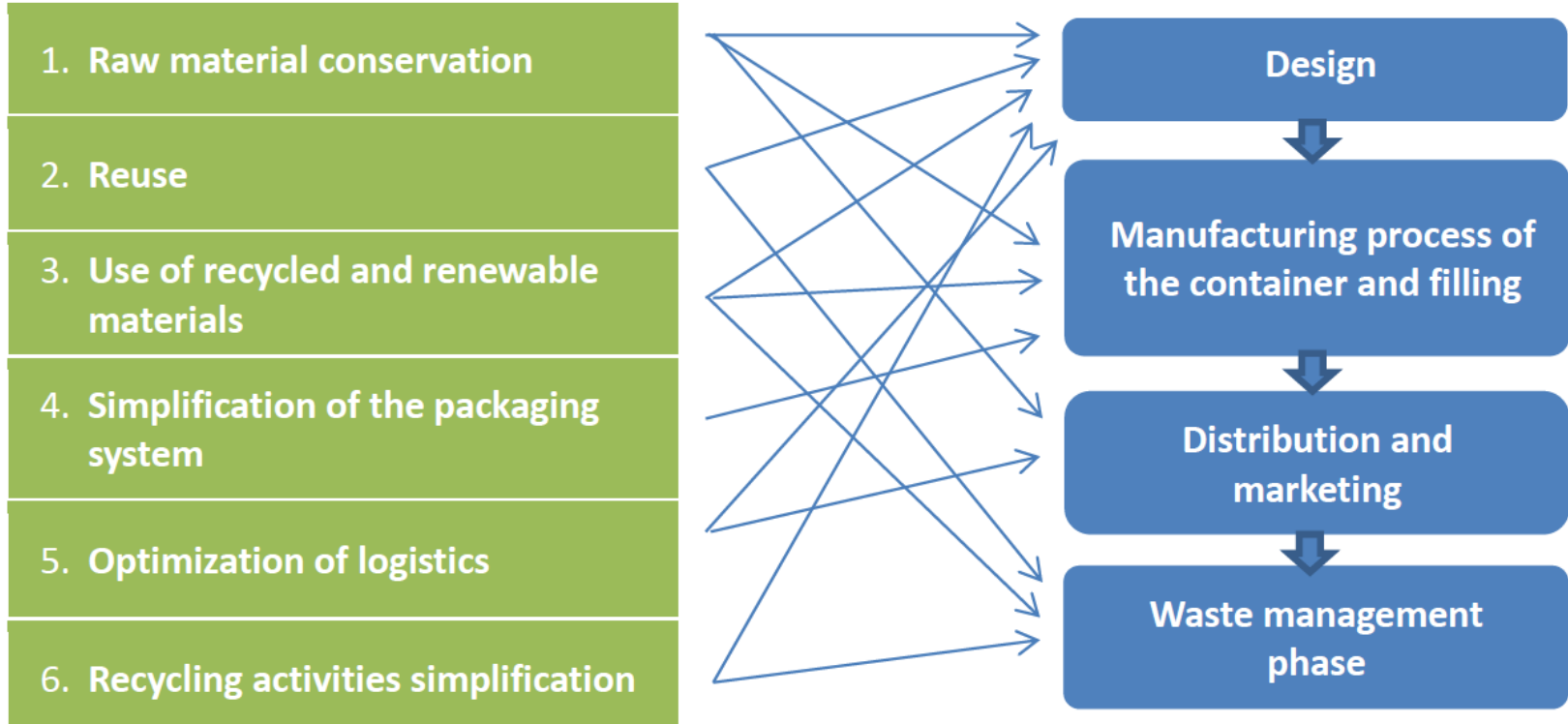
- **Sales packaging (or primary packaging)** constitutes the sales unit. It's the package the consumer picks up at the point of sale.
- **Grouped packaging (or secondary packaging)** groups a given number of sales units together into a convenient unit at the point of sale. Grouped packaging typically has one of two roles: it can be a convenient means to replenish the shelves; or it can group sales units into a package for purchase. It can be removed without affecting the product's properties, and generally defines the unit used by the retailer.
- **Transport packaging (or tertiary packaging)** is designed to ensure damage-free handling and transport of a number of sales or grouped packages. This does not include road, rail, ship or air containers. Transport packaging is normally a shipping unit such as an outer case, a pallet or a crate.

Source: Pacman Project (MED) – HandeBook on Green Packaging

Innovation and competitiveness of the packaging sector are strategic for the sustainability of the whole agri-food sector

- Several **functions**: shelf-life/conservation, effective logistics, communication/promotion, usability, etc.
- But also **many different skills** related to: materials, sensors, engineering, software, chemistry and biotechnology, etc.
- Packaging is **strongly related to sustainability**

- **Green packaging criteria**



Source: Pacman Project (MED) – HandeBook on Green Packaging



Reduction % CO2 emissions



Reduction % energy consumption



Reduction % water consumption

Source: <http://www.ecotoolconai.org/>

Indicator (name and description)	Type
Packaging weight and optimization (includes Primary, Secondary and Tertiary packaging)	Quantitative (weight/ weight reduction), possibly by material category.
Packaging to Product weight ratio - The ratio of the weight of all packaging material used to the weight of the product or functional unit delivered	Quantitative (% packaging weight/ total weight)
Material waste – The mass of material waste generated during the production and transport of packaging (comprising materials, constituents, components)	Quantitative (Kg /FU - Material destined for landfill and final disposal)
Recycled Content – The ratio of recycled material (post consumer and pre-consumer as defined by OSP 14021) to total material used in packaging constituent, component or systems.	Quantitative (%)
Renewable Content – The ratio of renewable material used to total material used in packaging	Quantitative (%) Percentage by weight on material lever (ISO 14021) or on carbon level (ASTM D6866)
Packaging reuse rate – The number of times packaging accomplishes the same use, rotation or trip for which it was conceived and designed within its life cycle (according to EN 13429 – ISO/CD18603)	Quantitative (can be used for primary, secondary and tertiary packaging)
Packaging recovery rate – The mass fraction or absolute mass of packaging recovered from all sources based on relevant waste management statistics	Qualitative: recoverable (yes/no) Quantitative: recovery rate (%)
Cube Utilization – The overall volumetric measurement of packaging design efficiency for the packaging system. Concerns only tertiary packaging.	Quantitative (% - percent of volume in a transport unit occupied by the product)

Source: Pacman Project (MED) – HandeBook on Green Packaging

FOCUS REGIONAL CASE STUDIES



- **IMA Group** develops, manufactures and sells both individual machines as well as complete packaging lines, with specific divisions for **Dairy and food industries - Tea, Coffee and beverage - Confectionery** .

New trend in food packaging

- “IMA is working on (...) **compostable packaging materials** (...) still being developed (..) that are **seldom used for packaging**, mainly for costs reasons, but also because they are more complicated to use. (...)
- Research with University of Bologna on “**Polymeric materials for eco-sustainable packaging**”.

Waste (not only food packaging)

- The **type of waste** generated by IMA’s production activities consists mainly of **mixed packaging materials**, such as plastics and similars, cardboard and wood.
- **42.6%** of the waste products produced by IMA in 2017 are to be recycled and reused.

Source: Ima – Sustain Ability Report 2017

Industry 4.0 (IMA Digital)

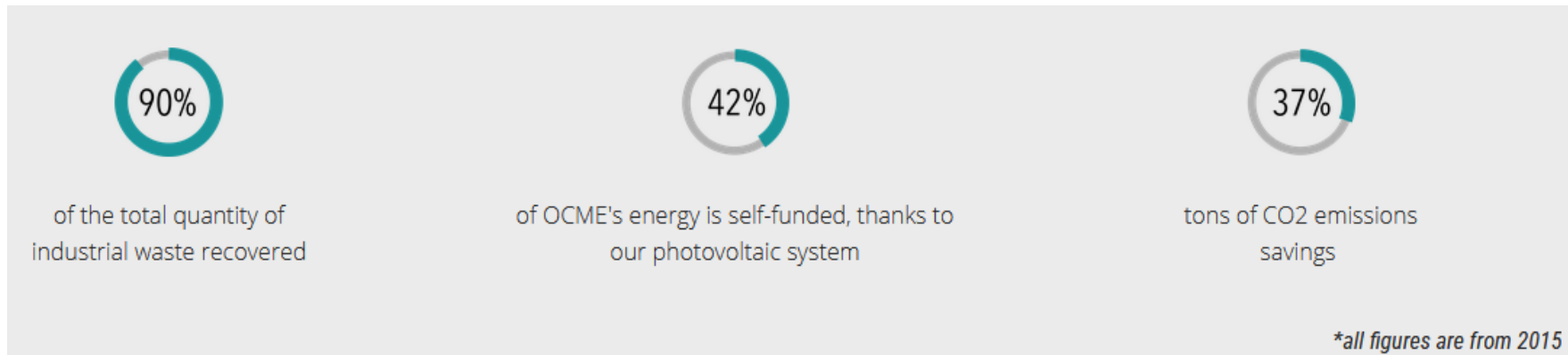
- The company is “giving additional value to the packaging industry with empowered machines and services created to deliver **predictive and personalized customer’s experiences** across all over the value chain”.

Project *supported by the Regional Government* with the Law 14/2014 for the Promotion of investments



- **OCME** manufactures primary and secondary packaging machines, fillers, as well as handling solutions. Specialization in the Beverage industry (complete production lines for: Beer, Mineral water, Soft drinks, Wine & liqueurs). It also focuses on FTC (Food, Toiletries and Chemicals) for which it supplies filling systems for viscous liquids, packaging and palletizing systems

Sustainability of industrial waste



Source: OCME website



Customers and consumers

- processing and packaging equipment **keeps food from being spilled or spoilt**
- packaging solutions **prolong the life of food**
- We promote [consumer engagement](#) in recycling
- Best practice partnerships promote transparency, including **Sedex, CDP and EcoVadis**

Suppliers

- Suppliers **commit to our Business Code of Conduct**, based on the UNGC principles around environment, labour, anti-corruption and human rights
- We **ask suppliers to disclose sustainability attributes** through Sedex and conduct annual audits of key supplier operations and environmental performance
- Our **sourcing of packaging materials** includes stricter criteria for sustainable production, traceability and verification

Employees

- Health and safety, inclusive workplaces, learning...

Partners

- Formally committed to over 20 such partnerships.

Source: TetraPak website



Supply Chain Connections

At HAVI, we're experts in creating packaging designs that optimally balance form, function, aesthetics and cost. But more than that, we're problem solvers.



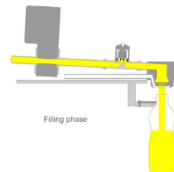
Connection between logistics, supply chain management, packaging and environmental impact



- Sacmi **Packaging** manufactures automatic tray forming machine to erect corrugated cardboard and solid board plateaus



- Sacmi Beverage. Full range of **filling machines for PET bottles, glass bottles, and cans**



Source: SACMI website

Industry 4.0

SACMI recently opened a **R&D centre on the application of IoT-Internet of Things**, open to third parties

Project **supported by the Regional Government** with the Law 14/2014 for the Promotion of investments



Aetna Group, is specialised in end-line solutions. Specifically, Group production ranges from semi-automatic wrapping machines with smart technology to innovative automatic solutions, from industrial wrapping machines to shrink wrapping machines and cartoning machines, to tailor made packaging solutions.



Industry 4.0

AETNA recently opened **TECHLAB 4.0, a R&D centre** – open to third parties - where customers and partners can test live the machines proposed by brands of the group. The centre is equipped with **multimedia technologies that are used to carry out tests and demonstrations remotely anywhere in the world**, without the need for physical travel by customers.

Project **supported by the Regional Government** with the Law 14/2014 for the Promotion of investments

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