CIRCULAR BUSINESS MODELS IN SUPERMARKETS

Circular businesses no longer focus mainly on profit maximization or pursue cost-cutting through greater efficiency in supply chains, factories, and operations as the primary corporate objective. Rather, they concentrate on redesigning and restructuring **Product-Service-Systems** from the bottom up to ensure future viability of business activities and market competitiveness (Florian et al, 2017)

The most comprehensive definition of the Circular Business Models (CBM) is given by Frishammar and Parida: a circular business model is one in which a focal company, together with partners, uses innovation to create, capture, and deliver value to improve resource efficiency by extending the lifespan of products and parts, thereby realizing environmental, social, and economic benefits. (Frishammar and Parida, 2019)

Bocken, De Pauw, Bakker, and Van Der Grinten propose three important factors to make a CBM, as shown in the Figure 1.

Figure 1 Factors to make a CBM

The sustainable guide identifies four types of opportunities regarding the implementation of circularity on a practical level. As well it is mentioned that not all the following types of opportunities are necessarily innovative. Also, they are not exclusive, there can be a combination between models which can fit the companies' goals.

- **Circular supplies**
  It is based on supplying fully renewable, recyclable, or biodegradable resource inputs that sustain circular production and consumption systems. The value proposition focuses on the substitution of fossil, critical and scars materials.

- **Access and performance**
  Access and performance is concerned with providing the capability or services to satisfy users' needs without owning physical products. The value

proposition includes the offering of Product-Service-Systems, a combination of products and services that seek to provide functionality for customers.

- **Extending product value**
  Extending product value focuses on exploiting residual value of products and delivering high-quality, long-lasting products supported by design for durability, reparability, upgradability, and modularity. Values that would otherwise be lost through wasted materials are instead maintained or even improved by repairing, upgrading, refurbishing, remanufacturing or remarketing products.

- **Bridging**
  It promotes platforms for collaboration among producers and consumers, either individuals or organizations. The value proposition concentrates on enabling interaction between different but interdependently actors and bring together supply and demand.

(Florian et al, 2017)

There are no instructions to follow to build a CBM, like any other business, each one is unique and have their own market, strengths, and challenges. Yet, some strategies and practices to be a CBM are the following:

- Coordinating circular value chains through data
- Circular product design.
- Use, reuse, share, and repair.
- Collection & reverse logistics.
- Sorting & preprocessing.
- Extend product value.
- Long-life.
- Encourage sufficiency.
- Industrial symbiosis.

Some retailers have introduced the circular strategies mentioned before in different aspects of their value chain, some of them are shown in the Table 1.

Table 1 Circular strategies in retailers

Company Project	Strategy	Description
Nestle	Use, reuse, share, and repair.	Nestlé is piloting reusable and refillable dispensers for pet care and soluble coffee as part of its efforts to reduce single-use packaging. The in-store dispensers offer consumers a

		shopping experience that is free of single-use packaging, along with flexibility and variety of product choice[1].
Unilever	Circular product design.	Unilever has pioneered the use of a new detectable black pigment for its High Density Polyethelyne (HDPE) bottles for its leading brands, TRESemmé and Lynx, so they can be detected by recycling plant scanners and sorted for recycling[2].
FACTOR10	Industrial symbiosis. Coordinating circular value chains through data	Factor10 is a premier, global platform for businesses committed to the circular economy. Factor10 convenes more than 30 companies from around the world to co-develop solutions to their greatest priorities in the circular economy. Through workstreams on Metrics, Policy, Bioeconomy and Buildings, Factor10 tackles both systemic and value-chain specific barriers towards a circular transition. It produces metrics, tools, advocacy and catalytic insights through cross-industry and value-chain collaboration[3].
Replenish	Long-life.	Replenish 3.0 is a universal 'packaging platform', a reusable bottle that attaches directly to a concentrate refill pod. The system can be used in most packaged liquid goods, from cleaners to beverages[4].

The strategies mentioned before are correlated to the application of Product as a Service (PAAS) models. An aspect of these models is that the service provider is the owner of a product, equipment or even system.

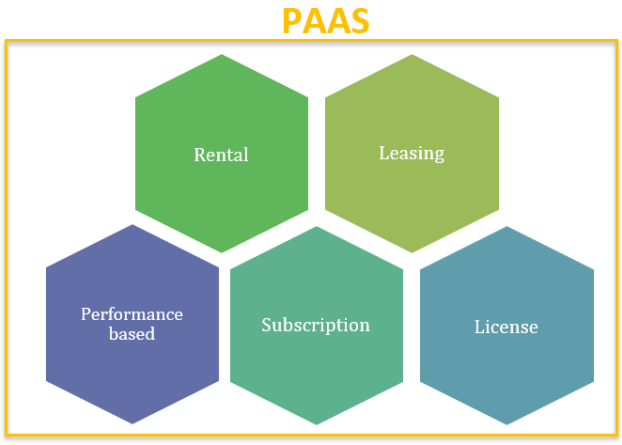

Figure 2 PAAS models

[1] https://www.nestle.com/randd/news/allnews/nestle-pilots-reusable-refillable-dispensers-reduce-single-use-packaging

[2] https://www.unilever.co.uk/news/press-releases/2019/unilever-pioneers-solution-that-enables-black-plastic-bottles-to-be-recycled.html

[3] https://www.wbcsd.org/Programs/Circular-Economy/Factor-10

[4] https://www.ellenmacarthurfoundation.org/case-studies/customisable-packaging-platform-for-liquid-concentrates

The owner is looking forward to having a profitable business, so they give good maintenance to the product, equipment, or system, to have a high efficiency and performance creating a satisfied and loyal customer. There is no rule or formula to implement PAAS, in fact most of them are accompanied with other models.

Talking about **PAAS**, Yang M and Evans S in the paper *Product-service system business model archetypes and sustainability* mention that PAAS models can be classified in four; product-oriented, use-oriented, result-oriented and integration oriented.

Table 2 PAAS classification

		Benefits
Product-oriented	Provider sells products (the client owns the product) and offers additional service, such as maintenance, consultancy, insurance, repair, and training.	• Improved technology • Expanded groups of potential customers • Reduced life cycle cost for manufacturer • Reduced life cycle cost due to improved service efficiency • Reduced risk on market • Long-term continuous and stable revenue • High gross profit rate • Prediction of problems • Quick response to problems • Improved design - more freedom in design • Reduced costs for customers • Provide more professional service to solve customer problems • Reduced financial pressure for customers • Lock in customers
Use-oriented	Provider keeps the ownership of the products and sells the utility, availability, or function of products, such as leasing, renting, sharing and pooling.	• Continuous revenue from leasing • Provide more professional service to solve customer problems • Reduced financial pressure for customers • Reduced risk for customers and banks • Increase market by making previously unfeasible projects feasible • Build a business eco-system with the firm as the core firm

Result-oriented	Provider sells the results of a product, so the provider is also the user of the products, such as selling 'comfortable room temperature' rather than selling 'air conditioners´.	• Continuous revenue from leasing • Provide more professional service to solve customer problems • Reduced financial pressure for customers • Reduced risk for customers and banks • Increase market by making previously unfeasible projects feasible • Build a business eco-system with the firm as the core firm
Integration-oriented	Mainly includes Engineering Procurement Construction (EPC) and Build Operate Transfer (BOT). where firms provide customers with a complete, ready-to-use solution including all the products and services required	• Increased revenue from service • Provide more professional service to solve customer problems • Reduced cost for customers • Increased customer loyalty • Improved resource efficiency • Better understand customer needs • Guide the direction of product development

Now some examples of this in the retail sector:

Table 2 Subscription model example

Subscription model	The customer pays a recurring payment with a specific timeframe for the access to a specific product or service.
Company / Project	**Description**
HP Instant Ink	HP's Instant Ink is an IoT enabled subscription model for individuals and small businesses that increases cartridge recovery and recycling. The model uses connected printers to send customers replacement cartridges, along with pre-paid envelopes for returning used cartridges before the customer runs out of ink[5].

Table 3 Leasing model example

Leasing model	The client acquires a product or service for a long-term (typically for one year)
Company / Project	**Description**

[5] https://www.ellenmacarthurfoundation.org/case-studies/bringing-printing-as-a-service-to-the-home

DLL&JLG	DLL developed a complete finance offering for JLG's new and reconditioned assets, including rental solutions. This means that customers can return the equipment to JLG at the end of the lease contract, allowing JLG to plan and predict when assets will reach its workshop for reconditioning[6].

As a provider or supplier who is going to work with a PAAS model there are 6 considerations to set the correct price and design the service

1. **Lifetime or lifespan of the product/equipment:** this helps to plan a renovation equipment and prevent unexpected expenses
2. **Maintenance:** materials and procedure. What to do? How often?
3. **Parts of the equipment:** in case of a necessary reparation, or if it can be used after the use of the product/equipment
4. **Efficiency performance:** what are the best conditions to work? This help to predict possible future problems
5. **Labor hand available:** what are the services you can provide with the labor hand available?
6. **Communication channel between provider and client**

Another side of SUPER-HEERO is the community engagement. SUPER-HEERO will work this through a crowdfunding-inversion. A crowdfunding model is financed by the crowd investors who support the project. It is common that the investors receive a reward, this could be from a product, money, percentage of the project among others. Following some examples of Supermarkets and crowdfunding:

Table 4 Crowdfunding examples

Supermarket	Purpose crowfunding	Rewards
LA OSA Pioneer cooperative supermarket in Madrid. The supermarket is committed to responsible consumption (organic products, bulk sale of fresh and dry products)[7].	To obtain the necessary financing and pay for the preparations for the construction of your new premises: licenses, procedures, personnel costs, architectural studies, etc.	Try new (organic) products, know their producers, waste reduction and training workshops on responsible consumption.
Deliberry Deliberry is an online food shopping platform in supermarkets and local businesses that allows the user to	To strengthen its technological area and its territorial expansion plans, since it currently only operates in Madrid and Barcelona.	Be a company investor for 2-4 years.

[6] https://www.ellenmacarthurfoundation.org/case-studies/financing-the-expansion-of-circular-business-models

[7] http://www.goteo.org/project/la-osa

make the purchase from home and receive it in just 1 hour[8].		
Biolibere Supermarket made up of member families that seeks to offer healthy products at affordable prices, thus meeting a growing demand and placing emphasis on local products, produced responsibly and under conditions of social justice[9].	Increase in membership and having a larger premise will allow the supermarket to grow in scale that will result in good prices, guaranteeing sustainable criteria for purchasing products.	Membership for one year, organic products.

SUPERHEERO looks forward to work along with community-supermarket encouraging the same supermarkets clients to be part of the investors and be rewarded with an IRR and other rewards depending on the supermarket. As a result, the following scheme of the interaction between stakeholders.

Figure 3 SUPERHEERO CBM

CBM are the tool of introduction of Circular Economy in our traditional economic system. These innovative models help businesses to have a long-term relationship with their customers as well as reduce environmental impact. In other words, it is possible to say that CBM influence the economic, social, and environmental aspects around the business fulfilling the sustainability concept.

[8] https://www.sociosinversores.com/proyecto/deliberry

[9] https://crowdfunding.fundaciontriodos.es/-biolibere-supermercado-cooperativo-/1691

Being supermarkets a connection between final consumers and producers they can become an agent of change. With CBM applied in SUPERHEERO will be possible to contribute to a more sustainable community and the potential of replication in other retailers.

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