“Circular and Collaborative Economies as Propulsion of Sustainability in the new business models in Fashion”

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Abstract. This article is part of the bibliographic survey of a research in Fashion Design PhD degree at the University of Beira Interior, in association with the University of Minho, in the area of sustainability. Its objective is to present new business models in the field of fashion that are part of the circular and collaborative economies. The circular economy is holistic, stimulates eco-efficient innovations in the development of durable products and the beginning of a new value chain, which points to the reduction of natural resources, the recovery of the fashionable products and the extension of their life's value. The collaborative economy is also comprehensive. This article presents business models, clothing sharing, the redistribution platform (p2p) among users. Both, circular and collaborative economies complement and accelerate the sustainable development.

Keywords: Sustainable Business Models, Circular Economy, Collaborative Economy

1 Model of production and consumption, linear economy in the textile and clothing industry

The textile and clothing industry is a key sector in the global economy. It provides employment to more than 300 million people worldwide. The textile and clothing production system not only depletes and degrades natural resources, but also uses dangerous substances that affect the health of both textile and clothing workers as well as clothing consumers. The textile industry relies mainly on non-renewable resources such as petroleum for the production of synthetic fibers, fertilizers and chemi-

cal products, such as insecticides, herbicides and fungicides in the cultivation of cotton.

The current production and distribution model operates in a linear fashion, accumulating raw materials and final products that could be reused “large amounts of non-renewable resources are extracted to produce clothes that are often used for only a short time, after which the materials are mostly sent to landfills or incinerated. More than USD 500 billion of value is lost every year due to clothing underutilisation and the lack of recycling. Furthermore, this take-makedispose model has numerous negative environmental and societal impacts EMF2017.” According to EMF2017, the amount of gas emitted from the textile production system, worldwide, is around 1.2 billion tons per year. The textile material made of plastic, when washed, releases microspheres into the water. This represents one million tons of pollutants annually that flood and pollute the oceans.

All of these problems were further aggravated by the 2000s, when appeared the fast fashion chains, with a fast pace of production and consumption. This is due to the reduction of production and distribution time, which allows the manufacture of fashion products with shorter life cycles. According to Fletcher and Grose (2011), fast fashion industrial production is governed by financial results: it produces much to generate many profits. Consequently, in addition to environmental problems, social problems caused by the exploitation of cheap labor and poor working conditions in underdeveloped countries are also aggravated. The fast fashion chain has generated easy access to fashion product consumption for the low price and sales up to 70%. With this, clothes became a disposable product, increasing the accumulation of textile waste in the soil. According to Gansk, (2011. p.72) "the economics of discarding contributes significantly to climate change". This model has negative impacts, which inexorably contribute to the potential increase in environmental catastrophes.

In 2017 (EMF) presented the report "A New Textiles Economy: Redesigning Fashion´s Future" which presents a vision for a new system - integrated - that would work in the long term, based on the principles of circular economy. The goal is to transform the textile and apparel economy into an opportunity that incorporates better economic, social and environmental results. Fabrics and fibers, that maintain their quality during use, should never end as waste, minimizing their negative impacts. Finally, the transformation of the textile and clothing industry requires changes all over its system through greater collaboration and innovation, so the focus should be on greater efficiency of existing activities in partnership with new business models for optimization and reuse of products, which should be incorporated into the overall approach.

For Fletcher and Grose (2011, p. 100) "the starting point for a sustainability innovation is to try to decouple the success of a business from the relentless expansion of material consumption, seeking to minimize resource depletion, pollution and associated effects such as climate change”. In the face of this, the circular economy aims at a new economic paradigm that integrates environmental concerns and opens the way to new, more sustainable business models. Parallel to the circular economy is the collaborative economy, also called shared economy, that even when dealing with different concepts, the first focusing on the extension of the life cycle and the second on collaboration, the two approaches complement each other and together accelerate the sustainable development.

2 Circular Economy

The Circular Economy is pragmatic, grounded and contextualized in the current reality of our planet, its objective is to preserve the natural resources, optimize the existing ones at our disposal and guarantee the essential resources for our future. In 2012, the report "Towards a Circular Economy: Economic and Business Rationality for an Accelerated Transition" was published by the Ellen MacArthur Foundation (EMF). In that same year the European Commission published the "Manifesto for an Efficient Europe Resource Use ", which addresses the need for Europe to transition to a circular, regenerative economy. In 2015 the European Commission launched the "Circular Economy Package". According to the Circular Europe Network, SD), the concept of circular economy refers not only to recycling, but also to the basic tripod of 3Rs: Reduce, Reuse, Recycle, and can reach the hierarchy of multi-Rs: Rethink, Redesigning, Repairing, Re-Manufacturing, Redistributing and Recovering.

The circular economy goes beyond the waste problem: It implies a closed cycle management of all natural and energy resources, where inputs are reduced in production, utilise and reuse. The aim is to achieve greater efficiency in the consumption of raw materials and energy, as well as to facilitate the recycling and reuse of all utilized materials. This provides coherent solutions for creating a sustainable environment.

The circular economy proposes that the resources extracted from nature for production be kept in circulation, avoiding generation of waste. These must return as raw materials for the production process, through biological and technical cyclical flows that enable a product-to-product trajectory. Braungart and Mcdonough (2014) call it design from cradle to cradle: Create and recycle, unlimitedly, "cradle to cradle" (C2C).

3 Colaborative Economy

The collaborative economy covers several areas: "collaborative production (facilitating the design and production of material goods through bricolage, fablabs and markerspaces), collaborative consumption (networks for exchange, rental, loans, donation or exchange of goods and services) and collaborative development (Circular Europe Network, SD, p22)". Botsman and Rogers (2010) follow the same line regarding collaborative consumption: there are shared goods and services with or without money intermediation, rental, exchange, loan, and donation that happen through digital networks or in physical spaces. Many collaborative business models start through a group or a Facebook page and develop exponentially.

Botsman and Rogers (2010) divides collaborative consumption into three systems: Product Services Systems (SSP), Redistribution Markets, and Collaborative Lifestyles.

The product and service system (PSS) allows products owned by a company to be shared (clothes, suitcases, wedding dresses, men's suits rental companies) or privately owned products are shared among interested parties. That is, an individual-owned product, often with limited use, is replaced by a shared service that optimizes its utility. Users pay for using it without the need to have it, with the following benefits: they

do not have to pay the total value of the product, nor their maintenance, repair and insurance costs.

In the redistribution markets there is permanent or temporary ownership of goods and not just access, just as in product service systems. In this case, unused private property is redistributed through online social networks.

Collaborative lifestyles refer to shared workspace systems. People with common interests seek to divide and exchange intangible assets like time, space, skills, and money.

Like the circular economy, the collaborative economy is also comprehensive and adaptive in several areas, thus encompassing collaborative consumption, collaborative production, open knowledge, collaborative funding, open government, horizontal organizations and exchange of value systems, Stokes at all (2014).

4 The Evolution of Colaborative Economy

According to Stokes at all (2014), Joe Spaeth and Marcus Felson were the first authors to use the term collaborative consumption in 1978, which was reused and redefined by Botsman and Rogers in 2010. Mesh is a term created by Lisa Gansky in 2010, which refers to interconnectivity through digital technology, used to give people access to goods and services. In 2001, Rifkin published a book called "The Age of Access," in which he presented future transitions from economic activities based on access to goods and services through shared use or collaborative production, Stokes at all (2014).

In 2016 the European Commission launched "The future of the EU Collaborative Economy - Using Scenarios to Explore Future Implications for Employment." It recognizes the potential of the collaborative economy for creating new sources of income and benefits for consumers through new business models for the temporary use of goods and services, such as housing, car, bicycles, televisions, lawnmowers, drills sharing, among others (Bock et al., 2016). In 2011, Time Magazine pointed to Collaborative Economics as one of the 10 ideas that will change the world (Walsh, 2011).

The collaborative economy has become more popular since the global financial crisis of 2008. The recession and unemployment have pushed the consumer to use platforms for sharing goods and services. With the increased use of smartphones, with mobile internet access, this has resulted in an explosion of software applications, or 'apps'. The main consumers and drivers of the collaborative economy are Millennials, born between 1982 and 1996, as they dominate digital tools. They are also influencers of their parents and grandparents, who become users. Motivations refer to the economic advantages and interpersonal benefits of social interaction.

Sharing and redistribution of goods and services has always existed, such as the specialized trade in the buying and selling of second-hand goods, vintage boutiques, loans and the exchange of products between family members, neighbors and friends. The differential of collaborative economics is that it involves the use of internet technologies to connect groups of people to make better use of goods, services, skills, create companies and collaborative projects.

The power of the internet to share information makes it possible to generate contacts and trust through interactions. "Companies may have different reasons to review their business models. Some may exploit value-added opportunities by switching to a circular design, providing more durable and efficient products, retrieving end-of-life material, and so on. For others, the business model may be the beginning of launching new service opportunities that provide for a greater variety of products", (Weetman.p 70. 2017).

Case Study – Examples of Collaborative Business Models in Fashion

The shared wardrobe Fashion Library concept is increasingly earning followers in several countries. In English it is called Fashion Library, in Spain it uses the name Ropateca, in Brazil is Modateca, Roupateca. In Portugal so far there is still no history of business model with these characteristics.

The Rent the Runway Company, founded in 2008, was one of the pioneers in renting party dresses and luxury accessories. Now it offers a new day-to-day clothing subscription service called Rent the Runway Unlimited and charges a monthly membership fee. The unlimited membership automatically renews and is charged on the same date every month, and the member can cancel at any time. Members have more than 350 high-end designer garment pieces for US$139 a month, and they can rent three designer dresses, blouses, skirts or accessories at a time, and keep them for as long as they like. Customers have personalized style consulting. RTR College Rep Program is a specific program for students.

If the idea of 'fast-fashion' is to make possible to buy cheap clothes to have a variety of options in the wardrobe, the same thing applies to renting clothes, but with a great difference, which is the sustainability that is in the quality of the clothes, unlike the fast fashion that breaks down and ends up in landfills. Clothes are dry cleaned with the use of non-toxic products. The shipping carton has been developed by the brand: ecological clothing bags that can be reused. The protective plastic packaging of clothes are returned for recycling. The return of clothes is free, prepaid. Members have insurance covering most of the setbacks. In addition to the site, customers can download the application on the phone as the brand makes use of Instagram, Facebook, Twitter, Pinterest social networks. There are currently five Chicago, NYC Flagship, San Francisco, To-panga, and Washington DC stores.

P2P Plataform

Wardrobe is a mobile app that allows connect people so they can share and rent clothes or accessories in an easy, intuitive, safe and smart way. It guarantees comfort, economy and variety of garments for any situation. The interested party must photograph the clothes that will be shared, sign up for the mobile application, post the clothing, and give a brief description and value. It foresees the possibility of partnerships with outsourced services and partners (delivery, laundry, repairs, etc.). Wardrobe can also be used by students of Fashion Design, serving as a showcase for the work of future stylists in the beginning of their careers.

The Wardrobe makes use of "Mach" tool, which helps in the measurements of the clothes. To know if the clothes are "good", just register height, bust, waist and hip. The Wardrobe Technological Differential is an application version with cognitive intelligence and hability to understand and know is the user's behavior, so that the Wardrobe can suggest and offer garment pieces in accordance to individual tastes. Culminates in the creation of a Big Data capable of collecting, analyzing, interpreting the information derived from the use of the platform by the users. In this way it will be able to develop, with the use of Artificial Intelligence, an individual personal style, able to guide the user in their choices, according to their habits and needs.

The child segment is one of the sectors with the highest activity to be explored within collaborative consumption.

Final Considerations

This article dealt with the concepts and applications in the market for collaborative and circular economies in the field of Fashion and Clothing.

The market for redistribution through the p2p platform keeps in circulation products that were previously idle. Durable products remain valuable for longer periods, allowing the exchange, resale or lease to another user. The rent allows the owner to monetize his goods without discarding the product, Weetman (2017).

According to Vezzoli (2010), the PSS system design has been defined by the United Nations, UNEP2002 as the result of an innovative strategy that takes the core business to meet specific demands with greater versatility.

The Services and Products System (PSS) is an economic innovation opportunity that enables companies to offer a series of products and/or services. It is known as a model for dematerialization because it modifies consumption patterns. The PSS is an opportunity to innovate ecoefficient systems by optimizing three objectives: increase the product life cycle, extend the life of materials and minimize the use of resources.

Collaborative business models are inspired by the great deals already made, such as Netflix, Airbnb and Uber, all examples of success. Increasing interactions in social networks in real time has changed the way we behave on a global scale, increasingly incorporating social and environmental concerns. The movements of activist network account for more transparency in the textile and clothing industry and influence consumers to change their behavior, creating new business models such as those presented in this article.

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