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ALTRUISM AND CULTURE AS DRIVERS FOR CIRCULAR ECONOMY ENGAGEMENT

Larissa Herminio Lopes de Morais

Dissertation presented as the partial requirement for obtaining a Master's degree in Information Management, specialization in Marketing Intelligence.

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ABSTRACT

Circular Economy (CE) is posited as a solution to the rise of environmental impact with economic prosperity by introducing alternative systems of production, consumption and disposal. The recent attention that this holistic framework has been gaining on government implementation policies and businesses structures is due to a significant amount of successful projects already implemented around the world and data driven information supporting CE practices as effective and attainable on a global scale. Consumer engagement is considered one of the key challenges that Circular Economy has been facing to achieve a higher level of implementation. To understand consumer's motivations, to adopt distinct forms of consumption not only on the purchase phase but also on using and discarding products is the central objective of this research. The present work aims to consider previous studies of culture, altruism and need for social status as dimensions that were proved to predict, motivate and supports consumer's action towards sustainability; understanding cultural orientation effects on altruism (pure and competitive) and need for social status, proposing a match between pure altruism and circular economy engagement. The findings indicate that people with horizontal collectivism cultural orientation will be motivated by pure altruism and individuals with vertical individualism cultural orientation will be motivated by competitive altruism. Furthermore, that pure altruism motivation will drive circular economy engagement. By combining identity goals and consumer's motivation for engaging in a circular economy we contribute with knowledge for the elaboration of strategies and public policies for enhancing and stimulating circular economy acceptance on a consumer's perspective.

KEYWORDS

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LIST OF ABBREVIATIONS AND ACRONYMS

CE   Circular Economy

SB   Sustainable Behavior

IBM   Identity-Based Motivation

PA   Pure Altruism

CA   Competitive Altruism

HI   Horizontal Individualism

HC   Horizontal Collectivism

VI   Vertical Individualism

VC   Vertical Collectivism

NSS   Need For Social Status

EMAF   Ellen McArthur Foundation

1. INTRODUCTION

As human population rises, the increase in consumption at a global perspective has led to an enormous demand for natural resources in sectors such as food, transport, energy, material and chemical production (Crenna et al., 2019). Over 50 percent of world's population lives in urban areas, a proportion that should increase to 66% by 2050. As a result, urbanization and demographic growth tends to add another 2.5 billion people to urban population by 2050 (United Nations, 2014). Due to urban concentration, human conditions have been affected with greenhouse gas emissions, carbon dioxide, increasing amount of traffic and waste disposal (Sun et al., 2016).

Through this lens, we are consuming resources at a 50% faster rate than it can be replaced, and that by 2030 it will be necessary two planets worth of natural resources to provide our demand, there are several negative consequences for our planet as results of the current system such as Loss of biosphere integrity and climate and land-system changes. As we live in a world with finite resources, the current production and consumption on a linear perspective where societies are relying on, can't be affordable and attainable when thinking in a long-term run and future generations (Esposito et al., 2018). Our current economic model can be described as linear, meaning that resources are taken and further utilized on the production of goods that will be used and discarded.

The Industrial Revolution was a process characterized for massive economic and social transformation, our current lifestyles have made the planet a "*take, make, dispose*" world, characterizing our economic model as linear (Esposito et al., 2018), this linear economic model makes waste amount chronically rise and economic development is then deeply attached to inputs of new resources and virgin materials. Current ways of consumption and linear production processes of products and services have been putting in jeopardy resources and environmental balance, among other social and economic issues that has been a proper concern on a global level.

Therefore, changing our current linear model of economy to a circular one has attracted attention from major global companies and government institutions (Wautelet, 2018). Within this perspective, circular economy (CE) is posited as a solution to the rise of environmental decimation with growing global economic prosperity by introducing new systems of production, consumption and disposal (Chamberlin & Boks, 2018) and although the efforts for Circular Economy is recent, it is considered an essential contribution to develop a low carbon, sustainable, resource efficient and competitive economy on a European perspective. "Towards a Circular Economy" (COM/2014/38) was the first communication made by the European commission in 2014 and in December 2015; it was adopted an ambitious package with several measures to stimulate Europe's transition towards a Circular Economy, focusing on the use of resources in a more responsible and sustainable way. They included proposals on waste management and an action plan, named: "Closing the loop – An EU plan for the Circular Economy" (COM/2015/0614 Final). The proposed plan suggests actions for "closing the loop" of the life-cycle of products through a more efficient recycling habits and re-use actions, while considering energy serving and reducing greenhouse gas emissions (LE Europe et al., 2018).

For Thøgersen, (2005) there are three principal groups of actors that influence the sustainability of private consumption: consumers, governments, and business. Reinforcing this perspective Otero et al., (2019) consider consumers as a key actor of CE. The present work will focus

on consumer's as a key actor of circular economy, considering that a transition to a circular economy it's a challenge and reacquires cooperation and coordination of different spheres of influence, such as societal norms impact and acceptance; attitude and consumer's actions (Ellen MacArhtur Foundation, 2013). Marketing and communication are considered as effective tools on awareness, introducing new products, services, desires and needs on society. Communication strategies, consumer persuasion and consumer actions toward sustainable behaviors are considered key enablers for Circular Economy, meaning that researches and studies within this context can in fact enhance certain changes required to increase consumer involvement and to engage on a more sustainable pattern of buying, using and discarding products.

Past research suggests that consumers cultural orientation affects in the process and the type of goals that will motivate consumer's (Shavitt et al., 2006). Also, that altruism is defined as a behavior aimed at benefiting others (Soosai-Nathan et al., 2013); and that altruism and need for social status are drivers for consumers to engage on more sustainable practices (Costa Pinto et al., 2019; Ferguson et al., 2012; Hardy & Van Vugt, 2006; Willer et al., 2012). As culture play a powerful role in shaping human functioning and evolution (Boehm, 2008) and altruism is also guided by cultural norms and values (Soosai-Nathan et al., 2013), our study extends this comprehension by relating all cultural orientations to different types of altruism and also on exploring which type of altruism will in fact impact on circular economy engagement.

While previous researches contributed by showing the importance of understanding consumer's motivations towards pro social and environmental behavior, these researches are limited to recycling or to products that typically requires a low level of consumer involvement, such as food-related products, apparel, and cosmetics (McGoldrick & Freestone, 2008; Puska et al., 2018). The present research aims to contribute with suggestions for fostering circular economy by exploring consumer's motivation through culture, altruism and need for social status. First, we have a set of hypotheses relating culture, altruism and need for social status. Second, we will have a set of hypotheses relating pure altruism with circular economy engagement, sustainable behavior and green buying intention. Drawing on the IBM (Identity Based Motivation) model, showing that the way people perceive their self's as individuals or group members affects the goals and strategies of consumption, reinforced by the fact that a salient identity can trigger mental processes that guide subsequent action (Oyserman, 2009), we propose that pure altruism motives matches with sustainable behavior, like circular economy engagement and green buying intentions.

2. LITERATURE REVIEW

2.1 IDENTITY-BASED MOTIVATION AND CULTURAL ORIENTATION

Anchored on (IBM) identity-based motivation (Oyserman, 2009) and evolutionary altruism (Van Vugt et al., 2014), we pursue to understand how cultural dimensions may shape altruism roles. Daphna Oyserman is the main researcher behind the Identity Based Motivation (IBM) model (2009), a social psychological theory of human motivation developed from the light of both self-concept and cultural differences (Shavitt et al., 2009). The IBM is often used to understand consumer's behavior and its relationship with culture and identity saliency, trying to explain when and how people's identities and cultural values will create motivation for consumers to engage on a specific action (e.g.: recycling or buying a green product).

According to Oyserman (2009), choices are identity-based and identity-congruent and when certain identity values become salient, it can trigger mental processes that guide subsequent action. In fact, social identity theories indicate that the way people perceive themselves as individuals or group members affects the goals and strategies they use in their consumption patterns and by making one's identity salient it is possible to activate mental processes that can guide subsequent behaviors and actions, when this happens identity processes operates beyond the own conscience of the individual, favoring the individuals group identity (Shavitt et al., 2009). Taking these considerations and relating it to circular economy engagement, managers and policy-makers on the front line of CE implementation needs to consider cultural relevant values, because this will influence the interpretation of an individual environment and the procedures used by one's responding to it.

Shavitt et al., (2009) defines culture as elements that provides common standards for believing, perceiving, evaluating, communicating and acting between individuals who share a language, a historical period and a geographical location. When considering culture as a psychological construct, it is possible to understand it in several ways: across nations, across ethnic groups within nations (focusing on cultural orientations), across individuals within nations and through contexts and situations. But the important thing is that regardless of how culture is studied, cultural orientation has a significant role in consumer behavior, persuasiveness of appeals, consumer motivation, consumer judgment processes and consumer response.

With over 40.000 citations, Geert Hofstede brought a huge contribution for cross-cultural research when back in 1980 contributed with "Individualism" and "Collectivism". Those cultural dimensions explored culture and its effects on people's social beliefs, priorities and behaviors (Beugelsdijk et al., 2016), Hofstede's dimensional model of culture has been utilized on a number of theories in multidisciplinary fields, such as advertising, global branding and associated to consumer behavior, the model is often applied on researches and studies aiming to explain the concepts of self, personality and identity and it is a valuable knowledge in branding strategy and communications (de Mooij & Hofstede, 2010).

Hofstede argued that in more individualistic cultures people are more independent and have a strong sense of self-orientation comparing to those who are from collectivist cultures that usually are more interdependent and strongly oriented by in groups. "*Individualism is characterized by independence, self-reliance, freedom of choice and a high level of competition*" (Shavitt et al., 2006)

and collectivism is characterized by an emphasis on connectedness, social contexts and relationships (Aaker & Maheswaran, 1997). However, giving the complexity of cross-cultural studies for the globalized world in which we are living today, there has been a strong argument that the Individualism/collectivism categories as two extreme ends it is not sufficient to understand cultural orientation.

For that matter, the present study highlights Triandis (Singelis et al., 1995; Triandis, 2001) suggestion of other types of Individualism and Collectivism, considering equality and hierarchy as drivers for cultural dissimilarities. The author suggests that Individualism/Collectivism when emphasizing equality is considered horizontal and when emphasizing hierarchy is vertical. With the effort of understanding new consumer psychology occurrences, (Shavitt et al., 2006) proposes valuable studies on the Vertical/Horizontal distinction also taking as a basis Hofstede previously and widely Individualism/Collectivism categories. The authors take in consideration perspectives that originates from the power distance national cultural dimension proposed by Hofstede but other than that it has also been related with personal values such as achievement, conformity, power and self-direction. Below there is a chart adapted from Shavitt et al., (2006), considering individualism/collectivism and horizontal/vertical pairs of categories:

	Horizontal (emphasis on equality)	Vertical (Emphasis on Hierarchy)
Individualism (Independent self)	Being unique and peculiar Being self reliant Being humble	Need for social status via competition Seeking power andprestige Standing out
Collectivism (interdependent self)	Maintaining generous relationships Shared goals with others Cooperation	Holding and guard in-group status conformity harmony

Figure 1 Cultural dimensions categorization adapted from (Shavitt et al., 2006)

Figure 1 exposes characteristics of four cultural orientation, horizontal individualists (HI), vertical individualist (VI), horizontal collectivism (HC) and vertical collectivism (VC). For (Triandis, 2001) on (HI) culture people aim to be unique and do their own thing, on (VI) are competitive and very individualist, on (HC) people aims to be merged on their in-groups and (VC) are submitted to authorities of their in-groups and sacrifices themselves for their in-groups. Researches have concluded that individual differences toward cultural orientations and salient self-construal's (e.g.: independent vs. interdependent) has an actual effect on people's goals, information processing and for consequence, persuasion (Shavitt et al., 2006). Circular economy related production needs to be congruent with identity-based motivation in a way that innovative business models, alternative ways

of consumption and products actually reflects social classification and make an actual reference to groups and the target audience they are trying to achieve, considering that, advertising that match these functional affordances are more persuasive than those that not (Shavitt et al., 2009).

According to Shavitt et al. (2006), information that emphasize group goals, interdependent relations and personal rewarding are more prevalent on individualists cultures, the ones that emphasize group goals, harmony and consensus are more prevalent in collectivist cultures. And advertising emphasizing hierarchy and status are more accepted on vertical Cultures. Also, content that puts an emphasis on prestige, status, hierarchy and distinction are more relevant in cultures considered as vertical and inappropriate for horizontal cultures. It is intriguing that status and hierarchy does not focus a lot of research on consumers' persuasion domain, even though it is strongly present on modern advertising contents. Previous researches have already suggested differences across cultural contexts and orientations, and that there is a relation with behavior change. For this matter, it becomes important for the present work when considering that when cultural artifacts are taking in consideration by companies, Institutions and governments, it can promote an effective engagement on CE.

2.2 HOW CULTURAL ORIENTATION SHAPE ALTRUISM

Culture plays a powerful role in shaping human functioning and evolution (Boehm, 2008) and altruism is also guided by cultural norms and values (Soosai-Nathan et al., 2013). Consumer behavior researches have been considering cultural dimensions and how studies of making one's identity salient to activate mental processes that will effect individual's consumption patterns, but there is still a lack of evidence on its effects related to altruism motives. Altruism is defined as a behavior aimed at benefiting others (Soosai-Nathan et al., 2013); Moreover, altruism as motive for more sustainable practices and pro-environmental action as an altruistic behavior are discussions that have gained attention on psycho-environmental investigations and innumerous researchers have found significant relation between altruism and sustainable behaviors (Gärling et al., 2003).

Discussing the evolutionary basis for Sustainable Behavior (SB), Griskevicius (2012) asks: "*Why do humans continue to depreciate the environment and experience social problems?*" This question has a complex answer, and it has been studied throughout history on multi-disciplinary fields. The author support explanation highlighted by an evolutionary perspective, explaining that our ancestors used to move from a certain place when the resources available started to become scarce, suggesting throughout our past that humans naturally extract and consume the resources from the environment other than to conserve and preserve them and that we have a long record of producing environmental and social calamities (Griskevicius et al, 2012).

Most people have actual intentions on starting to behave differently to take good care of the environment and doing good for society, but changing old habits are a genuine challenge when we consider that human history is still a force on shaping modern behavior. Although many traditional societies had a deep relation with nature even considering it sacred, this didn't result on having low ecological impact (Low, 1996). "Humans are social animals" is a statement well known on the field of evolutionary psychology and it is related with previous researches dedicated to exploring issues considering reciprocity and altruism.

Hardy & Van Vugt (2006) discusses competitive altruism theory bringing to this debate questions of status and reputation, exposing that this theory is highlighted when individuals compete to each other when it comes to generosity, because to be an altruistic individual exposes one's status and reputation. The authors conducted three different studies aiming to prove competitive altruism hypothesis through experimental demonstration and could prove that people tended to be more altruistic when they were in public, highlighting his/her reputation and that when individuals decides to act altruistically they also started to be preferred as partners by other members of the group. Finally, he stated that as the cost of a certain altruism act increases, the person's status also increase (Hardy & Van Vugt, 2006).

As for theories regarding pure altruism, researches have tested that more pro-social people are usually motivated by pure altruism and stated that pure altruists are identified as people who are driven by an ultimate desire to help others even when this evolves self-sacrifice and no personal benefit (Ferguson et al., 2012). Researches regarding this same subject have also found that pro-social individuals are less concerned for their reputation and that they held less implicit associations with status (Willer et al., 2012).

Aiming to investigate the role of culture in altruism conceptualization and considering that altruism has significant implications for a wide variety of behaviors which influence the human condition, we explore a pro-social variable such as altruism across cultural dimensions to foster consumer's engagement on circular economy and other types of pro environmental behavior. At the present work, we relate (Singelis et al., 1995; Triandis, 2001) proposition of Hierarchy/Equality as categories to be added to Collectivism/Individualism aiming to comprehend the complexity of culture. According to (Shavitt et al., 2006) equality characterizes horizontal cultures (H) and hierarchy will be predominant on vertical (V) cultures. As we consider status as a prominent system of hierarchy, through which in some cultures individuals are ranked based on symbolic and tangible resource as prestige (Miyamoto et al., 2018) and that competitive altruism is related to status and one's reputation (Hardy & Van Vugt, 2006), we explore how HI, VI, HC and VC identity goals may affect both competitive and pure altruism motivations, thus we hypothesize:

H_{1a}: Horizontal Individualists will be motivated by Pure Altruism

H_{1b}: Horizontal Collectivists will be motivated by Pure Altruism

H_{2a}: Vertical Individualists will be motivated by Competitive Altruism

H_{2b}: Vertical Collectivists will be motivated by Competitive Altruism

2.3 CULTURAL ORIENTATION AND NEED FOR SOCIAL STATUS (NSS)

Need for Social Status (NSS) can be defined as a person's need for a positive public appearance (Flynn et al., 2006). As globalization rises and transform populations by its diversity, marketing efforts have been spanning throughout countries and cultures seeking to a better understanding on how social and individual characteristics jointly influence consumer response. Social status is a construct that belongs to a social context and it is likely to influence consumer's feelings and their response to marketing efforts (Grier & Deshpandé, 2001).

High-status individuals are believed to be more positively evaluated than low-status individuals (Mattan et al., 2017) and cultural orientation suits as a powerful lens through which individuals interpret the world (Markus & Kitayama, 1991). It is well known that cultural orientation shapes the effect of power on perceived status and vice versa (To et al., 2020). For instance, consumers who have strong collectivist identity goals are focused on status and reputation (Griskevicius et al., 2010; Hardy & Van Vugt, 2006). Status definition relates to rewards in a hierarchical system, meaning that higher status individuals have access to desirable things. However, status is also achieved through dominance (Griskevicius et al., 2010) but at the present work the focus is on status achieved through prestige.

Defining how perceptions of social status is activated in individuals and understanding how culturally based self-concepts is part of anticipating behavior predictions to bring effective change on people's mindset is an essential part for an effective transition considering consumers engagement on circular economy. As it was previously stated, behaviors can be encouraged when individuals perceive that they belong to a certain group and making certain values and characteristics salient is an actual strategy to companies, organizations and institutions, these agents must have in mind when trying to engage society on a more conscious way of consumption. We aim to better understand the relationship between cultural orientation and need for social status by uncovering all of four cultural orientations (VI, VC, HI, HC) and thus we put our third and fourth hypothesis:

H$_{3a}$: Vertical Individualists will be influenced by Need for Social Status

H$_{3b}$: Vertical Collectivists will be influenced by Need for Social Status

H$_{4a}$: Horizontal Individualists will be influenced by Need for Social Status

H$_{4b}$: Horizontal Collectivists will be influenced Need for Social Status

2.4 CIRCULAR ECONOMY

2.4.1 Concept and Contextualization

The core of circular economy is on closing and slowing loops, closing loops can be understood as recycling and slowing refers to retention of the product value through maintenance, repair, refurbishment and re-manufacturing (Bocken et al., 2016).The Industrial Revolution was a process characterized for massive economic and social transformation, our current lifestyles have made the planet a "*take, make, dispose*" world, characterizing our economic model as linear (Esposito et al., 2018) and this logic is still a reality. Our present Industrial and Economic systems rely on natural resources to offer factory inputs used to produce goods within a mass production and mass consumption perspective; the outputs of this production are further used and discarded, sometimes after a single use, neglecting the full potential of the resources. It is possible to affirm that we are relying on a wasteful economic model, materials are lost and products are under-utilized, this model is testing the limits of the natural resources and it has been an important subject on economic, cultural and societal levels.

Circular Economy (CE) has been posited as a solution to the rise of environmental decimation with growing global economic prosperity by introducing alternative systems of production, consumption and disposal (Chamberlin & Boks, 2018). The enthusiasm related to CE benefits aligns with sustainable development (Bocken et al., 2017). For instance, CE could mitigate CO_2 emissions by 48%, create a net economic benefit of EUR 1.8 trillion and two million additional jobs until 2030 only in the European Union (Ellen MacArthur Foundation & McKinsey Center for Business and Environment, 2016; European Comission, 2014). By rethinking industrial systems, there is an enormous opportunity to generate economic, environmental and societal benefits, it is a matter of achieving transparency of all energy and material used within production and consumptions processes and moving towards it is to break a paradigm and to disrupt the current models for production and consumption (The Ellen Mac Arthur Foundation, 2013). It is a project aiming to "Reduce, Reuse and Recycle", also known as the 3R's of circular economy that was further enhanced by "Refurbish and Repair", some authors already suggests the 5 R's for Circular Economy.

The central idea of this concept has emerged in the 1960s and it has been further discussed throughout the 1970s and beyond (Kirchherr et al., 2018). CE's concept has multiple definitions and its evolution was distinctive considering different global contexts. In Europe, it was originally developed in the United Kingdom by the Ellen MacArthur Foundation (EMF) and it has been a constant on theme when evolving policies implementation by the European Union and Enterprises. According to Esposito et al., (2018) CE *can be defined by its focus on maximizing what is already in use along all points of a product's life-cycle, from sourcing to supply chain to consumption to the remaining unusable parts for one function and their conversion back into a new source for another purpose.* The notion of a Circular Economy has been gaining attention worldwide as a disruptive economic model bringing factual, strategic, and structural processes to maintain the value of materials. CE proposes that the value of the resources extracted and produced are held in a circular flow throughout integrated chains of production (Webster, 2015).

Background literature considers that Circular Economy was first introduced by Pearce and Turner, but these environmental economists aren't considered as founders of the concept. Widely

literature review has than suggested that the origins of Circular Economy is rooted in ecological and environmental economics and in industrial ecology. Further suggested by the Ellen McArthur Foundation (2012), Circular Economy was enhanced with theories related to Performance Economy, Biomimicry, Cradle-to-Cradle and Blue Economy. There are five different schools of thoughts related to the urge of Circular Economy: The Spaceship Earth and Environmental Economics, Industrial Ecology, Cradle-to- Cradle, The Performance Economy, The Blue Economy and Biomimicry. In sum, the most important link with all the concepts mentioned above is the statement of the failure of our present industrial system. All these theories suggest the creation of a sustainable relation with the environment while mitigating the negative impact that has already been caused (Wautelet, 2018). In that regard, these previous concepts dialogue with the significance of thinking in systems when solving the problems of our current linear model and all of them brings an important contribution to Circular Economy.

Circular Economy aims to eliminate the concept of waste considering every material within a circular flow, enabling the material trajectory to preserve and transmit its value. The smart utilization of resources is already identified at production processes enabling an economic growth independent of new resources utilization. The creation of systems for repairing, reusing, recycling, and remanufacturing allows that the raw material introduced in this supply chain preserve or increase its value. Within a global perspective, CE can foster countries development, increase wellbeing and mitigate resources vulnerability, without placing unsustainable pressure on natural resources and respecting environmental limits. For companies, it offers a model of sustainable growth (Preston, 2012).

It is important to highlight the contribution of two important institutions working on developing and enhancing circular economy's possibilities throughout the world: The Ellen McArthur foundation and the McKinsey Global Institute, not only for the development of the concept but also the dissemination of the values, challenges and opportunities, aiming to speed up this transition establishing CE on the agenda of decision makers across business, government and academia. With tangible initiatives and an effort on disseminate data oriented information these agents have been showing that CE brings operational and strategic benefits, huge innovation potential, the creation of jobs and measurable economic growth.

One relevant contribution of the Ellen MacArthur Foundation for the present work is the butterfly diagram, its circular form interconnects seven main phases illustrating circular economic systems: *raw material design, design, manufacturing/remanufacturing, distribution, consumption/use/repair, collection and recycling.* The main objective of this diagram is to illustrate the circularity flow minimizing the resources that leaves the circle for the system to function with its optimal capacity. Circular Economy is present on the seven phases of the diagram, within the resources, materials, products and its components to maintain the product value in a resource efficient way at the same time preventing the waste of residues. The core idea is to add value in products for as long as it is possible while eliminating waste. Below there is an illustration of the butterfly diagram adapted from The EMAF (2016):
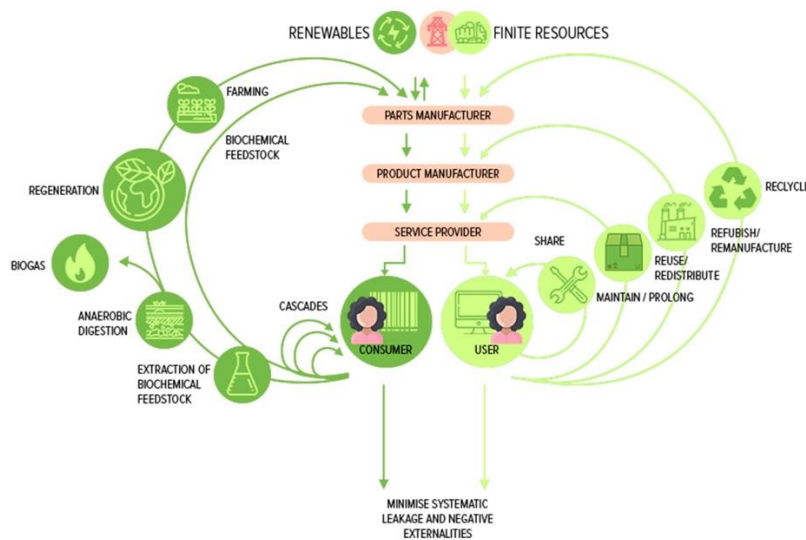
Figure 2 The Butterfly Diagram, adapted from the Ellen McArthur Foundation (2016)

According to the Ellen McArthur Foundation (2016), the Butterfly Diagram illustrate the flow of materials, nutrients, components and products, while adding financial value to the system. The idea is to rethink, redesign and re-structure resources, products and components by introducing alternative ways of production, consumption and disposal. It is the strategic interlink and combination of all material flow in a way that the outputs of systems are recaptured and reutilized as future inputs, enhancing not only productivity, profitability but also efficiency. Moreover, moving forward within this new disruptive system could eliminate a hundred million tons of waste on a global perspective in only five years (Esposito, 2018).

One of CE's key characteristics is the manufacturing processes and products designs, meaning that a specific product when created through an "open-loop" system, will be less durable, with low repairability and will probably be thrown away after its first use. Manufacturing processes within CE have the possibility to be developed based on reusability of products, components and materials and the restorative capacity of natural resources, while innovative business models can establish new relations between consumers and companies, e.g.: Product Service System[1], where companies delivers the feature of a product instead of the product itself, e.g.: Paying for a company to do copies and not buying a photocopy machine (Lewandowski, 2016).

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[1] " The term 'Product-Service-Systems' (PSSs) has been defined as "a marketable set of products and services capable of jointly fulfilling a user's need. The product/service ration in this set can vary, either in terms of function fulfilment or economic value." (Mont, 2002).

Of course, there is still room to change consumers' way of perceiving supply chain, business models, transparency through digital technology, clear data and management of resources, it will also be required a transformation on current energy production, developing renewable resources (e.g: eolic and solar energy), more biomaterials and bio-chemicals that can be safely degraded, flow management issues and recovery of secondary material. The Ellen Mc Arthur Foundation also provided clear structure for circular economy, characterizing working, processes, operations and objectives of these models, it also suggests five fundamental traits for Circular Economy, that are: design out waste, build resilience through diversity, work toward energy from renewable sources, think in systems and think in cascades (Wautelet, 2018).

2.4.2 Consumer's and Circular Economy

Consumer's and forms of consumption must be the primary attention for companies and economies trying to increase their participation in CE (Otero et al., 2019). A transition from a Linear Economy to a Circular Economy reacquires cooperation and coordination of different spheres of influence, such as attitude and consumer's actions (Ellen Mac Arthur Foundation, 2013). It is a fundamental change, enhancing sustainable consumption and a closed-loop mind-set not only within macro agents like business, industrial organizations, but also in society when changing consumption patterns.

 CE brings implications for society, since it requires an abrupt change in people's perceptions of values, patterns and relation to consumption. For example, if we are trying to reduce municipal solid waste or low greenhouse gas emissions within Circular Economy 3 R's model, such as reuse, reduce and recycle, we need to effectively promote the need for certain behavior changes on consumers (McKenzie-Mohr, 2000). CE literature has been focused on services and business models, somehow neglecting the necessary change on consumer's behavior to accept this new frame. Consumers play an important role on CE spheres of influence and for it to be tenable, society needs to acquire more sustainable behaviors (Lewandowski, 2016)

Brands, Companies and advertising also represent significant roles within this change as it represents powerful conduits of meaning that contributes to customer's needs, desires and lifestyles. Brands are also symbolic enablers of consumption and production and it is a powerful vehicle of information and meanings (Chamberlin & Boks, 2018). Cultural values, symbols and norms have been guiding the form of consumption and a mass consumption based lifestyle remains predominant on our daily routine. To enhance sustainable behaviors it is necessary for the promotion and acceptance of concepts such as responsible consumption, consumption reduction, voluntary simplicity and sustainable lifestyles (Muranko et al., 2019).

Consumer Behavior researches when relating to this subject include Circular Economies 3R'S, purchase, sharing and maintenance (Ellen MacArthur Foundation, 2012), but according to Daae et al., (2017) there is a lack of observation regarding fostering CE. As for Marketing Sustainable Consumption for CE, companies have an important part changing consumer behavior at buying, using and discarding products and reinventing their services and to understanding the drivers of consumer's motivations to engage on sustainable consumption is an important tool on the development of new business models, new markets, services and products. Making one's identity

salient can activate mental processes that will impact on individual's consumption patterns (Oyserman, 2009) and according to Shavitt et al.,(2006), some advertising appeals will be more generally accepted on some cultures than others and culturally matched ad appeals will in fact achieve a better result on the persuasion domain than others. But there is still a lack of evidence on how cultural dimensions and social constructs such as altruism and need for social status will affect distinct types of sustainable behaviors, such as circular economy engagement.

Taking these considerations and relating it with fostering circular economy, aiming a genuine change on consumer's behavior patterns, it is necessary to understand consumer's motivations within a cultural, identitary and symbolical context. What are the necessary strategies when we considered different cultural expressions? Since altruism motives and pro-social behaviors have been related in innumerous researches, what would be these implications when relating it to cultural dimensions? The present work adopts cultural dimensions and altruism motives as significant promoters of circular economy engagement. Cultural Dimensions (vertical individualism, horizontal collectivism, horizontal individualism, vertical collectivism), need for social status and altruism motives as drivers for behavior change towards sustainable behavior, green buying intentions and circular economy engagement (Repair, reduce, reuse, recycle and Refurbish) is the core of this research.

To our knowledge, specific customers' behaviors in the CE field have yet to be empirically validated and studied. In this study, we propose a conceptual framework (Figure 3) that integrates cultural dimensions with different types of altruism (pure and competitive) and need for social status. Our framework also aimed to understand pure altruism relation with different types of sustainable behaviors, as illustrated below, hypothesis from 1 to 8 were previously discussed and hypothesis from five to nine will be explored in the next chapter:
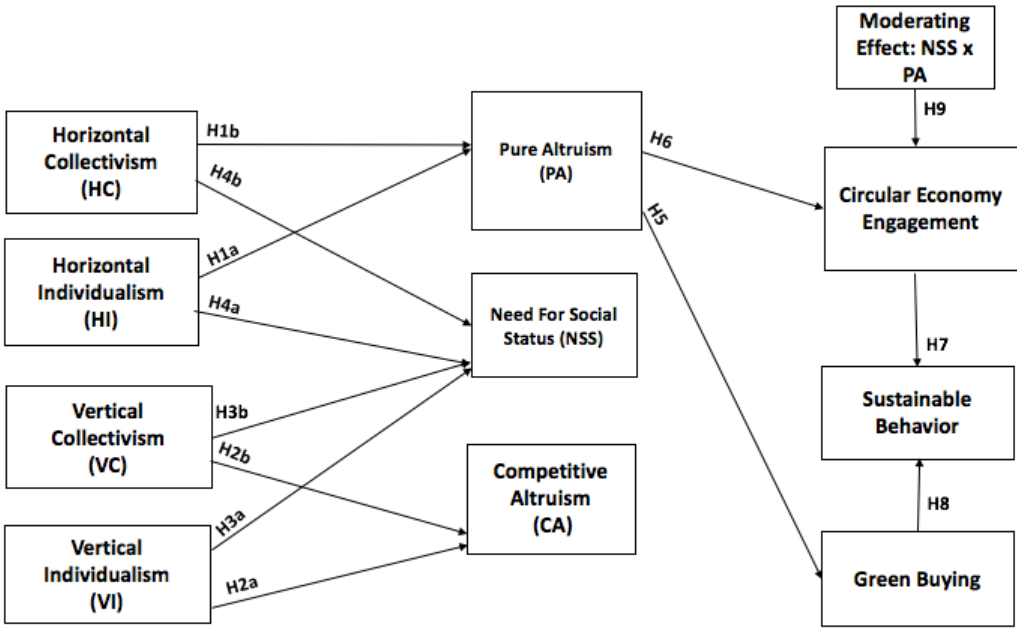

Figure 3 Conceptual Model

2.4.3 Altruism as a driver for circular economy engagement

Sustainable Consumption is a way of consumption that optimizes simultaneously social, economic and environmental consequences of acquisition, use and disposal, taking in consideration today's and future generations (Luchs & Mick, 2018). There is also a global agreement that sustainable consumption is not only important but necessary (Phipps et al., 2013) and changing individual behavior is central to achieving a sustainable future (McKenzie-Mohr, 2000). As for sustainable behavior (SB), it usually include the self-report of activities aimed at the conservation of the natural environment, the term is often considered a synonymous for "pro-environmental behavior" (Tapia-Fonllem et al., 2013), but SB is determined by pro-environmental (environment) and pro social (human) actions.

Recent researches suggests that status signaling and sustainable consumer choice have an important relation and that status motives increased the desire for green products (Puska et al., 2018). Furthermore, green buying has been widely related with status and when people engage in green buying they enhance their reputation (Griskevicius et al., 2010). Throughout this lens, Costa Pinto et al., (2019) explored different types of sustainable behavior such as recycling and green buying, stating that when a person is driven to help others but acts towards enhancing their own reputation and seeking for status, they will be driven by competitive altruism and when a person is willing to sacrifice their selves to help other or the environment, they can be driven by pure altruism.

Over the last decade, sustainable behavior research has gained relevant attention but when linking with significant behaviors for CE it is still very limited (Daae et al., 2017). As suggested, there are several empirical researches that aimed to understand the relation between people's action towards socially concern and sustainable practices of consumption, but when it comes to circular economy related behavior that implies different practices and actions for the actual consumer (reduce, reuse, recycle, refurbish and repair), there is not yet a significant effort to the study of consumers towards what CE requires. According to Kirchherr et al., (2018) previously literature focused on technical barriers as key challenges for CE implementation but various cultural barriers like lacking of consumer interest and awareness it is still a field to explore.

We propose that both pure and competitive altruism can drive specific behavior (sustainable behavior, circular economy engagement and green buying). Costa Pinto et al., (2019) proposes that when a person is driven to help others but acts towards enhancing their own reputation and seeking for status, they will be driven by competitive altruism and when a person is willing to sacrifice their selves to help other or the environment, they can be driven by pure altruism. Considering circular economy engagement, we have noticed that there is a lack of research regarding which types of altruism will motivate different kinds of sustainable behavior. Thus, we put in the last hypothesis:

H_5: Pure altruism will increase green buying intentions

H_6: When pure altruism is made salient people tend to engage on circular economy

H₇*: Engagement in Circular Economy will increase sustainable behavior*
H₈*: Green buying intentions will increase Sustainable Behavior*

H₉*: Need for social status and pure altruism will influence Circular Economy Engagement*

3. METHODOLOGY

The present study aims to identify variables that are significant and that predicts circular economy engagement. Thus, it was developed a survey to test our research hypothesis. Collectively, the research hypothesis was tested using a quantitative research with Partial Least Squares Structural Equation Modeling (PLS-SEM). Partial least square (PLS) method of Structural Equation Modeling (SEM) was applied using the software Smart PLS. This technique is suitable for theoretical causal models with theoretical hypotheses. The raise of SmartPLS utilization has demonstrated its robustness and the applicability of the model in marketing research and other academic fields (Ringle et al., 2014). Becker et al. (2012) suggested a two-step approach for this analysis: (1) reliability and validity of the measurement model to evaluate the structural model, and considering that the model has a second order latent variable, a two-stage analysis was carried out; and (2) the assessment of the structural model. This type of analysis guarantees that the present study has reliable and valid measures of constructs (Hulland, 1999).

3.1 MEASURES

Aiming to investigate circular economy engagement through culture, altruism and need for social status; this study was designed after adopting measures of each variable based on previous researches, the measures were validated before they could be used in further analysis. This study measures the questionnaire items by means of "seven-point Likert scale from 1 to 7" rating from strongly disagreement to strong agreement. The research model is composed of 10 dimensions: Horizontal Individualism (HI), Horizontal Collectivism (HC), Vertical Collectivism (VC), Vertical Individualism (VI), Need For Social Status (NSS), Pure Altruism (PA), Competitive Altruism (CA), Circular Economy Engagement (CEE), Sustainable behavior (SB) and green buying intentions (GB).

The cultural dimension scale was adopted from (Triandis & Gelfand, 1998), e.g.," I' rather depend on myself than others.", "I rely on myself most of the time; I rarely rely on others.", I often do "my own thing.", My personal identity, independent of others, is very important to me.", "Parents and children must stay together as much as possible.", "It is my duty to take care of my family, even when I have to sacrifice what I want.", "Family members should stick together, no matter what sacrifices are required.", "It is important to me that I respect the decisions made by my groups.", "It is important that I do my Jobs better than others.", "Winning is everything", "competition is the law of nature", "When another person does better than I do, I get tense and aroused", "If a coworker gets a prize, I would feel pride.", "The well-being of my coworkers is important to me.", "To me, pleasure is spending time with others.", "I feel good when I cooperate with others."

The pure altruism and competitive altruism scales was an adaptation of items proposed by Costa Pinto et al. (2019) – e.g.,: "I would engage on Circular Economy because I want to cooperate.", "I would engage on Circular Economy because I am motivated to help.", "When I engage on Circular Economy, I feel like I am sacrificing myself for others.", "When I engage on Circular Economy, I want to compete for status.", "When I engage on Circular Economy, I want to achieve higher social recognition.". The Need For Social Status construct variables was according to (Flynn et al., 2006) - e.g.,: "I want my peers to respect me and hold me in high esteem.", "I am not concerned with my

status among my peers.", "Being a highly valued member of my social group is important to me.", "I would like to cultivate the admiration of my peers.", "I enjoy having influence over other people's decision making.", "It would please me to have a position of prestige and social standing.", "I don't care whether others view me with respect and hold me in esteem.", "I care about how positively others view me."

As for the variables regarding Circular Economy engagement and sustainable behavior constructs, it was assessed based (LE Europe et al., 2018) - e.g.,: "I always keep thing I own for a long time.", "I always recycle my unwanted possessions.", "I always repair my possessions if they break.", "I buy second hand products.", "I always buy the latest fashion for clothes.", "I always buy new the newest electronic goods and gadgets.", "It is Important to be environmentally friendly.", "I want my friends to know that I care for the environment.", "When I buy things, I know the expected lifespan of the product.", "I am aware of repair services for the products I own.", "Second hand products are usually good quality." And finally, the scale for Green Buying was assessed from (White et al., 2011) - e.g.,: "How likely are you to engage on Green Buying?", "How inclined are you to engage on Green Buying?", "How willing are you to engage on Green Buying?".

3.2 PARTICIPANTS

A hundred and seventy Portuguese and Brazilian citizens were invited to respond to this research in an online survey, the choice of the countries is due to greater accessibility to respondents. When characterizing our sample by its demographic profile, we identified that 61% of the respondents are females and 68% were Brazilians, the average age of the respondents is between 25 and 35 years, representing 52% of the sample, against elderly people between the ages of 56 and 74 representing only 1% of the respondents.

To evaluate the present research model, respondents were exposed to a questionnaire first following the study participation consent. The questionnaire was divided in four parts, the first session of the questionnaire address participant demographic characteristics, the second part contains questions regarding cultural dimensions, the third part evaluate circular economy engagement, sustainable behavior and altruism motives and finally, the fourth session evaluate the willingness of the respondents to green buying.

4. RESULTS

To evaluate the hypothesis, Structural Equations Modeling (SEM) was employed using Partial Least Squares Structural Equations Modeling (PLS-SEM), this statistical technique estimates causal relations by combining statistical data and qualitative causal hypotheses (Dijkstra & Henseler, 2015). It was followed a two-step phase for the present work: (1) Reliability and validity of the measurement model; and (2) Assessment of the structural model (Becker et al., 2012).

4.1 ASSESMENT OF MEASUREMENT MODEL

The measurement model was firstly evaluated by the measures through the t-statistics results and it was assessed by examining the loadings factors, which should be greater than 0.7 to be considered statistically significant (Hulland, 1999). The construct reliability was then evaluated utilizing composite reliability for each construct, as displayed on table 1, first it was observed the Average Variance Extracted (AVEs) to guarantee convergent validity. The referential values for AVE is >0.5, this will ensure that the latent variables are able to explain more than half of the original indicator's variance (Fornell & Larcker, 1981). The table below shows that all the AVEs are greater than 0.5. Other than that, table 1 displays Cronbach's Alpha, Composite Reliability (CR) for all the constructs.

Observing the internal consistency values (Cronbach's Alpha) and the Composite Reliability (CR). According to Hair et al. (2014), the referential value for the Cronbach's Alpha is > 0.70 and for the Composite Reliability (CR) the same: >0.70 (Hair et al., 2014). Table 1 demonstrates that the CA values for CE Engagement, Horizontal Individualism and Horizontal Collectivism are a bit lower than the average that is considered satisfactory, this issue will be further on discussed on the limitations of the present work.

Dimensions	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Sustainable Behavior	0.714	0.873	0.775
CE Engagement_	0.561	0.814	0.688
Competitive Altruism_	0.786	0.903	0.823
Green Buying_	0.938	0.960	0.889
Horizontal Collectivism_	0.654	0.846	0.734
Horizontal Individualism_	0.585	0.804	0.679
Moderating Effect - NSS x Green Buying	1.000	1.000	1.000
Moderating Effect 2 - Need x Pure Altruism	1.000	1.000	1.000
Need for social status_	0.783	0.860	0.606

Pure Altruism_	0.844	0.928	0.865
Vertical Collectivism	0.742	0.850	0.657
Vertical Individualism	0.734	0.833	0.554

Table 1 Convergent validity and Reliability

Furthermore, we analyze the Discriminant Validity (DV) checking indicators with higher factorial loads in their respective Constructs (Latent Variables), the square root of the AVE was also measured to perceive if the estimated values were greater than the correlations coefficients between the constructs (Fornell & Larcker, 1981), the validity was confirmed as showed at the table below:

CONSTRUCTS	SB	CEE	CA	GB	HC	HI	ME -1	ME-2	NSS	PA	VC	VI
SB	**0.881**											
CEE	0.464	**0.829**										
CA	0.036	-0.014	**0.907**									
GB	0.492	0.211	0.069	**0.943**								
HC	0.005	0.030	-0.056	0.041	**0.857**							
HI	0.117	0.022	0.017	0.083	0.187	**0.824**						
ME-1	0.037	0.078	-0.101	-0.276	0.052	0.167	**1.000**					
ME-2	0.026	-0.112	0.041	-0.230	0.022	0.126	0.732	**1.000**				
NSS	0.020	0.080	0.219	0.196	0.226	0.266	-0.050	-0.144	**0.779**			
PA	0.443	0.296	0.013	0.608	0.178	0.048	-0.235	-0.232	0.208	**0.930**		
VC	-0.103	0.003	0.184	-0.127	0.180	0.111	0.050	0.048	0.141	-0.097	**0.811**	
VI	0.040	0.042	0.294	0.039	0.090	0.180	-0.021	-0.046	0.481	0.090	0.255	**0.745**

Table 2 Discriminant Validity

4.2 ASSESMENT OF STRUCTURAL MODEL

Taking in consideration that all criteria's and evaluation of the measurement model were made, we further start the analysis of the structural model. A bootstrapping with 5.000 subsamples was used to check the relation between the hypotheses and constructs through the examination of the standardized paths, based on the Student T-test values. At first, we analyze the interrelation among the constructs. To have significant values, the T-test referential value is ≥ 1.96 (Hair et al.,2014). We have also we evaluated the p value to see if the relations were significant, and for that p > 0.5). Over this perspective, both values have to be correlated. The table below shows our model correlations:

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Horizontal Individualism_ -> Pure Altruism	0.026	0.039	0.088	0.297	0.766
Horizontal Collectivism_ -> Pure Altruism_	0.198	0.203	0.103	1.927	0.054
Vertical Individualism -> Competitive Altruism_	0.273	0.275	0.069	3.969	0.000
Vertical Collectivism -> Competitive Altruism_	0.136	0.139	0.083	1.633	0.102
Vertical Individualism -> Need for social status_	0.443	0.449	0.078	5.703	0.000
Vertical Collectivism -> Need for social status_	-0.018	-0.015	0.073	0.242	0.809
Horizontal Individualism_ -> Need for social status_	0.158	0.163	0.077	2.050	0.040
Horizontal Collectivism_ -> Need for social status_	0.160	0.153	0.095	1.687	0.092
Pure Altruism_ -> Green Buying_	0.595	0.592	0.064	9.250	0.000
Pure Altruism_ -> CE Engagement_	0.267	0.271	0.101	2.646	0.008
CE Engagement_ -> Sustainable Behavior	0.356	0.354	0.068	5.245	0.000
Green Buying_ -> Sustainable Behavior	0.345	0.345	0.081	4.272	0.000
Moderating Effect - Need x Pure -> CE Engagement_	-0.265	-0.263	0.095	2.798	0.005

Table 3 Bootstrapping Results

Consequently, the significance of the cited relations is evaluated using the Bootstrapping module (re-sampling technique), this result provides support for the hypothesis (*H1b, H2a, H3a, H4a, H5,H6,H8 and H9*). As table 3 demonstrates, our results show that the relation between horizontal collectivism and pure altruism is marginally significant (p= 0.054/ t-test=1.927) but when related with need for social status it is not supported (p=0.092/t-test=0.1687). As for vertical individualism, it is highly correlated with competitive altruism (p=0.000/t-test=3.969), supporting our hypothesis *H2a*. As for our hypothesis relating cultural orientation and need for social status, our model shows compatibility between this dimension and vertical individualism (p= 0.000/t-test= 5.703) and with horizontal individualism (p=0.04/t-test=2.050), supporting hypothesis *H3* and *H5*. Furthermore, our model showed no significance between horizontal individualism and pure altruism (p=0.766/t-test=0.297) and suggested that vertical collectivists won't be impacted by competitive altruism (p=0.102/t-test=1.633) and need for social status (p=0.766/t-test=0.297). Our results correlate pure altruism with green buying intention (p=0.000/t-test=9.250) and circular economy engagement (p=0.008/t-test=2.646), supporting our Hypothesis *H7 and H8.* As for the hypothesis *H9* (p=0.000/t-test=5.245)*, H10 (p=0.000/* t-test=4.272) *and H11(p=0.005/* t-test=2.798), it is also supported.
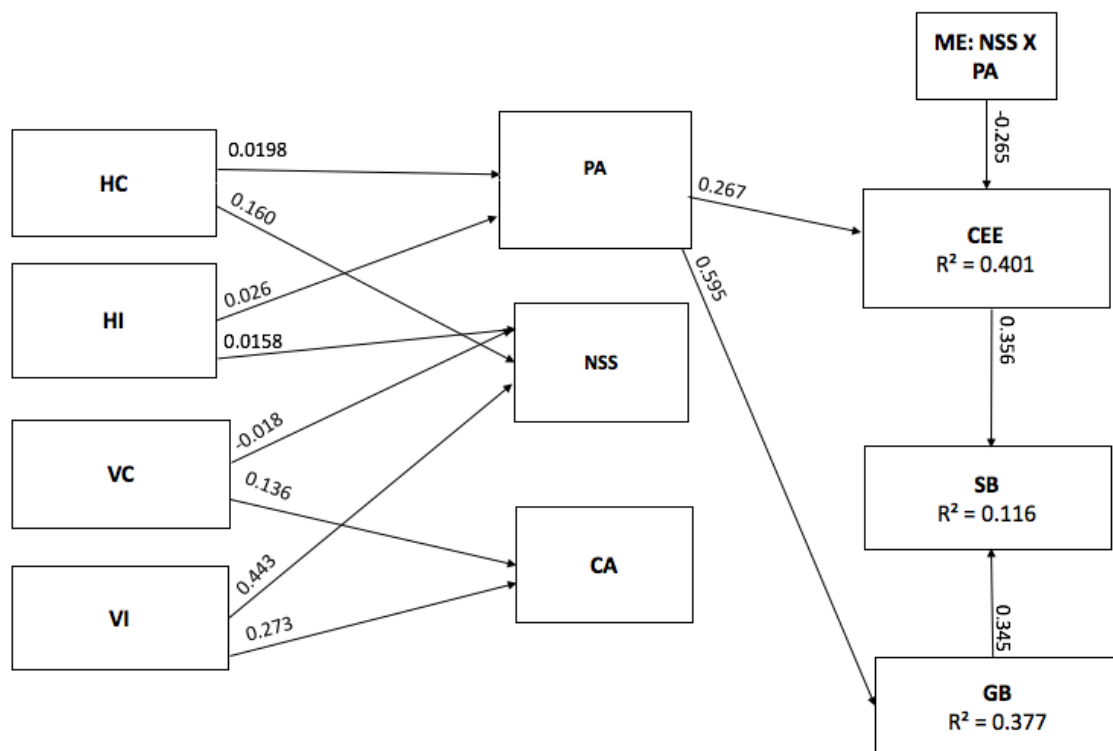
Figure 4 Results of Structural Equation Modelling

Following SEM analysis, table 4 illustrates our results regarding the structural equation modelling. The cultural dimensions will in fact impact more on need for social status dimension (R^2=0,28%). As for competitive altruism cultural dimensions impact is 11% (R^2=0,111), this might be because competitive altruism has intrinsic relation with need for social status, more than pure altruism. As we are working with a predictition tool, our aim was to understand how pure altruism will indeed impact different kinds of pro-environmental behavior.

For this purpose, we have stated that green buying intentions ($\hat{\beta}=0,595,$ R²=0,377$)$ and CE engagement ($\hat{\beta}=0,207,$ R²=0,401) will increase when consumers shows pure altruism motives, *eg:* An individual with pure altruistic motivation will start to buy 37% more of green products and will enhance their CE related practices in 40%. We have also tested a model with competitive altruism relating to circular economy engagement and green buying that didn't bring us a satisfactory result. As for the moderating effect, when we related need for social status and pure altruism with circular economy engagement ($\hat{\beta}= -0,265$), we have negative effect reinforcing that pure altruism and need for social status are antagonic concepts. It is also relevant to mention that we have also tested a model with competitive altruism relating to circular economy engagement, green buying intentions and sustainable behavior and we didn't have plausible results, so we have decided to run another model with pure altruism only. Below (table 5), it is a summarization of our hypothesis and results according to our model:

Hypotheses	Path Coefficient	T Statistic	P value	Result
H1a	0,160	0.297	0.766	*Not supported*
H1b	0,198	1.927	0.054	*Supported*
H2a	0,273	3.969	0.000	*Supported*
H2b	0,136	1.633	0.102	*Not supported*
H3a	0,443	5.703	0.000	*Supported*
H3b	-0,018	0.242	0.809	*Not supported*
H4a	0,158	2.050	0.040	*Supported*
H4b	0,160	1.687	0.092	*Not supported*
H5	0,595	9.250	0.000	*Supported*
H6	0,267	2.646	0.008	*Supported*
H7	0,356	5.245	0.000	*Supported*
H8	0,345	4.272	0.000	*Supported*
H9	-0,265	2.798	0.005	*Supported*

Table 4 Results of Structural Equation Modelling

5. GENERAL DISCUSSION

5.1 THEORETICAL IMPLICATIONS

The world is globally facing the rise of population associated with the irresponsible consumption of resources and negative environmental effects, the urge of an alternative to our traditional linear model has led to an emergence of the discussion of a Circular Economy (CE) (Wautelet, 2018). Governments and Policy-makers should accelerate this transition as a response to climate change, scarcity of water and other environmental global challenges (Preston, 2012). This perspective requires cooperation and coordination of different spheres of influence, such as: government and politics, businesses, service management and practices, societal norms and its influence and acceptance, attitude and consumer's actions (Ellen Mac Arthur Foundation, 2013).

Our results suggest that the proposed model did not validate the relationship between horizontal individualists with pure Altruism, our model tested non-significant against our prediction. This might be because even if horizontality is related to equality (Shavitt et al., 2006), individualism is related with increased sensitivity to gains from status and competition and HI individuals usually rests more heavily on market activities than does on pro-social cooperation (Snower & Bosworth, 2016). Our hypothesis suggested horizontal collectivists will be motivated by pure altruism and this was validated on the present model, congruent with previously researches, as the findings of Shavitt et al., (2010) that stated that on horizontal collectivism cooperation is highly valued and pure altruism is related to benefiting others even at the cost of a person's individual resources (Batson & Shaw, 1991), previous studies also stated that pure altruism has to do with cooperation (Hardy & Van Vugt, 2006).

The relation between vertical individualism and competitive altruism was supported by our model, congruent with (Shavitt et al., 2006) propositions of verticalism and hierarchy relation. Our model showed no significance for vertical collectivism and competitive altruism, this might be because when isolating the collectivism cultural dimension researches shows that collectivists individuals tends to emphasize group goals over personal ones and tends to become more cooperative and willing to help, when compared to individualist people (Ali et al., 2019). In consequence, our model research supported our hypothesis regarding vertical individualist and their inclination towards social status, which dialogues with previous researches that already proved that individuals or cultures with a VI focus tend to reinforce competition and achievement as compared with other value orientations (Shavitt et al., 2010; Singelis et al., 1995). Reinforcing this perspective researches also suggests that VI consumer are more likely to value symbols that relate to status (Shavitt et al., 2006). This was also predicted by Griskevicius (2012) that have stated that Competitive Altruism derives from our ancestral tendencies of being motivated for status.

As afore mentioned, our research model results did not show a significant relationship between vertical collectivists characterized by need for social status, incongruent with To et al., (2020) who raised features of vertical collectivism and suggested that characteristics of VC indicate a tendency towards status. It is important to mention that there are fewer studies when relating vertical collectivism with power and status, then studies aiming to understand the relation between

vertical individualists and status. The relation between horizontal individualism and need for social status is proved to be significant by our model, consistent with (Shavitt & Cho, 2015) findings that identified that in HI societies such as Sweden, Denmark, Norway and Australia, people value equality and wants to express their uniqueness rather than improving personal status. Furthermore, our data couldn't find any relation with horizontal collectivism and need for social status, this might be because status is one of hierarchy dimensions (Torelli et al., 2020) and on HC cultures, such as Brazil and other Latin American contexts, people value sociability within an egalitarian framework, not hierarchy (Torelli & Shavitt, 2010).

Cultural analysis alerts us to alternative social values that justifies courses of actions, such as consumer's behavior change towards circular economy, our study explores cultural orientation matched with certain altruism types; we clearly found relations between horizontal collectivism and pure altruism, also between vertical individualism and competitive altruism. Over this perspective and according to previous studies regarding cultural orientation and altruism motivation, we contribute by proposing a framework where these values are not neglected by business and institutions that are currently working on fostering a more sustainable future, regarding new ways of consumptions.

Our data suggested a significant relation between pure altruism and green buying intentions, extending Costa Pinto et al. (2019), that mentioned a gap on exploring which types of altruism will motivate different kinds of sustainable behavior. This research also determines that when pure altruism is made salient people tend to engage on circular economy. As we previously consider on this literature review, CE practices are more related to cooperation than with competition and status, aligned with the findings of (Costa Pinto et al., 2019) that found a significant relation between pure altruism and recycling cooperation which is one of circular economy dimensions.

As previously stated, sustainable behavior is a synonym for "pro-environmental behavior" but it has been used to focus on not only the protection of the natural environment but also related with actions aiming to protect the social (human) environment (Tapia-Fonllem et al., 2013). As for circular economy, social changes are also necessary to reach a significant level of recycle, for example. Furthermore, CE practical approaches implies a more social and solidarity social and solidarity economy (Moreau et al., 2017). Over that perspective, our data found close relation between circular economy engagement and sustainable behavior, meaning that if a consumer is already engaged in circular economy, his/her level of sustainable behavior will indeed increase.

As for green buying intentions, it will increase sustainable behavior, meaning that individuals who already intend to go green for social status will be more likely to engage in other types of sustainable behavior. Finally, need for social status and pure altruism was confirmed within our model being two antagonic dimensions, when we moderate the effect of these two dimensions in our model we have had a significant relation with a negative effect, probably because status and altruism are incongruent with each other. In other words, when consumers are more likely to be altruistic, the effect of need for social status is low when it comes to CE engagement.

There is an arise of discussions aiming for more detailed investigations relating circular economy and consumers (Hobson & Lynch, 2016; Mylan et al., 2016; Welch et al., 2017) and these discussions have been absent from policy frameworks and practices, but to enhance sustainable

consumption and a closed-loop mind-set, it is extremely necessary to understand consumer's cultural values and motivation. Our study shows that pure altruism will indeed impact on circular economy engagement, sustainable consumption and green buying intention, proposing that people are more willing to act pro socially and pro environmentally when they are motivated to help others and to cooperate.

5.2 SOCIAL AND PRACTICAL IMPLICATIONS

As it figures, businesses, institutions and governments are important agents under a growing obligation towards acquiring sustainable practices while maintaining and enhancing economic growth. The circular economy concept contributes to lighten environmental impact by proposing a "redesign" on business models, services and products; disrupting a linear type of production that will end in "waste", for Esposito et al., (2018) this perspective could *reduce consumption of new materials by 32% within 15 years and by 53% by 2050.* There is a significant number of actions in Europe and Asia, e.g.: WRAP'S vision for UK Government in 2020; Circular Economy projects in Portugal (www.economiacircular.pt); Industrial Symbiosis examples in Rizhao (China), that is been promoted by the country's national agency: The National Development and Reform Comission (NDRC), and other initiatives not only in Europe but also in several other countries (Sehnem & Pereira, 2019).

In 2012, the Ellen MacArthur Foundation (EMF) and McKinsey Company released a report at Davos (World Economic Forum) with the evaluation of the potential benefits of the transition to a circular economy: The possibility to create $630 billion a year for only a subset of the EU manufacturing sectors by 2025 (Preston, 2012), at the same report it was also highlighted relevant and positive social and environmental impacts. The report brought the awareness for this topic, as major companies started to realize the revenue they could have by promoting this new perspective. The buzz created in Davos brought a lot of attention to the business opportunities that CE could potentially create and of course to the practical implications of the applications to industrial processes and modern economic systems (Wautelet, 2018).

According to Tukker (2015), researches for implementing resource-efficient economic models failed to analyze consumer acceptance of such models and considering consumers as key enablers for the Circular Economy to be tenable on the present society, empirical researches provides deep insights on customers motivations to engage on Circular Economy. There are three principal influencers on sustainable consumption: Consumers, governments and businesses (Thøgersen, 2005) and the key objective of this study is to present culture and altruism as drivers on consumers engagement on circular economy, a second research objective was to propose and validate a theoretical model identifying the relationship between those variables (culture orientation, altruism types and need for social status) and the third research objective was to propose a match between pure altruism and sustainable consumption

The present work offer a new perspective regarding consumer behavior and circular economy. To our knowledge, no previous study has validated a conceptual model assessing these specific cultural dimensions with pure altruism and competitive altruism. Furthermore, we have not found previous researches predicting CE engagement through altruism motivation. The main theoretical contributions of this research were testing the role of culture on altruism types (pure and

competitive), relating cultural dimensions with need for social status and to show how pure altruism affects sustainable behaviors, such as circular economy engagement.

We adopted a cross-cultural perspective to make more robust predictions, and to investigate culture in altruism conceptualizations. Vertical and horizontal cultural dimensions are usually explored thorough hierarchy and equality, over this perspective, we hypothesized that VC and VI cultures would be impacted by competitive altruism and HC and HI cultures would be impacted by pure altruism, our model didn't test significant for the four hypothesis regarding altruism and culture, this might be because studies affirms that hierarchy which is the main features of vertical cultures is often considered unidimensional, Torelli et al., (2020) suggests that power and status are two fundamental and distinct bases of hierarchical differentiation.

Besides its substantial theoretical contributions, this study also reveals practical implications for circular economy. Studies have widely recommended businesses and academics to explore consumer's preferences and decision-making processes to promote sustainable products (Yadav & Pathak, 2016), some advertising appeals will be more generally accepted on some cultures than others and culturally matched Ad appeals will in fact achieve a better result on the persuasion domain than others. It has been proved among innumerous researches that consumer's cultural orientation affects not only the nature of the information that comes with a message but also the role of affect in the process and the type of goals that will motivate consumers (Shavitt et al., 2006). Therefore, to ignore culture's influence is a huge mistake and has led many companies to decrease profitability with the decision of centralize control loosing local sensitivity.

Services and products that urges with circular economy implementation requires interaction between consumers, retailers and manufacturers, these agents must embrace this new mind-set. Our research add knowledge for practical implications on strategies and public policies for enhancing and stimulating circular economy engagement and sustainable behavior in general. This research can help decision-makers to design precise suggestions combining identity goals and motives for promoting circular economy engagement. Moreover, circular economy engagement can be a solution for changing our current economic system that has been depredating the environment and neglecting a change on consumer's consumption patterns.

5.3 LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This study has also some limitations and suggestions for further research. Culture is a complex construct and difficult to assess within mathematical models, the efforts on studying culture complexity have been of academia interest for a long time (Lee & Haley, 2019; Shavitt, Angela, et al., 2009). Considering our valid responses, we might have some problems in generalizing the results to a larger target population and when relating to social dimensions that are impacted throughout culture like altruism and need for social status. Furthermore, our sample only provided data of Brazil and Portugal citizens and future research could include additional cross-cultural studies, meaning across nations.

Collectivism and individualism are the most widely studied cultural orientations (Gelfand et al., 2007; Taras et al., 2010), but we have considered the integration of vertical and horizontal within our hypothesis, exploring horizontal collectivism, horizontal Individualism, vertical collectivism and vertical individualism. As far as we know, studies are usually focused on one or two dimensions cited above. Finally, it is also important to mention the feedback received from the respondents of our survey, that stated that some of our scales items may be rephrased in future studies, as it causes confusion (e.g.: green buying intention scale).

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7. APPENDIX A:

Horizontal Individualism	HI1	I' rather depend on myself than others.	1 – Strongly disagree	*Triandis, H. C., & Gelfand,*
			2 – Disagree	*M. J. (1998). Converging*
	HI2	I rely on myself most of the time; I rarely rely on others.	3 – Somewhat disagree	*Measurement of*
			4 – Neither agree or disagree	*Horizontal and Vertical*
	HI3		5 – Somewhat agree	*Individualism and*
		I often do "my own thing."	6 – Agree	*Collectivism. 11.*
	HI4		7 – Strongly agree	
		My personal identity, independent of others, is very important to me.		
Vertical Collectivism	VC1	Parents and children must stay together as much as possible.	1 – Strongly disagree	*Triandis, H. C., & Gelfand,*
			2 – Disagree	*M. J. (1998). Converging*
	VC2	It is my duty to take care of my family, even when I have to sacrifice what I want.	3 – Somewhat disagree	*Measurement of*
			4 – Neither agree or disagree	*Horizontal and Vertical*
			5 – Somewhat agree	*Individualism and*
	VC3	Family members should stick together, no matter what sacrifices are required.	6 – Agree	*Collectivism. 11.*
			7 – Strongly agree	
	VC4	It is important to me that I respect the decisions made by my groups.		
Vertical Individualism	VI1	It is important that I do my Jobs better than others	1 – Strongly disagree	*Triandis, H. C., & Gelfand,*
			2 – Disagree	*M. J. (1998). Converging*
	VI2	Winning is everything	3 – Somewhat disagree	*Measurement of*
			4 – Neither agree or disagree	*Horizontal and Vertical*
	VI3	Competition is the law of nature	5 – Somewhat agree	*Individualism and*
			6 – Agree	*Collectivism. 11.*
	VI4	When another person does better than I do, I get tense and aroused	7 – Strongly agree	
Horizontal Collectivism	HC1	If a coworker gets a prize, I would feel pride.	1 – Strongly disagree	*Triandis, H. C., & Gelfand,*
			2 – Disagree	*M. J. (1998). Converging*
	HC2	The well-being of my coworkers is important to me.	3 – Somewhat disagree	*Measurement of*
			4 – Neither agree or disagree	*Horizontal and Vertical*
	HC3	To me, pleasure is spending time with others	5 – Somewhat agree	*Individualism and*
			6 – Agree	*Collectivism. 11.*
	HC4	I feel good when I cooperate with others.	7 – Strongly agree	
Pure Altruism	PA1	I would engage on Circular Economy because I want to cooperate	1 – Strongly disagree	Costa Pinto, D., Maurer
			2 – Disagree	Herter, M., Rossi, P.,
		I would engage on Circular Economy because I am motivated to help	3 – Somewhat disagree	Meucci Nique, W., &
	PA2		4 – Neither agree or disagree	Borges, A. (2019).
			5 – Somewhat agree	Recycling cooperation
	PA3	When I engage on Circular Economy, I feel like I am sacrificing myself for others	6 – Agree	and buying status:
			7 – Strongly agree	Effects of pure and
				competitive altruism on
				sustainable behaviors.
				European Journal of
				Marketing, 53(5), 944–
				971.

Competitive Altruism	CA1	When I engage on Circular Economy, I want to compete for status	1 – Strongly disagree 2 – Disagree 3 – Somewhat disagree 4 – Neither agree or disagree 5 – Somewhat agree 6 – Agree 7 – Strongly agree	Costa Pinto, D., Maurer Herter, M., Rossi, P., Meucci Nique, W., & Borges, A. (2019). Recycling cooperation and buying status: Effects of pure and competitive altruism on sustainable behaviors. *European Journal of Marketing*, *53*(5), 944–971.
	CA2	When I engage on Circular Economy, I want to achieve higher social recognition		
Need For Social Status	NSS 1	I want my peers to respect me and hold me in high esteem.	1 – Strongly disagree 2 – Disagree 3 – Somewhat disagree 4 – Neither agree or disagree 5 – Somewhat agree 6 – Agree 7 – Strongly agree	Flynn, F. J., Reagans, R. E., Amanatullah, E. T., & Ames, D. R. (2006). Helping one's way to the top: Self-monitors achieve status by helping others and knowing who helps whom. *Journal of Personality and Social Psychology*, *91*(6), 1123–1137..
	NSS 2	I am not concerned with my status among my peers.		
	NSS 3	Being a highly valued member of my social group is important to me.		
	NSS3	I would like to cultivate the admiration of my peers.		
	NSS4	I enjoy having influence over other people's decision making.		
	NSS5	It would please me to have a position of prestige and social standing.		
	NSS6	I don't care whether others view me with respect and hold me in esteem.		
	NSS7	I care about how positively others view me		
Circular Economy Engagement (To what extent do you agree or disagree with the following statements about yourself?)	CEE1	I always keep thing I Own for a long time	1 – Strongly disagree 2 – Disagree 3 – Somewhat disagree 4 – Neither agree or disagree 5 – Somewhat agree 6 – Agree 7 – Strongly agree	Le Europe, VVA Europe, Ipsos, Conpolicy and Trinomics. Behavioral Study on Consumer's Engagement in the Circular Economy (2018)
	CEE2	I always recycle my unwanted possessions		
	CEE3	I always repair my possessions if they break		
	CEE4	I buy second hand products		
	CEE5	I always buy the latest fashion for clothes		
	CEE6	I always buy new the newest electronic goods and gadgets		

Agreement to further Statements on Environmental Attitudes	SB1	It is Important to be environmentally friendly	1 – Strongly disagree	Le Europe, VVA Europe, Ipsos, Conpolicy and Trinomics. Behavioral Study on Consumer's Engagement in the Circular Economy (2018)
	SB2	I want my friends to know that I care for the environment	2 – Disagree 3 – Somewhat disagree 4 – Neither agree or disagree 5 – Somewhat agree 6 – Agree 7 – Strongly agree	
(To what extent do you agree or disagree with the following statements?)	SB3	When I buy things, I know the expected lifespan of the product		
	SB4	I am aware of repair services for the products I own		
	SB5	Second hand products are usually good quality		
	SB6	I much prefer possessions that are brand new		
	SB7	I want my friends to know I own the latest trends or fashion		
	SB8	I trust claims made by companies about their products		
	SB9	I am usually very busy and lack free time		
	SB10	If something is good enough I don't need it to be perfect		
Green Buying	GB1	How likely are you to engage on Green Buying?	1 = Highly Unlikely 7 = Highly Likely	White, K., Macdonnell, R., & Dahl, D. W. (2011). It's the Mind-Set that Matters: The Role of Construal Level and Message Framing in Influencing Consumer Efficacy and Conservation Behaviors.
	GB2	How inclined are you to engage on Green Buying?		
	GB3	How willing are you to engage on Green Buying?		