Moving towards a green economy: Brazilian streetwear company first steps

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Moving towards a green economy: Brazilian streetwear company first steps – Gabriela Duarte and Aguinaldo dos Santos

Gabriela Duarte

PhD candidate

Federal University of Paraná

R. Gen. Carneiro, 181 - Curitiba - PR, 80060-900

Brazil

Aguinaldo dos Santos

Professor at the Design Department and Design Postgraduate Program

Federal University of Paraná

R. Gen. Carneiro, 181 - Curitiba - PR, 80060-900

Brazil

1. Why a green economy context?

The economic dimension of sustainability has been approached by the Design research community, although the studies in this scope are fewer in relation to the social and environmental dimensions. Concepts such as sharing economy, fair trade, circular economy, collaborative economy, distributed economy, solidarity economy, and creative economy, among others, are being applied in the Design field as alternatives to orthodox economy and sometimes addressed as solutions to sustainability problems. However, these concepts are revealing to be limited and unable to encompass the whole life cycle or macroeconomic consequences.

This study adopts the green economy concept, supported by UNEP (2018)[1], as it shows a more complete approach and is allied with the economic dimension of sustainability, since it proposes the economy as a driver to reduce environmental risks and social inequalities. Allied with the Sustainable Development Goals (UN, 2015) and their targets, a green economy can be applied to medium and long term business planning in order to foster employability, productivity, income generation and its distribution, as well as to promote environmental education and protection, among other aspects. This concept is also capable of embracing the aforementioned economic alternatives. A green economy's broader spectrum is an advantage as well as a challenge, since it is not exclusive to any product or service Design itself. Nevertheless, the Design community may contribute to the green economy context through the creativity and flexibility that this community allows and promotes.

2. The objective of the case study

1 A green economy is one that improves "well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP, 2018 and Loiseau et al. 2016).

The main objective of this research is to comprehend the means by which Design of systems, products and/or services may assist in the transition of business models toward a green economy. To this end, the Sustainable Development Goals (UN, 2015) and its targets by 2030 are used as a time-horizon and as support principles. Thereby, the authors seek to highlight the main economic barriers to projects and companies that attempt to integrate sustainability. This case study report is expected to contribute to sustainability research and its economic dimension in Design.

3. Research strategy

The studied case is a Brazilian streetwear company named ÖUS, founded in 2008 in Curitiba, located in South Region of Brazil. The core business is the development of skateboarding sneakers and wholesale with a broad expression in the national market – the current production is around 60,000 pairs a year and 1.5 million reais in income[2]. Since its foundation, the company maintains its manufacturing in Brazil, expecting to add value to the domestic economy and local Design. Other practices of the company are already in alignment with the sustainability *ethos* by using recycled and organic fabrics in some of the skateboarding sneakers.

The research is organized in three phases, better visualized on Appendix 1.

1) Orthodox economy context analysis: through desk research the authors could identify the current business strategy, and with conventional marketing and strategic Design tools such as Porter's five forces, SWOT analysis, Canvas, among others, it was possible to identify gaps.

2) Green economy context analysis: with the internal data company collected through a CEO's internal interview and a questionnaire applied with its consumers, the authors could point out their priorities. Through the Sustainable Design Orienting Toolkit (SDO-MEPSS, 2012) – customised to embrace the green economy 2030 context – these priorities were related to the green economy goals (UN, 2015; UNEP, 2018) and the current lacks were highlighted.

3) Concept creation and selection: after the authors applied the SDO-MEPSS tool and with the two previous phases orientation, twelve meta-products and meta-services were developed to demonstrate how Design could assist the company's transition towards a green economy by 2030. In this phase, the selection of ideas was made with internal company actors through a workshop and tools described in Table 1. These tools enabled the identification of the barriers seen by these actors as critical issues for the concepts as well as the alternatives to replace them.

4. Current business strategy

The company was able to enhance the quality of the product and reduce their sneakers' prices by 100,00 reais3 each by adopting a new manufacturing partnership located in the Northest Region of Brazil. This indicates the financial effort of the firm to balance quality and price as long as manufacturing is preserved on domestic territory.

The opening of new distribution channels in the United States and Europe, in 2018, points out the company's ambition to expand its market by taking advantage of the devaluation of the Brazilian currency and international range of streetwear niche.

After comprehending the business' strategy, the authors were able to outline the competitors. Considering market reach and investment power, the brands Nike SB (USA), Adidas Skateboarding (GER), Vans Off The Wall (USA) and DC Shoes (USA) were listed.

The income brands, with potential to be future competitors for this case, are: Emerica (USA), Gasp (BRA) and Insecta (BRA). They were listed due to their know how on shoe making and their core businesses are related to skatewear and/or sustainability – focusing on reusing materials and local production.

2 This amount corresponds to approximately 305,000 pounds, as the exchange rate of December, 2018 (Xe, 2018).

3 This amount corresponds to approximately 20,20 pounds, as the exchange rate of December, 2018 (Ibid).

4.1 Orthodox economy context analysis

Once the authors identified the current business strategy, the company's and competitors' current income, the authors could apply the tools highlighted on Appendix 1. With such tools, the authors were able to achieve an analysis of the competitiveness business performance, as it is being made in the orthodox economic context.

Through Porter's Five Forces analysis, the authors could notice two types of technology investments from the company's competitors. The first, from Adidas, called Futurecraft 4D, is a 3D printer that is improving the speed of printing and the flexibility of the outcome material in order to be applied to the sneakers' sole. Its design is based on digitalized data to allow personalisation and even on-demand manufacturing. The second, from local brand Gasp, is focused on low technology such as artesanal manufacturing and fabric waste reusing. This strategy also enables on-demand production and partnership with other local and small ventures.

Since ÖUS is the only company with the whole manufacturing in its own country, by comparing with the main competitors, this aspect provides a strategic differential even in the orthodox economy context, since it strengthens its competition on the differentiating field and the creation of value added.

Despite the Brazilian economic variability, typical of emerging countries (PWC, 2017), the national Footwear sector allows for a bargaining power due to a wide stakeholders range available nowadays. There are approximately 7,700 enterprises (Sindical, 2017) distributed on three main Footwear industrial districts located in the Northeast, Southeast, and South Regions of Brazil. This configuration allows ÖUS to direct their investments as their objectives change. However, the company's dependence on small multi-brand shops is considered a threat, and this is highlighted with the digital retail growth.

By applying the Blueprint tool, the authors simulated the customer's journey and noticed the existence of gaps. A deficiency on customer service, especially on after-sales, was identified as well as a lack of partnership with other ventures. This deficiency to supporting consumers feedback appears on relevant touchpoints to the company such as: product launch events and sponsored music concerts.

As street culture is the company's main value, artistic co-creation is one of the most important relationships to sustain this approach, as verified with Canvas tool. The content management became relevant as a key to maintain Brazilianness, also propagated as a value.

5. Green economy context analysis

Professor Rosa's research (2012) supported this phase since this author summarised principles and guidelines for the economic dimension of sustainability (Rosa, 2012, p.54). These principles are based on other authors, including economists and designers such as: Victor Papanek (1971), Amartya Sen (2000), Carlo Vezzoli (2010), Montibeller-Filho (2001), Ignacy Sachs (2002, 2009 and 2012), Aguinaldo dos Santos (2009), Lia Krucken (2009), André Lucca (2011) e Tischner – SDO Mepss (2012).

To comprehend if the consumers were in line with the current business strategy, the authors sent a questionnaire to 35 customers[4].

In order to verify the business priorities related to the green economy 2030 context, the Sustainability Design Orientend Toolkit (SDO-MEPSS, 2012) was customised by using the principles and guidelines summarised by Rosa (2012), the Sustainable Development Goals (SDG) and the targets (UN, 2015) connected with the green economy concept (UNEP, 2018).

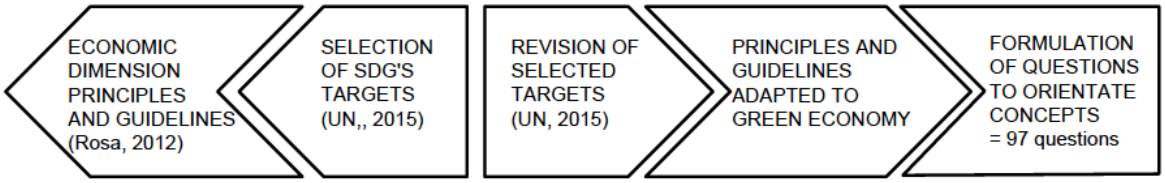
5.1 Sustainability Design Oriented Toolkit customisation

The Sustainability Design Oriented Toolkit (SDO-MEPSS, 2012) approaches the three sustainability dimensions: environmental, social, and economic, aiming to verify how projects or cases priorities are related to the dimensions' principles. This tool eases such verification through a guideline check-list for each principle. The SDO-MEPSS (2012) also provides questions linked to its check-list as a reminder to orientate concept creation focused in systems, products, and services. However, while the environmental and social dimensions are more complete, the economic one was limited compared to the principles and guidelines outlined by Rosa (2012), and to the SDG targets (UN, 2015) which corresponds to the green economy (UNEP, 2018) purpose. Therefore, this tool was customised to offer an in-depth approach for this study.

4 Theses individuals were select from the ÖUS e-commerce mailing, following criteria such as age (20 to 45 years old), gender diversity, and residence regions, regarding the venues where there are more company sales incidence.

To do SDO-MEPSS customisation the authors followed three steps: (i) utilization of Rosa's (2012) conceptualised principles to select the SDG targets (Appendix 2); (ii) revision of selected targets in order to adapt the principles and guidelines previously used for the green economy context (Appendix 2); (iii) formulation of questions to orientate concept creation, based on the adapted principles and guidelines. The next image illustrates these steps:

Figure 1: SDO-MEPSS customisation steps representation



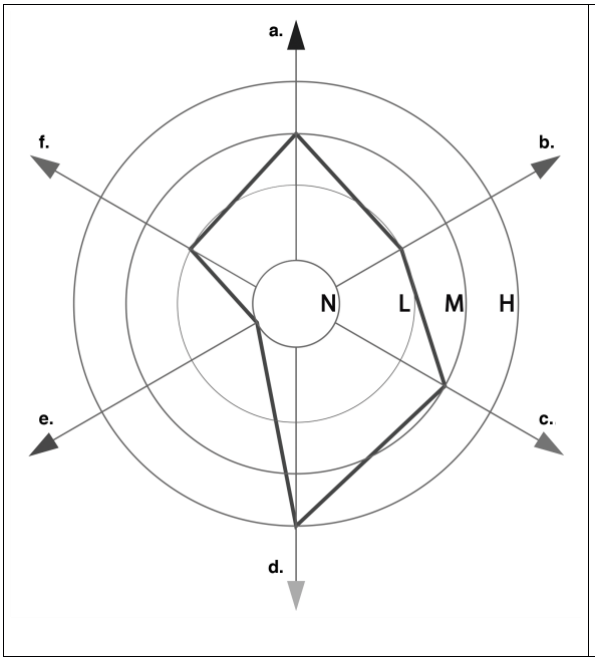
Source: the authors, 2018

By the end of this customisation, the guidelines achieved 38 check-list sentences (Appendix 3). The sentences to orientate concepts reached 97 questions.

5.2 Results of the customised SDO-MEPSS application

Once the authors verified the priorities of the studied case through the customised SDO-MEPSS (Appendix 3), it was possible to raise the following aspects for each principle, as represented on Figure 2:

Figure 2: Final radar representing the result of SDO-MEPSS application.



a) Strengthen and value local material resources and local productive infrastructure

b) Promote network organisation

c) Valuing the waste re-integration and promoting its reduction

d) Promote local economy, respecting and valuing local culture

e) Foster environmental, social, and, economic education

f) Satisfy basic needs and generate income

Source: the authors, 2018

a) Strengthen and value local material resources and local productive infrastructure: medium priority. Since the company has its whole manufacturing processes established in domestic territory, an increased competitiveness of endogenous resources has been carried out. Currently, 60% of the sneakers are made with supplies from Brazilian stakeholders. However, the company still has supplies

coming from foreign countries, especially raw materials such as polyurethane which is used to make the insole, and chemical compounds used to make rubber soles. The application of local primary resources and/or traditional ones is undertaken with low frequency, around 10 years, only once the design team co-created with artisans from a small village called Buriti[5].

b) Promote network organisation: low priority. Despite the promotion of initiatives which foster local economy made by the company and associated with domestic manufacturing, it does not stimulate the network organization. Neither focusing in renewable energy that could be distributed among stakeholders, nor organising the collaboration among local actors through valuing their intelligence or giving them the opportunity to practice local trade among each other. The musical concerts and the skateboarding championships sponsored by ÖUS are still made through conventional ways, cultivating the distance between consumers and the company, as maintaining users only as receptors and with no proactiveness.

c) Valuing the waste re-integration and promoting its reduction: medium priority. The company reuses waste from paper cutting for packing manufacturing and from fabric cutting to make tags or attachments such as keychains and sneakers trimming. Yet these actions do not have a systematic assessment over the company life cycle and correspondent planning.

d) Promote local economy, respecting and valuing local culture: high priority. Since the company maintains its manufacturing in Brazil, local income generation has been improved. By promoting local street artists, even with conventional contracts based on royalty payments, ÖUS cooperates by valuing cultural diversity and individual competency. While this principle was rated with a higher percentage, there are guidelines not achieved. The company does not promote regional aspects of manufacturing such as traditional ones, neither embracing local expertise as an expression of quality, nor focusing on preserving local flora and fauna.

e) Foster environmental, social, and, economic education: unredeemed priority. The company has no transparent communication about their backstage actions. There is neither sustainability research being promoted through partnership, nor any internal professional intended for this purpose. The social projects which could assist to disseminate such education are not constants, and when it occurs, the marketing department does not uses clear strategy or indicators to inform the public.

f) Satisfy basic needs and generate income: low priority. The company support to local street culture and features like graffiti and pixo art, rap music, and even skateboarding practice, foster non-discrimination of marginalized people. While this support values these types of skills, creating work opportunities for individuals from such culture and hence generating income and self-esteem, this does not promote direct aid to vulnerable communities or actors since it is most promoted with already recognised local talents. Despite non-existing forced labour at the manufacturing at ÖUS, the company does not take effective measures to eradicate such practice by means such as internal criteria or having a certificate, which opens the possibility for unethical working conditions. When it comes to offering products or services to the base of the pyramid (BOP) community, the studied case did not fulfill this guideline.

7. Concept creation and selection

In this phase, twelve Design concepts were created representing meta-products and/or meta-services to the company's green economy scenario by 2030, oriented by the SDO-MEPSS tool. These concepts were based also on the company's current strategy in the orthodox context and their consumers demand.

To conceptualiee meta-products and meta-services, the authors listed requirements following the SDO-MEPSS principles analysis[6]: a) assess local renewable resources to stimulate their use and add value to them; b) promote distributed networking among stakeholders to decentralise activities and the economy on domestic territory; c) systematise waste reduction in the manufacturing process and prevent waste production at the end of life products whilst adding value to the company and the stakeholders; d) adopt environmental, social, and economic criteria based on stakeholders' venues valuing local expertise; e) invest on sustainability research to systematise the company's strategy and report their sustainable actions to consumers, enhancing the company's perceived value; f) promote social projects continuously and systematically to enable social cohesion among employees and to stimulate income generation at base of the pyramid (BOP) local communities.

5 This village is located in Maranhão, a state in the North Region of Brazil, and maintains precarious conditions since its foundation, in 1843 (IBGE, 2018).

6 The letters indicate the principles described above on item 5.2 and also on Appendix 3.

These requirements were completed with proposals to drive the concepts' development, as organised on Appendix 4. Hence, the ideas were developed and represented by the visualisation tool Offering Diagram (Ceschin, 2012, p.134) to allow internal employees to comprehend the concepts.

The ideas were presented during a workshop undertaken at the company's office. For this, there were ten employees from different areas such as product design, marketing, administration, commerce, and finance. The research was briefly presented and the individuals were invited to select the meta-products and meta-services which they believed were appropriate to the company[7]. After the selection, the group was conducted to explore the concepts using the Steering Tool, Key Issues and Alternatives Options Map (Ceschin, 2012, p.182), and pointed out the critical issues[8], as well as the alternatives suggested to adapt and overcome them, and actions needed. Whilst the discussion occurred, the authors asked the group how long they thought the ideas would take to be implemented[9] and what type of company's return they expected with the future applications.

7.1 Results of the selection

The five most voted concepts emphasise the following proposals: establish partnerships with local research institutions such as universities, Non-governmental organisations (NGOs) and/or startups; promote local materials and traditional methods; support local maintenance; concept products or social projects using local waste; invest in mass customisation; propose systems to gather the products' disposal; support co-creation with local stakeholders; conceptualise social projects to contribute with basic needs of local communities.

This selection, made by the employees, indicates that the principles which were more attractive to internal actors are: to value the waste re-integration and promote its reduction; promote local economy, respecting and valuing local culture, and to satisfy basic needs and generate income.

For the workshop group, the critical issues highlighted were mainly directed to technological and infrastructural aspects. They were related to logistic complexity, especially regarding storage administration and distribution. But in this regard, they also pointed concerns about skilled labour to small scale production.

The socio-economic aspects raised as critical issues was also emphasised and disrespect primarily to product symbolic depreciation by perceived obsolescence[10] through out fashion system. The extra cost issue was mentioned as well when approaching a social nonprofit project.

Concerns about consumer and outsourced stakeholder behaviour also was highlighted during the workshop. The employees addressed concerns with new systems of distribution and sales, arguing that both end users and multi-brand owners will not have good acceptance.

The group believes most ideas would take up to five year to be conceived. Only one concept, aiming at waste reintegration and reduction through sneakers maintenance and its disposal gathering, would take about ten years, by their point of view.

Conclusion

As proposed by this case study, the authors comprehend some means by which Design of products, systems and/or services may assist businesses to move towards the green economy context. The first mean, used with a scientific research method, is to specify a main goal and a time-horizon to establish a border-line and enable a research strategy. Such a measure is not always usual as it should be in day-to-day business when thinking about sustainability. As we noticed, the studied company has in its mission the purpose of valuing the domestic economy and local Design, and that is one of the reasons why its CEO accepted opening the business's data to us. However, this challenge is being taken by a non-systematic method as the guidelines checklist showed up when pointing to almost only a quarter of the questions filled (Appendix 3)[11].

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7 The challenge was open and those who do not think that any idea was appropriate to the company, did not have to select any. However, among the twelve concepts, each individual could select up to a maximum of five.

8 The critical issues were allocated to six aspects: technological and infrastructural, socio-economic, cultural consumption behaviour, political, geographic, and others. For this research, the "others" field was used to workforce behaviour aspects to better understand the role of the company's actors in the business.

9 The authors asked the group to point out if the concepts implementation would take from five to ten years or more, by their experience working at ÖUS.

10 Some authors use the term psychological obsolescence.

11 From 38 questions, the company's checklist filled nine, representing 23,68%.

The other mean perceived as relevant for Design to assist the business' transition to a green economy was the used tools and theoretical background available from the research community, such as UNEP (2018), UN (2015), Rosa (2012), and Ceschin (2012) previous research. Having open and significant data and tools is key to undertake an in-depth Design for sustainability strategy with such ambitious aim and for business' time.

Some of the barriers raised from the internal workshop seemed to be related with usual business management concerns such as logistics and work force, which indicates apprehension with company's delivery quality, timing of production and distribution, and structural plus operational costs.

The consumers acceptance also emphasised as a critical issue for meta-products and meta-services for a 2030 green economy appears to be related to the company's need for after-sales service and sustainability education strategy, diagnosed both in the orthodox economy analysis and the green economy.

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Appendix

Appendix 1: Tools used on Phase 1 with its purpose and results of the orthodox economy analysis.

Tool	Purpose	Highlight of the results
Porter's Five Forces	To analyse the bargaining power of the company based on the main players of the segment, the current legislation and government incentives of the sector, and innovations of development of the product and service.	COMPANY COMPETITORS • Low international visibility of the ÖUS; PRODUCT SUBSTITUTES • The high technology of Adidas Futurecraft (GER) and the artesanal process of manufacturing of shoes of Gasp (br); NEGOTIATIONS WITH SUPPLIERS AND MANUFACTURERS • Of the 7.7 thousand companies present in the shoe sector, Brazil allows for a bargaining power that is relatively good. NEGOTIATIONS WITH THE CLIENTS • The lack of final client groups provides creative liberty.
S.W.O.T	To identify the strengths and weaknesses of a company, as well as the opportunities and threats of the market and the competitive environment.	WEAKNESSES • The system of resale of brands increases the distance between the client and the customer; THREATS • Rise of digital retail; OPPORTUNITIES • The customisation (artesanal or in mass) and digital manufacturing.
National and International Benchmarking	To raise innovations in business models, products, and services as a reference for future strategies	NATIONAL BENCHMARKING • As a reference to autonomous and humanised virtual services, The start-up and bank NU BANK (BRA) is pointed out; INTERNATIONAL BENCHMARKING • As a reference to the customisation of shoes in mass, it is brought the brand SHOES OF PREY (AUS);
Blueprint	To map the day of the client, the points of contact and to identify gaps in the supply of services.	• Utilising an example of a day of common consumption, gaps in the support of the marketing, the publicity, and the actions post-sale were identified.

Business Model Canvas	To sketch an actual business model of the company in order to visualise its chain of value.	• The value chain is guided by key partnerships with the local artists, the main clients are male skaters and the resources come from product development. The relationship occurs through discourse of urban Brazil. The channels of distribution are the multi-brand shops and the key activity is the content management.

Source: the authors, 2018

Appendix 2: selection of SDG targets (UN, 2015) related to the principles of economic dimension of sustainability, conceptualised by Rosa (2012).

Principles (adapted from Rosa, 2012)	Targets select from Sustainable Development Goals (UN, 2015)
a) Strengthen and valorize local material resources and local productive infrastructure;	9.b) Support domestic development, research and innovation in developing countries, including by ensuring a conductive policy environment for, inter alla, industrial diversification and value addition to commodities.
	9.2) Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.
	12.a) Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.
	12.2) By 2030, achieve the sustainable management and efficient use of natural resources.
	12.4) By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.
b) Promote network organization	8.2) Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value-added and labour-intensive sectors.
	8.4) Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead.
	12.a) Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.
c) Valorize the waste re-integration and promote its reduction;	8.4) Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programs on sustainable consumption and production, with developed countries taking the lead.
	12.2) By 2030, achieve the sustainable management and efficient use of natural resources.
	12.4) By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.
	12.5) By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.
d) Promote local economy, respecting and valorizing local	8.4) Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programs on sustainable consumption and production, with developed countries taking the lead.

culture	8.3) Promote development oriented policies that support productive activities, decent job creations, entrepreneurship, creativity and innovation, and ecourage the formalization and growth of micro, small and medium sized enterprises, including through access to financial services.
	8.5) By 2030 achieve full and productive employment and decent work for all women and men including for young people and person with disabilities, and equal pay for work with equal value.
	9.b) Support domestic development, research and innovation in developing countries, including by ensuring a conductive policy environment for, inter alia, industrial diversification and value addition to commodities.
	11.4) Strengthen efforts to protect and safeguard the world's cultural and natural heritage.
	12.a) Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.
e) Foster environmental and social education;	8.7) Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking, and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms.
	9.5) Enhance scientific research, upgrade the technological capabilities of industrial sectors, in all countries, in particular developing countries, including by 2030 encouraging innovation and sustainability increasing the number of research and development workers per 1million people and public and private research and development spending.
	12.6) Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.
	12.8) By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.
f) Satisfy basic needs and generate income.	1.4) By 2030 ensure tha all men and women in particular the poor and the vulnerable have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technologies and financial services including microfinance.
	8.b) By 2020 develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of International Labour Organization.
	9.1) Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
	12.a) Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.

Source: Rosa (2012) and UN (2015)

Appendix 3: principles and check-list adapted from Rosa (2012) and the application of questions in the case studied.

Principles and check-list	Company evaluation
a) Strengthen and value local material resources and local productive infrastructure	
- Did you evaluate the availability of local renewable resources (near the factory)?	NO
- Did you raise the competitiveness of the endogenous resources in relation to the exogenous resources of the region?	YES

- Did you provide support for the natural methods and conditions of production?	NO
- Did you use the primary, traditional, and renewable local resources?	NO
Percentage of affirmative responses	**25%**
b) Value the waste reintegration and promote its reduction	
- Did you evaluate in a systematic manner the locally generated waste? (near the factory)?	NO
- Did you use the local waste? (near to the manufacturing unit)?	YES
- Did you promote the sufficient consumption in order to avoid the generation of waste in the process? (near the end user)?	YES
- Did you reform/improve artifacts not used and discarded? (near the end user)?	NO
- Did you renew/ reintegrate industrial, domestic, and urban emissions (products and materials) (near the end user)?	NO
- Did you plan short, medium, and long term goals that treat the correct final disposition of waste generated by the company from its products?	NO
- Did you transform or use the waste in a source of income for the local community (near the end user)?	NO
Percentage of affirmative responses	**28,6%**
c) Promote network organization	
- Did you promote companies/initiatives to promote and move the local economy?	YES
- Did you promote/support renewable energy distribution networks?	NO
- Did you promote/support network of collaboration between people?	NO
- Did you promote or support the networks of the collaboration of artifacts? (ex: exchange club, DIY)	NO
- Did you promote the connectivity between local actors (communication capacity between the actors without interference)?	NO
- Did you promote the cooperation between the actors that develop the same activity or have the same profile?	NO
- Did you promote cooperation rather than competition/collective intelligence rather than individualism?	NO
- Did ýou promote the commercialisation of shared products by the local community?	NO
	NO

- Did you promote/support structures to the development of relationship between producers and consumers (fairs, events, etc)?	
Percentage of affirmative responses	**12.2%**
d) Promote local economy, respecting and valuing local culture?	
- Did you favor the development of possibilities that improve the local capacity for collaborative production?	YES
- Did you generate employment and income locally?	YES
- Did you evaluate the availability of local abilities/competencies?	YES
- Did you avoid the elimination fo biodiversity of the local vegetation?	NO
- Did you encourage individual abilities, identities, and cultural diversity?	YES
- Did you prioritise aspects of the regional production?	NO
- Did you respect the local and traditional models of production?	NO
- Did you promote the quality of products as expression and recognition of particular abilities and expertise?	NO
Percentage of affirmative responses	**50%**
e) Foster environmental and social education	
- Did you promote environmental, social, and economic research?	NO
- Did you invest regularly in social projects?	NO
- Did you make communication transparent and accessible to all the stakeholders?	NO
- Did you invest in research or in professionals to promote more sustainable practices valuing knowledge?	NO
- Did you value more sustainable practices between the stakeholders?	NO
Percentage of affirmative responses	**0%**
f) Satisfy basic needs and generate income	
- Did you avoid discrimination of the weak and marginalised?	YES
- Did you offer some type of product or service to BOP communities?	NO
- Did you promote means to better the income generation in the community?	NO
- Did you take effective measures to eradicate labour that is forced and similar to the slave one?	NO
	NO

- Did you maintain work conditions and equal salaries for all involved actors?	
Percentage of affirmative responses	**20%**

Source: adapted from Rosa (2012) by Duarte and Santos, 2018

Appendix 4: requirements and correspondent proposals to drive the concepts' development.

requirements followin een economy principles on Appendix 3	proposals
a) assess local renewable resources to stimulate their use and add value to them	establish a partnership with local research institutions such as universities, NGOs and/or startups; promote local materials and traditional methods
b) promote distributed networking among stakeholders to decentralize activities and the economy on domestic territory	support industrial diversification when selecting stakeholders; optimise flow of resources by regions; promote open-sourced Design; ease local consumption of local products; support local maintenance; stimulate peer-to-peer collaboration; enable peer-to-peer trade
c) systematise waste reduction in the manufacturing process and prevention of waste production at the end of life products whilst adding value to company and stakeholders	conceptualise products or social projects using local waste; invest in mass customisation; promote local maintenance; stimulate peer-to-peer trade; propose systems to gather the products' disposal
d) adopt environmental, social, and economic criteria based on stakeholders venues valuing local expertise	promote local materials and traditional methods; support co-creation with local stakeholders; ease local consumption of local products; stimulate peer-to-peer collaboration; establish a partnership with local research institutions such as universities, NGOs and/or startups;
e) invest in sustainability research to systematise the company's strategy and report their sustainable actions to consumers, enhancing the company's perceived value;	establish a partnership with local research institutions such as universities, NGOs and/or startups; develop internal sustainable policies; systematise actions to overcome impacts on the generation; promote transparent information about backstage systems
f) promote social projects continuously and systematically to enable social cohesion among employees and to stimulate the generation of income at base of the pyramid(BOP) local communities	establish a partnership with local research institutions such as universities, NGOs and startups; promote local materials and traditional methods; conceptualise social projects to contribute with basic needs of local communities; minimise and redirect stakeholders acting as middlemen

Source: the authors, 2018