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Digital Technology for Global Supply Chain in Fashion: A Contribution for Sustainability Development

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7.1 Introduction

After a difficult competitive period at the start of the century, significant impacts on turnover and exports and also on the disappearance of hundreds of companies and many thousands of jobs, the Portuguese textile and clothing industry has managed to reinvent and restructure itself. It has managed to relaunch its growth based on new competitive factors like design and fashion, technological innovation, service and internationalization of companies.¹

Thus, to increase the competitiveness of an enterprise in the fashion industry from a global economy perspective, it is necessary and

¹ Statistical data drawn from the Book: Textile and Clothing Industry Statistics, World, Europe & Portugal; Fashion from Portugal, 2017.

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fundamental to find better solutions for all players involved in the creative and production process, with the goal to achieve an efficient way to communicate and to conduct business.

When a company competes in any industry, there are several challenges it has to deal with as it performs several discrete but interconnected value-creating activities, such as operating a sales force, producing a component or delivering products and these activities have points of connection with the activities of suppliers, channels and customers (Azevedo et al. 2007).

According to the aforementioned literature references, this chapter seeks to present an approach to business-to-business (B2B) online sourcing platforms, in particular the U.MAKE.ID project. It also presents how this tool can be a plus for the fashion business and the benefits in using these kinds of platforms in a supply chain context from an environmental, market, policy and societal point of view.

This research was based on a mixed methodology, based on three different approaches. First, a project methodology; second literature analysis of papers related to the fashion field and authors that have studied themes related to sustainability in fashion supply chain; and finally, to verify the credibility of the platform, by way of conducting a qualitative study based on exploratory interviews with fashion professionals, in this case, fashion designers.

This project can create a new dynamic global economy in the fashion business, giving it a positive impact, increasing the sourcing efficiency and improving communication and business performance.

7.2 Methodology

First of all, in regard to the project itself, linear project methodology was adopted (Munari 1983). Munari believed that anyone could be creative if someone provides them with the right tools.² A project methodology is no more than a series of innumerable operations with a logical application and with the objective to achieve the best results with minimum

²<http://specialprojects.studio/article/design-methodology/>.

efforts. So for website development, the team made an adaptation of the project methodology in order to achieve the best solutions for designers.

On product development, a systematic method will help the process of creation and that process demands normally an interdisciplinary approach. Apart from the use of a style and aesthetic concept, the product also requires marketing and engineering methods. The U.MAKE.ID project development was no exception once was compounded by a multidisciplinary team including experts in design, management, tic's and engineering's.

The second approach focuses on the theoretical part. The literature review used in this chapter was mainly based on scientific papers related to fashion and sustainability, regarding the aforementioned keywords.

On the route of an investigation, one is bound to find problems. In the case of this investigation, one of the problems found was the difficulty that the designers have in their sourcing of possible suppliers and manufacturers. Therefore, the platform U.MAKE.ID appears as a hypothesis created with the intention of being approved as an agile, facilitative and effective search tool (Pina et al. 2017).

The third approach, the practical one, also considered the qualitative data that has been collected and analysed it from the initial interviews with fashion professionals. A live questionnaire was developed based on interviews with five fashion specialists. For this phase, the authors developed a script that was used as a tool for the interview composed of open and closed-ended questions.

The script for the interviews was composed of three main parts, where the last two were separated along with the presentation of the platform U.MAKE.ID. The first part focused on the geographical location of the interviewees. These interviewees were questioned on the type of product segment that they work with, the existence of the brand, the dimension of the company and finally the position of the interviewee in the company.

The second part of the questionnaire contained seven different questions but all based, related and connected with two major questions:

RQ1 : How designers usually do the sourcing?

RQ2 : What is the level of satisfaction regarding this task?

In the presentation of the website, interviewees were shown the main objectives and potentialities of the platform, how it works and how prospective users can subscribe and start to use it. The third part of the interview was made after the presentation of the platform, and nine questions were posed with a view to understand the following:

RQ3 : The opinion of the interviewee regarding the platform according to the idea/project?

RQ4 : How can U.MAKE.ID contribute for the sourcing of products, services and to the brand?

Fashion specialists located at a distance were interviewed via Skype. The main objectives of these interviews was to further establish how fashion specialists nowadays, in this case fashion designers, undertake the sourcing of products or services and to understand how a B2B platform of online sourcing could be a helpful tool for their work or business.

It is important to understand fashion entrepreneurs and fashion specialists' feedback regarding their own way to do sourcing and what they think about B2B sourcing platforms like U.MAKE.ID.

7.3 Fashion Industry and Sustainability in the Production Chain

Considering a first approach on the meaning of the word, the term sustainability itself originates in the French verb *soutenir*, “to hold up or support” (Brown et al. 1987). The term does imply limits; however, according to Caniato et al. (2012, p. 660), sustainability means, considering the Brundtland report (1987), “being able to satisfy current needs without compromising the possibility for future generations to satisfy their own needs.” Thus, it is a concept that can be posed as a transformation of human lifestyle that can optimize health, well-being and security (Geissdoerfer et al. 2017) and not less important the reuse, rethink and reduce products' concepts.

Assuming that sustainability has been emerging in the last decade as a megatrend (Henninger et al. 2016) the industry and the creative scenario in fashion also has changed drastically. This change is mainly related to the awareness of consumers that are now more aware of the issues that emerge from the fashion products manufacturing processes.

So, fashion brands and factories try to increase their sustainable performance because they know that their acts can compromise their business and the truth is that according to Li et al. (2014), 45% of successfully and highly efficient supply chains are now applying new technologies and also laying a tremendous emphasis on sustainable strategies.

Having in mind the triple bottom line approach that considers that the three pillars of sustainability are based on people, profit and the planet (Elkington 1998), each fashion company should consider operating their business in order to implement and achieve new sustainability practices.

Moretto et al. (2018) say that sustainability practices can start at the manufacturing process but they can however be extend through the others company activities in supply chain, becoming like this, more aware of their potential for new sustainability models in their business.

According to Kawamura (2005), “A fashion system is the inter-relationship between highly fragmented forms of production and equally diverse and often volatile patterns of demand” and of course efficiency. To demonstrate the last point of view (Fletcher 2014), fashion businesses provide garments at specific price points for specific target markets; as a result of this demand, the quality and quantity of other options often declines.

Christopher et al. (2004) noticed and proposed in 1999 that the foundations for agility in the fashion business are a solution for the company's success. It is based in four different dimensions where the next two topics focus, more precisely, the objective of a business-to business online platform:

- Virtual—where the information has to be shared on real demand, collaborative planning and end-to-end visibility
- Process Integration—where the inventory has to be managed, the design must be collaborative and all the suppliers should be synchronized

From a production chain point of view, supply networks are complex adaptive systems for contextual changes (Macchion et al. 2015), and these changes can be suppressed by technical, social and organizational innovations through the productions chain (Witjes and Lozano 2016).

Lieder and Rashid (2016) said that it is important to understand that to expand the benefits of the production activities, it will be important for companies to adopt sustainable techniques; however, and on the other hand, they must know that their competitiveness can be threatened, once sustainability resource prices can be extremely volatile.

In fact, to invent and develop a new range of products with a claim for sustainability, firms need to have dynamic capabilities to make their business model function effectively (Boons et al. 2013). However, what about the sustainability between all the players involved on the task of the product development? For Manzini and Vezzoli (2003), “client does not really demand the products or services, per se, but what these products and services enable a user to achieve.”

Complexity arises mainly out of the impact of sourcing products with short life cycles from a large number of different suppliers in a global context (Masson et al. 2007). More companies must be able to supply a growing variety of products, often personalized to customers' individual needs (Macchion et al. 2015).

Nowadays, the procurement task or sourcing work, considering that the meaning of both terms are quite similar, in the fashion industry and more specifically speaking for fashion brands is a task that requires a lot of time.

This also implies a strong sense of organization and flexibility skills when sometimes the flow of the communication with the suppliers is not at its greatest. Because firms are increasingly involving suppliers in the development of new products and facing new management problems (Roseira and Brito 2014), are business to business (B2B) online platforms an example of a service that could provide better opportunities for product design innovation, and can they be an effective tool to achieve transparency and consistency between businesses?

Because supply chains comprise both buyers and suppliers, measuring and monitoring performance requires inputs from multiple organizations

and across systems (Korta and Perry 2013). Hence, demand planning allows a company to minimize its supply chain costs by minimizing inventory, purchasing, logistics and production costs (Moon et al. 2000).

The relationship between companies is something that should be based on the following requirements: compatibility, mutual understanding, open communication, shared commitment, fairness, flexibility and trust (Ab Talib et al. 2015).

Consequently, Awwad and Akroush (2016) said that in today's turbulent business environment, firms should pay more attention to improve new product developments, as to maintain substantial growth for business survival. The main driver that urges organizations to develop new products is responding to change in the business environments efficiently and effectively, thus the need of finding solutions to facilitate communication between all the involved organizations.

Circular economy provides opportunities for innovation in product design, service and business models; as a result, it establishes a framework and building blocks for a long-term, resilient system (Todeschini et al. 2017). To have an agile supply chain, it is necessary that the company has an effectively rapid response to their clients' demands because the fashion industry has irregular changes in the market, in terms of both volume and variety (Carvalho et al. 2012).

Therefore, the necessity of new models is based on the B2B model. In this new era of digital business, it is necessary to develop and optimize the fashion industry, allowing the establishment of new partnerships with factories, brands and suppliers in the European and global markets, boosting the business of current users and new ones that can appear from the creation of new brands (Pina et al. 2017).

7.4 U.MAKE.ID: An Example of a Project with a B2B Approach

According to Pina et al. (2017), U.MAKE.ID is fundamentally an instrument for the improvement of processes, which translates into the economy due to the collaboration of users, presenting itself as a tool that can

ease the productive processes and streamline established competencies, as well as act as a tool for internationalization of products, services and knowledge.

This project can provide proximity between markets and create easy communication among fashion professionals, and it is based on three main ideas:

1. Facilitating the sourcing process for fashion brands and fashion manufacturers
2. Providing social and economic marketing relations
3. Creating a place where designers are allowed to create and develop their projects and then share them with potential manufacturers, with the focus of trying to be closer to and aware of the production phases

Taking into account the objectives of the U.MAKE.ID project, the following main purpose was the creation of a platform that can integrate services and that can be able to reduce the barriers of communication between players (brands, factories and suppliers), building connections that can reduce the distance between conception and production, through the simplification of the sourcing process onto the production, and simplifying the communication and organization between the different players.

Especially in times of crisis, captivating new clients means direct opportunities of new income (Pereira et al. 2018).

Table 7.1 shows the main challenges, purposes and contributions of the U.MAKE.ID. platform, as mentioned by Pereira et al. (2018). It is important to understand what type of challenges the fashion industry, fashion brands and designers face in their daily work regarding sourcing, and how this platform could be a solution to their problems.

7.5 Data Analysis

On a first approach and once the *Castelo Branco* County had some industry related to fashion, the sample was chosen following “convenience” aspects, therefore, considering the geographic location of the

Table 7.1 Challenges and purposes of the platform U.MAKE.ID

Challenges	Purpose
Reactivate old clients	<ol style="list-style-type: none"> 1. Contact old clients or build promotional actions; focusing on these clients can bring fast results. 2. Improve commercial relationships. 3. Companies that can establish this kind of communication sell the most.
Flexibility and simplicity in the purchase of a product or service	<ol style="list-style-type: none"> 1. For manufacturers, it is easier to manage and replace stocks. 2. For brands and designers, it is more simple to communicate and to achieve their needs.
Sell to small costumers or fulfil small orders	<ol style="list-style-type: none"> 1. What if these small clients could make their orders through these platforms? The costs could be reduced and relationship between cost and benefit will be improved.
The geographic covering	<ol style="list-style-type: none"> 1. Without a geographic barrier, a company can now look for costumers that before weren't economically viable selling to regions that could never approach before. 2. This platform will approach European manufacturers to worldwide brands and designers. 3. Seek transparency in the supply chain regarding all the ethical preoccupations, considering the final consumer and all the players involved in the production process.
Work efficiently all the products available	Building communication and marketing strategies to get the clients to know all the products will bring significant gains to the company that will in this way diversify the sales and consequently increase the average value of the products.
Complexity of the product	<ol style="list-style-type: none"> 1. With a complete exposure of the product capabilities and characteristics on a platform, it will be easy for all parties to understand the product and its advantages. 2. Increase the share of products with greater margins of profit.
Launching new products	With a B2B e-commerce platform, this task can have a great aid from the digital world. It is much faster and cheaper to create videos, virtual experiences and digital technical descriptions and spread this work through the internet than doing everything in person.
Approaching new potential brands and designers to manufacturers and vice versa	U.MAKE.ID can be a useful tool once it provides a simple manner of research and easy communication.

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For ethical reasons none of the brand or interviewee names will be mentioned in this chapter, being identified as “cases.”

Regarding the field, fashion designers related to classic and casual clothing, eco-clothing and textiles were considered.

Fashion specialists are mainly professionals that:

- Are working in factories that possess their own private label
- Are new designers that create their own brand
- Are working in fashion *ateliers* and developing products for several brands

Concerning the existence of the brands, the timeline comprehends new brands with one year and almost a decade of existence.

In the second part, the interviews were based on a series of approaches related to the level of difficulty/simplicity of doing sourcing, of what are the places and softwares used to do sourcing, at which point of the year and product development they do the search of new materials, what are the three main and most important facts that they care about when they do the sourcing, and to conclude, what is the level of their satisfaction regarding the sourcing.

Regarding the first question, “In terms of difficulty, find the right product attending your necessities as a fashion professional is...,” most of the interviewees responded that this task was easy, but, in case two, a new eco-clothing brand, this process can be very difficult.

Most of the brands mentioned that they used the internet as a tool to do the sourcing. There were three main aspects that brands considered as the most important in the manufacturing or materials sourcing, these being the price and the quality—the two major aspects referenced by the interviewees—and also time. Other associated costs like flexibility, geographic location, availability and production time were also considered. It is also important to say that in the fifth case, the brand considered the minimum orders imposed by the suppliers and manufacturers as being more important.

Regarding the sixth question, attending the way as brands normally do the sourcing and how satisfied they are, on a scale of very satisfied, satisfied, less satisfied and not satisfied, they all responded satisfied.

When confronted with the seventh and open question, regarding why are they just satisfied with their way to do sourcing, case one mentioned that:

1. "Suppliers that I work with can equilibrate the three factors that I mentioned before (Quality, Price and Time) in a way that please me and as a result I can please my customers as well with a good and quick response."
2. "I believe that talk and meet people directly can open other doors that fashion events or another type of sourcing are not able to. I think that potential manufacturers, with a production type based in quality do not have information on the internet and I can only found them through other references."
3. "The company where I work is based in a part of the country where is simple to find a supplier or a manufacturer. Because there is so much competition between them (manufacturers, suppliers) we can always achieve the lowest price."
4. "I am satisfied because in the majority of cases the manufacturers and suppliers can meet our demand and deadlines and the most important is they can meet this demand without losing their patterns of quality."
5. "I am satisfied because apart from some suppliers and manufacturers that doesn't care and doesn't meet our expectations some others are concerned about meeting and following our demand."

Finally, the third part consisted of comprehending how much the platform U.MAKE.ID was appreciated by the interviewee, to understand how this service could be or not a better solution for their professional activity and to finalize and recognize in which tasks or situations this tool could be more useful.

Therefore, when questioned about "[...] how much do you appreciate this new sourcing service?" most of the brands answered that they "really appreciate" U.MAKE.ID.

In the first case, a brand with almost a year of existence mentioned that “this service can facilitate the communication between different brands and suppliers,” and it also mentioned the convenience of having in one unique platform all the phases that a designer or a brand has to deal with since the beginning, the creative process, crossing the production demands and finishing in the distribution phase.

It is important to note that most of the brands mentioned the convenience of having a service like U.MAKE.ID. A designer that works with several brands said that, “I liked, for example, the fact that I could be seated in my office and I could be able to find good suppliers instead of being visiting them to understand how they work.”

Regarding designers that work in a factory that has its own private label, they replied that what they appreciate more in this new service is “the possibility of being able to find new partners and satisfy possible needs that can append in the moment and the capacity of seeking suppliers for a specific product and eventually be able to contact not only national suppliers but also international ones.”

All of the interviewees said that this new B2B sourcing service could be important for their business, except one case that was a brand with one year of existence that said that a service like U.MAKE.ID could be really important.

However, it is imperative to cite the words of a designer regarding what it is that could be less appreciated in this new service: “I don’t know the platform very well, but what worries me first is the fact that the platform cannot guarantee a large number and good selection of suppliers and contacts; and second, what is the cost of being part of this platform.”

Moving now to the next question, “How this new service can contribute to improve the sourcing process in your brand?”, the interviewees talked about the difficulties of having a brand based at Covilhã and the fact that the location is a difficulty factor to reach potential suppliers.

In case one, the designer demonstrates his displeasure saying that “The truth is that sometimes we don’t have the response to the emails that we sent” and concluded saying that: “With this platform and have all of them (suppliers and manufacturers) united here, it is like a guarantee that they will respond. It is more familiar and quick to obtain an answer.”

It is also important to focus on other interviewees' responses to this same question. They exposed several aspects, like "Be able to start working with companies that I did not know," "the major advantage on this platform is to have several tools into a single system," "good way to achieve new prices and new deadline timings" and "it can contribute for better methods, faster respond and a wider offer than the usual."

Regarding the two following questions, the first questioned what could go wrong with this new sourcing service and it is interesting and important to note what the last case answered about the U.MAKE.ID sourcing strategy. "Seems that I am dealing with suppliers and manufacturers that I don't know any information about. In an initial approach how will I have a concrete idea of business about the suppliers? Are they working correctly or not? Are they reliable or not?"

In the second and final question, when we asked them if they have any suggestion for U.MAKE.ID, they answered, "I suggest the implementation of a rating system that will allow me as a user and brand to rate other users like suppliers and manufacturers. This tool could help me to realise and to identify if it is worth to work or not with that potential partner. With that I can choose a business partners with a clear idea about its problems and its values."

To conclude this chapter, it is important to mention that some of the interviewees' doubts were clarified after the interview.

7.6 Conclusions

It is important to recognize that all the interviewees are fashion professionals that are familiar with the internet and use it as a tool on a daily basis at work to do their sourcing tasks. Thus, these five cases can already be potential future users of U.MAKE.ID.

Kawamura (2005) as explained above said that the fashion system is an interrelationship between highly fragmented forms of production and equally diverse and often volatile patterns of demand, therefore the necessity to have new business models to confront this diversity of demand.

According to the cases that were interviewed, all respondents were just satisfied with the way they undertake sourcing, and for specific brands

and specific products, like eco-clothing, this task can be very difficult. The general opinion of the specialists regarding U.MAKE.ID functionalities was reasonable, and they showed interest in using the website and considered that this service could have a great contribution to their sourcing tasks, emphasizing the fact that it could be a great system that could provide several tools not only for the sourcing but for their project management as well. “It can contribute for better methods, faster respond and with a wider offer than the usual.”

However, to conclude, the authors have to demonstrate not only the strengths of U.MAKE.ID but the weaknesses too. Thus, focusing the concerns that the interviewees demonstrated, it is important in the next phase of the project to understand how the platform can be improved regarding this question: “The information provided by the supplier/designer is real? Is the information certified and trustworthy?”

Having in attention the concern about sustainability, business models serve to provide a linkage between producer and customer, and for a new range of products with a claim for sustainability, firms need to have dynamic capabilities to make their business model function effectively (Boons et al. 2013).

In the last few years, there was a tendency for designers and fashion brands to make smaller productions with a bigger diversity of products with the objective to expand their range of customers, so it is appropriate to provide new services that can provide them the best manufacturer for their needs.

With the belief that the U.MAKE.ID platform can be a great solution, regarding the collaboration and sustainability of the business between manufactures/suppliers and brands/designers in the fashion field, reaching companies that allow them to make productions with acceptable quantities, it is still a problem to solve. Even more now that the fashion industry is passing through a new transition phase where new business models, such as co-creation, are starting to gain importance in terms of manufacturing. Can this be a struggle for the industry and for the development of new products?

To end, as contribution, U.MAKE.ID can be a helpful solution to new designers and entrepreneurs that do not have the necessary knowledge to pursue and discover potential product manufacturers with the purpose of

businesses transparency between all the fashion players involved in the product development process.

7.7 Limitations of the Study and Further Investigations

This practical and qualitative study was made with a limited number of interviewees where only designers were interviewed. It is important, in the next phase of this project, to understand how other specialists or fashion professionals, like product developers or client managers that work with manufacturers, do the sourcing and how B2B online sourcing platforms, such as U.MAKE.ID, could help them to reach new clients, new materials/products and other potential services that they need.

After the data analysis, it was realized that some questions were limited. If the authors could expand the range of questions to listen and understand other preoccupations and suggestions, then this could lead the team to other facts and conclusions that were not conveniently explored until now.

The geographical area and the field of investigation were also limited, so, the authors should take into account not only the enlargement of the number of respondents but also of the geographical regions. The north region could be an excellent choice taking into consideration the large number of companies related to clothing and textile production.

In the future, it is also important to analyse shoes, watchmaking and jewellery sectors to understand how fashion designers and other professionals do the sourcing.

It is important to emphasize the need of a focus group, with a practical exercise focusing on the use of the several tools that the website provides to realize how potential users will react and what is their feedback regarding U.MAKE.ID functionalities.

Regarding the practical study, it seems appropriate to say that in the last phase of the project, questionnaires were sent to fashion brands and manufacturers all over Europe, but the results were not considered for this study; hence, the number of the questionnaires answered until now is very limited.

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