

Section 11: Footwear design and technology

OPEN INNOVATION IN THE FASHION INDUSTRY: PORTUGUESE FOOTWEAR INDUSTRY

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Abstract: *The Portuguese footwear industry had in the last five years a remarkable performance in the exportation values, trade balance, quality and product design, and international image. The forecasts for 2016 are very positive, with a higher exportation growth than other Portuguese industries during this period [1]. After a long period of difficulties and with a strong reduction of companies and employees since 1994, nowadays the Portuguese footwear industry is a success case in the Portuguese industry. There are several innovative companies in this traditional and mature sector in Portugal, some of them leaders and important players in the international/global context. This paper analyses the innovation category followed by the companies, according Oslo Manual classification, developed by seven innovative companies (two are leaders in the Portuguese footwear industry) and shows the linkage that the partners have in the innovation processes, where open innovation is clearly identified as critical for these excellent performance achieved.*

Keywords: *Open innovation, fashion industry, footwear, Oslo Manual.*

1 INTRODUCTION

The textile, apparel and footwear industry belong to the called “fashion industries”. Indeed, there are many similarities between the footwear industry and the textile/apparel industries (ITV) in Portugal. They are traditional industries, mature and consolidated, “low-tech” and labor intensive, with a long story in the Portuguese economy and represent thousands of jobs and thousands millions of exports. They export more than other Portuguese labor-intensive industries, mainly to Europe, and contribute to a very positive trade balance in the national economy. The Portuguese textile and apparel industries have suffered an important impact with the economic crisis of 2009-2012, but in the last three years they started the recovering process (Table 1). Also the Portuguese footwear industry shows an excellent performance in several indicators in the last five years. The economic and social indicators of the footwear sector for the year 2014 published by APICCAPS (Associação Portuguesa dos Industriais de Calçado, Componentes, Artigos de Pele e seus Sucedâneos) [1] show that 1.430 companies are employing 37.781 workers and had a gross production value of 1.884 million euros (Table 2). The coverage rate (value) is around 411%, one of the highest in the Portuguese economy. Year by year, this industry became stronger, creates new jobs with new skills, and increases his competitive position between the global stakeholders, players and competitors, even in demanding and sophisticated European markets, such the Italian or French.

Table 1: General data of Portuguese textile and clothing industry - ITV (2010-2015)

YEAR	2010	2011	2012	2013	2014	2015
Production (millions €)	5.640	5.770	5.647	6.028	6.407	6.479
Turnover (millions €)	5.815	5.983	5.838	6.296	6.654	6.755
Exports (millions €)	3.844	4.167	4.127	4.288	4.620	4.836
Imports (millions €)	3.419	3.467	3.116	3.343	3.608	3.795
Employment	137.264	132.133	124.329	124.147	127.901	129.452

In two decades, the footwear companies in Portugal made a strategic change in the business model and they started to develop own products and own brands, supported by a large and successful international marketing campaign to new foreign markets. The presence in international fairs (e.g. MICAM), exhibitions and congresses are common and with more and more Portuguese participants. The last MICAM in September 2016 had around one hundred Portuguese footwear companies as exhibitors. This performance wasn't achieved yet in the same way by the textile and clothing industry in Portugal, but the results in 2015 and in the first semester of 2016 already reached by the ITV industry are very promising.

Table 2: General data of Portuguese footwear industry (2010-2014)

YEAR	2010	2011	2012	2013	2014
Production (millions €)	1.283	1.511	1.824	1.797	1.884
Number of companies	1.245	1.324	1.322	1.399	1.430
Exports (millions €)	1.297	1.541	1.600	1.735	1.846
Imports (millions €)	425	467	403	422	449
Employment	32.132	34.509	34.624	36.889	37.781

Portugal is placed in the twelfth position as world exporter in the footwear industry (table 3) and has the second highest average export price (pair of shoe) among top 15 exporters [1], just behind Italy. The Portuguese footwear industry represents around 3,6% of the Portuguese exports, one of the highest percentage in all European exportation values. Leather shoes are the type of footwear more traded in 2014, with 77% of the total exported by Portugal.

Table 3: World top 15 exporters in value (2014)

Rank	Country	Value (millions USD \$)	World Share (%)	Average Price (\$) – (Rank)	Export Markets (Top 3)
1	CHINA	53 837	40,5	4,44 (15 ^o)	USA/Japan/Russia
2	VIETNAM	12 200	9,2	16,09 (12 ^o)	USA/France/Gwermany
3	ITÁLY	11 138	8,4	50,92 (1 ^o)	France/Germany/USA
4	BÉLGIUM	5 566	4,2	24,50 (4 ^o)	France/Netherlands/UK
5	GERMANY	5 166	3,9	22,62 (6 ^o)	France/Netherlands/Poland
6	INDONÉSIA	4 761	3,6	20,88 (8 ^o)	USA/Belgium/Germany
7	HONG KONG	4 014	3,0	16,65 (11 ^o)	USA/China/Japan
8	SPAIN	3 540	2,7	22,07 (7 ^o)	France/Italy/Germany
9	NETHERLANDS	3 295	2,5	19,99 (9 ^o)	Germany/France/UK
10	FRANCE	3 095	2,3	31,74 (3 ^o)	Italy/Germany/Spain
11	ÍNDIA	2 610	2,0	13,08 (13 ^o)	UK/USA/Germany
12	<u>PORTUGAL</u>	<u>2 452</u>	<u>1,8</u>	<u>31,88 (2^o)</u>	<u>France/Germany/Netherl.</u>
13	U K	2 079	1,6	12,83 (14 ^o)	Germany/Ireland/Netherl.
14	ROMANIA	1 374	1,0	24,01 (5 ^o)	Italy/Áustria/Germany
15	SLOVAKIA	1 226	0,9	17,20 (10 ^o)	Germany/Áustria/Poland

Innovation plays an important role in these economic results. Innovation can be observed and identified clearly in the most innovative and competitive Portuguese footwear companies, and innovation in marketing and innovation in products are the more important categories of innovation (according Oslo Manual classification).

Open innovation model is focused in the companies [2], whatever the industry, including obviously traditional industries as footwear or textile/clothing. Open innovation also prepares the firms for the globalization and the new advances in information and communication technologies (ICT's) and social networks [3]. This model requires several partners, with different skills and resources, prepared to cooperate and share information, data, problems and solutions. As stated Chesbrough, "*Open Innovation means that valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well*", [2], (pp.43). The sectorial organizations from Portugal (APICCAPS and CTCP) play an important role in the coordination of joint projects partnerships. This is a positive reality in the Portuguese footwear industry and works well. Spillovers and technology transfer occurs in some common projects and open innovation (Figure 1) explains the innovation process verified and the improvements achieved. Cooperation in I&D is necessary to share resources in many industries [4] and to make innovation profitable. The present paper analyses the innovation category followed by the companies, according Oslo Manual classification [5], developed by these seven innovative companies (some of them are leaders in the Portuguese footwear industry) and shows the linkage that all the partners share in the innovation processes. Open Innovation strategies can be easily identified in the footwear's leaders companies.

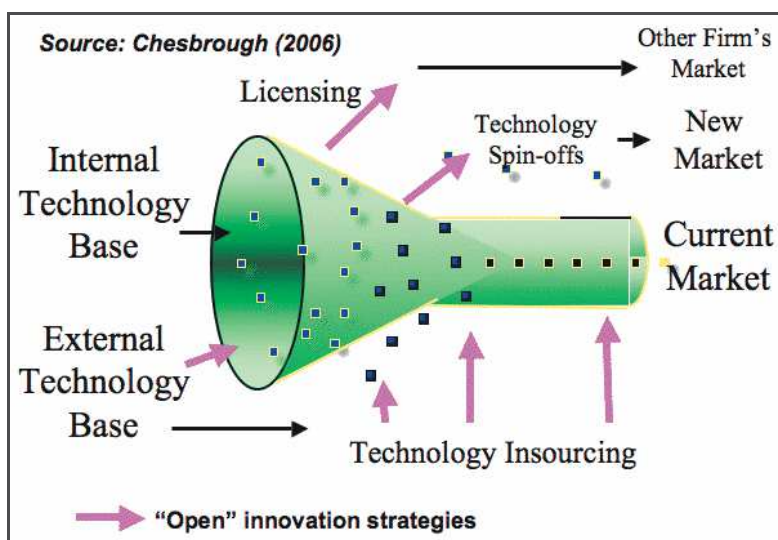


Figure 1: Open Innovation model (Chesbrough, 2006)
Source: http://blog.openinnovation.net/2010_08_01_archive.html

2 METHODOLOGY

This paper analyses seven cases of the Portuguese footwear industry: Felmini, Savana, Centenário, Procalçado, Kyaia/Fly London, Soze/Dkode and Aco Shoes. The research methodology followed was qualitative and the strategy for data collection was the case study (multiple case studies), as suggested by Yin [6]. The qualitative analysis is presented as the most recommended when the researcher wants to study a small sample of entities and the study is focused on a theme (innovation) or sector (footwear sector). It is also recommended when the investigation aims obtaining detailed and in-depth information on organizations, interactions and behaviors observed by the investigator during the field research [7].

Qualitative research usually provides direct, deep and detailed quotes, and careful descriptions of situations, practices, events, people, interactions and behaviors in organizations [8].

Several authors and specialists who have dedicated themselves to the investigation of small companies suggest that the use of a qualitative approach is the most suitable for the study of micro, small and medium enterprises (SMEs), situation that occurs in the Portuguese footwear industry [6],[9].

Hill and McGowan [9] argue that for the study of small businesses and their leaders and administrators, is convenient to use an epistemological approach that minimizes the distance between the researcher and the entrepreneur, allowing a positive interaction between them. In this research, the main sources used were semi-structured interviews, questionnaires and observation of reality in the workplace (real work context).

During more than six months were listened several members from the companies and was filled a small questionnaire about innovation.

The case studies represent one of the most used and popular research strategies in various areas of knowledge and research. It is of great convenience when the researcher wants a deep understanding of the context and the research process, and is adjusted to exploratory and explanatory studies of certain events or situations. This strategy allows to the researchers obtain holistic and relevant features of real events, regardless of the element of analysis is related with an individual, group or organization [6],[10]. The opportunity to get a holistic view of a process is a significant advantage for the case study strategy when it is chosen [11].

Yin [6] considers that a case study *“is an empirical inquiry that investigates a contemporary phenomenon in depth and in the context of real life, explicitly when the boundaries between phenomenon and context are not clearly evident”* (pp.18). The case studies are particularly useful *“where you need to understand some particular problem or situation in great depth, and where they can identify rich information cases”* [8] (pp.19), as it was occurred during the research in these seven companies. Simons [12] states that case study *“is a deep exploration of multiple perspectives of the complexity and uniqueness of a particular project, a policy, an institution, a program or a system in a real life context”* (pp.21).

To select these seven companies, mainly SMEs, were used the purposeful or intentional sampling [9]. The logic and the power of purposeful or intentional sampling is based on the selection of cases that are rich in information for in-depth study of a particular phenomenon, and on which can be drawn from relevant information and central to the purpose of the investigation [10]. There are several strategies to select the footwear companies using the intentional sampling. The maximum variation strategy and the sampling with criteria are the most appropriate to the present investigation [8], focused in innovation. The collaboration with APICCAPS and CTCP (Centro Tecnológico do Calçado de Portugal) was extremely important in order to select the seven innovative footwear companies.

3 RESULTS

As main result, it will be presented a table (Table 4) that shows the type of innovation followed by the companies and the open innovation strategy that the partners identify in the footwear industry. The innovation level was assigned by the researchers after the depth analysis of each case. By other hand, the presence of Open Innovation is related with the cooperation projects and the spillovers resulting of innovation activities reported by the companies, and also by the performance in their markets.

Table 4: Innovation & Open Innovation and economic indicators

Year 2013	Felmini	Savana	Centenário	Procalçado	Kyaia	Soze	Aco
Type of Innovation (Oslo Manual)	Product Marketing	Process Organisational	Product	Product Marketing	Product Organisational Marketing	Product Marketing	Proces
Innovation Level (1-5)	4	2	3	5	5	3	2
Open Innovation	Yes	No	Question Mark	Yes	Yes	No	No
Turnover (million €)	13,443	8,954	9,187	21	56	10	33,49
Ratio Turnover/Wrk. (€/worker)	73.460	63.050	124.150	70.950	90.320	62.500	45.200

The ratio “Turnover/worker” is quite different in the seven cases analysed. Centenário has the highest ratio and it is linked with the kind of materials used in their shoes: alligator and crocodile leather, snake, Brazilian fish skins, etc. The three cases in which can be identified the presence of open innovation model suggested by Chesbrough, present higher ratios “Turnover/worker” than the other three cases. The competitive positioning is different according the innovation observed in each case and the strategy followed.

4 DISCUSSION

Innovation is critical to the competitiveness and sustainable development of the world economies and industries [13]. In traditional and “low-tech” industries, dominated by SMEs, innovation plays an important role in the performance shown by the sector and their companies.

Innovation is present throughout all the analyzed companies, regardless the type of innovation, the strategy implemented in innovation, the results obtained and the degree of this innovation.

Innovation in products and innovation in marketing are the most representatives among the innovative companies studied, according to the categories proposed by the Oslo Manual. Companies that follow these two innovation categories have the best economic results (see Table 4) and have the best sectorial image. Thus, it is increasingly important to consolidate the existing innovation processes (innovations drag innovations) and enhance the conditions for improving the internal innovation processes inside the companies [14].

The process of innovation in industrial companies presents a set of requirements and assumptions that not all can achieve, being mainly the leaders and the best prepared companies able to successfully implement these processes. The resources of organizations are important, whether human, technological or financial resources, but the complexity of the innovation process is assumed by the most innovative companies and leaders as an important barrier to innovation. Open Innovation is important to maximize the use of internal resources and to engage the external resources of all the partners in order to achieve the common goal.

The project “HighSpeedShoeFactory”, led by Kyaia, will result in a radical innovation to the footwear sector, and involves different partners of the footwear value chain. “Shoe Factory Model for Agile Response in 24/48 hours” can shortly describe the project [15]. The main goals were: pair-to-pair production and reduction of stocks; online sales, small orders and fast replacements; production of samples and new collections of own products; flexibility and versatility. The level 5 in innovation is obvious to this leader footwear company. Also level 5 in innovation were given to Procalçado because they are continuously developing new products for very competitive and demanding markets (WOCK products for professional footwear and Lemon Jelly, fashion shoes molded, all in injected materials, are excellent examples). They are also Portuguese leaders in components for footwear industry, producing soles and insoles in several materials.

5 CONCLUSIONS

An important conclusion of the research is the relation between the category of innovation and the economic performance of the innovative companies. So, the future sectorial strategies should focus on the preparation, development and implementation of innovation processes in product innovation and marketing innovation. A long road was already walked, but to keep the growth of these footwear companies is necessary maintain the road map active and demanding for new steps and challenges. Furthermore, it can be concluded that open innovation is present in the most innovative companies analysed in the research, and these most innovative companies should spread the knowledge acquired for the entire footwear cluster. The royalties and other intellectual property rights have to be protected, but Open Innovation allows spillovers in other small companies of the cluster. These small companies (mainly working in private label regime and less than 30 workers) can benefit directly because they work in production contracts to the more innovative companies (mostly of them with own products, own collections and own brands) but can incorporate some of the results to internal improvements.

Investment in qualification of human resources, as innovation and internationalization, should allow the Portuguese footwear sector the maintenance of its performance and positioning among the world’s leading exporters of fashion footwear, mainly leather shoes. The role of the universities and sectorial organisations is very important to consolidate these achievements and to continue to feed the innovation process in the Portuguese footwear industry and to remain highly competitive, as it is already.

ACKNOWLEDGEMENTS

“This work is financed by FEDER funds through the Competitiveness Factors Operational Programme - COMPETE and by national funds through FCT – Foundation for Science and Technology within the scope of the project POCI-01-0145-FEDER-007136”



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