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KNOWLEDGE MANAGEMENT WITHIN THE FASHION AND CLOTHING INDUSTRY: AN INVESTIGATION INTO THE PURCHASE PROCESSES WITHIN A COMPANY

[1]Márcio José da Silva, [2]Cláudia Herrero Martins Menegassi, [2]Rejane Sartori and [*3]Nelson Tenório

[1]Master's Student in Knowledge Management, University CenterCesumar – UniCesumar, Brazil
[2]Researcher from Cesumar Institute of Science, Technology, and Innovation (Instituto Cesumar de Ciência, Tecnologia e Inovação - ICETI), University CenterCesumar – UniCesumar, Brazil
[3]Visiting researcher at University of Copenhagen, Denmark.Researcher from Cesumar Institute of Science, Technology, and Innovation (Instituto Cesumar de Ciência, Tecnologia e Inovação - ICETI), Brazil

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ABSTRACT

The fashion and clothing sector is the second largest employer in the Brazilian processing industry. The complexity of its processes is high, especially in the raw materials and complements purchasing sector, which involves several other departments of the company. Knowledge Management (KM) has the potential to systematize the existing knowledge in organizations and add value to organizational products and processes. Thus, this article aims to identify the departments and processes that influence the purchasing department in a fashion and clothing company, as well as KM elements present in the relationship among them. The results achieved were the identification of all departments and processes related to the studied department as well as several KM elements, such as KM cycle stages, tools, and practices.

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INTRODUCTION

The second largest employer in the Brazilian processing industry is the fashion sector. The data from the Brazilian Association of Textile and Clothing Industries (ABIT) indicates that the country has the fourth largest confection industrial park in the world (ABIT, 2017).The fashion industry impacts on different areas such as architecture, arts, and product design and has a strong relationship with clothing and fashion (Barcaro, 2008). This way, companies that develop this type of product can be called as 'fashion companies' or 'clothing companies' or 'clothes made'. Thus, assuming that clothes made are only one step in the entire production process of those companies, this article adopts the term fashion and clothing companies to characterize this industry.

Corresponding author: **Nelson Tenório,**
Visiting researcher at University of Copenhagen, Full Professor in Master of Knowledge Management UniCesumar University, Maringá - Paraná - Brazil.

In addition, those companies' sector develops clothing products and complements (e.g., bags, belts, shoes and accessories) characterized by a short cycle and with the purpose of serving different levels of consumers. Although fashion and clothing companies are recognized for their creative traits, they operate in a scenario with highly complex, short-lived product cycle and short production cycle processes with products that are influenced by fashion trends from all over the world (Jones, 2011). The purchase of products for the production line is one of the fundamental points of an industry. However, these companies must establish partnerships to meet their production demands. These partnerships are intermediated by a specific department, the purchasing department (da Silva *et al*., 2014). Therefore, the purchasing department in fashion and clothing companies is responsible for this supply chain, establishing links with suppliers, acquiring products and services, issuing and controlling purchase orders, and constantly seeking new suppliers, markets, and products to guarantee the organizational objectives results (Pozo, 2015).

According to Shaw and Koumbis (2017) and Mondini *et al*. (2015), the purchasing department of a fashion and clothing company is responsible for acquiring all the products needed for production. This makes this department work with factors such as the unpredictability of demand, influences of fashion trends, fragmentation of production processes, a broad spectrum of product types (mix) and extensive supply chain. According to Ben-Daya, As'Ad and Seliaman (2013) and Nag, Han and Yao (2014), supply chain issues are of great importance when it comes to resource management, cost reduction in product acquisition and proximity to suppliers in purchase relationships. This way, the purchasing department is one of the most significant in the administrative structure of an organization of this nature. Therefore, the purchasing department of fashion and clothing companies is a relevant object of research since it depends on people's knowledge so that its various processes can be executed and coordinated successfully, given the high complexity of its activities. Knowledge Management (KM) is able to systematize the existing knowledge and add value to products and organizational processes (Dalkir, 2011). KM also makes it possible to apply knowledge systematically throughout an organization or its specific departments, including its individuals (North; Babakhanlou, 2016). Given the that there is a complex system of activities involving the purchasing department as well as the needs to share information and knowledge among them, this article aims to identify the departments and processes that influence the purchasing department in a fashion and clothing company as well as Knowledge Management elements present in the relationship among them. For this purpose, a case study was carried out in a fashion company located in a city in the northwestern part of the state of Paraná. Further this introduction the article is structured as follows. The method section presents detailed the methodology to carry out this research. The results and discussion section present the results achieved and their due discussion with the field contributions. Finally, are presented the conclusion section followed by the references used in this work.

MATERIALS AND METHODS

This article is characterized as qualitative research of exploratory purpose that has as its research strategy the case study in a company from the fashion and clothing sector located in the northwest region of Paraná, more specifically in the purchasing department of that company that also involves several other departments in its activities. The purchasing department is composed of nine individuals with professional experience ranging from six months to six years. The department is responsible for the acquisition of raw materials (fabrics) and complements (notions and accessories). The company creates and makes available for sale five annual collections in different clothing segments. It is estimated that on average, every 55 days, around 1,800 new products are put up for sale. This makes the demand within the purchasing department intense, which requires from individuals of each department involved in this activity, information and full knowledge of the involved processes and coordination of activities. Data collection was performed in two phases. In the first phase, a questionnaire was administered, and in the second one, the observation of individuals' work routine within the department was carried out. In the first phase, the questionnaire was composed of twenty questions, of which five were open-ended, and fifteen were multiple choice questions. It was based on the processes suggested in the KM cycle of Wiig (1993), Dalkir (2011) and Davila *et al*. (2015). Before being administrated, the questionnaire underwent a validation by three specialists in the KM area, which made it possible to make this instrument of data collection adequate in its various aspects to the research objective. The specific objective of the questionnaire was to verify the departments that are part of the purchasing process, how personal knowledge and experiences are created, and also how construction/creation stages; application; conservation and distribution of knowledge are created throughout the company's purchase process. The questionnaire was sent through an online platform and answered by nine individuals, who are directly involved with the process studied within the purchasing department. The questionnaire data were analyzed using the analysis categories listed above. The second phase, the observation, also made it possible to deepen the data collected and analyzed with the questionnaire. The observation was made in a non-participant way, and five visits were made to the company. Field notes and their content were carried out, besides providing complementary elements to those collected with the questionnaire, it also served to triangulate the data, which contributed to the validation of the data obtained.

RESULTS AND DISCUSSION

Considering data analysis, we verified relevant findings for both the fashion industry and the KM area, such as the *existing inter-departmental relationship in the purchase process*, *type of information shared*, *KM cycle*, and *KM tools and practices in the department*. Regarding the inter-departmental relationship, it was verified that the purchasing department establishes direct or indirect relations with the following other departments:

- Creation: responsible for research, choice of materials, colors definition, design, and transposition of clothing products trends.
- Modeling: they transform the ideas of the drawings into molds, or interpretations of models to be made on an industrial scale.
- Prototyping: is responsible for interpreting the design and mold of an initial product which is called a pilot or prototype piece, this piece will go to test and approval, and if necessary can receive adjustments. Also in the prototyping, there is a warning in case of an inconsistency between the idealized model on paper and the physical product.
- Product engineering: responsible for verifying the quality of all materials and products before they enter production. Not all companies have this department, in many cases, the prototyping itself does this verification.

The departments and processes related to production, but which also influence and are directly related to the purchasing department, correspond to:

- Purchasing. It is responsible for acquiring all the necessary materials for both showcases and production work supported by the creative department, seek for new suppliers, meet up suppliers together with stylists, and make decisions about buying or not the products. Moreover, they decided whether a bought item is in non-conformity, i.e., those items reported by the product engineering, and send back those items to its

supplier. As the company makes sales on order, this requires from the purchasing department early purchases without the products quantity specification. The purchase period of many items can be up to twelve months before the final product is available for sale, and the company calls this process 'shopping bet' and 'sales bet';

- Production Planning and Control (PPC). It is responsible for production scheduling and demand generation. In the analyzed company the department is divided into three parts, one takes care of demand or production bet which generates demand for raw materials for the purchasing department. The second is responsible for checking the arrival of raw materials and products that can be released for production. The third part is responsible for tracking production and making products available promptly for customer billing;
- Warehouse. It is responsible for storing, inspecting and distributing all the raw material being used in the collection. They may inform the purchasing department of inconsistencies between what was purchased and billed by the supplier, such as excess quantities or prices different from the ones on the system;
- Fitting. After approval of collection, the modeling performs the graduation of the molds, and the fitting performs the process of fitting these sizes targeting the best possible use of raw material and the scale of industrial production;
- Cutting: responsible for the fabric folding, a sort of grouping of fabric sheets so that several pieces are cut at the same time, they cut and separate the lots for the sewing process;
- Sewing. It is responsible for assembling the products;
- Finishing: the finishing process can be simple, including only the cleaning of parts or the insertion of buttons and packaging, or it can also be simultaneous processes to the sewing, as the application of embroidery or print. In general, the finishing is understood as the final process when the product can be sent to the billing.
- Shipment: the department responsible for the storage of finished products and billing in addition to the shipping to customers/consumers.

Shaw and Koumbis (2017) point out that closer relations among departments are necessary for these companies' consumers because they contribute to decision making in the face of adverse situations. When it comes to the information shared among departments, it was evident that one of the types of information shared is the request for the purchase of new materials. The creative department, for instance, may require the purchasing department to purchase new materials to be used in a new collection. This requires the purchasing department to search for new suppliers that in certain situations may be 'new suppliers'. Thus, it is important for the purchasing department to obtain information regarding the new supplier to avoid problems such as: i) late delivery; ii) product not in conformity with the specification of the creative department. Another identified type of shared information was the detection of inconsistency in materials received and used by the modeling department, thus requiring the sharing of accurate information among the purchasing, modeling, product engineering and warehouse departments. The product engineering department must perform quality tests on the requested materials and, in case of nonconformity, the item must be canceled from the purchase order. The warehouse, in turn, must identify inconsistencies as soon as the purchased goods arrive, e.g., defects, values or quantities different from those agreed in the purchase order. Finally, the last type of information found was the identification of production demands for making anticipated purchases by the production planning and control department. This way, this department identifies the production demands for making anticipated purchases, in this case, the purchasing department contributes with information about raw material limitation, problems in the arrival of the merchandise - factors that will influence the effectiveness of the production indexes. Regarding the KM cycle, the analyzed data show that the processes of creation/construction, application, conservation and distribution of knowledge, take place as follows: *Construction/Creation*. It was observed that it occurs through the use of personal and subjective experiences. It can also occur through the experience of others, talking to co-workers, for example, formally or not (e.g., lunch, 'coffee time'). These experiences are then incorporated into the work routines. According to Oliveira and Epaminondas (2014) and Marchi and Nardin (2014), knowledge is paramount for the sustainability of a fashion and clothing business. Therefore, the creation of knowledge in this sector is fundamental, since knowledge and the sharing of it among departments are essential in the purchasing process.

Application. It was noticed that this occurs through the exchange of experiences. Those more experienced, or of a higher hierarchical level, tend to apply this within the work environment and thus influence others on certain decisions.

Conservation. It was found that the change of managers is a critical factor that leads to the change of working methods or processes. This makes it difficult to preserve knowledge since, after personal relationships, electronic mail is the main form of communication to institutionalize changes in working modes. However, new employees do not have access to issues submitted before the date of their hiring. Thus, the new employee will only have access to the previous information if a colleague provides it. Therefore, establishing strategies for conversations, meetings, use of shared folders on the computer network or the Internet, access to the purchasing system, can stimulate, but not guarantee the conservation of knowledge. In fact, the literature suggests the creation of an information base at the stage of knowledge conservation, based on available knowledge (tacit and explicit). It is considered that the more formalized the knowledge is, the more effective the organization and storage processes will be (Dalkir, 2011; Davila et al., 2015, Dorow et al., 2015). *Distribution*. It was noticed that respondents have already had opportunities to develop and implement the improvement of the work process, although not all of them feel like sharing it. When some change is needed, it tends to be communicated and explained through meetings, e-mail, or some online manual available on the internet or intranet. Once the KM cycle was identified, a set of practices and tools used by the purchasing department and users of the KM were observed. KM practices are considered to be actions that promote the stages of creation, application, conservation, and distribution of knowledge, which may occur with or without the use of tools. On the other hand, tools are configured into instruments, usually linked to information technology, to support the practices (North; Babakhanlou, 2016). The first practice observed both in the

questionnaire and on site was the mentoring in which the youngest person in the department makes use of the most experienced employee's knowledge for him to be assisted when carrying out a task or in a situation that involves the solution of an already known problem. Another practice observed was the use of the community of practices at times when employees from different departments come together to address a subject of common interest, e.g., to define and approve a collection. This occurs in a very organized and systematized way through a mediator. According to Dalkir (2011), Batista (2012), Massingham (2014), North and Babakhanlou (2016), mentoring occurs when the presence of a more experienced person is required to assist, in a given subject, a less experienced employee. In general, this occurs naturally, since more experienced individuals may have gained their knowledge this way. Still, according to the authors, communities of practice occur in processes in which people from different departments debate on a common subject to share knowledge or even creating new knowledge. Considering those tools, the use of storytelling was observed at times, at meetings, in which individuals can tell a work experience. It is done in the form of narratives about the situation faced. The idea is to record the report so that other individuals can reflect on that situation and generate new knowledge to deal with it. Another tool observed was the recording of lessons learned. Information on inventories, products to be purchased, defective products, among others, are recorded on the purchasing system itself and in an information technology structure internal to the organization.

Buyers, for example, use folders with documents through a network (intranet) which contain information on new developments, new suppliers, shortages of supplies or availability of items for production. Through the availability of this information, buyers make decisions, generate new knowledge, and store them, retaining them for future use. This creates a virtuous cycle for the management of organizational knowledge. According to Dalkir (2011), Batista (2012), Massingham (2014) and North and Babakhanlou (2016), this storytelling format resembles the informal sharing of information in order to create new knowledge about a given subject through a narrative. Regarding the record of the lessons learned, the authors report that it is important that other departments involved in this process have access to the information to provide search, creation, sharing and use of the knowledge stored within them. Although several elements of KM have been identified, it is noteworthy that they are not systematized or formalized within the organization. The evidence indicates that they occur because there is a strong influence of the organizational culture itself.

Conclusion

This article aimed to identify the departments and processes that influence the purchasing department in a fashion and clothing company as well as Knowledge Management elements present in the relationship among them. The results point to the existence of an inter-departmental relationship that impacts directly or indirectly on the processes of the purchasing department. According to the buyer, main departments are: creation, modeling, prototyping, and product engineering. Moreover, the buyers reported other departments and processes more close to production department, but which impact directly to the purchasing department, such as purchasing, production planning and control, warehousing, fitting, cutting, sewing, finishing and shipping. In addition, it was observed different types of information shared among these departments, such as the purchase requisition of new materials, detection of the incoherence of materials used by the modeling department, identification of production demands in order to make anticipated purchases, among others. Another important finding was the identification of a KM cycle composed of the creation/construction processes; application; conservation and distribution, through the administration of the questionnaire that was developed for this purpose. Finally, KM tools and practices within departments and inter-departmentally were observed.

The identified tools were the storytelling and record of lessons learned. Storytelling is used at meetings when common knowledge must be shared in a narrative form. On the other hand, the recording of the lessons learned is carried out on the purchasing system itself or in an information technology-based environment, e.g., electronic files in organized and shared folders on an intranet. KM practices were observed through mentoring and communities of practice. In the purchasing department, it is customary for an experienced person to assist a novice in a certain subject out of his domain. It is worth noting that this was also observed in other departments of the organization. Another practice observed was the existence of communities of practice, observed in some meetings in which individuals from different departments get together to discuss solutions on a common subject. Thus, the findings presented here are not formalized as a document or manuals within the company under study. There are indications that it is all carried out as learned by the individuals and it is now part of the organizational culture. Therefore, if on the one hand this article brings up important elements about the complexity of the purchasing department of this type of industry and the benefits that the KM can offer, on the other hand, KM researchers obtained, from this research, relevant elements to direct their future work on the systematization of KM within this complex system that includes the purchasing department of fashion and clothing companies..

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