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## **STORAGE OF GOODS IN A LARGE SCALE RETAIL COMPANY**

In large scale retail companies, storage of goods is very important in the structure of performed logistic processes. That process has an auxiliary function, supporting the sales activities. Stocks are kept both in the warehouse and in the commercial area. Fresh and dry food products, as well as household goods, are stored in the same facilities. Consequently, there are various needs when it comes to ensuring proper warehousing conditions.

The analysis of literature indicates the lack of general and detailed studies regarding the concept and structure of relevant organisations as well as characteristics of the performed logistic processes. The presented contents do not comprise the subjective, objective or functional specificity of retail.

This paper aims at systematisation and extending the knowledge concerning the structure and course of warehousing in large scale retail companies. The study will allow to explain the course of the warehousing process in the analysed companies, by defining its purpose, stages and tasks, assessment criteria, used documents and also persons in charge and those responsible for particular activities. The research method used in the study was observation. The technique of the study was observation of own management and organisational activity.

**Keywords:** stock, warehouse, distribution, system, logistics.

### **1. INTRODUCTION**

It is commonly assumed in the literature that the process of warehousing is divided into four basic phases, i.e. goods acceptance, storage, completion and release. The storage phase comprises the activities leading to placement of goods in the storage area of the warehouse building, in a systematic way, considering their characteristics and current possibilities (PN-N-01800:1984). The basic reasons of building-up inventories are connected with uncertain and wrong demand patterns, relations between to costs of transport and warehousing, the effect of scale of purchase or transport, ensuring security (continuity) of performed processes, seasonality in supply and demand of certain goods, and market speculations (Richards, 2014). In this regard, the major goal of storage is to ensure access to specific material goods, according to the requirements of interested parties, at an acceptable cost (Gwynne, 2017).

It is widely acknowledged that this process is carried out in five stages, comprising the receipt of goods from the acceptance area, placement in the storage area, routine control and handover to the completion or release area (Kisperska-Moroń, Krzyżaniak, 2009). On

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these grounds, three basic groups of activities can be distinguished, i.e. manipulation activities, stock handling and control activities. The criteria determining the method of warehousing, defined in the literature, include both natural and logistic factors (Coyle, Bardi, Langley, 2002).

Large scale companies are one of the most significant entities in the retail market. They are business entities located in large and medium cities and their closest vicinity, specialised in sales of goods to end customers. Their commercial offer, exposed on a large area, includes a wide selection of products and limited selection of auxiliary services. Most often they are members of a retail chain (Jedynak, 2017).

In large scale retail companies, storage of goods is very important in the structure of performed logistic processes. That process has an auxiliary function, supporting the sales activities. It must be noted that large stocks are kept both in the warehouse and in the commercial area. They are highly differentiated in terms of the width or depth of items. Fresh and dry food products, as well as household goods, are stored in the same facilities. Consequently, there are various needs when it comes to ensuring proper warehousing conditions. Additionally, products come from different suppliers, which has a direct effect on the delivery conditions. The stocks comprise a commercial offer addressed to a wide group of end users, and the demand can be predicted in a limited scope. Customers have direct access to stored goods in the commercial area (Jedynak, 2017).

The analysis of literature indicates the lack of general and detailed studies regarding the concept and structure of relevant organisations as well as characteristics of the performed logistic processes. The presented contents do not comprise the subjective, objective or functional specificity of retail. Therefore, this paper aims at systematisation and extending the knowledge concerning the structure and course of warehousing in large scale retail companies. The study will allow to explain the course of the warehousing process in the analysed companies, by defining its purpose, stages and tasks, assessment criteria, used documents and also persons in charge and those responsible for particular activities. The purpose of the paper shall be fulfilled by providing a subjective, objective and functional characteristics of the logistic system, identification of stages and tasks within the warehousing process as well as the characteristics of the criteria applied in placement of goods in the warehouse and in the commercial area. The research method used in the study was observation. The technique of the study was observation of own management and organisational activity. The study encompassed four popular trade networks operating in Poland. One of these entities was an household stores network, while the others were food retail chains. Due to uniform rules of operation of individual trade units in a given network, it has been assumed that the study would concern only selected supermarkets.

It must be pointed out that this paper presents preliminary research, constituting one of the stages leading to the analysis of the decision-making process in large scale retail companies. The major task is to determine the assumptions and rules of auditing the logistic procedures in the described enterprises.

## **2. LOGISTIC SYSTEM**

Large scale retail company, as a system, is a special purpose business entity, located in a city or its closest vicinity, distinguished in the surrounding area, having legal, organisational, technical and economic independence, offering a wide selection of goods in a large space and a limited scope of sales support services, addressed mainly to the end customer.

The structure of the company comprises a sales subsystem and support subsystems. As far as support activities are concerned, the functions of the logistic subsystem are very important. It is a special purpose system, with social and technical aspects (involving the man and their work plus available operating resources) and space and time aspects (having effects in time and space). In the analysed company, the main goal is to ensure availability of a proper quantity of material goods, in a given place and time, with optimum quality and costs of logistic service. For the purposes of this paper, the analysed logistic system shall be described in three aspects: subjective, objective and functional.

In the subjective approach, the logistic system of a large scale retail company comprises a network of related and cooperating functional and task divisions, and also work performed by employees. Its subjective scope, considering the organisational structures of the analysed enterprises, belongs to the goods acceptance and release department, commercial department and customer service department. In these departments, three groups of employees involved in the fulfilment of logistic processes can be distinguished, i.e. managerial staff/management (decision-makers), supporting staff (supporting the higher level personnel, with limited independence) and ordinary workers (performing particular tasks). Furthermore, additional workers, assisting in logistic processes, perform a very important role. This group includes: OHS specialist, technical departments employees, security staff, cleaning personnel, employees of human resources, finances and accounting departments, etc. It is worth noting that logistic tasks performed in a large scale retail company by individual employees on different management levels, are dispersed. Additionally, it is merely the part of a number tasks falling in their scope of duties. It means that in the majority of the analysed companies, logistic processes are not coordinated within a single department or position, but at the level of a given department or division. However, the logistic decisions are decentralised.

An example of the organisational structure in a large scale retail company is presented in Figure 1.

In the substantial approach, the logistic system of a large scale retail company is defined on the basis of the available production measures. These include both the work subject and the operating resources. The subject of work are the goods included in the commercial offer of the analysed company. Based on the type of goods, basic item categories can be distinguished. Further division is based on special purposes, i.e. subgroups or subclasses. It is worth noting that goods classification chosen by the analysed companies reflects their pattern of organisation and management. It means that the sales area and warehouse are divided into zones. In every zone, particular goods are placed, grouped by the type and handled by a specific commercial department (specialisation).

An example of the area structure in a large scale retail company is presented in Figure 2.

Operating resources in the analysed companies are divided into two groups: logistic infrastructure and materials used in its operation. The logistic infrastructure includes buildings and structures, along with technical equipment that belongs to them. In large scale retail companies, closed structures constitute an important part of the building arrangement. Additionally, trading units use a parking area, shopping arcade, semi-open warehouse and open warehouse with paved surface. The technical equipment includes warehouse and shop devices, transport and handling facilities, auxiliary equipment and IT system.

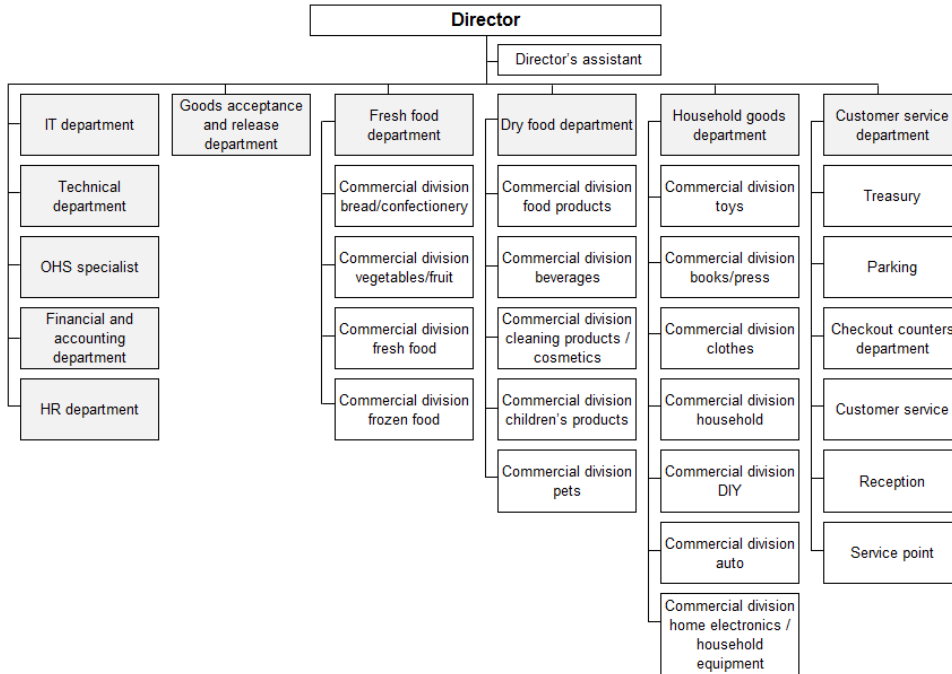


Figure 1. Example of the organisational structure in a large scale retail company  
Source: individual study.

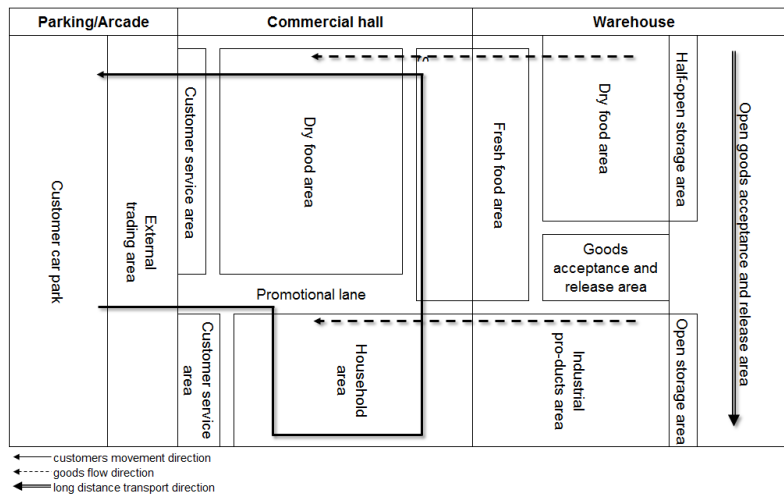


Figure 2. Example of the area structure in a large scale retail company  
Source: individual study.

The scope of application of individual technical devices in a large scale retail company is presented in Table 1.

Table 1. Scope of application of individual technical devices in a large scale retail company

Technical equipment		Warehouse		Commercial hall	
		Goods acceptance and release area	Storage area	Commercial area	Customer service area
Warehouse and shop equipment	for storage purposes		■■■	■■■	■
	HVAC		■■■	■■■	
	fire protection	■■■	■■■	■■■	■■■
	safeguarding	■■■	■■■	■■■	■■■
Transport and handling equipment	manually operated trolleys	■■■	■■■	■■■	
	hoisting trucks	■■	■■■	■■■	
	forklifts	■■	■■■		
Auxiliary equipment		■■■	■■■	■■■	
IT systems		■■■	■	■	■■■

■■■ widely used, ■■ used for selected activities, ■ limited use

Source: individual study.

In the functional approach (process approach), the logistic system of a large scale retail company is defined as a set of activities supporting the sales process. Its major purpose is to ensure optimum circulation of goods along with the information within the analysed companies and between all involved parties. Assuming the phase criterion, the logistic process performed in trading units is divided into supply phase and distribution phase. Considering the importance of the performed logistic activities in a large scale retail company, the process of supply, including the selection and assessment of supplier, and also preparation and submitting an order needs to be distinguished. Additionally, storage, inventorying, handling of returns to suppliers, complaint management and logistic customer service are also very important.

### 3. STAGES AND TASKS IN THE WAREHOUSING PROCESS

In large scale retail companies, warehousing process encompasses a set of activities leading to stop the movement and systematic placement of goods, taking into account their features, requirements of all parties and use of appropriate production forces (employees and their work, operating resources). Its main purpose is to ensure continuity of the commercial offer in line with the customers' expectations, considering both the conditions of operation and its capabilities. It is fulfilled in three stages. The first is receipt of goods from the acceptance area, according to the recognised rules and the acceptance procedure in force. The following is related with the layout of goods in the storage area, taking into account their characteristics. The final stage is control of goods storage conditions.

The warehousing process in the analysed companies, along with the used documentation, is presented in Figure 3.

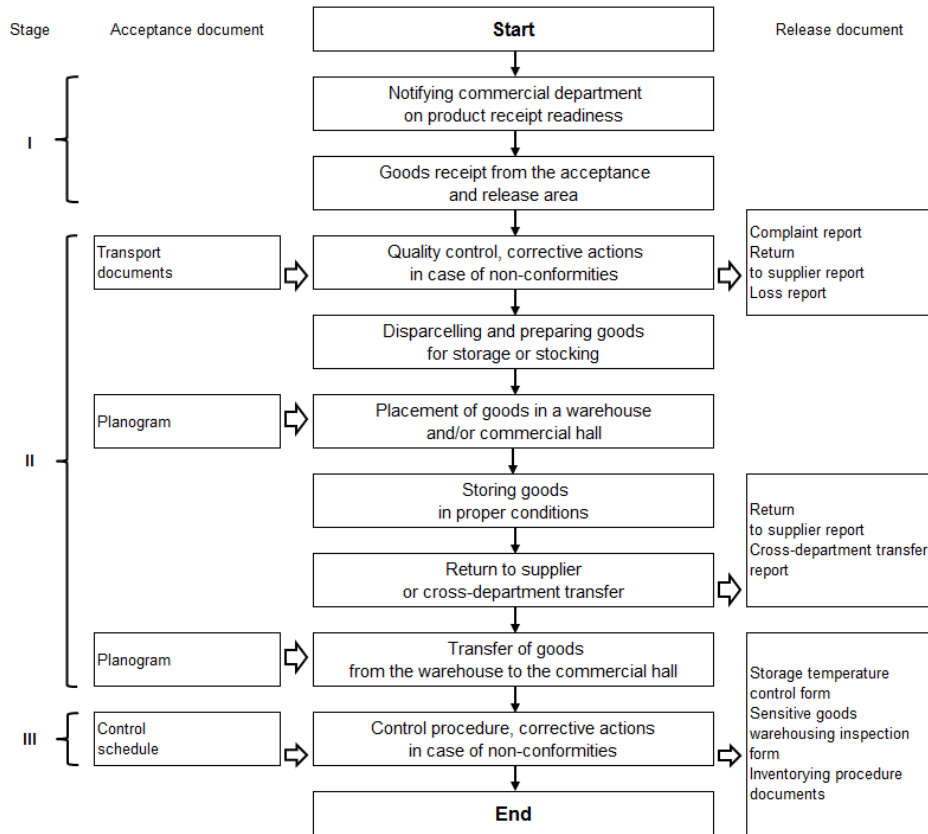


Figure 3. Scheme of warehousing process in large scale retail companies

Source: individual study.

The warehousing process in large scale retail companies is fulfilled with direct involvement of the goods acceptance and release department and the commercial department.

Table 2 presents the division of responsibilities related with the process of storage, performed by employees of particular organisational units.

Table 2. Responsibilities of employees related to warehousing process in large scale retail companies

Position	Responsibility
Head, Goods acceptance and release department	<ul style="list-style-type: none"> <li>- management of goods in the acceptance and release area</li> <li>- current information to the commercial department on the condition of accepted goods and any non-conformities found</li> <li>- managing the inventory process within the division</li> </ul>

Table 2 (cont.). Responsibilities of employees related to warehousing process in large scale retail companies

<b>Position</b>	<b>Responsibility</b>
Assistant / Employee, Goods acceptance and release department	<ul style="list-style-type: none"> <li>- physical transfer of goods from the acceptance and release area to the commercial area</li> <li>- informing the supervisor on any non-conformities found</li> <li>- participating in the inventory process within the division</li> </ul>
Head of department	<ul style="list-style-type: none"> <li>- specifying the work schedule for the managerial staff, personnel work management, following the OHS rules and valid standards and rules of conduct</li> <li>- current inspection and control of supervised area</li> <li>- ensuring access to operating resources in proper time, place and quantity, according to the workplace requirement and in line with the capabilities of the company</li> <li>- control of the level and structure of stocks, including trade negotiations and supervision of orders placed</li> <li>- managing the inventory process within the department</li> </ul>
Head of commercial department	<ul style="list-style-type: none"> <li>- specifying the work schedule for the department staff, personnel work management, following the OHS rules and valid standards and rules of conduct</li> <li>- current inspection and control of supervised department</li> <li>- control of efficiency and method of use of available operating resources, responding in case of non-conformities, identification of needs regarding equipment on the given post and ordering auxiliary materials</li> <li>- determining the scale and structure of stocks, stock replenishment</li> <li>- controlling the process of return to suppliers and complaints management</li> <li>- managing the inventory process within the division</li> </ul>
Assistant at commercial department	<ul style="list-style-type: none"> <li>- management of operating resources, control of efficiency and method of use of available operating resources, informing on any non-conformities found, submitting material demands</li> <li>- informing the supervisor on goods shortages, faults and any other irregularities, stocks replenishment</li> <li>- preparing and release of returns to suppliers, complaint management</li> <li>- fulfilment of the loss management procedure</li> <li>- participating in the inventory process within the division</li> </ul>
Employee of commercial department	<ul style="list-style-type: none"> <li>- management of operating resources, control of efficiency and method of use of available operating resources, informing on any non-conformities found, submitting material demands</li> <li>- receipt of goods from the acceptance and release area</li> <li>- placement of goods in the warehouse, storage of goods in proper conditions, regular control of warehousing conditions</li> <li>- preparing goods for sale, presentation of goods in the commercial area, securing goods against damage or robbery, replenishment of stock shortages</li> <li>- informing the supervisor on goods shortages, faults and any other irregularities</li> <li>- participating in the inventory process within the division</li> </ul>

Source: individual study.

#### 4. GOODS STORAGE CRITERIA

In large scale retail companies, goods placement and storage procedures are performed taking into account their characteristics. It includes both natural properties of the stored goods (i.e. sensitivity to time of storage, moisture, temperature, light, impacts, absorption and emission of odours, flammability, harmfulness, etc.) and their physical form (size or physical state).

The characteristics of goods stored by the analysed companies is presented in Table 3.

Table 3. Characteristics of goods stored by large scale retail companies

Division	Type									
	non-demanding	specific conditions required	hazardous	small-sized	mid-sized	large-sized	constant unitary	constant quick	liquid	gaseous
Food supermarket										
Vegetables/fruit		■		■	■		■	■	■	
Bread/confectionery		■		■			■	■		
Fresh food		■		■			■	■	■	
Frozen food		■		■			■	■		
Groceries	■			■	■		■	■	■	
Beverages	■			■	■				■	
Cleaning products/cosmetics	■			■	■		■	■	■	■
Children's products	■			■	■		■	■	■	
Pet goods	■			■	■		■	■		
Household goods	■	■	■	■	■	■	■	■	■	■
Home & garden supermarket										
Construction	■	■	■	■	■	■	■	■	■	■
Technology	■	■	■	■	■		■			
Design	■	■		■	■		■		■	
Decoration	■	■		■	■	■	■	■	■	
Garden	■	■	■	■	■	■	■	■	■	■

Source: individual study.

It is worth noting that in the European Union, retailers are obliged to follow the standards as well as local and UE legal regulations on storage and trading of food products. In Poland, one of the basic regulations is the act on safety of food and nutrition (Act of 25 August 2006 on *Safety of Food and Nutrition*). Additionally, external and internal inspections are carried out in the trade of food products. The external inspection involves activities



of different national inspection bodies. The internal inspection includes control of conditions and sanitary rules in food products trading and conformity with the Hazard Analysis and Critical Control Points System. On the European level, the regulation laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety (Regulation (EC) No. 178/2002) is of key importance.

Additionally, in the analysed retail companies, in placement and storage of goods in the commercial area and the warehouse, the following logistic factors are taken into account:

- available production capacity;
- turnover, which determines two methods of storage – selective, with direct access to goods and non-selective, with limited access to goods;
- item groups, layout of individual products reflecting their division into groups, sub-groups, classes and subclasses;
- subjective criterion, products are placed according to the supplier's or recipient's criteria;
- rules of release and acceptance of goods at the warehouse, the analysed companies follow the “first in, first out” principle;
- spatial layout of warehouse – horizontal, in which layout of goods reflects the frequency of removal from storage, or vertical, where scale of removal is taken into account;
- the method of assignment of storage site to particular items, in which constant storage site method and free space method can be distinguished.

Additionally, placement of goods in the commercial hall of a large scale retail company must reflect:

- marketing factors, ensuring proper display, according to the accepted planogram and promotional activities carried out;
- sales factors, e.g. seasonality of particular goods;
- agreements with suppliers, e.g. planogram or a additional display in the commercial hall.

It is worth noting that the characteristics of stored goods as well as the accepted rules of storage site assignment required using a proper warehousing technology and handling equipment (including palletising units, packing equipment, protective materials and labels, operation safety systems, alarm systems, etc.) In the analysed companies, mostly static technology of storage is used (shelf and floor storage). Mobile warehousing equipment is used only in a limited scope. In the commercial hall, various types of counters and shelves, packaging system or cooling and freezing devices are used. Warehousing equipment includes permanent frame stands and cantilever racks, with and without shelves, as well as cold stores and freezers, and also transport and storage resources. It is worth mentioning that the accepted solutions are largely universal, allowing to store a variety of goods. Particular devices are most often assigned to individual departments or divisions.

The subjective scope of application of warehousing equipment in a large scale retail company is presented in Table 4.

Table 4. Characteristics of goods stored by large scale retail companies

Division	Type											
	Commercial hall						Warehouse					
	Counters	Shelves	Showcases	Packaging system	Refrigerators and freezers	Floor storage	Permanent frame stand with shelves	Permanent frame stand without shelves	Permanent cantilever racks	Transport and warehousing resources	Cold stores and freezers	Floor storage
Food supermarket												
Vegetables/fruit		■			■	■				■	■	■
Bread/confectionery	■	■			■					■	■	
Fresh food	■	■			■	■				■	■	■
Frozen food					■						■	
Groceries		■				■						■
Beverages	■	■				■		■				■
Cleaning products/cosmetics	■	■	■			■		■				■
Children's products		■						■				■
Pet goods		■				■		■				■
Household goods	■	■	■	■		■		■	■	■		■
Home & garden supermarket												
Construction		■				■		■	■			■
Technology	■	■	■					■	■	■		■
Design		■						■	■	■		■
Decoration		■						■	■	■		■
Garden		■				■		■	■	■		■

Source: individual study.

## 5. SUMMARY AND CONCLUSIONS

It should be emphasised that in large scale retail companies, individual activities in the process of warehousing conform to the common rules and assumptions.

Basic tasks are performed by specialised organisational units, so-called commercial departments. Thus, professional knowledge, skills and experience of personnel are very important. Additionally, proper scheme of work, access to appropriate operating resources, awareness and motivation of employees are of great relevance. It is worth noting that improper course of warehousing may entail significant direct or indirect losses. It is a great burden for a company, limiting its financial and non-financial capabilities.

In the analysed companies, in order to maintain the required properties and availability of goods, the process of placement in the warehouse or in the commercial hall is not limited only individual criteria. Multi-criteria approach is followed. The accepted methods of goods storage conform to the standards, legal regulations, as well as procedures valid in individual companies. Use of particular methods reflects both the characteristics of the stored goods and the environmental conditions. Other factors that are taken into account are economic, organisational and technical capabilities of enterprises.

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