



## WAREHOUSING IN ROMANIA

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**Abstract.** Any perturbation in politics and in economics affects the logistics of freight, from local to regional, national and even international. It creates weaving of the total volume of cargo and subsequently weaving of the market's necessities regarding the transportation and warehousing. More, weaving of the volume of investments is specific effect. Such mechanism has been recorded in the last 7 years: increasing 2012-2015, decreasing 2015-2017, increasing 2017-2018. From 2017 it has been recorded a higher value of individual transactions, compared to 2016, when the transactions have dropped dramatically. In the end of the 2017, the mass center of the warehousing facilities were in the triangle Bucuresti-Pitesti-Ploiesti. The structure of the warehousing offer was at 31.12.2017: Green, energy efficient warehouses with available space for rent - Warehouse spaces: 197.440 m<sup>2</sup>, Warehouse rent: 45.540 m<sup>2</sup>, Average rental price: 2.73 €; A category warehouses with available warehouse space for rent - Warehouse spaces: 5.832.841 m<sup>2</sup>, Warehouse rent: 2.312.824 m<sup>2</sup>, Average rental price: 12.79 €; B category warehouses with available warehouse space for rent - Warehouse spaces: 487.388 m<sup>2</sup>, Warehouse rent: 222.248 m<sup>2</sup>, Average rental price: 2.98 €; C category warehouses with available warehouse space for rent - Warehouse spaces: 109.432 m<sup>2</sup>, Warehouse rent: 60.582 m<sup>2</sup>, Average rental price: 2.13 €; D category warehouses with available warehouse space for rent - Warehouse spaces: 1.950 m<sup>2</sup>, Warehouse rent: 1.950 m<sup>2</sup>, Average rental price: 3.75 €; the rest to 100% was shared among Cold, Break-Bulk, Cross dock, Transload, Hazmat, and Food grade warehouse types.

**Keywords:** warehousing, improve efficiency, improve quality, improve security, warehousing structure

### 1. INTRODUCTION

The logistics infrastructure consists of warehouses and communication paths. It has as its object the movement of material flows, from the places of production to the places of transformation, then from the places of transformation to the places of consumption. All these links are generally separated. Separation of production, transformation and consumption places is the result of socio-economic factors (labor cost), environmental (food production), geographic (minerals and deposits), etc. Thus, for example, climate conditions allow the production of certain fruits in a place on the planet, but the money available and the consumption habits of the same products are elsewhere; or labor cost and social risks are lower in some countries, but the resources for purchasing the equipment they produce are somewhere else.

In Romania the warehousing, as logistics component, is generally enough developed for the quantity of freight transported by all transportation ways.



(<https://www.google.ro/url?sa=i&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwi2xliImPXcAhXK3KQKHbiLAaIQjhx6BAgBEAM&url=https%3A%2F%2Fwww.keswickenterprises.com%2Fmob-news.php&psig=AOvVaw0X5t1msyEgQjrr2Xw7PTGM&ust=1543429183004306>)

Fig. 1 Typical warehouse in Deva, courtesy of The Keswick Enterprises Group

Research on the warehousing, to establish the main locations, the warehouse spaces and the costs related to the warehousing is necessary to be done, in order to evaluate the potential of the market to sustain the freight travelling across Romania.

## 2. LOCATION OF WAREHOUSES IN ROMANIA AND THEIR MAIN FUNCTIONS

Analysis of the warehousing, county by county, revealed that the most important warehouses to rent are located in 36 cities, mainly in Bucharest and west part of the country. Table 1 shows those cities in alphabetical order.

Table 1. Cities with most important warehouses to rent

Warehouses in Adjud	Warehouses in Craiova	Warehouses in Roman
Warehouses in Alba Iulia	Warehouses in Cugir	Warehouses in Salonta
Warehouses in Arad	Warehouses in Dej	Warehouses in Satu Mare
Warehouses in Bacau	Warehouses in Deva	Warehouses in Sebes
Warehouses in Bistrita	Warehouses in Galati	Warehouses in Sibiu
Warehouses in Botosani	Warehouses in Iasi	Warehouses in Slatina
Warehouses in Brasov	Warehouses in Medias	Warehouses in Suceava
Warehouses in Bucharest	Warehouses in Oradea	Warehouses in Targoviste
Warehouses in Călan	Warehouses in Otopeni	Warehouses in Târgu Mures
Warehouses in Călărași	Warehouses in Piatra Neamt	Warehouses in Tecuci
Warehouses in Cluj-Napoca	Warehouses in Pitesti	Warehouses in Timisoara
Warehouses in Constanta	Warehouses in Ploiesti	Warehouses in Turda

They have different dimensions, are dedicated to general purposes or for specific type of goods and the applied prices per square meter depend on the region, town and industrial area.

The identified warehouses offer different kind of services, bringing by these important value-added services. Among these services it can be noted:

- Short to long-term storage flexibility
- Packing, assembly, rework, repair etc.
- Repacking and (re)conditioning
- Back office support
- Invoicing

- Order management
- Pick & pack and re-work services
- Spare parts handling
- Dispatch management
- Returns & refusal management service
- Dedicated storage and consolidation facilities
- Bonded warehouse facilities
- Customs handling including bonded warehousing
- Fiscal representation

Analysing the costs with the renting, by specific survey, the warehouses can be classified in (see table 2):

Table 2. Costs with the rent

Warehouse for Rent < 7 EUR: 157
Warehouse for Rent 7-10 EUR: 104
Warehouse for Rent 10-14 EUR: 88
Warehouse for Rent > 14 EUR: 189
Not declared: 214

Regarding the space for rent in a warehouse, the survey showed that the medium size warehouses (1000-2000m<sup>2</sup>) are preferred. Table 3 shows result of the survey performed with the help of Romanian Logistics Association (ARILOG).

Table 3. Number of warehouses by space to rent

Warehouse for Rent < 100 m <sup>2</sup> : 119 warehouses
Warehouse for Rent 100-300 m <sup>2</sup> : 99 warehouses
Warehouse for Rent 300-600 m <sup>2</sup> : 123 warehouses
Warehouse for Rent 600-1000 m <sup>2</sup> : 60 warehouses
Warehouse for Rent 1000-2000 m <sup>2</sup> : 183 warehouses
Warehouse for Rent 2000-5000 m <sup>2</sup> : 124 warehouses
Warehouse for Rent > 5000 m <sup>2</sup> : 89 warehouses

In the same time, continuing the analysis of the situation, it has been revealed that 12 distinct destination are specific to the warehouses in Romania and they are:

Table 4. Types of destinations for the warehouses, according to the survey

A category warehouses	Cross dock
B category warehouses	Food grade
C category warehouses	Green warehouses
D category warehouses	Hazmat
Break-Bulk	Port logistics
Cold	Transload

### 3. DISTRIBUTION OF THE WAREHOUSES AT ROMANIA LEVEL

By putting the identified warehouses on the Romania's map, grouped according to the renting rate, it was observed concentration of the warehouses to Bucharest, Cluj and Timisoara. Table 5 shows the distribution of the warehouses, as specified.

Table 5. Distribution of the warehouses in Romania

Rent rate	Characteristics	Distribution (map)
Warehouse for Rent < 7 EUR	Number: <b>157</b> Warehouse spaces: <b>4.093.476 m<sup>2</sup></b> Warehouse rent: <b>1.032.135 m<sup>2</sup></b> Average rental price: <b>2.56 €</b>	
Warehouse for Rent 7-10 EUR	Number: <b>104</b> Warehouse spaces: <b>2.968.046 m<sup>2</sup></b> Warehouse rent: <b>1.848.609 m<sup>2</sup></b> Average rental price: <b>8.21 €</b>	
Warehouse for Rent 10-14 EUR	Number: <b>88</b> Warehouse spaces: <b>2.857.227 m<sup>2</sup></b> Warehouse rent: <b>1.811.499 m<sup>2</sup></b> Average rental price: <b>12.6 €</b>	
Warehouse for Rent >14 EUR	Number: <b>189</b> Warehouse spaces: <b>5.370.751 m<sup>2</sup></b> Warehouse rent: <b>2.406.567 m<sup>2</sup></b> Average rental price: <b>12.6 €</b>	

#### 4. DIAGNOSING THE MAIN PROCESSES IN THE WAREHOUSE

The warehouses host processes according to the functions presented in chapter 2 and during the processes specific issues could appear. Analysing, among the identified warehouses in Romania, the specific issues they experienced a general diagnosis can be set:

- pickup commands, pickup order grouping criteria, execution times;
- way of assigning picking commands
- picking process, process optimization methods, control and verification methods to reduce errors, KPI picking
- the consolidation process: consolidation methods, verification and control procedures, responsibility transfer
- cargo loading process: responsibility transfer to drivers, cargo exit verification, fraud risk assessment
- merchandise reception process, error handling, control and evidence of error handling area, KPI merchandise reception
- warehouse layout: warehouse organization based on optimization principles, methods used to optimize merchandise layout, positioning areas within the warehouse
- the audit of the operation of the machines and machines used in the warehouse in accordance with the legislation in force
- observance of the safety and safety rules in the operation of the equipment
- audit of KPI for all storage areas, integrated supplier planning, transportation, distribution
- the process of inventory and merchandise control
- auditing employee performance
- management of pallets / packaging IN / OUT warehouse
- way of preparing documents: orders, delivery orders, loading order s.a.
- the circuit of operational documents
- verification procedures, document preparation, approvals, document control
- correlation check invoices vendors-service orders - verification procedure

#### 5. CONCLUSIONS

The expertise gained in the last 7 years of warehousing in Romania revealed specific recommends to improve the business in warehousing. The measures to be taken relate to the improvement of the storage and specific services efficiency, to the improvement of the quality of work inside a warehouse and of the quality of storage service and to the improvement of the security of the goods that are stored.

Regarding the improvement of the efficiency, the measures cover large number of factors, from simple actions and equipment to be improved and up to the management system, as follows:

- introducing a warehouse management system - will consolidate orders so that you can minimize travel time during picking, increasing efficiency.
- introducing digital processes and specific devices to increase the quality of the communication – will reduce the operating costs
- introducing of automated pallet and box dimensioning
- introducing of robot technology – will increase the volume of activity with less workforce and, subsequently, with lower cost
- collecting and saving data on the go – the introduction of the new technologies based on digital tools will increase productivity and accuracy, and lower labor costs.

As already presented, the second group of factors are related to the improvement of the quality; when discuss about the quality the factors, generally, refer to:

- replacing manual and/or mechanized processes with automated and robot processes
- introducing quality control processes in situ
- constantly improve the design and the equipment of the warehouse

The improvement of the security is measure considered today in all domains – information, food, defense, generally the social and economic aspects of the society. When discuss about the security of the warehousing process the most aspects to approach are:

- save, archive and store all the data in specific servers
- assure conditions for the easy access of the legal users and best firewalls for the access attempts from the outside of the warehouse or the outside of the warehouses network
- introducing specific technology for data security
- introducing specific technology for physical security

- allowing access to specific clearance personnel
- keeping the warehouse clean
- introduce specific and strict health and safety measures

## 6. REFERENCES

1. Gerrit Kadijk, Silvia Toma, Sara Consuegra, Ruud Verbeek, Martin Kleinebrahm, Jan Hammer, Gabriel Benga, Danut Savu, Sorin Savu, Mihai Ghiba, Charlotte Wösten, Martin Quispel – *Certification, monitoring and enforcement (D.3.1. State of the art report)*, project PROMINENT, [www.prominent-iwt.eu](http://www.prominent-iwt.eu)
2. Ruud Verbeek, Sara Consuegra, Leif-Erik Schulte, Sebastiaan Creten, Kris van Mullem, Gabriel Benga, Charlotte Wösten – *Certification, monitoring and enforcement (D.3.2 Assessment of certification procedures)*, project PROMINENT, [www.prominent-iwt.eu](http://www.prominent-iwt.eu)
3. Ruud Verbeek, Sara Consuegra, Leif-Erik Schulte, Sebastiaan Creten, Kris van Mullem, Gabriel Benga, Charlotte Wösten – *Certification, monitoring and enforcement (D.3.3 Assessment of options for monitoring and enforcement)*, project PROMINENT, [www.prominent-iwt.eu](http://www.prominent-iwt.eu)