

# The Meaning of Logistics in Production Enterprises

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The article presents the results of a questionnaire survey conducted in production enterprises of Gorzów Wielkopolski area concerning the meaning of logistics within an enterprise. The survey points out that logistics actions are most evident and recognized with large and medium production enterprises. The survey also revealed the necessity to improve logistics processes.

**Key words:** logistics, logistics management, production enterprise.

## 1. INTRODUCTION

Logistic management is a process of planning, initiating and controlling of efficiently and effectively ongoing processes of materials flow and storage, production supplies in progress, finished products, accurate information on product route with the intention of optimum customer adjustment and satisfying his needs [8], [5]. In production enterprises logistic management encompasses several stages of the flow of materials, semi-products, finished products and associated information, distinguishing subsystems of: supply, production, distribution and utilization [3], [5], [12]. The supply subsystem includes materials flow processes, semi-products route from the place of delivery to the enterprise. Production starts with the flow of materials, semi-products from the supply store, then passes through succeeding stages of production process, and ends with a finished article. Distribution phase consists in delivering finished products to final recipients. Whereas utilisation deals with handling the return flow of miscarriage, advertised products, refuse, recyclable materials, or empties [6], [12].

Logistic management in production enterprises is largely dependent on the type of production and the size of enterprise. Mass production means manufacturing a considerable number of reproducible products. The planning of material

and information resources is fairly simple. In this situation logistic management is also not very complex. Predominantly they are long-term plans comprising production schedule, supply plans, etc. [1], [2], [7], [9].

Batch production consists in manufacturing products in batches. It enables more flexibility in planning material and information resources. On the other hand, it requires more efficient and more effective logistics organization. Production schedules here vary according to different batches hence logistic plans are rather more complex [9].

Individual production concerns unique products. It means manufacture of products by the piece, usually custom-made. Both with design and afterwards with manufacturing of successive finished product, logistic management is different and needs to be adjusted to product features [1], [9]. The extent of actions performed with regard to logistic management in production enterprises varies according to the scale of an enterprise and encompasses i.a [3], [4], [5], [10], [11]:

- the improvement of the information flow through the implementation of a computer system (in large enterprises it should be integrated computer system class ERP, in small enterprises it is sufficient to possess a computer system including standard invoice

software, supporting supply needs planning, etc.);

- application of automatic data identification (it could, or even should be used in large stores, in transport, as well as small shops);
- effective reserves control (e.g. the employment of such methods as ABC or XYZ analysis, etc.);
- using the Internet to contact suppliers, customers, etc.;
- costs optimization with transportation process (refers both to supply as well as distribution section).

The article presents the results of a questionnaire survey conducted in production enterprises concerning the meaning of logistics.

## 2. SURVEY RESULTS PRESENTATION

Presented results of a questionnaire survey have been compiled on the basis of a pilot study, conducted among 17 production enterprises of Gorzów Wielkopolski area. The survey listed 20 close-end questions with a possibility to extend of certain answers. Among surveyed enterprises there were 6% of small enterprises, 47% of medium-sized enterprises and 47% of big enterprises.

Of all the surveyed enterprises over 65% have logistics department or staff responsible for logistics, whereas 29% do not. The responses differ according to the scale of surveyed enterprises. And so, with big enterprises 62% and with medium-sized as much as 75% possess the department of logistics or staff responsible for logistics management. Small enterprises under the survey do not have the department of logistics.

Quite surprising is a fact that 6% of respondents admitted they had no knowledge on whether there is the department of logistics or staff responsible for logistics in their company. A fact possibly owing to interviewee ignorance or lack of effective information flow in an enterprise.

According to the conducted survey the department of logistics or staff responsible for logistics is liable for supplies, inventory

management and distribution (ca 80%). However, distribution was mainly manifested by medium-sized enterprises whereas supply, inventory management and storage were revealed by big enterprises. Information flow received the lowest reading out of the remaining areas of logistics management. The areas with reference to logistics selected by respondents have been compiled in fig. 1.

Efficient information flow constitutes an integral part of logistics management. Due to applying accurate information systems enterprises can eliminate errors and shorten the time of supplies flow, and consequently satisfy customers needs more effectively. Research showed that all the participants use information system. Most popular user software is Office (nearly 70% of all respondents), next there is integrated information system class ERP (among 50% of all respondents), and the last is professional software corresponding with company profile (nearly 40% of respondents).

The data present different with regard to enterprise extent. In large enterprises next to standard Office package, most common is integrated information system (among 75% of companies), in medium-sized and small enterprises, besides standard Office software, most often used is professional software corresponding with company profile.

Another issue in the conducted survey was the manner of transport organization regarding delivery to respondent enterprises – supply area (fig. 2), as well as concerning the organization of forwarding goods to recipients – distribution area (fig. 3). In both these situations most common way of transport organization is a long-term contract with single carrier (logistics company, transport business, etc.), namely outsourcing.

Another quite popular manner of transport organization is the purchase and employment of private transport and also temporary use of other carrier services. The survey demonstrated that private transport, both with supply and distribution, is mainly used by medium-sized enterprises (50%), while large enterprises (75%) outsource transport organization to professional logistics companies (or forwarding-transportive).

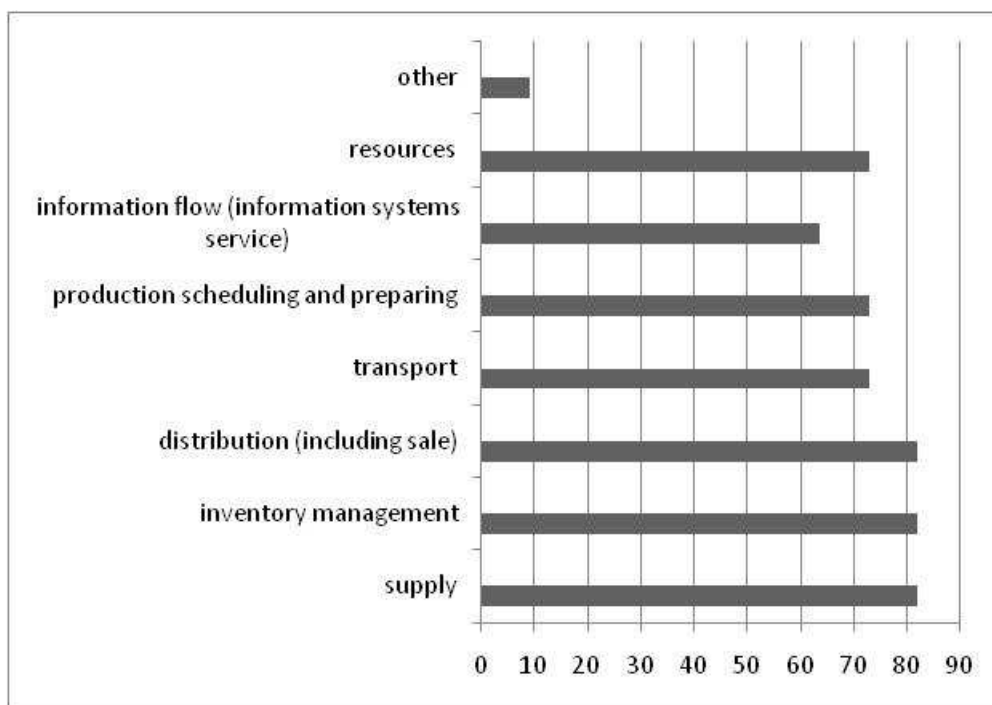


Figure 1. Enterprise fields, which logistics department is responsible for (in %) Source: own analysis

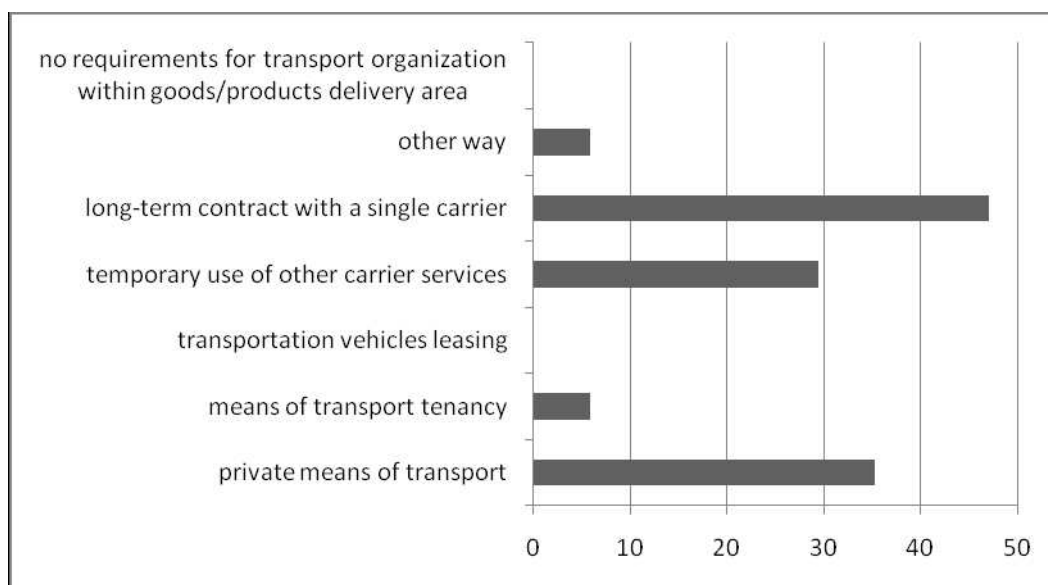


Figure 2. Way of delivery transport organization in respondent enterprises (in %) Source: own analysis

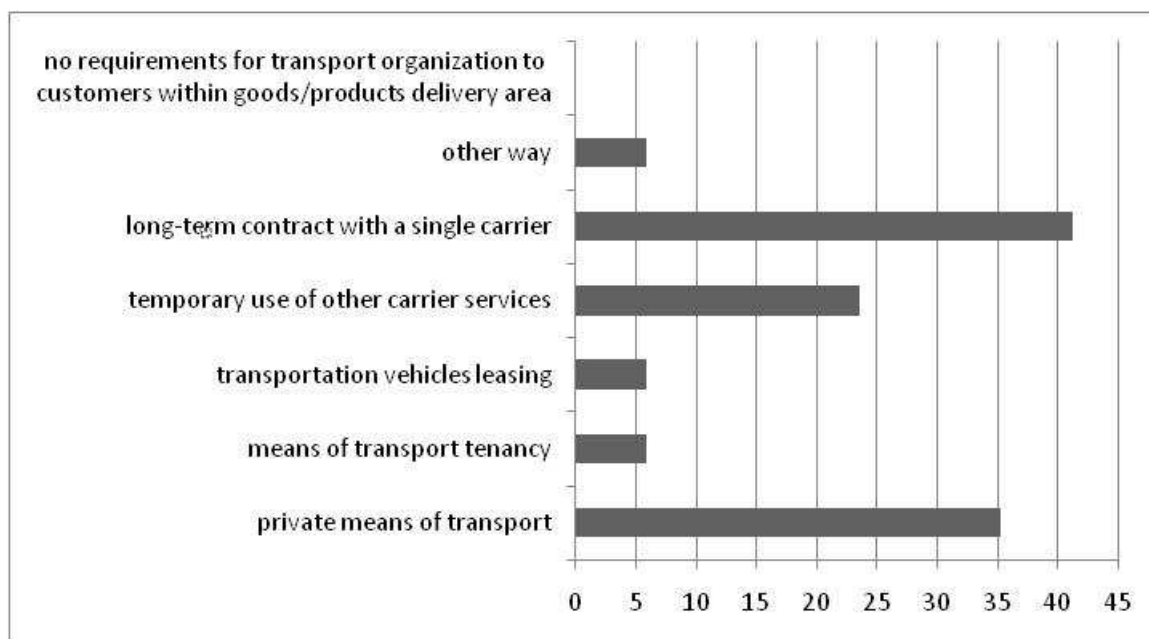


Figure 3. Way of transport organization to customers in respondent enterprises (in %)

Source: own analysis

Another significant feature improving logistic management in an enterprise is automatic data identification which considerably contributes to improving the flow of material resources in entire supply chain (particularly bar codes). Among the surveyed enterprises as much as 71% applies automatic data identification. The survey revealed that bar codes are mainly applied in large enterprises (nearly 90%), and then in medium-sized (around 60%). In respondent small enterprises automatic data identification is not applied.

The survey additionally indicates that enterprises which do not use automatic data identification show no interest to their implementation. On the one hand the situation is reasoned by a lack of requirement for bar code application, on the other however it follows either insufficient financial means or lack of knowledge on the benefits from bar code application.

According to the survey, bar codes most often used in enterprises are: custom codes (company's internal codes) accustomed to the production type (figure 4, category 'other'), and then GTIN-13 and GTIN-8 (fig. 4). Respondents employed in large enterprises additionally pointed out code GS1-128. Places of bar codes application pointed out by the

respondents are mainly: production, sales (particularly small and medium-sized enterprises) and inventory management (mostly large enterprises) – fig. 5. Among other places for bar code application the respondents indicated i.a. enforcement department.

In contemporary world the Internet becomes essential tool for information flow improvement between enterprises. Conducted survey points out that 88% of respondents use the Internet at work. All respondents indicated the Internet as a major means for e-mail contact with partners and other enterprises and then for placing orders with suppliers and seeking potential suppliers and customers (fig. 6). The survey also indicates that certain people who use the Internet at work for gaming online.

Another examined aspect regarded warehouses. All surveyed enterprises possess their own warehouses which are attended in-house. Besides private warehouses, 35% of respondent enterprises rents them.

In half of the respondent enterprises warehouse maintenance is performed by the staff and in the other half by employees of a warehouse proprietor.

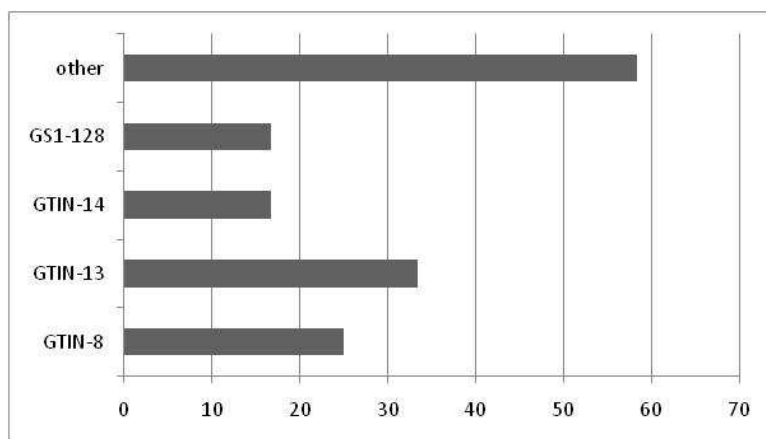


Figure 4. Most applied bar codes in respondent enterprises (in %) Source: own analysis

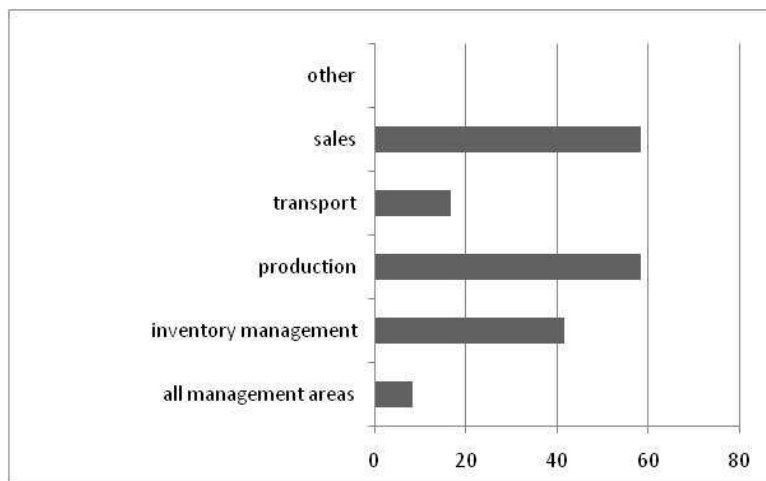


Figure 5. Fields where respondent enterprises apply bar codes (in %) Source: own analysis

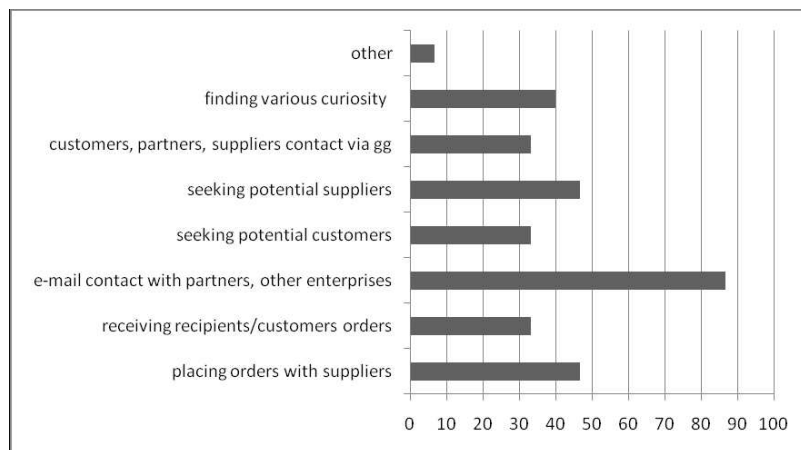


Figure 6. Tasks, in which the Internet is used in respondent enterprises (in %) Source: own analysis

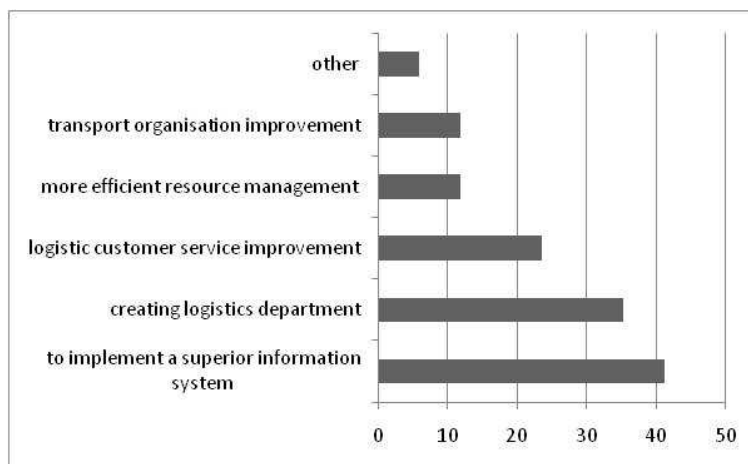


Figure 7. A sort of improvements in fields of logistics management which are needed in respondent enterprises (in %) Source: own analysis

The respondents declared that the most required actions for logistic management improvement would be: to implement a superior information system, to create logistics department and to improve logistic customer service (fig. 7). Among other improvements respondents pointed out as well: more effective production planning, meeting delivery deadlines and more efficient form of complaints.

### 3. CONCLUSIONS

Badania przedstawione w artykule wykazały, że logistyka jest fundamentalna w małych, średnich, czy dużych przedsiębiorstwach. Według respondentów logistyka w dużych przedsiębiorstwach dotyczy głównie dostaw, zarządzania zapasami, i dystrybucji. W średnich przedsiębiorstwach dystrybucja jest najważniejsza. W małych przedsiębiorstwach, według respondentów, logistyka dotyczy głównie transportu i organizacji przepływu informacji.

Jedną z najważniejszych dziedzin logistyki jest organizacja przepływu informacji, którą dla danej firmy wybrano jako optymalną. Wyniki badania wskazują, że większość przedsiębiorstw wymaga ulepszenia systemu informacji. Jednakże jest to pocieszające, że przedsiębiorstwa są coraz bardziej świadome konieczności poprawy obsługi klienta logistycznego z punktu widzenia dostępności produktu, terminowości dostaw, obsługi posprzedażowej, itp.

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