THE IMPACT OF STANDARD LOGISTICS LABELS ON DISTRIBUTION EFFICIENCY IN THE SUPPLY CHAIN

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Abstract

Efficiency of distribution processes is one of the key factors influencing the optimization of the entire supply chain. For this reason, both research and business practice initiatives point to the need for continuous search for solutions that will improve distribution efficiency both at the operational level and in terms of the entire supply chain. An effective way to optimize distribution processes is to use a standard logistics labels, which enables the integration of information flow between business partners. Institute of Logistics and Warehousing together with GS1 Poland for over 10 years has been researching the level of use and practical implementations of standard logistics labels GS1 in companies. As part of its research work, the Poznan School of Logistics conducts analyses of the scope of evaluation of the distribution process efficiency as key components in the aspect of intelligent supply chains. Cooperation between these institutions allows to achieve the synergy effect, which Authors wish to present within the framework of this paper. The aim of the paper is to analyze the level of use of logistic labels and to analyze the impact of their use on the supply chain efficiency. Scientific and practical research was carried out in 2017-2018 and provides a research basis for further analysis of the impact of logistical labels on the digitisation of supply chains.

Key words: distribution efficiency, supply chain efficiency, logistics label

1. INTRODUCTION

The changes taking place in the surrounding reality significantly affect the development of the modern economy. The challenges include, among others, demographic changes or a change in the approach to eliminating the greatest barriers to development and an increasing trend towards basing development on knowledge, digitisation and innovation. Digitalisation of processes, taking place in individual companies or in the whole economy, and being their integral part, shall contribute to

the improvement of their functioning, shorten the time of service and reduce the costs of economic activity. In order to fully implement them, it is necessary to digitise the processes taking place in enterprises.

This issue of the use of logistic labels is extremely important for the supply chain efficiency, mainly due to the possibility of monitoring the logistics process and identification of the delivered goods. The use of logistic labels reduces the risk of errors not only at the stage of delivery acceptance, but also at the stage of delivery advice. In terms of operational distribution efficiency, this allows for effective preparation of the warehousing process, e.g. for dedicated delivery conditions or the exact delivery time, taking into account the application of SSCC (Serial Shipping Container Code) number in the DESADV (Dispatch Advice) message. The identified research goal that the Authors are trying to solve in this paper is the impact of standard solutions on the increase in supply chain efficiency. The aim of the paper is to analyze the level of use of logistic labels and to analyze the impact of their use on the supply chain efficiency.

A very important aspect to which particular attention should be paid is the evolution of traditional supply chains into an integrated, shared, smart, digital and highly efficient ecosystem. The correctness of events occurring in it will depend on many key technologies:

  — integrated planning and execution systems,
  — visualization of logistic processes,
  — intelligent supply and storage,
  — use of identification and information standards (Fig. 1.).

Figure 1. Identification and information standards

Source: GS1 Materials

Such approach will allow companies to react quickly to any disruptions in the supply chain, or even anticipate them, so that they can fully model them, thus creating real-time scenarios and processes. This will allow companies to have a flexible approach to managing their business, thereby increasing the competitiveness of their products or services.

2. IDENTIFICATION STANDARDS IN LOGISTIC PROCESSES

The efficiency of information flow in the company directly affects the accuracy of decisions made by the management. The specificity of the information flow process hinders the already complex issue of efficiency. The concept of efficiency has not yet been clearly defined. The literature on the subject offers various interpretations and approaches to the efficiency of processes occurring both in enterprises (Rummler, Brache, 1995) and supply chains (Mishra 2012; Lichocik and Sadowski 2013; Geunes et al. 2016; Brandenburg 2016; Sohrabpour et al. 2016). The presented definitions and approaches to efficiency do not, as a rule, exclude one other, but they constitute a complementary whole and supplement or take into account another analytical aspect. This causes not only a research issue, but also a problem in terms of economic practice. IT tools supporting enterprise and supply chain management come in handy; however, the efficiency of application depends on the process approach upon the creation of the enterprise information system. Integration of information in the supply chain generates a number of additional problems related to the transmission of reliable information along the chain in real time (Bottani, et. al., 2010; Liu, et al., 2016a), which has a direct impact on the implementation of logistics processes (Silva, Carvalho, 2013; Maiga, et al., 2015). One of the key information problems is the integration of the production and logistics system with partners in the supply chain (Golinska, et al., 2011; Adamczak, et al., 2016, Varela, et al., 2017; Trojanowska, et al., 2017), also taking into account the aspect of a sustainable supply chain (Cyplik, et al., 2014). The following considerations confirm the research conducted by the Authors concerning, among others, the identification of key functionality necessary for a comprehensive analysis of the efficiency of logistics processes (Bigaj, Koliński, 2017). These practical and theoretical considerations lead to further research on identification standards in logistic processes. Literature research based on both theoretical analyses (Ross, 2011; Shi, Chan, 2007; Ramos, Lazaro, Girbau, Villarino, 2016) as well as research and development analyses (Nakatani, Chuang, Zhou, 2006; Śliwczyński, Hajdul, Golińska, 2012; Dujak, Zdziarska, Koliński, 2017) proves that there is a great fragmentation of possibilities to implement various identification standards in economic practice, especially the logistic label used by companies in the TL industry (Transport&Logistics Industry).

These theoretical considerations are only a general overview of the research problem. The lack of a detailed delineation of the research scope results from the fact that the identification of the use of standard logistic labels is the result of preliminary scientific research in this area. The empirical studies conducted so far in Poland should be considered as partial and unrepresentative.

For this reason, research was undertaken to diagnose the current degree of use of logistic labels in the implementation of logistic processes by the Polish operators of the TL industry; attention was also drawn to the effect of its use in the processes of data exchange on the basis of research conducted on a specific company. Thanks to a thorough analysis of the issue, measurable benefits of differentiating logistic labels in the supply chain were identified.
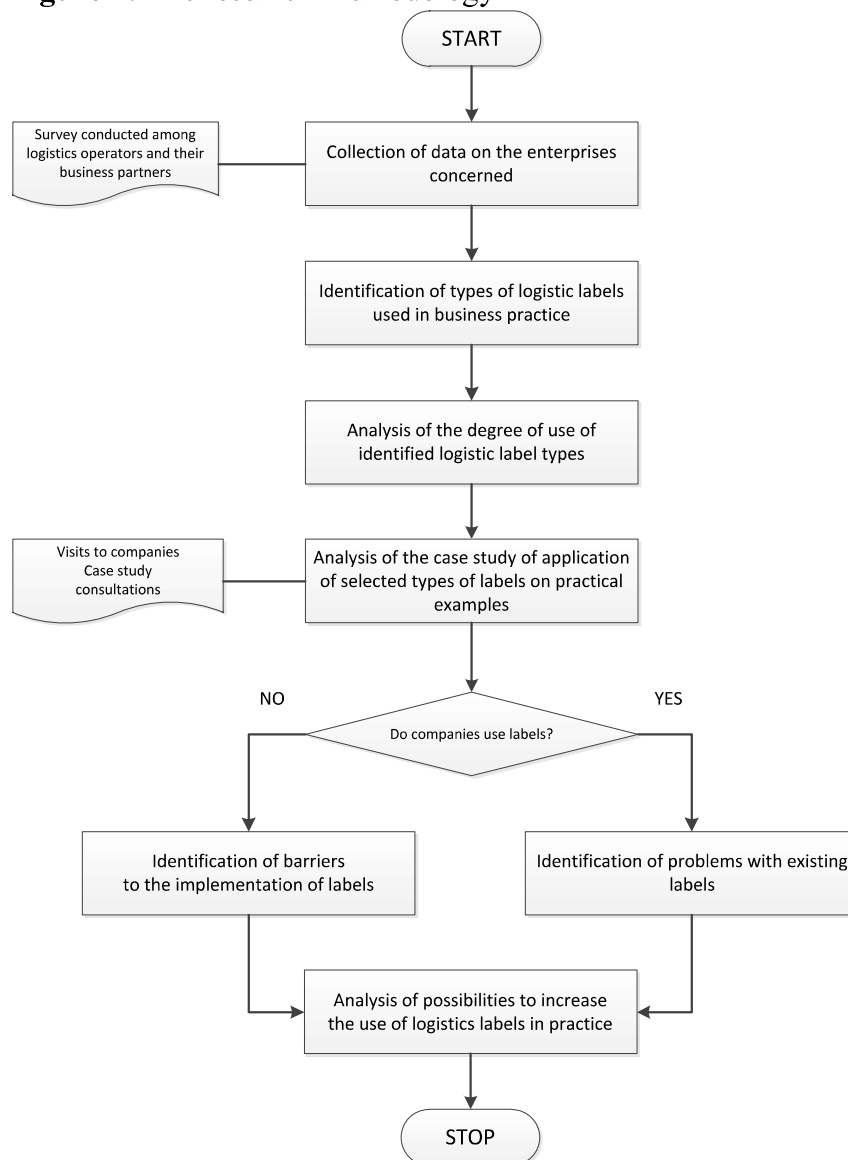
3. RESEARCH METHODOLOGY

Taking into account the nature of this publication, the main purpose of which is to determine the degree of use of logistic labels by 50 TOP logistics operators in Poland, its authors decided to divide the research work into three aspects:
- a theoretical one, identifying both the definition problem of the concept and the possibilities of its application in logistic processes,
- a conceptual one, identifying the basic operational scope of the application of assumptions in logistic processes of different characteristics,
- a practical one, presenting the possibilities of using solutions resulting from international research and development projects as a proposal to implement particular key areas of application of the concept.

The process of scientific research presented in this article results from the logic of structural analysis of the identified research problem. The adopted methodology of research work aims to systematize the procedure based on scientific research principles. The logic of solving a research problem has been presented in Fig. 2.

Therefore, this research methodology assumes both theoretical research and verification of its assumptions in business practice. In the Authors' opinion, both aspects, supplemented by the conceptual scope, aimed not only at confronting research and practical considerations, but also at organizing the existing knowledge on the analysed topic, cannot be carried out separately. The specificity of the research problem requires complex research on every plane.

Figure 2. The research methodology

Source: own study

The proposed methodology assumed both surveys and direct research. In the opinion of the project team, only such research approach can guarantee both the reliability of the obtained data and the representativeness, which impacts the generalisation of conclusions.

4. THE ANALYSIS OF DEGREE OF USE OF LOGISTIC LABELS

The conducted research was based on the research logic taking into account:
- identification of the types of logistic labels used in practice,
- analysis of the degree and place of use of both standard GS1 logistics labels and proprietary labels,

- identification of barriers to the implementation of standard GS1 logistic labels,
- identification of problems with the effective use of already implemented standard logistic labels.

Proprietary label is understood as a logistic label whose structure was developed by the company exclusively for internal needs. A standard GS1 label, on the other hand, is characterized by a unified structure (in accordance with GS1 standards), which enables error-free reading of the label content by IT systems of business partners in the supply chain.

The research was conducted in 2018. The research involved 50 logistics operators and distributors representing various industries, which conduct their logistic activity in Poland. Due to the perspective of using logistic labels, the industry in which the company is functioning was not a decisive factor. The research was conducted in the form of direct consultations at company offices, telephone and e-mail consultations, as well as supplementary surveys.

Identification of label types used in the TL industry

The first stage of the research was to identify the types of logistic labels used, distinguishing between standard and proprietary labels.

As a whole, the degree of use of proprietary and standard labels has been shown in Fig. 3.

Figure 3. Degree of use of standard and proprietary labels
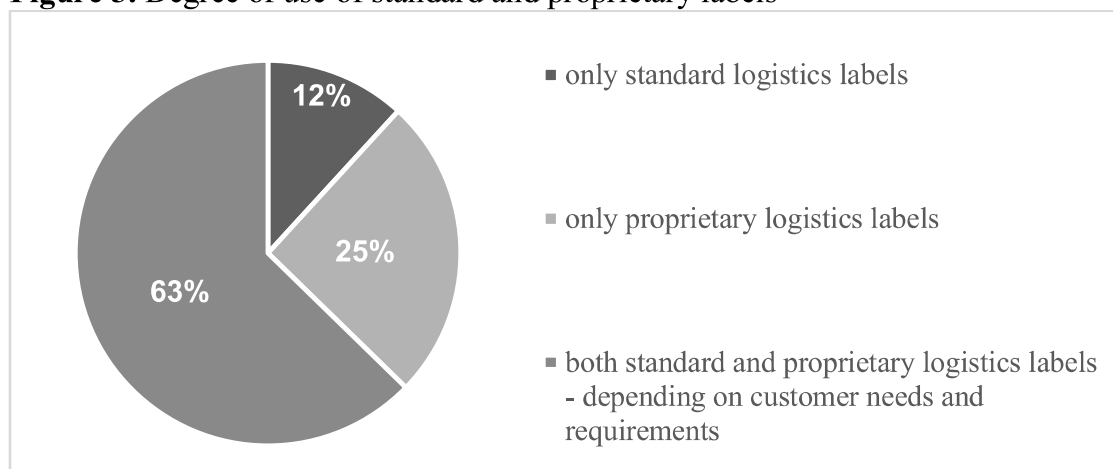
Source: own research

The vast majority of researched companies use both standard logistic labels and their proprietary labels, depending on the process in which they are used and whether the partner in the supply chain uses a standard or a proprietary label. It is also worth noting that companies using only proprietary logistic label are statistically more numerous than companies using only standard labels.

This situation has a direct impact on the distribution efficiency due to the risk of error in the information flow on deliveries and the need to manually check the content of the logistics label. This has a negative impact not only on the operational activities

in the distribution process, but can also cascade the efficiency of the whole supply chain.

From a quantitative point of view, it should be stated that:

- 37 researched companies (72%) use at least partially standard logistic labels,
- 48 researched companies (94%) use at least partially proprietary logistic labels.

The first step in a detailed analysis of the use of logistics labels was to identify the types of standard logistics labels in business practice. This stage of research concerned those companies that used only standard logistics labels in their processes, as well as those that used standard labels in conjunction with proprietary labels. Figure 4 shows the general trend in the use of different types of standard logistics labels.

The following types of labels were distinguished and researched in the framework of the analyses:

- manufacturer/logistic labels (logistic unit content data),
- entry/receipt labels (identification of the logistic unit at the time of receipt),
- shipment/transport labels (consignment designation, route codes, logistic parameters of the unit - weight, dimensions),
- picking labels.

Figure 4. Identification of the types of standard logistic labels used
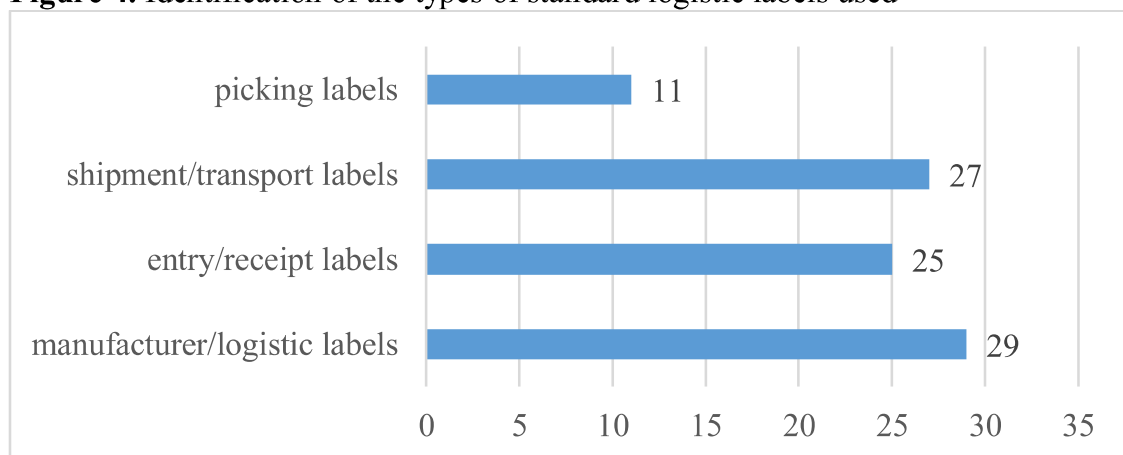
Source: own research

The conducted analysis indicates that the standard manufacturer's label is most frequently used in business practice - in 29 researched enterprises (76% of 37 researched enterprises). At the adoption stage, 25 companies (65%) indicated the use of a standard label, which meant that 4 companies, despite having received standard labels, did not use them at this stage. 27 companies (71%) used standard labels to organize shipping and transportation, which indicated that two additional operators, in addition to those using standard labels at the receipt, identified the goods with standard labels during the shipping process. In the case of picking processes, only 11 of the researched companies indicated the use of standard logistic labels, which may mean that the remaining 14 companies (out of 25 using standard labels at the receipt) carried out picking without standard labels, mainly using their proprietary labels.

The lowest level of use was made of picking labels, which also had an impact on their use in terms of IT system functionality, what is important for the supply chain efficiency. From the point of view of the analysis of IT systems functionality it also follows that the greatest information demand of companies concerns data concerning the content of logistic units, their identification during receipts, as well as data concerning the identification of consignment, route and parameters of the unit during dispatch/transport.

Identification of processes in which logistic labels are used

The next stage of the research was to identify processes in which companies use standard and proprietary logistic labels. It was decided not only to identify the place of application, but also the degree of use of standard and proprietary logistic labels. From the point of view for research work on distribution efficiency at the operational level and the supply chain, at the strategic level, an extremely important aspect is the identification of those elements of the logistics process that increase the risk of information errors related to deliveries. The more processes identified that use their proprietary logistics labels, the greater the negative impact on efficiency. The added value of this research is to indicate to which extent standard logistic labels are used, especially when companies declare the use of both proprietary and standard logistic labels.

In the examination of the degree of use of both standard and proprietary logistic labels, a uniform division into stages of the logistic process was adopted, taking into account separately storage and transport, in accordance with the following logical process:

- receipt of cargo/delivery at the warehouse,
- storage of cargo in the warehouse,
- picking, stuffing of cargo for shipment,
- the release of the cargo from the warehouse,
- loading onto the means of transport,
- tracking of cargo consignments,
- unloading from the means of transport.

Figure 5 shows the statistical results presenting the overall use of GS1 standard logistics labels among 37 researched enterprises.

Figure 5. The degree of use of standard logistic labels
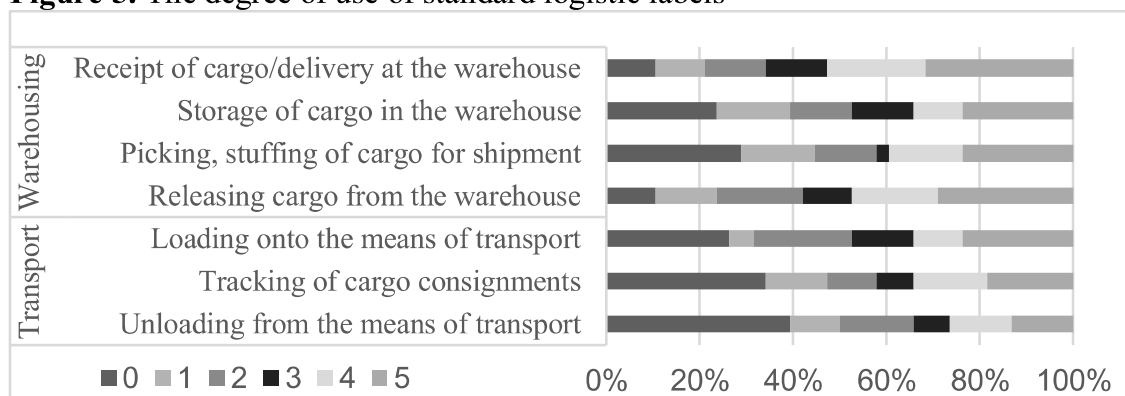
Source: own research

Due to an attempt at data generalization, a 5-level Likert scale was adopted, extended by a zero level, in which:

- 5 - meant that a given enterprise always used standard labels in a given process (equivalent to 90-100%),
- 4 - meant that a given enterprise very often used standard labels in a given process (at least 70-80%),
- 3 - meant that a given enterprise often used standard labels in a given process (at least 50- 60%),
- 2 - meant that a given enterprise seldom used standard labels in a given process (approx. 30-40%),
- 1 - meant that a given enterprise very rarely used standard labels in a given process (up to approx. 20%),
- 0 - meant that a given enterprise never used standard labels in a given process (0%).

This list should be interpreted as the percentage of enterprises that use the standard label to a specific extent, e.g.:

- more than 50% of companies (20 companies out of 37 declaring at least partial use of the standard labels) use the standard label in at least 70% of their warehouse receipts,
- almost 60% of companies (22 companies out of 37) use the standard label in at least 50% of releases from the warehouse.

Table 1. Degree of use of standard logistic labels - the analysis of general data

Scope	Process	Degree of utilisation						Weighted average
		0	1	2	3	4	5	
Warehousing	Receipt of cargo/delivery at the warehouse	3	4	5	5	8	12	3.18
	Storage of cargo in the warehouse	8	6	5	5	4	9	2.42
	Picking, stuffing of cargo for shipment	10	6	5	1	6	9	2.32
	Releasing cargo from the warehouse	3	5	7	4	7	11	3.00
Transport	Loading onto the means of transport	9	2	8	5	4	9	2.47
	Tracking of cargo consignments	12	5	4	3	6	7	2.13
	Unloading from the means of transport	14	4	6	3	5	5	1.84

Source: own research

When analysing global data it should be stated that greater use of standard logistics labels is found in warehouse processes. This is also evidenced by the weighted average results determined for individual processes.

When analysing the numerical data from a statistical perspective, it should be stated that all identified warehouse processes use standard logistic labels in the range of at least 60% (2.73), as was the case of transport processes (2.15).

The research points to the need for further dissemination and implementation of standard logistics labels, both in warehousing and transport processes.

By analysing the degree to which standard logistics labels are used in individual companies, the degree to which standard logistics labels are used throughout the supply chain can be deduced.

Statistically, the use of a standard logistic label throughout the supply chain oscillates around 35%. In the case of 20 enterprises (out of 37 enterprises using standard labels), it was identified that some of the standard labels underwent through all the processes in the supply chain, which accounted for 54% of companies which declared that they used standard logistics labels.

The next stage of research was to verify the degree of use of proprietary logistic labels in the same warehouse and transport processes as in the case of standard logistic labels.

Similarly, as in the case of the analysis of the degree of use of standard logistic labels, a 5-level Likert scale was adopted, extended by the zero level, in which:

- 5 - meant that a given enterprise always used proprietary labels in a given process (equivalent to 90-100%),
- 4 - meant that a given enterprise very often used proprietary labels in a given process (at least 70-80%),
- 3 - meant that a given enterprise often used proprietary labels in a given process (at least 50-60%),
- 2 - meant that a given enterprise seldom used proprietary labels in a given process (approx. 30-40%),
- 1 - meant that a given enterprise very rarely used proprietary labels in a given process (up to approx. 20%),
- 0 - meant that a given enterprise never used proprietary labels in a given process (0%).

Figure 6. Degree of use of proprietary logistic labels
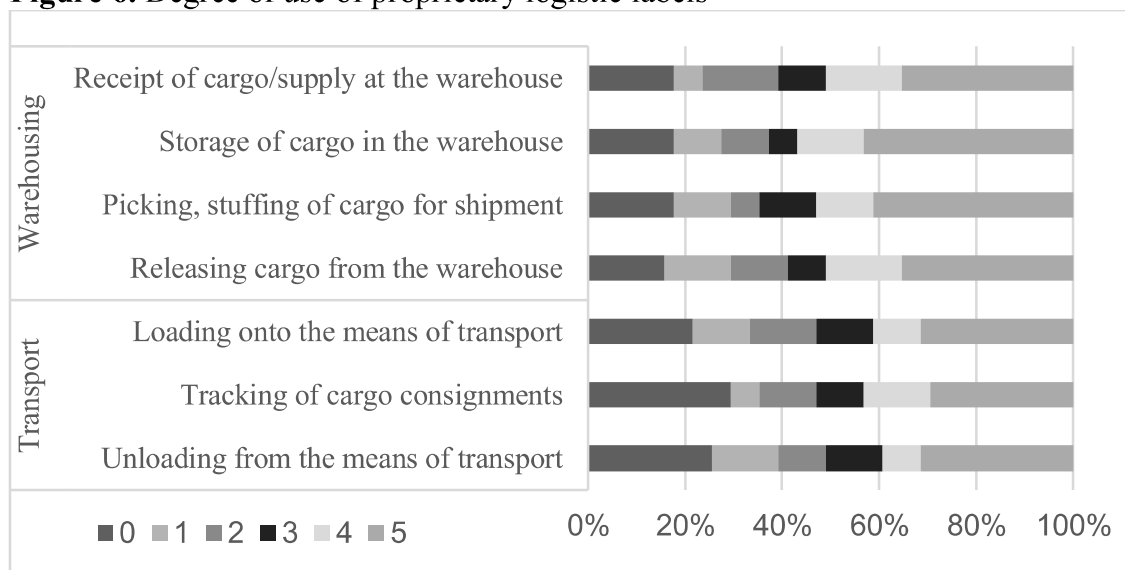
Source: own research

Proprietary logistics labels were used by 48 companies, which had been taken into account when analysing the degree of label use. This list should be interpreted as the percentage of enterprises that use the proprietary label to a specific extent, e.g.:

- over 50% of companies (26 companies out of 48 declaring at least partial use of the proprietary labels) use the proprietary label in at least 70% of their warehouse receipts,
- almost 60% of companies (28 companies out of 48) use the proprietary label in at least 50% of releases from the warehouse.

When analysing global data it should be stated that greater use of proprietary logistics labels is found in warehouse processes. This is also evidenced by the weighted average results determined for individual processes.

Table 2. Degree of use of proprietary logistic labels - the analysis of general data

| Scope	Process	Degree of utilisation						Weighted average
		0	1	2	3	4	5	
Warehousing	Receipt of cargo/delivery at the warehouse	9	3	8	4	8	16	3.06
	Storage of cargo in the warehouse	9	5	5	3	7	19	3.18
	Picking, stuffing of cargo for shipment	9	6	3	6	6	18	3.12
	Releasing cargo from the warehouse	7	7	6	4	7	17	3.00
Transport	Loading onto the means of transport	11	6	7	5	5	14	2.71
	Tracking of cargo consignments	15	3	6	5	6	13	2.61
	Unloading from the means of transport	13	7	4	5	4	14	2.57

Source: own research

When analysing the numerical data from a statistical perspective, it should be stated that all identified warehouse processes use proprietary logistic labels in the range of at least 60% (3.09). In case of transport processes, the use of proprietary logistic labels exceeds 50% (2.63).

Statistically, the use of a standard logistic label throughout the supply chain oscillates around 48%. In the case of 36 enterprises (out of 48 enterprises using proprietary labels), it was identified that some of the standard labels underwent through all the processes in the supply chain, which accounted for 75% of companies which declared that they used proprietary logistics labels.

Fig. 7 shows a comparison of the average value of the degree of use of standard and proprietary labels in individual warehousing and transport processes.

Figure 7. Comparison of the use of standard and proprietary logistic labels
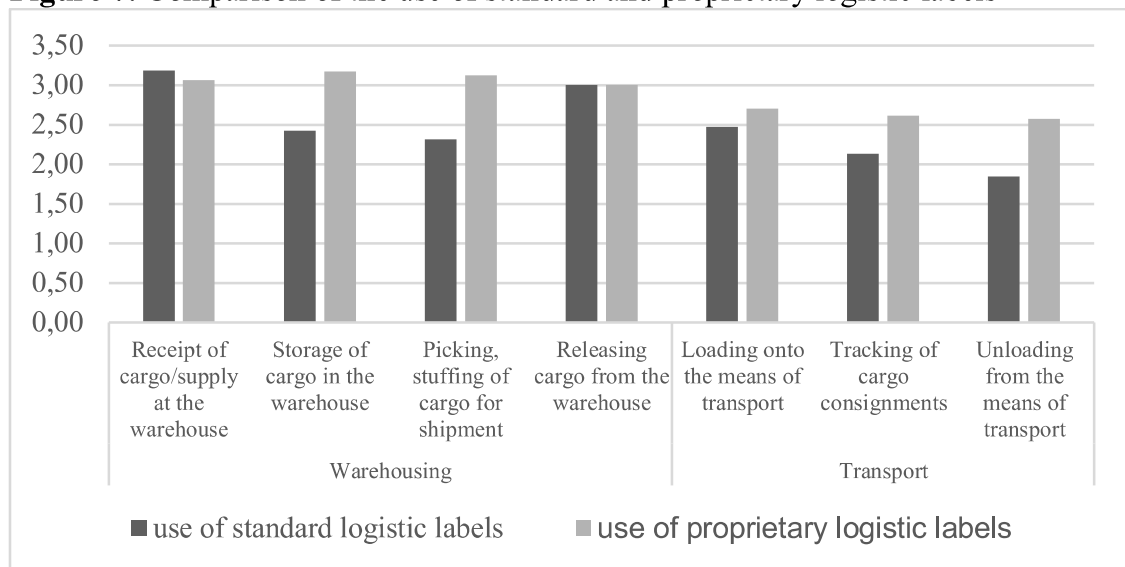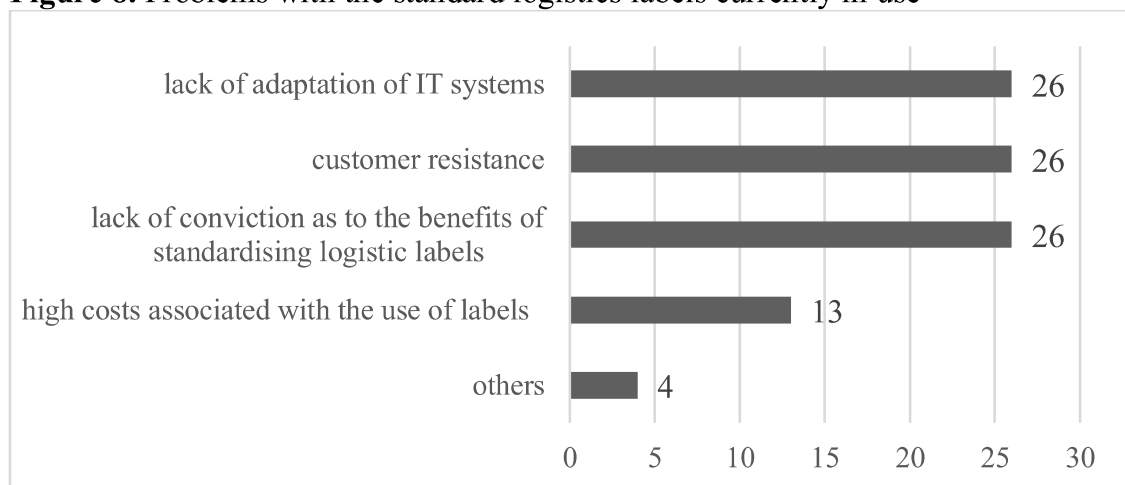

Source: own research

When comparing the degree of use of standard and proprietary logistic labels, relatively similar values could be noted - e.g. in case of cargo release from the warehouse, both standard and proprietary labels are used at the level of 50-60%.

It should be noted that the use of standard labels in the global context should increase and should become more prevalent in business practice. However, this conclusion should be confirmed by repeated research in this area in the future.

Identification of barriers to implementation and problems with the use of logistic labels in business practice

A separate element of the research was the identification of barriers related to the implementation of standard logistic labels and problems with their use after their implementation. Figure 8 shows statistical results showing the identification of problems with the use of logistics labels in business practice.

Figure 8. Problems with the standard logistics labels currently in use

Source: own research

When analysing the results from the general perspective it should be noted that the main problems with an even greater use of the already implemented standard logistics labels are as follows:
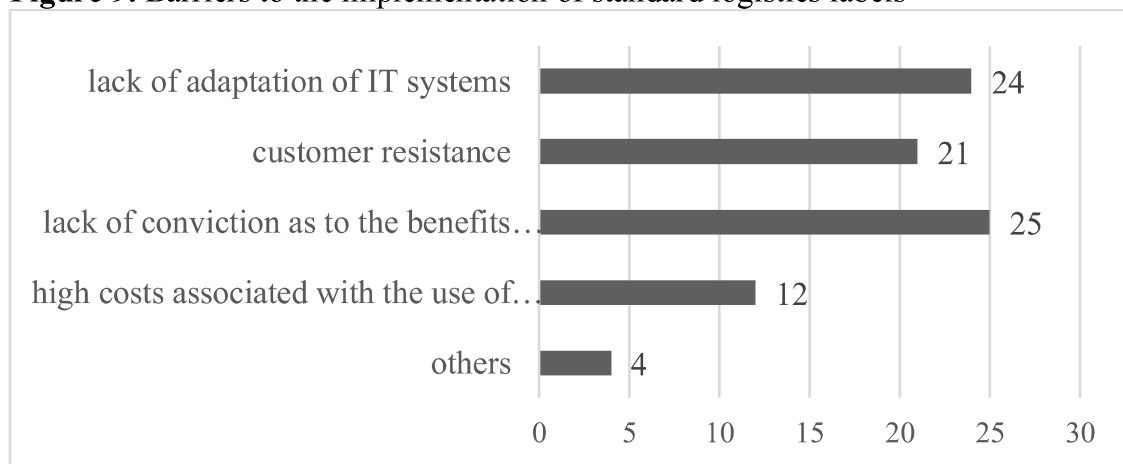
- lack of adaptation of IT systems of the counterparties to the available functionality (51%),
- customer resistance (51%),
- lack of conviction as to the benefits of standardising logistic labels (51%).

Other problems identified in particular enterprises during the research were as follows:

- incomplete data generated by our customers,
- operators using proprietary labels, lack of expectations and lack of use of labels by most customers,
- different labels for different customers,
- the type of label which was imposed by the customers (vehicle manufacturers).

Figure 9 shows the statistical results presenting the general trend in the scope of barriers to the implementation of standard logistics labels in new processes or with new counterparties. This identification also included those companies that had already used standard labels but had had difficulties in their dissemination among other business partners.

Figure 9. Barriers to the implementation of standard logistics labels

Source: own research

As in the case of problems with the use of standard logistic labels, the barriers identified at the implementation stage are related to the same issues. The basic barriers to the implementation of standard logistic labels are as follows:

- lack of adaptation of IT systems of the counterparties to the available functionality (47.1%),
- customer resistance (41.2%),
- lack of confidence in the benefits of standardising logistic labels (49%).

Other barriers identified in particular enterprises during the research were as follows:

- proprietary system,

- incorrect data on the label,
- the requirement of the World Postal Union for the identification of cross-border consignments,
- relying on customers' logistic labels.

5. THE ANALYSIS OF THE IMPACT OF LOGISTIC LABELS ON DISTRIBUTION AND SUPPLY CHAIN EFFICIENCY

This part of research presents the result of analysis concerning the impact of use of logistic labels on the efficiency of warehouse processes as one of the elements of the supply chain. Due to the fact that one of the key issues of effective implementation of a standard logistic label is to convince manufacturers/distributors to benefits that can be obtained from its use, we have decided to present in this case study an example of a company manufacturing and distributing wiring harnesses for the automotive industry. This case study concerns EL-CAB, a company whose beginnings date back to 1996, when it started its business activity from the production of cable harnesses for buses of NEOPLAN Polska. At that time, the company employed 22 persons. Currently, employment has increased several times and the company provides cable harnesses to various companies, such as: SOLARIS BUS, IFE-CR a.s, BAVARIA, JELCZ, VOLKSWAGEN PL, etc.

The manner of identification of goods, locations and cargo units
On the basis of the conducted analysis it can be concluded from the submitted data on the labels on the packagings under deliveries that the labels on the transport units are:
- variable, depending on the supplier's labelling system,
- incomplete, since they do not contain all pieces of information
- recorded using in various code symbols, difficult to read by owned ADC devices.

For this reason, EL-CAB now labels all transport units with internal labels, an example of which is shown in Figure 10, after the delivery inspections have been carried out.

Figure 10. Example of an applied internal label of a transport unit

Source: own study

The following data are included in the sample label:
- "1010-008282-00"- goods index,

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- "4250"- quantity in units of measurement,
- "51965430" - number of the cargo unit in the delivery.

Selection of the target goods identification system
In order to be able to streamline the entire logistic process, EL-CAB will require that the Supplies should include the following data on the label:
- EL-CAB internal index of goods,
- Quantity on/in the transport unit,
- EL-CAB order no.,
- EL-CAB customer no.,
- Transport unit number/resource number.

As a result of the analysis of data on domestic suppliers of EL-CAB in cooperation with the GS1 Polska Foundation, it was confirmed that about 21% of domestic suppliers were participants of the GS1 system. Moreover, it was assumed that among foreign suppliers there were also suppliers participating in the GS1 system.

Therefore, an internal solution based on the GS1 identification standards was proposed. Companies participating in the GS1 system will mark transport units in accordance with the standards on the basis of the number pools assigned to them, and companies not participating in the system will mark them with internal numbers in accordance with the guidelines and information provided by EL-CAB.

Effects of logistic label implementation at EL-CAB
Estimation of the effects of implementing a logistics label was carried out on the basis of the methodology applied by the Institute of Logistics and Warehousing for diagnosing warehousing processes. On the basis of the course of the identified current warehousing process, its assumed modification, average size of deliveries to the warehouse and average times of execution of particular activities in the process of receipt of deliveries given by EL-CAB, the labour intensity of the process was determined by comparing the situation before and after the implementation of the label. While determining the labour intensity of the process of handling deliveries with the use of a logistic label, it was assumed that only 50% of suppliers will identify the transport units sent to EL-CAB with labels. A comparison of the labour intensity of the delivery process with and without a logistic label is presented in table 3.

Table 3. Labour intensity of the delivery handling process before and after the implementation of the label

LABOUR INTENSITY OF THE PROCESS:	
WITHOUT LOGISTIC LABEL	WITH LOGISTIC LABEL
306.05	253.92
-	-17%

Source: study of the Institute of Logistics and Warehousing

The simulation of the effects of implementing logistic labels in the process of receiving deliveries showed the possibility of reducing labour intensity by about 17%, assuming that 50% of suppliers will identify the units in accordance with the guidelines provided.

In case of an increase to 80% of identifying suppliers, the possibility to reduce labour intensity will increase to approx. 22%.

This analysis confirms not only the need to implement logistics labels, but also to focus on the number of suppliers who use them. Implementation of a logistic label with only one supplier will not generate optimization effects of a given process. Popularization activities are necessary to encourage companies to research and implementations in this area.

6. CONCLUSION

As part of the work carried out in 2018, 51 companies from the TL sector were researched. The main conclusions of the survey concerning the degree of use of logistic labels:

- 72% of enterprises (37 researched ones) used at least partially logistic labels,
- 94% of enterprises (48 researched ones) used at least partially proprietary logistic labels,
- 76% of the researched enterprises (29 out of 37 using a standard label for some of their processes) indicated the use of standard manufacturer's/logistics labels in their processes,
- 71% of enterprises (27 out of 37) used standard labels to organize their shipment/release, of which nearly 60% (22 out of 37) used standard labels for at least 50% of their warehouse releases,
- over 50% of companies (20 companies out of 37 declaring at least partial use of the standard labels) use the standard label in at least 70% of their warehouse receipts,
- 54% of companies (20 out of 37 companies using standard labels) were identified as having a proportion of standard labels (35% on average) going through all processes in the supply chain,
- the main issues of even greater use of already implemented standard logistics labels concern the lack of adaptation of IT systems of the counterparties to the available functionality (51%), customer resistance to implementation (51%) and lack of conviction as to the benefits of standardized logistic labels (51%),
- based on the use of logistic label it is possible to generate measurable savings throughout the supply chain, as indicated by research. Only in the process of storage one can achieve savings in handling time of up to 22%, which is a significant value.

The research work in subsequent years shall be focused:

- not only on attracting new operators to implementing the standard label, but also on increasing the involvement of existing operators who already

use the standard label in their processes (increasing the percentage of customers using the standard label in cooperation with a given operator),

- on increased attracting of manufacturers/distributors to implementing standard logistics labels, due to their key role in the type of label used in the supply chain (increasing the percentage of customers using a standard label in cooperation with a given operator),
- committing IT system suppliers to applying the assumptions of the standard logistic label GS1 and other GS1 standards in their standard functionality (on a global level, not with the view to meeting specific functional expectations of customers). This measure shall encourage system users to apply standard solutions offered by GS1, which in the perspective of the next few years shall affect the unintentional increase in the use of standard logistic labels by manufacturers/distributors, in warehouse and transport processes,
- on technical support for the integration of business partners in the supply chain by means of EDI messages, not only in terms of using a standard logistic label but also in terms of the whole order to cash process. The aim of this measure is to support the integration of the companies identified above as key ones for the achievement of the basic objectives of GS1 in the scope of implementation of the logistics label,
- further popularisation /dissemination activities. Aimed at raising awareness of the benefits of using standard logistic labels (training, consultation, webinars). The aim of these measures is to indicate the possibility of standardizing the used labels in accordance with GS1 requirements and to verify their correctness afterwards.

The need for a comprehensive implementation of the logistics label throughout the supply chain, i.e. involving chain partners representing different business roles (manufacturer, carrier, distribution centre, logistics operator), should be considered as a basic premise for the implementation of these tasks. This approach will strengthen the efforts to increase the percentage of customers using standard labels in cooperation with a given operator.

The issue of the impact of the logistics labels use on the distribution and supply chain efficiency requires further research in both literature and business practice. Theoretical research works in this area are conducted at the Poznan School of Logistics, which will allow to unify the methodological scope and definition of distribution and supply chain efficiency. However, business practice research conducted by the Lukasiewicz Research Network - Institute of Logistics and Warehousing faces certain limitations that affect the results obtained. The basic limitation is the lack of knowledge about standard solutions. Companies using barcodes on logistics labels identify them as GS1 labels, which is not always true. Another serious limitation is the lack of belief in the benefits of using standard solutions. The direction of further research is therefore not only methodological but also diseminative work.

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