

The importance of information systems supporting logistics processes production company

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Abstract. The article presents key issues regarding the field of knowledge of logistics. The nature and meaning of a logistics system and relevant logistic information are discussed. In the further part of the work, selected IT systems supporting the production processes of the company are reviewed, presenting the specific features of each of them. The structure of AFPRO Filters enterprise, where the surveys were conducted, is also characterized. For the purpose of the work, two surveys were carried out, based on which the effectiveness of using implemented information systems is assessed from the point of view of users from various departments of the company. In the summary of the work, solutions, which could help the company to increase the efficiency of the use of implemented information systems and thus improve the flow of information are proposed.

1 Introduction

Use Information systems play a crucial role in supporting logistics processes for a production company. With the ever-growing complexity of supply chain management, it is becoming increasingly important for companies to utilize technology to optimize their operations and remain competitive in a global market.

One of the main benefits of information systems in logistics processes is improved accuracy and efficiency. By automating manual processes and reducing the reliance on manual data entry, companies can minimize the risk of errors and improve the speed at which they can manage their supply chain. This can result in faster order fulfillment, reduced shipping times, and improved customer satisfaction.

Another key benefit of information systems is real-time visibility. With the use of sensors, GPS, and other technologies, companies can track the location and status of their inventory, shipments, and delivery trucks in real-time. This helps them to respond quickly to any issues that may arise and make informed decisions to improve their operations.

In addition to improved accuracy and visibility, information systems can also enhance decision-making through data analysis and reporting. Companies can use data from their operations to identify trends and make informed decisions about how to optimize their supply

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chain. This can help them to reduce costs, improve efficiency, and make better use of their resources.

Finally, information systems can also help to improve collaboration between suppliers, customers, and internal teams. By providing a centralized platform for information and communication, companies can more easily coordinate their operations, share data and information, and resolve any issues that may arise.

2 Characteristics of the issue

The internal flow of information is one of the most important elements of the organization.

It affects, among others, the time of order fulfillment, i.e. customer satisfaction, which is main goal of any organization. Comprehensive activities in the process of information flow between the individual cells of the enterprise has a strong impact on the overall one functioning of the organization. People play a significant role in the information transfer process employed in managerial positions and most of the information comes from them decision making. Data and commands flowing from the management staff to result in effective implementation of the company's tasks and goals should be understandable and complete for everyone employed people. Well-prepared and conducted surveys can be source of extensive knowledge that will clarify many issues and bring answers to research questions. Survey research can be used both for verification hypotheses, as well as diagnosis and description of the studied reality [3,7]. Survey questions emerged problems in the information chain. The key disadvantage of the flow is lack of knowledge about the systems used. Unfamiliarity with the software can cause problems and misunderstandings at the enterprise, which is why every employee should go through training in its operation. The organization should provide work instructions for each system. In addition, you can consider reducing the systems used. Functions used in them are duplicated in several programs, an example of which is Kissflow and Asana. This can cause misunderstandings or unnecessary work. Another point noteworthy is the fact that the company did not specify in advance which information should be transferred between departments. Employees should be made aware about the need to share information with colleagues. They should specify what information they need to make their work run smoothly and smoothly. Of this type oversights have a significant impact on the quality of information flow. Individual links chain members should know the needs of other participants in order to be able to complement each other as well work quickly and seamlessly.

Based on all the answers, you can create 3 groups of needs:

- a) Improving the speed and delivery of information by e-mail;
- b) Providing information about finished products, their effectiveness, customer opinions, complaints and others related to the sales department;
- c) Process automation, e.g. implementation of a newsletter delivery system.

The main aspect to be considered in the quality and quality of the transmitted information. Responsible for employees were spread over different fields the functioning of the company, relate to the finance, logistics or planning department. By creating problems and tasks for employees, suggestions were made Ensuring regular meetings, operating programs and clear schedules source of information. During the research, the takeover and involvement of employees was noticed. At AFPRO Filters, these types of surveys are rare. Systematic application of research would contribute to increasing the accuracy of cooperation and triggering the initiatives of individual employees. It is assumed that the future of the company depends from the people employed in it, so thanks to training and creating conditions for development, staff can increase service efficiency through it. With the observed The research and also from the technical data can be applied that used ERP systems they are supported by modules and may run on other systems. Their advantage is that the integration of ERP with

business processes allows time and costs [6,8]. What's more, the manager can streamline decisions and fewer errors were found, and the data is visible to the entire organization, but not complete the use of additional costs, lack of continuity in the transmission information or incomplete transparency of enterprise assistive devices. In general, employees of the company are dissatisfied with the functioning Information processing, providing a lot of information, but they are also focused on changes and willing to train in the functioning of ERP class systems.

Judging from the above, the performance improvement results are obtained below company information:

- a) Creation of work instructions for data evaluation systems in the enterprise,
- b) Conducting training on the functioning of systems systems informative ERP,
- c) Specifying the information needs of employees of all departments, in order to improving the operation and infrastructure of redundant activities in the logistics chain,
- d) Specification and visualization of the information transfer process in the enterprise and making it available to everyone
- e) Informing employees about the consequences of incorrect or incomplete information transmitted in the logistics chain

3 Supporting information systems logistics processes

The effectiveness of enterprise management is conditioned by skills precise application of information. The globalization of management makes it necessary for this are professional IT systems [10]. The use of information systems carries many benefits that are not noticeable for all users, but for all organizations are crucial. Nowadays, more and more entrepreneurs decide to implementation of specialized software supporting the implementation of processes logistics. The task of the IT process dedicated to the needs of management logistics is to ensure the coordination of activities of the chain links and those gathered around them information in order to fully achieve the set logistic goals [1,4,5]. ERP software is a set of applications useful in planning the functioning of the company. General working principle of this type of systems consists in the collection, analysis and use of the obtained information making optimal decisions. Figure 3 shows the coordination processes taking place in enterprises that are connected thanks to ERP class systems. Thanks to the harmonization of all links, the board has full insight into all modules organization, which is conducive to making key decisions.



Fig. 1. Modules functioning in the ERP IT system [10].

The main features of ERP class systems are [9]:

- flexible integration of all areas of activity,
- organization and management of company processes,
- saving time and costs,
- resource optimization,
- decision-making support,
- increasing efficiency,
- easier access to information,
- securing information, both against loss and access to people unauthorized.

The benefits of the proper functioning of ERP systems are [11]:

- Saving time (wasted e.g. on preparing paper documentation),
- Cost reduction (e.g. labor costs),
- Faster decision making,
- Improvement and quality control (eg customer service, thanks to the collection of customer data preferences),
- Increasing efficiency,
- Easier access to information,
- Improved data security,
- Automation and standardization of procedures.

In order for an ERP system to function effectively, information must be entered correct. The flow of information can therefore be called the basis for the functioning of the organization. AFPRO Filters sp. z o.o. uses four processing systems information: Microsoft Dynamics AX, Microsoft SharePoint, Asana and Kissflow Software. Each of the programs is designed to process a different type of data. All These ERP systems are to some extent coordinated with each other, complementing each other under in some respects. A supplementary information system both outside and outside and between ERP systems is Microsoft Outlook e-mail.

3.1 Characteristics and structure of the AFPRO FILTERS enterprise

AFPRO Filters has existed since 1979 and plays a leading role in the market air filtration. The company offers a rich and diverse catalog of products such as filters air, protective masks or filter nonwovens. As a manufacturer, AFPRO Filters also specializes in production tailored to customer needs. Filters produced in AFPRO Filters are most often installed at airports, hospitals and laboratories, in hotels, museums, schools and data centers. In addition, filters are used in industry food and pharmaceutical.

The company has two production concerns: in China and in Poland. Center The company's management office is located in Alkmaar, the Netherlands.

One of the company's strategic goals is to achieve a healthy living environment. Optimum air quality increases work efficiency and affects functioning and employee comfort. AFPRO filters help reduce energy consumption costs during room ventilation up to 50% [12].

AFPRO Filters is ISO, TUV and Eurovent certified. This is confirmed by high standard in the international market. In addition, the company has own laboratory, where it tests and checks the capabilities of products. Good quality products is of the greatest importance to the company.



Fig. 2. Company logo [8].

A total of 280 people work in the factory in Poland, and 280 people work in the Chinese factory there are 250 people. On average, five employees work in sales offices, which means that around 570 people work in the entire company. The company AFPRO Filters Ltd. consists of a team of cooperating departments: sales, planning, procurement (purchasing), production and logistics. Each department focuses on a strictly defined scope of service orders. To ensure the high quality of the services provided, the processes must be connected to each other coordinated, and the flow of information is efficient, complete and understandable for each link logistics chain. In addition, all departments are supported by the human resources and finance department and the maintenance department. Each department is led by a department head. Everyone of them reports directly to the director of the factory in Poland. For the production department, the team is more extensive. Each department that supports the production department is a separate unit reporting directly to the director (i.e. the R&D or quality control department). At each stage of information processing, there is a set of people performing specific tasks operations, therefore information must be transferred in a specific order. The information flow that accompanies a production order focuses on the following departments: Sales (together with the support department, i.e. the order entry department), Planning, Procurement, Production and Logistics

Logistic processes as well as the flow of information depend on the relations taking place between departments and the problems they concern. responsible persons responsible for logistics do not always have the right information. This is often due to difficulties specifying the information needs or the lack of desired information in ERP systems. Effective communication requires knowledge of the recipient's perceptual abilities, his expectations and how to use the received information. If the sender does not know with these requirements, communication will be difficult. The logistics department in the audited company company uses all available ERP systems. Unfortunately, some data change very quickly and before the information circulates the entire logistics chain - production, in the last link, i.e. the logistics department, errors are generated, e.g. goods will be sent to the wrong place or the shipment will be incomplete. Department logistics completes the order circulation process and basically defines the opinion of recipients, therefore it is important that this unit is highly coordinated and good informed. Logistics in the surveyed company is extensive due to distribution of goods to countries around the world.

4 Methodology and analysis of research results

4.1 Methodology

Survey research is currently one of the most popular empirical research methods social, where a tool is used to collect information from respondents in the form of a questionnaire [2]. In all departments involved a total of 150 specialists work in the study. The surveys were completed by 126 employees from departments logistics, sales, finance, planning, procurement and production. To know the opinions of people employed in the company, two questionnaires were used. One of them concerns the familiarity of the used information systems in the company, while the second concerns the general flow information and aims to identify the weakest link in the process. Implementation of systems of ERP class information systems to AFPRO Filters were aimed at, among other things increasing the speed of information flow, and thus the efficiency of the employees themselves.

A survey aimed at diagnosing knowledge of software and flow information is the first study of this kind carried out in the company AFPRO Filters. The questions contained in the surveys influence the respondents, inducing them to reflection on the problems taken in the research, and the anonymity provided in the survey favors honest answers. The first survey

was aimed at defining the group of the enterprise, the scale of familiarity with the use of ERP class systems used in the company and the respondents' assessment of the ERP systems used.

The research method and sampling method always influence the final results. Including In both cases, both questionnaires were completed online. The tests were one-off. Polls contained single and multiple-choice closed questions, as well as open-ended questions. The average time to complete one survey is about 10 minutes. employees had access to questionnaire for five days. As a result of the conducted survey research, it was obtained a number of responses regarding information related to the efficiency of information flow between individual cells within the enterprise

The questionnaire was conducted in order to obtain an overview of the skills, knowledge and requirements of employees related to ERP systems. The questions have been formulated to indicate what users need. It is the merits of the entire study, based on where you can find out how large a group of employees uses the systems and in what way uses it to a large extent. In addition, it allows you to determine which systems are used most often and to what extent they are adapted to users.

The second survey on "Analysis of the quality of information flow in the enterprise" was aimed at diagnosing the current state of awareness of employees, as well as their knowledge and software knowledge. The survey was used to check the level of information flow between employees in the company. It aims to identify the weakest link in the circulation process information in the enterprise, and, moreover, will determine how employees resolve unclear situations. All of this allows you to identify significant flow constraints information and the attitude of employees, whether they decide to use the system's capabilities ERP to solve the problem or reach for other traditional proven methods problem solving. As a result, this type of analysis will reveal possible causes of errors in the process of information flow in the enterprise and will allow for thorough verification opinions and attitudes of employees regarding software knowledge and information flow.

4.2 Analysis of the test results

The surveyed group of respondents was mostly represented by employees from the production, logistics and planning departments. It is especially these employees who play a key role in both the supply chain and the proper flow of information. The group of surveyed people is largely aged workers 18-25 years old. Young staff is a very important aspect when the company implements IT systems to support the implementation of some of them processes. It is well known that employees over the age of 40 years old are not very willing to use similar solutions for various reasons, e.g. it is more difficult for them learn something new or have no contact with a computer in private life. Relevant is also the fact that the survey questions were answered by employees from the entire structure of AFPRO Filters. This situation made it possible to determine the relationships resulting from the flow of data between individual departments. The surveys were conducted in all departments in the company and show that 50% of employees are aware that he works in a department relevant to the order flow.

Awareness of the location of one's position at specific levels in the company affects the level of involvement in individual elements of the supply chain. It is important to check whether employees are aware that their mistakes can have a significant impact on the further part of the execution of the order itself, as well as other third-party processes.

It is important to make employees aware of their role throughout the entire chain of activities, for example at the time of a mistake or unaware of the consequences. It is unreasonable to burden someone guilt when the person does not know that his decision will have any consequences. Respondents assess their level of involvement in the information flow process about the order at the level of 6.2 on a scale of 0-10. This is due to the fact that

among the respondents 69.2% are decision makers (fully or partially). The rest of the employees are people following orders from managers. This is a significant piece of research because the greater part of respondents are pillars in the flow of information and it is at this level that it should be make changes. However, lower-level employees are also expected will be made aware of the consequences of their actions in a sensible and responsible manner performed their duties and diligently carried out their tasks related to the chain logistic.

In order for the executed orders to result in customer satisfaction, the flow of information must be known by all employees of the company. From the conducted research shows that 69.2% of the surveyed employees know the stages of the flow of information about orders. These are people who have been working in the company for over 3 years. Due to over three years of work experience, over half of the employees, knowledge of the various stages of the flow of related information with the order is known. The remaining 29.8% do not know the process in its entirety, only partially or not at all. This is due to the diversity of employees, several of whom work in the department

Finance and Human Resources, therefore order flow is not relevant to them. Moreover, the respondents also included people working in administration, who are not required to do so knowledge of this flow. Either way, such a large percentage of those polled should stay reduced. Almost 1/3 of the respondents may cause disruptions in the flow information. People with long experience can be expected to be well acquainted with the systems they work on. Employees using the systems for less than a year should receive the opportunity to undergo training to match experienced employees. Standardizing or leveling the playing field has a major impact on all processes in the enterprise and helps to minimize the number of errors that occur. But not this changes the fact that all employees, regardless of length of service, are looking for any information in ERP systems and definitely should know the steps of the flow information included in the order circulation process in the company.

The research helped verify the level of information flow in the company. The respondents rate it on average at 5.3 on a scale of 0-10. The result informs about the necessity improve this flow because in a well-organized enterprise score should be somewhere between 7-8/10.

According to the respondents, the flow should be improved and/or improved. Employees mark what should be improved, the answers definitely point to the need to improve the flow of information. AFPRO employees suggested which information they would like to obtain. The most common answers were:

- information about changes in production methods
- information about possible shipping delays
- information about the lack of components for production
- information on the current status of production orders
- information about the production process

These are data without which the logistics chain is not able to prosper properly. The respondents suggested what could be changed in the information transfer to increase it efficiency, e.g. to change and standardize the information transfer system between departments, guarantee faster response in priority situations, specify answers to questions asked, mobilize all employees to share information, and guarantee the availability of all system and information modules.

Despite the implemented ERP systems, the data flow is not satisfactory. In order for the information to be properly passed on, it should be understandable and complete. The readability and clarity of information on orders, according to the respondents, ranks at 6.1/10. The answers were varied, ranging from 4 to 8 on a scale 0-10. In order to improve the quality of information transfer, it is necessary to define the necessary data related to the order. Each department should specify what information it needs and pass this data on to other departments. Orders have some special features that are repeated and are the most important from the point of view of its satisfactory completion.

Such repeatable elements are the recipients of orders, production processes or the economy warehouse. Reducing the risk of making a mistake with these elements should contribute to reducing the risk of suffering consequences, i.e., for example correct or advertise an order

Information systems are used in every field of the company's operation, and the information flow process plays a key role in the correct execution of orders, because it connects all departments in the company and coordinates the work of the entire team. Question o tasks performed at the positions clarified and categorized the activities performed by employees. To ensure information integration of various functional spheres enterprises, the company uses ERP systems. They are a key aspect of the organization, because ERP systems coordinate all activities related to customer service, from order entry, through ordering components, planning, production, to after shipment to the final recipient. This type of software provides anastomosis of all data in the organization and creates a link between all departments that is left explained in the next question. "Which of the following systems do you use on in your position?" It shows that each of the employees uses at least two systems (Figure 3). The vast majority, as many as 105 respondents (92.3%) use Microsoft Dynamics AX. Each of the respondents representing individual departments of the company has access to and uses some part of the Dynamics system AX. It follows that it binds all departments together and is a pillar of information flow in company

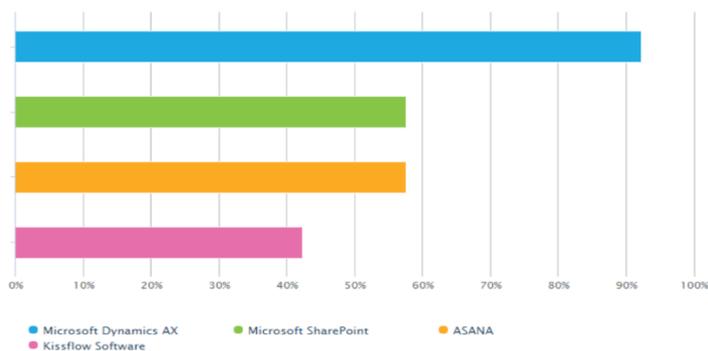


Fig. 3. Bar graph for the question "Which of the systems do you use on yours position?" [own elaboration]

In addition, research shows that Microsoft Dynamics AX and Kissflow Software cause the most problems. According to the respondents, the ASANA program is the least problematic. What's more, it is also worth mentioning that the respondents' answers are affected by the ability to adjust the systems to the needs of users. ASANA has a user-friendly interface and a number of default options tailored to users, resulting in a lot of positive responses in terms of transparency. In terms of problems, Microsoft Dynamics AX dominates, which is used by all employees of the company, hence such a high score. The ASANA system, on the other hand, is used only by some of the employees. What's more, the Microsoft Dynamics AX system contains much more information, is more detailed, and therefore has a huge database. This causes the program to slow down or shut down completely long charging. The ASANA system behaves completely differently, because it operates on

Internet domain, i.e. the database is located at the provider, not on the company's server AFPRO. Respondents, when asked about the existing problems, pointed out a lot of specific facts:

- “No instructions, a lot of unused system functions, you don't know how to use them. No training.”
- "No license, no knowledge of all available options."
- "Poor transparency of Kissflow, Asana would suffice for such tasks."
- "System running slow."

There are obvious problems that may translate into lower efficiency information flow within the enterprise. This is, among other things, information about the lack training in the use of the systems. No training, so you don't know what fraction of the system's capabilities we use. The potential of the system is not full used, which also translates into financial losses of the company, because it invested in something that is not fully exploited. An example would be a module for planning and sales department, which production has no insight into. They are therefore overlooked guidance on orders that seem unimportant to the planning department, and for production are very important. Another answer indicates that Kissflow could be replaced by the ASANA system, moreover, employees express criticism towards this system, because it slows down the entire information flow process. A large number of respondents recall also about the slow operation of the systems, which affects both the time of implementation of individual tasks, as well as working comfort. In terms of functionality when obtaining data, the surveyed rated the systems used at the level of 7.8/10, where 46.2% of employees rated 8/10 systems

Such a result indicates that the vast majority of data is acquired from ERP systems, which is very important information. Such a high rating means that the systems function at least to some extent. But it would be nice to know all of them capabilities of the programs and familiarize employees with them, as this could improve information flow and take it to the next level. Another important point is getting answers to unclear issues. The vast majority (65.4%) always receives answers from co-workers, 34.6% of respondents receive them sometimes, which affects the speed of information transfer in the enterprise. A key value is the availability of system modules. Respondents chose from a number of options and each from the answer was selected at least once. The answers that received the most votes were:

Current production, Monitoring of orders, Warehouse management. These three modules they contain the most data on orders and allow you to control their progress during implementation. After a thorough check of those people who chose the listed options it can be stated that every department functioning in the company has access to the modules logistics and production modules. The study helped determine to what extent the systems used allow solving problems related to work on a given position.

It showed that the information systems used in the enterprise allow for solving work-related problems at the level of 7.5/10, which proves them functionality and use at each stage of the supply chain.

5 Conclusions

The results of the conducted research indicate that ERP systems support efficiency and play a key role in the information flow process at AFPRO Filters. Employees use ERP systems while performing their duties to obtain, process, analyze and transfer any information related to orders. Moreover, the ERP systems used coordinate all of them processes in the company, thanks to which all information is available in one database data. It should be remembered that the efficient flow of information does not depend only on one system.

For the process to work properly, all systems must complement each other. If they will be integrated, the risk of omissions and errors will be reduced. Unfortunately the flow process information in the surveyed company is not error-free and efficient, and ERP systems are not fully used and have undiscovered functions and modules. Undertaking should focus on improving the entire information flow process, because properly coordinated logistics chain

ensures high quality of services offered and competitiveness on the market, and also allows to organize internal processes organization. It is worth taking care of an efficient, effective and efficient information flow process, because it pays off for every entrepreneur

The essence of the work concerns the flow of logistics information and information systems supporting this process. The final effect should change the perception of information, treating it as a strategic resource that determines the scope and level of cooperation of companies operating on the market, because it is a determinant of effective management of logistics processes in the supply chain.

In conclusion, information systems are critical to the success of production companies in the modern global market. They help to improve accuracy, efficiency, and visibility, while also enabling better decision-making and improved collaboration. By leveraging technology to support their logistics processes, companies can achieve greater competitiveness, profitability, and growth.

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