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TRANSPORT COMPANY AND CHANGES TAKING PLACE IN LOGISTIC AREA

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Purpose: The factor driving development and change in every field are innovative activities. In times of dynamic market changes, the ability to adapt innovative solutions in the areas of management becomes an essential element of the functioning of an enterprise. The purpose of below text is indication benefits which can come from the use of integrated business management systems. The final part of the article describes the effects of using modern tools used in transport companies.
Design/methodology/approach: Creating the following study, the author tried to use general methodology in the field of management sciences as well as descriptive methodology in the area of issues related to logistics.
Findings: The introduction of modern solutions in transport entities brings not only benefits in the form of company expansion. There are noticeable changes in the new capabilities of the entity, starting from increasing market share, entering new markets, increasing resistance to changes in the environment, through increasing customer satisfaction, strengthening relationships with them, and ending with increasing the prestige of the company.
Practical implications: Indication possibility of more efficient management of the transport entity.
Originality/value: Indication and characterization of essential elements in the management of a transport entity. Focus on the obstacles faced by market participants. Below text is addressed to management staff or logistic areas scientist.
Keywords: management, transport company, logistic.
Category of the paper: General review, viewpoint.

1. Introduction

The driving force behind progress and transformation across all industries is innovation. In an era of rapid market fluctuations, the capacity to implement innovative solutions in managerial practices emerges as a crucial component of a company's success. Neglecting continuous refinement of surrounding managerial processes or the integration of novel technical

and technological advancements can lead to the obsolescence of a market entity's effective functioning.

The term innovation was first introduced to economic sciences by Joshep Schumpeter in 1911. According to Schumpeter, this concept refers to such components as: introducing a new product or a product with new properties to the market, introducing a new or improved production method or obtaining a new source raw materials or semi-finished products. Elements of innovation also include the introduction of a new organization of an industry and the opening of a new market (Schumpeter, 1960).

Schumpeter considered the introduction of a new solution into practice for the first time (not repeated before) as an innovation and assigned them very great importance, both in the process of cyclical development of the economy and in the development itself (cf. Dziekoński, Chwiećko, 2013).

It is worth mentioning that innovation cannot be limited only to technical or technological elements. Until recently, in the area of transport, innovation only meant changes in technical departments (e.g. implementation of intelligent telematics systems). Currently, we can also distinguish non-technical innovations, including the introduction of organizational or managerial changes (cf. CATI Raport).

2. Theoretical background

2.1. Innovation area

Running a business in an intensively changing market economy places high demands on decision-making units. Efficient management cannot function without modern tools. Nowadays, innovative implementations are a key factor in gaining and maintaining a competitive advantage on the market. Most often, this is due to the ability to offer goods and services at a higher level than those offered by other entities on the market, as well as to quickly respond to changes in the company's immediate and distant environment, and thus meet the needs and expectations expressed by customers (cf. Gąsowska, 2018).

Defining the word 'innovation' is quite difficult, and its meaning is very broad. It can be said that innovations are characterized by high interdisciplinarity, which can be considered in an extremely multidimensional manner (cf. Duraj, Papiernik-Wojdera, 2010). I. Allen considered innovation to be the introduction into wide use of new products, processes or ways of doing things; E. Mansfield - first application of the invention; R.W. Griffin - the directed effort of an organization to master new products and services or new applications of existing products and services; E.M. Rogers - an idea or object that is perceived as new by the receiving person or other entity; B. Fiedor - any change in given properties of the production

function; S. Kuznets - new application of old or new knowledge to production processes initiating the use of the invention; H.G. Burnett - any idea or thing that is new because it is qualitatively different from existing, known forms. A more simplified interpretation of innovation was introduced by Peter Ducker, who understood it as a tool for entrepreneurs who enable them to undertake new activities or provide new services (cf. Kisperska-Moroń, 2009; Zagożdżon, 2010; Białoń, 2010; Rogers, 2003; Drucker, 1992).

Innovation in enterprises is characterized by the ability to apply new ideas, concepts, inventions or research results. The aim of innovative applications is to achieve and maintain a leading position in the field of activity as well as to strengthen the technical capabilities of the enterprise (cf. Stawiasz, 2010).

The key message is the statement that innovation is one of the most important factors determining the development of enterprises, which should become the creative force of every entity, which should be included in the management system and organizational culture. It can be said that entities that follow innovative trends are characterized by many factors, which include the ability to create and use innovative potential, constantly create innovations, and the ability to predict the future, combined with forward-looking thinking. Additionally, such a unit should be characterized by creativity, development of staff competences and a motivation system that is able to activate entrepreneurship and innovation in connection with the creative skills of the staff in developing and applying innovative solutions, and have an appropriate pool of employees - innovators. We should also mention having an appropriate level of information about customers and the market, effective knowledge management, shaping an innovative culture among employees and maintaining relationships with customers in order to learn about their current and future needs and taking them into account in our activities (cf. Pichlak, 2012; Burniewicz, 2010; Dolińska, 2010).

2.2. Types of innovation

Dynamic changes in today's transport market mean that failure to undertake innovative activities can destroy the leadership position of many companies. The transport industry is currently facing a difficult task, as the strong development in logistics areas (both on the domestic and international markets) has recently been severely limited by administrative and legal barriers in many European Union countries (Neider, 2019).

Innovations in logistics processes are not perceived as introducing completely new solutions in the manner and type of services provided. Even small changes in services provided to customers constitute innovation (cf. Grzybowska, 2012).

The division into types of innovation in transport is quite difficult and it can be said that there is a multi-level approach to this issue. The first of the distinguished divisions is the division into product, process and service innovations. Product innovation concerns the introduction to the transport market of a product whose features or method of use are significantly different from those previously proposed, or the product itself has been

significantly improved and may provide the recipient with new or increased benefits. Process innovation is the use of new or significantly improved methods of operation - processes in broadly understood aspects of transport services, production of means of transport, transport management, etc. It may also concern changes in the organization, human resources, and work methods (cf. Chapman et al., 2003). Service innovation is the introduction to the market of a new logistics or transport service, or one that will be perceived as such. Such a service must offer a new benefit or greater value to the recipient.

Due to the thematic scope, the following areas of application of innovative mechanisms can be distinguished:

- technical and technological innovations in the field of transport,
- innovations in the organization and management of transport,
- innovations in the sales and marketing of transport services, infrastructure and rolling stock,
- financial innovations in the field of raising funds for the development of transport and logistics,
- transactional innovations regarding the organization, preparation and implementation of transport projects (cf. Flint et al., 2005).

Due to the reason for the occurrence of innovations, we can distinguish: routine innovations involving the introduction of changes to transport products or services to maintain their effectiveness and attractiveness; forced innovations, the introduction of which becomes necessary due to a critical situation, e.g. economic crisis; Opportunity innovations are introduced by entities that can allocate significant funds to research and development activities. Through these activities, companies or other entities can replace existing products, expand the scope of services provided, and improve the production process.

Innovations can also be divided according to the scale of changes they involve. There will be radical innovations that cause breakthrough changes in the entity dealing with transport and involve a complete transformation of the functioning of the transport system. A different approach is characterized by gradual innovations, which involve improving activities that are done well, i.e. minor modifications resulting from changes taking place in the environment. In the transportation sector, such changes are often called incremental adjustments. The next division distinguishes autonomous innovations, occurring when the solution was not the result of search, and induced innovations resulting from demand and being the result of research.

In terms of the effects that follow the introduction of innovative activities, there are strategic innovations covering long-term projects and tactical innovations regarding current changes in the transport services provided, technology and work organization allowing to improve the quality of logistics processes (Kordel, 2019).

Innovations can also be divided in terms of the level of complexity because they can be created by a group of people or institutions or by one person. We can distinguish: coupled innovations, which are the result of a group of people or organizations with the necessary

cooperation of the entire group, and uncoupled innovations, which are the result of one person and most often constitute rationalization activities.

Among the remaining divisions of transport innovations, we can mention continuous and discontinuous innovations (in terms of the stability of the process of introducing changes); creative - pioneering and adaptive - reproductive; due to the scale of occurrence, an innovation may be new in relation to: the whole world, a region, a country, a sector of the transport industry, a specific transport company; there are also innovations taking place inside and outside the enterprise (Janasz, Kozioł, 2007).

The introduction of innovations almost always generates a number of problems and barriers. In the literature can find barriers in structural, systemic, awareness and culture barriers, as well as competences in technology transfer (Barski et al., 2010). To overcome these challenges, promoting strong partnerships between academic institutions and private enterprises is crucial. Resolving structural obstacles requires the development of cohesive strategies and policies that synchronize the objectives of both parties. Tackling systemic challenges involves simplifying bureaucratic processes to foster growth and innovation, rather than stifling progress (Janasik et al., 2023).

3. Innovation in transport

Innovation in transport can be understood as activities consisting in improving and improving existing solutions or introducing completely new solutions or processes regarding all aspects of changes, contributing primarily to increasing the economic, financial, technical and technological efficiency of the natural environment of transport systems in order to maximize the effects social and economic results by the public and private sectors (CATI Raport).

Attempts to offer customers better logistics solutions are the foundation for innovation in this area. Logistics services cover the scope of activities and activities involving the flow of products and information, taking into account a wide range of systematization of these activities. There are four basic groups of activities that comprise the subject of logistics services:

- transport and handling of cargo,
- storage and inventory handling,
- market research and creation of an information system,
- financing of transactions, banking and insurance services for contracts (Gołembska, 1999).

The scope of enterprise activities may focus on individual groups of logistics services or cover them comprehensively. Logistics entities can provide a wide range of services including:

- transport and reloading functions, including: transport, organization and implementation of reloading, branch management,
- warehouse functions, including: entering and issuing goods, organizing storage, inventory management and selecting transport packaging, repacking, labeling,
- dispositional functions, including: analysis, planning and organizing transport, control, consulting,
- information functions, including: order processing, creation and management of information chains (Kisperska-Moroń, Krzyżniak, 2009; Zagożdżon, 2010).

The most important element of the above activities is transport and forwarding. Although companies providing logistics services deal with a number of other activities that complement the overall package of their offer, it is transportation and forwarding services that constitute the basis of their activities.

The introduction of innovations in the area of transport depends on factors such as: innovation in the enterprise, legal regulations, costs and availability of fuels, low efficiency of existing solutions, and the need for new functionalities. The purpose of implementing innovative solutions is primarily to increase the efficiency and functionality of transport systems, reduce energy demand, optimize logistics and meet the transport needs of natural and legal persons (Burniewicz, 2010).

In order to be able to create a knowledge-based enterprise in which decisions and planning are based on continuous improvement of the flow of data and information, it is necessary to conduct innovative activities. The basic ones include:

- better strategic planning,
- improving the decision-making process,
- increasing customer satisfaction,
- greater flexibility in adapting to market changes,
- increasing the efficiency of services provided,
- increased flexibility and speed of decision-making in supply chain management processes,
- increasing innovative capabilities (Dziekoński, Chwiećko, 2013; Chapman et al., 2003).

3.1. Integrated management systems

An element of modern management in an enterprise are tools supporting managerial staff in the decision-making process. These tools, introduced at all levels of the company's operations in an integrated manner, allow for an appropriate response to problems that arise in the entity's daily operations.

Dedicated management support tools are addressed to logistics entities. Their area of operation can cover all spheres of activity, which allows them to be called ERP (Enterprise Resource Planning) systems. The advantage of using this type of solutions is the use of a common database, which allows for the unification and integration of information and the possibility of using modular solutions. Modules may cover areas such as: logistics, finance, accounting, sales, warehousing, and many others (Gajdos, 2001).

Solutions of this type bring benefits both in terms of business management and savings in the introduction of innovative processes. We can talk here about an increase in the efficiency of economic processes, as well as: efficient business processes, a unified way of viewing data, a high level of customer service, an increase in the level of sales, a high level of human resources management, etc.

Entities offering the implementation of integrated management systems have multi-module programs that, despite differences in the user interface, allow for comprehensive coverage of departments in logistics entities and thus support management processes in a comprehensive manner. Companies that offer this type of solutions on the domestic market include: Soloplan, Interlan, PasCom, Logintegra, FireUp Software, Marcos.

Below are the solutions of Interlan as one of the leading companies implementing logistics solutions for customers. Interlan has been providing integrated IT solutions for 20 years, placing great emphasis on broadly understood development.

The main modules supporting enterprise management include InterLAN SPEED Forwarding and Transport FTL, which enables the improvement of virtually all departments in the company. Its key functions are:

- handling FTL orders,
- management of own and contracted fleet,
- handling road cards,
- delegations, advance payments, allowances,
- fuel settlements,
- vehicle liability insurance and damages and carrier liability insurance,
- tire management,
- invoicing,
- integration with financial and accounting systems,
- calculation of costs,
- internal settlements,
- complaints service,
- drivers' salaries,
- carrier settlements,
- integration with telematics systems,
- multidimensional reports and analyses,
- and many others.

The introduction of this module allows you to visibly improve logistics processes in the company (automation of order registration, invoicing, debt collection, salary calculation, cost registration). Using this solution allows you to easily and quickly estimate the profitability of individual orders through full integration with telematics solutions, the user is able to control the rolling stock in real time.

Another, one of the most important modules is interLAN SPEED Dispatcher, supporting the work of people managing the company's rolling stock. The skillful use of own or contracted vehicles often determines the company's success and competitiveness compared to other entities on the market.

This solution allows you to plan, designate and supervise the vehicle's route using communication with a telematics system or mobile application. The most important functions include:

- transport planning (taking into account arrival distances, vehicle profile, driver's working time),
- determining the vehicle's route using an appropriate digital map,
- exchange of data and messages with telematics solutions,
- sending the order to the vehicle terminal,
- tracking order statuses,
- alerts, messages, analyses, etc.

The basic tasks of this module include supporting the process of vehicle planning for existing orders in real time. It helps minimize vehicle downtime and also minimizes empty runs. It enables interactive supervision over the course of a given transport, in particular deviations from the designated route that the vehicle should follow, as well as possible delays in the collection/delivery of goods, reported automatically to the customer. Such solutions allow us to maintain the appropriate quality of customer service. An additional advantage that allows us to carry out transport orders at the highest level is efficient and appropriate communication with the driver. The Dispatcher module allows for two-way exchange of information between the driver and the user ordering the trip, and there are also a number of reports containing the status of the order (arrival for loading, loading, departure from loading, driving, traffic jam, etc.). Full integration with other modules is the basis for automating work and reducing errors.

The third module, which is a tool for handling general cargo processes, is interLAN SPEED General cargo. It supports the handling of shipments in domestic and international traffic. Thanks to its flexible structure, it can be used both by logistics operators and groupage networks, as well as by transport and forwarding companies. The key functions of the General cargo module include:

- shipment handling,
- shipment planning,
- price list configuration,

- status management (at the levels of: shipments, route points, routes),
- handling the forwarding warehouse,
- integration with logistics platforms,
- multidimensional analyzes and reports, and much more.

The use of this module allows you to supervise shipments at every stage of the process. Starting with offers, through registration, route planning, line transport, distribution, picking, pallet settlement, invoicing. The module enables full automation of the logistics process, improves customer service through a number of improvements (eSPEED solutions), allows full control of the process (integration with the mSPEED module), and is characterized by high flexibility, which allows it to be adapted to most solutions available on the market.

In order to complement the tools to support management in the enterprise, the modules that additionally support the work of operational, managerial and management departments include:

- interLAN SPEED Distribution - supporting domestic and international logistics processes in the field of order and delivery planning,
- interLAN SPEED Sea and Air Forwarding - handling container cargo, sea and air forwarding,
- interLAN SPEED Map - used for proper planning of vehicle routes (calculation of distances divided into loaded and empty km, calculation of route costs, current road load status),
- interLAN SPEED OptiPlaner - supporting route and loading planning,
- interLAN SPEED eSPEED - a website portal for customers and carriers (offers contact with the customer in the area of orders, transport documents and invoices),
- interLAN SPEED mSPEED - offering mobile solutions in logistics processes (used for communication between system users),
- interLAN intraSTAT - used to create intraSTAT statistical declarations (registration of documents in export and import, control of data correctness),
- ineterLAN Customs system - supporting comprehensive customs procedures.

The possibility of introducing this type of implementation in a modular way allows for the introduction of innovative solutions to logistics entities in stages. This is very important due to the moderate disruption of ongoing processes related to the company's current operations.

Most solutions offered on the market for integrated business management support are characterized by a similar structure and architecture of the implemented solutions. However, before introducing a specific solution for your company, you should familiarize yourself with the offers of leading entities and adapt the system to the resulting needs. This should probably be preceded by a thorough analysis of the structure and operation of the company - the so-called zero audit. This will enable finding and implementing the best solution for a given logistics entity.

4. Practical application of the implemented solutions

Implementing an integrated management system into an enterprise is a complicated process. Taking into account the multi-layered nature of running a business, organizational systematization at all levels of the company requires a lot of work. One may ask what purpose such radical changes can serve? Do the introduced changes actually improve the activities of operational, strategic and management departments?

The question that needs to be answered is how companies operate without integrated management systems. If such solutions are not implemented in a given entity, all information becomes blurred. We do not have one reliable database, which means that the same information is often duplicated and, moreover, inconsistent. Attempts at reporting and analysis become difficult and the results obtained are ineffective.

The integrity of the implemented solutions allows the information once entered to be used many times by subsequent system modules. In INTERLAN's solutions, in the Forwarding and Transport module, we can find many 'sub-modules' that operate independently of each other, but share a common database. The FTL Order Processing 'sub-module' allows for comprehensive entry of all data related to the order of a given freight into the system. The order contains all the necessary information enabling the vehicle to carry out a given transport (place of loading and unloading, type of goods, its weight, quantity, type of packaging, etc.), as well as data regarding the person ordering the transport, the amount for which the transport is carried out and many other additional information. Once the information is entered, it is used by the remaining 'submodules' to their full extent. The order entered in this way, as long as it is repeated, can be freely copied (with only minor corrections - date of transport, quantity of goods, etc.). The order must be assigned to the appropriate vehicle in order to be executed. There are further implications resulting from the introduction of integrated solutions. With the SPEED Dispatcher module, we are able to match the appropriate rolling stock to our order in real time. The size of the goods should be taken into account - i.e. the weight of the load, height, type of necessary trailer structure, etc. Additionally, a given transport is usually carried out in a strict time regime, which means that we are forced to have all information regarding the working time of individual drivers. This is where ICT solutions come in handy, allowing you to geolocate the managed fleet and accurately show information on the working time of individual drivers. Such solutions allow for full optimization of matching a given load - order to the fleet we currently have, with particular emphasis on the current position of the vehicle in relation to the loading place, driver's working time, and broadly understood planning. The SPEED Dispatcher module also allows you to determine the vehicle's route. Determining the appropriate vehicle 'corridor', taking into account road tolls, is another element of work optimization. With appropriate telematics solutions, we are able to send the necessary information to terminals located in vehicles, thus informing drivers about the transport order

they are currently supposed to perform. All necessary information entered in the transport order can be sent to the driver (additional information in the form of comments, messages, restrictions may also appear there). The solutions used enable two-way communication, which greatly improves the flow of information, which is a very important element in this area. Fleet management also involves subcontractors who can perform individual orders for us. It is not a problem to properly manage the contract fleet using the solutions used.

Contemporary enterprises are confronted with a compelling necessity to enhance operational effectiveness and satisfy the escalating demands of consumers who anticipate highly customized offerings at affordable costs. To achieve this, organizations must decrease expenses, elevate efficiency through heightened integration, communication, and cooperation among business processes, necessitating the adoption of innovative solutions (Zembski, Ulewicz, 2020).

The introduction of solutions in the form of a dedicated integrated transport company management system brings the expected benefits. The introduction of the above-mentioned system allowed the company to move onto new tracks. It became possible to implement the company's strategy in the form of continuous increase in the fleet of its own vehicles. This effect allowed for an increase in market share and allowed for entering new markets. Despite the large increase in employee productivity, such dynamic development of the company contributed to the creation of new jobs. The entity became more resistant to changes in the environment. The increase in the quality of work resulted in increased customer satisfaction, and thus relationships became stronger. Appropriate employee productivity also means maintaining costs at an appropriate level, which carries with it a satisfactory level of competitiveness. The introduction of the solutions described above also allowed for a better perception of the company and an increase in its prestige. All the described elements contributed to an increase in profits. The integrated solutions introduced cause a broadly understood optimization at individual levels of the company. With reliable, simple, clear information, and information obtained in a short time, we are able to effectively plan the managed fleet, increase its quantity accordingly and speed up decision-making processes.

Answering the question - what is the purpose of such radical changes - it can be stated that integrated management systems allow for efficient unification of processes occurring in enterprises. Taking logistics entities under the microscope, and focusing on a transport company, it can be assumed that the lack of appropriate system solutions will generate chaotic situations and disorder. Going further, if we wanted to focus on the development of a given entity, and without such an assumption we cannot talk about conducting any activity at all, it will not be possible to achieve even a satisfactory status-quo without having an appropriate integrated management system.

5. Summary – discussion

Running a business is burdened with a number of restrictions, regulations and, above all, constant changes that occur in the broadly understood environment of a business entity. Meeting the challenges that arise during the course of running a business requires introducing innovations. Innovation processes are essential, and their implementation should be carefully thought out, planned, controlled and analyzed. It can be said that it would be necessary to apply a policy of implementing innovations in the company, which could allow for a comprehensive approach to the issues discussed (ct. Janasik et al., 2023).

Introducing new solutions, both in the area of technology and the organization of the company, is classified as innovative activities. The lack of thoughtful activities in this area may result in the entity, despite its best efforts, being unable to cope with the dynamic changes that occur in the market environment. One of the most important elements of every enterprise are IT solutions. Currently, the best approach is integrated ERP management systems. They allow for comprehensive management of the market entity. The modular nature of the implemented solutions is an important factor that allows for the introduction of innovative solutions for a given company (ct. Flint et al., 2005).

The strong development of the transport industry in Poland (an increase in the number of business entities, an increase in the number of transports carried out, an increase in tonne-kilometres) both on the domestic and international markets, caused primarily by the high quality of services provided and lower labor costs, has made Polish companies a market leader in Europe. Unfortunately, the introduction of administrative and legal barriers, as well as the activities of interest groups aimed at limiting access to the European transport market, can significantly inhibit the development of domestic entrepreneurs. Innovative activities can probably eliminate emerging external threats to the company. However, it should be stated that in addition to their intensification, a policy of implementing innovations in the company should be introduced. In addition to the development of the entity itself, this could properly direct this development, and thus put the company on the right track.

References

1. Barski, R., Bartosik, A., Byczko, S., Cieślik, J., Głodek, P., Guliński, J., Koszałka, J., Książek, E., Lityński, K., Matusiak, K., Nowakowska, A., Stawarz, E., Trzmielak, D., Turyńska, A. (2010). *System transferu i komercjalizacji wiedzy w Polsce - siły motoryczne i bariery*. Polska Agencja Rozwoju Przedsiębiorczości.
2. Białoń, L. (2010) Zręby teorii innowacji. In: *Zarządzanie działalnością innowacyjną*. Warszawa: Placet, pp. 11-49.
3. Burniewicz, J. (2010). Perspektywa innowacyjna transportu i logistyki. *Zeszyty Naukowe Uniwersytetu Szczecińskiego, nr 603, Ekonomiczne problemu usług, nr 59*, pp. 51-63.
4. Chapman, R.L., Soosay, C., Kandampully, J. (2003). Innovation in Logistic Services and the New Business Model A Conceptual Framework, *International Journal of Physical Distribution & Logistics Management, 33(7),* pp. 630-650.
5. Dolińska, M. (2010). *Innowacje w gospodarce opartej na wiedzy*. Warszawa: PWE.
6. Drucker, P.F. (1992). *Innowacja i przedsiębiorczość: praktyka i zasady*. Warszawa: PWE.
7. Duraj, J., Papiernik-Wojdera, M. (2010). *Przedsiębiorczość i innowacyjność*. Warszawa: Difin.
8. Dziekoński K., Chwiećko J. (2013). Innowacyjność przedsiębiorstw z branży TSL. *Ekonomia i Zarządzanie, vol. 5, no. 2*, pp. 176-193.
9. Flint, D.J., Larsson, E., Gammelgaard, B., Mentzer, J.T. (2005). Logistics Innovation: A Customer Value – Oriented Social Process. *Journal of Business Logistics, 26,* pp. 113-147.
10. Gajdos, M. (2001). *Wdrażanie systemu informatycznego na przykładzie Samorządowej Administracji Placówek Oświatowych w Starczy* (praca magisterska, maszynopis). Politechnika Częstochowska, Wydział Zarzadzania.
11. Gąsowska, K.M. (2018). *Logistyka a konkurencyjność przedsiębiorstwa*. Warszawa: Difin.
12. Gołembska, E. (red.) (2013). *Kompendium wiedzy o logistyce*. Warszawa-Poznań: PWN, pp. 17-39.
13. Grzybowska, B. (2012). *Innowacyjność przemysłu spożywczego w Polsce – ujęcie regionalne.* Olsztyn: Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego w Olsztynie.
14. https://www.interlan.pl, 1.10.2024.
15. https://www.soloplan.pl, 1.10.2024.
16. Janasik, M., Jagusiak-Kocik, M., Ulewicz, R. (2023). Barriers to Technology Transfer and Commercialization of Research Findings: Case Study. *Zeszyty Naukowe. Organizacja i Zarządzanie. Współczesne zarządzanie, 179.* Politechnika Śląska, pp. 163-180.
17. Janasz, W., Kozioł, K. (2007). *Determinanty działalności innowacyjnej przedsiębiorstw*. Warszawa: PWE.

18. Kisperska-Moroń D., Krzyżniak, S. (eds.) (2009). Uwarunkowania logistyki w łańcuchach dostaw. *Logistyka*. Poznań: Instytut Logistyki i Magazynowania, pp. 11-31.
19. Kordel, Z. (2019). *Polski transport samochodowy ładunków*. Warszawa: CeDeWu.
20. Neider, J. (2019). *Transport międzynarodowy*. Warszawa: PWE.
21. Pichlak, M. (2022). *Przywództwo a innowacyjność organizacji. Perspektywa teoretyczna i praktyczna*. Warszawa: Difin.
22. Raport CATI (2012). *Innowacyjność w transporcie do 2020 roku – podstawowe pojęcia i tezy (Skrót materiału analitycznego Fundacji Centrum Analiz Transportowych i Infrastrukturalnych)*.
23. Rogers, E.M. (2003). *Diffusion of Innovation*. New York: Free Press.
24. Schumpeter, J. (1960). *Teorie rozwoju gospodarczego*. Warszawa: PWN.
25. Transport przyszłości – Raport o perspektywach rozwoju transportu drogowego w Polsce w latach 2020-2030, https://tlp.org.pl/wp-content/uploads/2019/09/pwc-transport-przyszlosci-web.pdf, 1.10.2024.
26. Zagożdżon, B. (2010). Innowacyjność usług logistycznych a konkurencyjność przedsiębiorstw na rynku TSL. *Zeszyty Naukowe Uniwersytetu Szczecińskiego, Problemy Transportu i Logistyki, nr 12*, pp. 305-316.
27. Zembski, S., Ulewicz, R. (2020). Usefulness of Problem Based Learning in Preparing Engineers for Industry 4.0: Literature Review. *Conference Quality Production Improvement - CQPI, vol. 2, no. 1*. Sciendo, pp. 117-130.