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PROCESS AND ORGANIZATIONAL INNOVATIONS IN TRAVEL COMPANIES - IDEA OF THE PROJECT

Introduction

The ability of continuous exploration, implementation and dissemination of innovations which have acceptance among customers - plays a special role now.[1] In literature definitions describing the phenomenon of innovation are generally understood as the introduction of something new or improving in some area. It may be specific activities and processes, ideas and concepts, customs and norms of behavior in different areas or situations of economic and social life.[2]

The publication describes the scope of process and organizational innovations introduced in travel companies. It examines the extent of organizational innovation and process innovations with respect to the provision of services. It also describes the goals of transportation and one of the innovative solutions used in the surveyed companies. The project "The Effective transfer of knowledge from science to industry in Opole Province" was conducted within "Priority VIII Regional human resources, Measures 8.2 Transfer of knowledge, Submeasures 8.2.1 Support for cooperation between science and business" of the Human Capital Operational Programme, and co-funded by the European Union through the European Social Fund.

The aim of this publication was to present the idea of the project "The Effective transfer of knowledge from science to industry in Opole Province". To

[1] H. Bieniok, *Innowacje jako wartość organizacji oraz kluczowy instrument radzenia sobie na rynku z ryzykiem i niepewnością*, [Innovation as the value of the organization and a key instrument to deal with the market risk and uncertainty] [in:] K. Jędralska (red.), *Współczesne kierunki rozwoju nauk o zarządzaniu,* [Modern trends of management sciences] Górnośląska Wyższa Szkoła Handlowa, Katowice 2007, p. 204.

[2] Duraj J., Papiernik-Wojdera M., *Przedsiębiorczość i innowacyjność*, [Entrepreneurship and innovation], Wyd. Difin, Warszawa 2010, p. 61.

verify this objective, theoretical research tools were used, such as: analysis, synthesis, generalizations, comparisons.

The project „The effective transfer of knowledge from science to industry Opole Province" was initiated in 2014 under the guidance of Opole Province's Marshal Office. The partners of the project included the Opole University of Technology and Opole University, with the international partnership assumed by the University of Mannheim. The project consisted of three stages. At the first stage, 20 employees and 100 companies per university were selected among the higher educational institutions of Opole. Simultaneously, the University of Mannheim conducted an analysis of the regional system of innovation and knowledge transfer in Opole Province, and examined the cases of best practices of the systems of knowledge and innovation transfer that have proven internationally successful. During the second stage of the project, the selected university employees collaborated with the companies to put forward the proposals of innovative solutions. The third stage marked completion of the project, and comprised evaluation of the collected data and generation of final reports, along with the summary report.[3]

The process of innovation by Oslo Manual

The process innovations, otherwise known as technological innovations, are defined in the Oslo Manual, (...) as innovations within the process. They relate to the implementation of a new or significantly improved method of production or provision.[4] This category includes important changes relating to technology, hardware and/or software. It may also involve changing the organization of production methods, as well as the ways in which a given product reaches the consumers. These methods may entail introducing changes to the hardware or to the organization of production; they may also combine these two types of changes, or be the result of the use of new knowledge. They may aim to produce or provide new or improved products that could not be otherwise produced or provided using conventional methods. Finally, these methods may also strive to increase the efficiency of production or provision of existing products.[5] The aim of reorganization of transportation services and

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[3] Ruffer N. (et al.), *Raport Instytutu Badań nad Małymi i Średnimi Przedsiębiorstwami UM do projektu „Efektywny transfer wiedzy z nauki do przemysłu w województwie opolskim"*, [The report of the Institute for Small and Middle Enterprises UM project "Effective transfer of knowledge from science to industry in the province of Opole"], AR TOP, Opole 2015, pp. 18-19.

[4] *Podręcznik Oslo. Zasady gromadzenia i interpretacji danych dotyczących innowacji.* [The Oslo Manual. Rules for the collection and interpretation of data on innovation], Wspólna publikacja OECD i Eurostatu, Organizacja Współpracy Gospodarczej i Rozwoju Urząd Statystyczny Wspólnot Europejskich. Ministerstwo Nauki i Szkolnictwa Wyższego, Departament Strategii i Rozwoju Nauki – wydanie polskie, Warszawa 2008, p. 51.

[5] http://www.rsi.org.pl/index.php/pl/I--31,27.html: 05/04/2015

improvement of their safety in travel companies is primarily served by process and organizational innovations. Innovations within processes can have the objective of reducing unit costs of production or provision, improving quality, producing or providing new or significantly improved products.[6]

An example of a new delivery method is the introduction of the system for controlling the movement of goods, based on barcodes or RFID (radio-frequency identification of goods). Delivery methods concern company logistics and include hardware, software and techniques used to acquire the means of production, allocation of resources within the company or delivery of end products. Process innovations include new or significantly improved methods for the creation and provision of services. They can rely on significant changes in the hardware and software used in service companies or on the procedures or techniques used to provide services. Examples include: introducing GPS-based tracking devices in transportation services, implementing a new reservation system in a travel agency, or devising new techniques of project management in a consulting firm. Process innovations also cover new or significantly improved techniques, hardware and software in ancillary activities such as procurement, accounting, IT support and maintenance works.[7] Implementation of new or significantly improved information and communication technologies constitutes an innovation within the process as long as its goal is to increase the efficiency and/or quality of an ancillary activity.[8]

In the Oslo Manual organizational innovation is interpreted as the implementation of a new organizational method in business practices adopted by the company, in workplace organization or in external relations. Their goal may be to achieve better results by reducing administrative costs or transaction costs, raising the level of job satisfaction (and thus labor productivity), gaining access to assets that are not subject to trade (such as non-codified external knowledge) or reducing costs of delivery.[9] A distinguishing feature of organizational innovation, as compared to other organizational changes within the company, is the use of such organizational method (in the adopted business practices, in workplace organization or in external relations) that has yet to be used in the company and that stems from strategic decisions made by its management. Organizational innovations in business practices involve implementing new methods of organization of routine activities and procedures governing the work of the company. This includes, e.g., implementation of new practical rules for

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[6] *Oslo Manual..., op.cit.,* p.51.

[7] Kucińska-Landwójtowicz A., *Podejście procesowe w zarządzaniu innowacjami*, [Process approach in innovation management] [w:] R. Knosala (red.), *Innowacje w zarządzaniu i inżynierii produkcji*, [Innovation in management and production engineering] Oficyna Wydawnicza PTZP, Opole 2013, p.p. 181-189.

[8] *Oslo Manual..., op.cit.,* p. 51-52.

[9] *Oslo Manual..., op.cit.,* p. 53.

better learning and knowledge-sharing within the company. This may be exemplified by first implementation of practical rules for knowledge codification, e.g. a database of best practices, lessons learnt and other types of knowledge so that others can have easy access to the database. Another example is first implementation of practical rules for the development of employees and improvement of staff's retention index, e.g. through education and training systems. Yet another example would be first introduction of the systems managing the process of production or delivery, e.g. supply chain management, as well as a thorough transformation of business processes, or systems of "lean" production and quality management systems.[10]

Innovations in workplace organization involve implementing new methods of task distribution and decision-making among employees to make the division of labor within departments and between departments (and organizational units). This type of innovation also comprises the implementation of new concepts for the structuring of activities, such as integration of different types of company activities. An example of organizational innovation in the field of workplace organization is first implementation of an organizational model that offers employees more autonomy in decision-making and encourages them to communicate their ideas. This can be achieved through decentralization of group activity and management control, or establishment of formal or informal working groups within which the responsibilities of individual employees will be defined more flexibly. Organizational innovations may also involve the centralization of activity and increase of responsibility for making decisions. An example of organizational innovation in the field of structuring company activity is, e.g., fist-time introduction of on-demand production systems. Another example is integration of sales and production, or integration of construction-and-development works with production.[11]

Organizational methods in the field of external relations involve the implementation of new ways of organizing relations with other companies or public institutions, such as establishment of a new type of cooperation with research institutes or with customers, new methods of integration with suppliers, as well as first outsourcing or subcontracting the elements of activity such as production, supply, distribution, recruiting and ancillary services. Organizational innovations are not those changes introduced in the adopted business practices, workplace organization or external relations that are based on organizational methods used by the company on a previous occasion.[12] Neither is innovation

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[10] *Oslo Manual..., op.cit.,* p. 53.

[11] *Oslo Manual..., op.cit.,* p. 54.

[12] Szewczyk M., Widera K., *Innowacyjność przedsiębiorstw warunkiem rozwoju*, [The innovation of enterprises precondition for the development], Ekonomika i Organizacja Przedsiębiorstwa 12/2011, No. 12 (743), pp. 41-48.

a mere formulation of a management strategy. On the other hand, the organizational changes implemented in response to a new management strategy constitute an innovation as long as this is the first time this new organizational method has been implemented in the field of business practices, workplace organization or external relations. For instance: introduction of a written strategic document to be used as a way to improve the efficiency of the use of knowledge in the company is not an innovation per se. Innovation, meanwhile, occurs when this strategy is implemented through the use of new software or rules of information documentation in order to stimulate the exchange of knowledge between different departments of the company. Merging with other companies and business acquisitions are not considered organizational innovations, even if the company merges or makes an acquisition for the first time. Mergers and acquisitions, however, may involve organizational innovations if the company decides to develop or introduce new methods of organization as part of the process.[13]

In terms of the reorganization of services and improvement of their safety in travel companies, the provisions of the Oslo Manual on innovation in the services sector also apply.[14] The importance of innovation in the services sector and the contribution of this sector to economic growth has been enjoying increasing recognition, which consequently prompted a series of research studies conducted on innovation in services (de Jong et al., 2003; Hauknes, 1998; Howells et al., 2004; Miles, 2005). The services sector is diverse, and Howells and Tether distinguish four groups of services: services relating primarily to products/goods (e.g. transportation and logistics), services relating to information (e.g. telephone customer service centers, known simply as call centers), knowledge-based services, and services concerning people (e.g. healthcare) (Howells et al., 2004). Although this diversity should be taken into account, there are general features which are relevant to most services, the key of them being that the distinction between products and processes is often imprecise due to the fact that production and consumption occur simultaneously. In the case of services, the creation of processes may be less formalized than in the case of products, where the initial phase consists of searching, collecting ideas and assessing their commercial value, and is followed by the implementation phase.

Innovation-related activity in the services sector often resembles a continuous process and comprises a series of incremental changes within

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[13] *Oslo Manual..., op.cit.,* p. 54-55.

[14] Howells, J.R.L. Tether B.S, *Innovation in Services: Issues at Stake and Trends – A Report for the European Commission.* INNO-Studies 2001: Lot 3 (ENTR-C/2001), Brussels 2004; de Jong J.P.J., Bruins A., Dolfsma W., Meijaard J., *Innovation in Services Firms Explored: What, How and Why?* EIM Report, Zoetermeer 2003; Hauknes, J., *Services in Innovation. Innovation in Services.* SI4S Final Report, STEP Group, Oslo, 1998.

products and processes. This can sometimes hinder recognition of innovation in the services sector in terms of individual events, i.e. implementation of a significant change in products, processes or other methods.[15]

The transportation in the national economy

Transportation is an activity that involves movement, by means of transport, of various kinds of freight and persons. It is the part of the world economy and it determines its sustainable growth. It plays a crucial role in it because it accompanies every economic and social activity, which makes it essential for the proper functioning of an efficient economic system. Transportation is vital to the economy as it cannot be replaced by other activities or processes. There is no substitute for this activity, and therefore the relationship between transportation and economy is that of feedback and mutual interdependence.

Analyzing the importance of transportation, it is worth mentioning that it favors both the economic and socio-cultural activation. This is especially important to underdeveloped areas. Communication also strives to maintain social and public order. It enables and facilitates equity of cultural level and intensity of the socio-political life of the population. Transportation is also involved in the development of science and technology, and has a significant impact on equalizing their levels with respect to a given country and the world. Transportation mainly facilitates contacts between people and assumes a significant role in the development of tourism, the reasons why it is so important both economically and socially. When choosing a specific carrier, required to physically move entrusted freight, persons or goods, one usually considers things such as: economic conditions of the service, shipping time, technical conditions of transportation, punctuality and reliability of delivery, safety of transported freight, service comprehensiveness, flexibility of the carrier in case of order changes.

Working towards increased efficiency of the transportation process, its costs and fulfillment of transportation orders are first analyzed. With the availability of costs, one strives mostly to reduce these costs. The main factor influencing this are charges associated with the use of fuel. Significant are the optimal conditions for fuel acquisition and reduction of its use. The last few years have seen a continuous increase in fuel prices, which is why transportation companies prioritize minimizing its consumption through implementation of various technical and technological solutions. A similar situation concerns road fees which are more often applicable on national roads and abroad. All this forces transportation companies to increase their consideration of using IT systems and satellite navigation in their business.

[15] *Oslo Manual..., op.cit.,* p. 40.

The objectives of using the GPS • Operation of the companies before and after using the GPS

The satellite navigation system has a very wide range of operation. However, its is most obviously and most commonly used is the transportation management. On the market, there is a number of outsourcing companies sharing with businesses the data coming from the navigation system through browser web pages. This enables, among other things, tracking the vehicle's position in real time and recreating its route. It is equally important to have the opportunity to maintain a database of vehicles which greatly improves the management of the company.[16]

The Global Positioning System, or GPS, can be classified as a fundamental IT system used in transportation companies. It not only allows one to position objects, but also supports the process of control and monitoring of the vehicle fleet. Its use reduces operating costs of the company by providing rapid and accurate information on objects' location. An employee coordinating the operation of the system is able to quickly notify the drivers of the fastest and safest route. The system has a decisive influence on the improvement of the efficiency of route-planning thanks to regularly updated maps and system data. Being aware, e.g., of traffic obstructions, one can include this data already during the process of route-planning, which will in turn significantly reduce transportation costs. The system also helps the drivers demonstrate more discipline due to the fact they are being continuously monitored. Apart from that, this continuous control contributes to eliminating violations and hence accelerates the handling of transportation orders.[17]

Definitely a great advantage of the system is the possibility of using it in emergencies, such as car accidents, where it allows for quick tracking of the vehicle and therefore facilitating rescue operation. The system may find a similar application in a crisis situation, such as the vehicle being subject to

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[16] Ciesielski M., Długosz J., (ed.), *Strategie łańcuchów dostaw*, [Strategies for supply chains] Wydawnictwo PWE, Warszawa, 2010, p. 135.

[17] Kulińska E., Rut J., Stosz D., *Improvement in functionality of logistic processes and effectiveness of applied solutions in a chosen public road transport enterprise*, Elsevier, Procedia - Social and Behavioral Sciences Vol. 151, Amsterdam - Boston - London - New York - Oxford - Paris - Philadelphia - San Diego - St Louis, 2014; Kulińska E., Rut J., *System Inter LAN SPEED jako narzędzie usprawniające funkcjonowanie przedsiębiorstw transportowych*, [The Interlan SPEED as a tool for improving the operation of transport companies], Logistyka, Logistyka Nauka 4/2014; Kulińska E., *Pipeline transportation of solid materials – prospects*, China-USA Business Review, volume 13, ISSN 1537-1514, DOI: 10.17265/1537-1514/2014.08.003, August 2014.

assault. The person controlling the fleet will be then able to track the vehicle which will greatly improve the effectiveness of police action.[18]

The satellite navigation system enables to register the vehicle parameters. It displays the speed at which the car is moving, its route and its engine load. The GPS offers benefits not only for the company, but also for the drivers due to the fact that modern technology comes with information on parking space and available gas stations. The positioning system allows for precise determination of the term of transport operation data. This information allows, in turn, for best use of company resources, i.e. drivers or vehicles.[19]

In order for a satellite system to work properly, the signal must be transferred to the receiver immediately and be transmitted from the appropriate number of satellites. For the signal to be transmitted free of noise, one must locate the receivers in open space with good visibility of the sky. Interference to signals occurs when the sky is obscured, e.g. by trees in the forest or tall buildings in the city. Errors in satellite systems occur when transmitted signals bounce off the metal surface. Nowadays, satellite signals are not reliable when the receivers are located in closed spaces, which usually results in the signal being either very weak or distorted.

Similarly to any other device, GPS's are also prone to measurement errors. Such errors can be the consequence of natural or technical causes. The most common causes of error occurrence in satellite system positioning are:

- *Delay of the satellite signal passing through the ionosphere*.[20]
- *Delay of the satellite signal passing through the troposphere*..[21]
- *Multipath signals*.
- *Satellite clock error*.[22]
- *Ephemeris error*.[23]
- *Geometric factor*.[24]
- *Ignorance of geophysical phenomena models*.

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[18] Brzeziński M., *Logistyka w przedsiębiorstwie*, [Logistics in company], Dom Wydawniczy Bellona, Warszawa, 2006, p. 206.

[19] Mindur M. (red.), *Logistyka. Infrastruktura techniczna na świecie*, [Logistics. Technical infrastructure in the world], Wydawnictwo Instytutu Technologii Eksploatacji, Radom, 2012, pp. 555-558.

[20] Januszewski J., *Systemy satelitarne GPS*, [Satellite systems GPS], Galileo i inne. Wydawnictwo naukowe PWN, Warszawa , 2007, p. 73.

[21] Frączyk P., Figurski M., Modliński G., Rzepecka Z., Tyranowska A., http://www.navi.pl/gps/artykuly/podstawy/podstawy.html: 10.12.2014.

[22] Lamparski J., *Navstar GPS od teorii do praktyki*, [Navstar GPS from theory to practice], Wydawnictwo Uniwersytetu Warmińsko - Mazurskiego, Olsztyn, 2001, pp. 426-427.

[23] Lamparski J., *Navstar..., op.cit.*, pp. 426-427.

[24] Januszewski J., *Systemy satelitarne GPS*, [Satellite systems GPS], Galileo i inne. Wydawnictwo naukowe PWN, Warszawa , 2007, p. 74.

- *Errors resulting from satellite disruptions*.

The reason for the emergence of positioning errors is also the receiver itself. Oftentimes, the device generates noise disrupting proper reception of signals transmitted from satellites.[25] There is plenty of reasons for the occurrence of technical errors associated with positioning: they may also be caused by the use of inaccurate software or by mistakes made by the employees of ground-based navigation systems. The most common method that helps remove most positioning errors is called DGPS (differential global positioning system). It comprises a reference station functioning in a specific location, as well as calculating and transmitting by radio appropriate enhancements that are to be applied to the previous GPS measurements.[26]

The research in this field was conducted based on a group of companies providing transportation services. Among the surveyed companies, selected were those that were considered the most representative in terms of discussing the research topic – *Opawy* and *Eurotramping*.

Opawy is a company that has been operating on the Polish tour operator market since 1995. The company specializes in organizing trips to the Czech Republic, Slovakia and Italy. Over a period of a few years, Opawy established close relationship with tour operators and accommodation facilities in these countries, allowing the company to offer a wide range of events and services on, arguably, the most favorable conditions in Poland. Their offer, which is being constantly expanded, includes several domestic and foreign trips.

The second of the analyzed businesses is a travel company *Eurotramping* that has been successfully organizing overseas trips for children and young people for over 20 years. A total of 375,000 people have so far participated in foreign trips and school camps organized by the company. A number of major foreign contractors emphasizes repeatedly that Eurotramping is the leader of school tourism in Poland.

Before using the GPS for tracking vehicle fleets, company managers had to plan routes in advance. Such operation of the travel companies was underdeveloped in terms of logistics, which why the managers – in a feat to improve the quality of services and create a better working environment for all employees - decided to start using satellite navigation systems in order to track their vehicles.

The companies participating in the research expanded their infrastructure and started using the GPS linked with GSM for a number of reasons. GPS makes it possible to track an object virtually anywhere on Earth,

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[25] Frączyk P., Figurski M., Modliński G., Rzepecka Z., Tyranowska A., http://www.navi.pl/gps/artykuly/podstawy/podstawy.html: 10.12.2014.

[26] Lamparski J., *Navstar GPS od teorii do praktyki*, [Navstar GPS from theory to practice], Wydawnictwo Uniwersytetu Warmińsko - Mazurskiego, Olsztyn, 2001, pp. 428.

while the GSM is responsible for transmitting information from the vehicle to the company. The companies that took part in the research started to use the system through outsourcing, with the information being made available to them via websites. The system, to which the companies have access, offers a lot of useful options. Upon logging in to the appropriate site, a coordinator has access to a map which displays the current location of the company's coaches.

By implementing a GPS-based monitoring system, each of the companies had to invest 500 PLN, which covered the cost of locating devices and their installation in vehicles. The q2 mobile locating devices occupy the lower part of the engine, out of reach for the driver. They are also small, which is another advantage of this system. The device does not in any way affect vehicle performance, and its discreet location allows for quick removal in case of e.g. theft. Apart from all this, these devices are durable and have a long working time. By using the GPS-based vehicle monitoring system, the companies not only can monitor the performance of their employees, but at the same time also make their job a lot easier. Knowing the position of the vehicle, the employee coordinating the route is able to quickly notify the driver of a safe place to take a break during the drive. Important information that can be conveyed to employees by the owner is, e.g., the nearest gas station. It is a common occurrence for a car to warn the driver about fuel shortage – this is when time is especially of the essence. Receipt by the driver, via mobile phone, information about the nearest station reduces the time of its search and makes the drive stress-free since the driver knows they have enough fuel to reach the nearest gas station. The GPS became also a solution to the problems of additional costs - the company also gained financial benefits arising from smaller fuel charges.

The GPS used by the offices not only helps in devising new routes, but also contributes to continuous improvement of the existing work of the drivers.

Conclusion

The presented material was connected with presentation of the idea of the project "The effective transfer of knowledge from science to industry in Opole Province."

Analysis of the process and organizational innovation implemented in travel companies and the basic goals of transportation and its importance in the national economy was carried out to indicate the background for the presentation of practical example. Indicated research - after analyzing the data retrieved from Eurotramping and Opawy - can be seen that, thanks to the GPS, both companies boosted their profitability. In addition to the profits arising from fuel charges, the savings also included telephone conversations with drivers as well as road tools and bridge-crossing charges. Furthermore, the profits also apply to labor costs of employees. Comparing the working hours of drivers before and after using the

system, it can be observed that one driver spent nearly 10 hours less to cover the same route. Faster delivery allows for fulfillment of more orders and, in turn, generates additional income.

The solution has brought certain benefits in the form of shorter working hours of drivers, so the reorganization of operations in the surveyed companies using the system GPS-Global Positioning System - has been recognized as an example of good practice.

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INNOWACJE PROCESOWE I ORGANIZACYJNE W BIURACH PODRÓŻY - ZAŁOŻENIA PROJEKTU

Streszczenie

Celem publikacji było przedstawienie założeń projektu "Skuteczny transfer wiedzy z nauki do przemysłu w województwie opolskim". Zaprezentowany materiał jest próbą analizy zakresu innowacji procesowych i organizacyjnych wprowadzanych w branży turystycznej badanego województwa oraz ogólnych celów transportu i jego znaczenia w gospodarce narodowej. Omówiono także cele stosowania systemu GPS - Global Positioning System. Zastosowane narzędzia badawcze to analiza, synteza, uogólnienia, porównania.

Słowa kluczowe: rozwój przedsiębiorczości, innowacje, projekty badawcze, Podręcznik Oslo, turystyka

Summary

The aim of the publication is to present the idea of the project *"The effective transfer of knowledge from science to industry in Opole Province."* The presented material is an attempt to analyze process and organizational innovation introduced in travel companies and the general goals of transportation and its importance in the national economy. The goals of application of the system GPS - Global Positioning System - were also discussed. To verify this objective, theoretical research tools were used, such as: analysis, synthesis, generalizations, comparisons.

Keywords: development of entrepreneurship (business development), innovations, research projects, Oslo Manual, tourism

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