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## OPPORTUNITY CREATED BY INNOVATION – A CASE STUDY IN THE RAIL INDUSTRY SECTOR

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The article discusses issues related to agile enterprise management, in particular, the aspects related to the opportunities resulting from the implementation of various types of innovations. The main aim of the article was to present the innovations implemented by a selected company in the railroad sector to determine their impact on the possibility of opportunity creation. An in-depth analysis of the literature related to theoretical issues was presented, as well as a description of specific scientific cases for which the implementation of innovations resulted in the emergence of opportunities, which led to different types of enterprise profits. In order to achieve the main goal, it was necessary to present the functioning of a selected railway construction company over several years showing revenues and profits. It was important to indicate innovations in individual years and their impact on the company's operations, and in particular on the emergence of opportunities. As part of the case study, a subjective scale was developed to assess the level of innovation. In this way, the aspect of creating opportunities was related to the innovations implemented, which translated into profits for the company. In addition to the above, the limitations and further directions of research are comprehensively described. The most important conclusion of the work is that it confirms the creation of opportunities resulting from investing in innovative solutions in enterprise management.

**Keywords:** opportunity, innovations, agile enterprise, rail industry

### 1. INTRODUCTION

In times of uncertainty and turbulence, the ability to cultivate entrepreneurial skills that create opportunities and withstand market volatility has become increasingly vital. The literature offers extensive scientific research that, through a comprehensive

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literature review (Taimour, Trzcielinski, 2021), provides a cohesive framework and re-defines the term entrepreneurship. In recent years, numerous publications have emerged, with some researchers noting that entrepreneurship has a positive impact on the economy and job creation (Perlines, Ariza-Montes, Blanco-González-Tejero, 2022; Trzcieliński, 2011). Alfalih (2022) investigates the relationship between sustainable entrepreneurship and social innovation, demonstrating a strong correlation. Joseph Schumpeter is widely regarded as the pioneer of a new approach to capitalist business. He contended that the driving force behind the capitalist movement comes from the creation of new consumer goods, innovative production methods, transportation, markets, and organizational structures developed by entrepreneurial enterprises (Shumpeter, 2008). Entrepreneurship encompasses a wide range of aspects, including individual and collective entrepreneurship across various organizations, and the notion that entrepreneurship is limited to small businesses is an unwarranted oversimplification of the concept, as it is also present in larger enterprises (Sudoł, 2008).

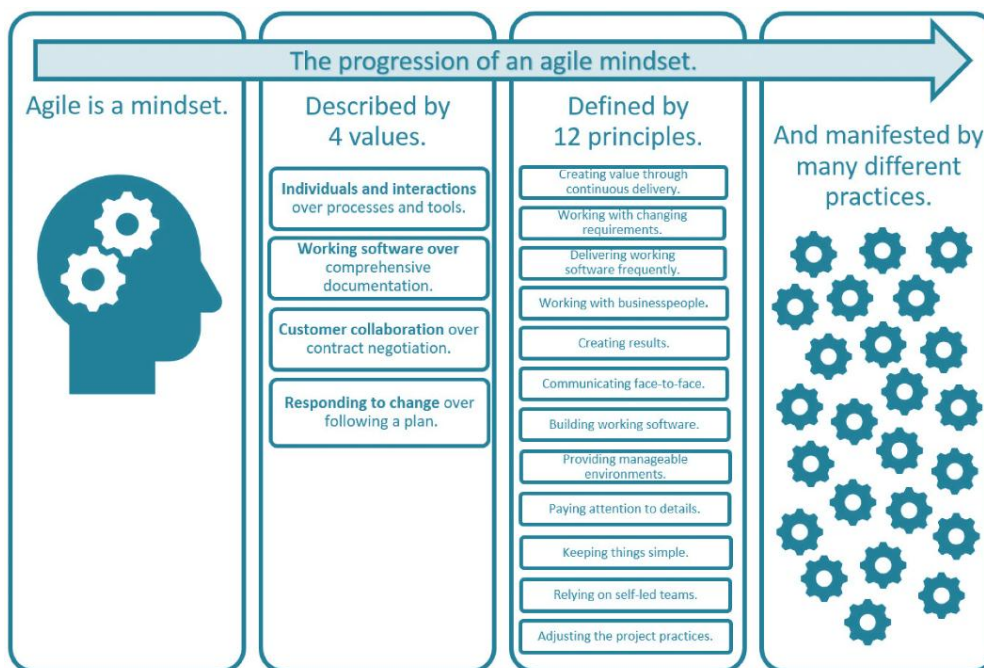


Fig. 1. The main conception of agile mindset (Ragas, Ragas, 2021)

In 2001, a group of 17 software developers and project managers convened at a ski resort in Snowbird, Utah, to explore the emerging concept of “lightweight” software development, which was characterized by greater adaptability and flexibility compared to traditional approaches (Ragas, Ragas, 2021). The group sought to

distill the factors contributing to their successful projects, ultimately agreeing to the term “Agile” to describe their shared practices, and forming the informal “agile alliance”. The outcome of this meeting was the creation of the influential Agile Manifesto, which provided general guidelines for managing software development projects through four shared values and 12 supporting principles as shown in Fig. 1 (Ragas, Ragas, 2021). This seminal document continues to serve as a foundational resource for leaders of Agile projects to this day.

The aim of this article is to show the innovations implemented by a selected company in the railroad sector to determine their impact on the possibility of opportunity creation. To achieve the main goal, it was necessary to present the most important activities and functioning of a selected company in the railway industry and develop a subjective assessment scale. Above all, to introduce agile management in practice in the rail industry sector, where entrepreneurial opportunities have been created by the implementation of innovations.

## 2. THEORETICAL ASSUMPTIONS

### 2.1. Entrepreneurial opportunities

Opportunity recognition is closely related to entrepreneurship, which occurs when a business entity notices and acts accordingly, which simply means, it recognizes and exploits an opportunity for profit (Eckhardt, Shane, 2003; Trzcieliński, 2011; Venkataraman, 1997). What unites the various aspects of entrepreneurship is the concept of opportunity. For many years now, opportunity recognition in the field of entrepreneurship has been an important topic of consideration. As early as 1985, studies indicated that identifying and selecting opportunities for new businesses are among the most important skills of a successful entrepreneur (Stevenson, Roberts, Grousbeck, 1985).

More than two decades ago, Shane and Venkataraman (2000) described the process of identifying, evaluating, and exploiting opportunities as one of the three main directions in the development of entrepreneurship research. Moreover, they explicitly point out that they are a fundamental element of the entrepreneurial process, and their definition is: “situations in which new goods, services, materials, organizational methods can be introduced and sold more expensively than the cost of their production”. They stated that opportunity recognition refers to a person’s ability to identify new markets and develop products and/or services to fill market gaps. The paper defines entrepreneurial opportunities as situations in which new goods, services, raw materials and organizing methods can be introduced and sold at a higher price than their cost of production. This definition focuses on finding ways to create value by discovering business opportunities and exploiting them. A different approach is presented in the work of (Kirzner, 1973), where it is considered that entrepreneurial



opportunities arise from market uncertainty and lack of full knowledge of available opportunities. The author believes that discovering entrepreneurial opportunities is not about solving well-specified maximization problems, but about perceiving the means-ends framework and using free resources to create value. This means that entrepreneurs must perceive different opportunities and use free resources to create value. In summary, Shane and Venkataraman focus on studying how people recognize entrepreneurial opportunities and make decisions to take advantage of them. Kirzner, on the other hand, focuses on studying the processes of discovering entrepreneurial opportunities under conditions of uncertainty and lack of complete market knowledge. Both methodological methods are described in more detail by Klein (2008).

Opportunity itself is currently defined in many ways in the literature. Davidsson (2015) compares the definitions of the concepts of entrepreneurial opportunity, which are detailed in Table 1.

Table 1. Examples of definitions of “entrepreneurial opportunities”

No.	Definition examples list based on Davidsson (2015)	Additional comment by Davidsson (2015)
1.	Situations in which new goods, services, raw materials, and organizing processes can be introduced and sold at greater than their cost of production (...) Entrepreneurial opportunities (...) require the discovery of new means-ends relationships.	Opportunity is external, objective, and pre-exists discovery (but is unequally accessible to different actors). The definition implies inherent favourability; for-profit; innovation, and a “user pays” revenue model.
2.	A set of environmental conditions that lead to the introduction of one or more new products or services in the marketplace by an entrepreneur or by an entrepreneurial team through either an existing venture or a newly created one.	Similar to (1). Explicitly broadens actor and organizational context. Note the deterministic “lead”.
3.	Opportunity exists when there are competitive imperfections in product or factor markets.	Seemingly similar to (1), but a “creation opportunity” is the end product, not the starting point, of the entrepreneur's actions. Markets and opportunities are social constructions.
4.	The chance for an individual (or a team) to offer some new value to society, often by introducing innovative and novel products or services by creating a nascent firm. These opportunities contain the possibility for economic gain as well as the possibility for financial loss for the entrepreneur(s) pursuing the idea.	The definition illustrates ambiguity/indecision as regards external/objective (“chance...to offer” vs. “idea”); innovativeness and organizational context (“often” x and y), and inherent favourability (“chance...value” vs. “gain...loss”).
5.	An idea or dream that is discovered or created by an entrepreneurial entity and that is revealed through analysis over time to be potentially lucrative.	Illustrates ambiguity/indecision as regards what an opportunity is (create/ discover a dream?), especially across time. Increasing objectivity and (known) favourability over time is implied.



Table 1 – cont.

No.	Definition examples list based on Davidsson (2015)	Additional comment by Davidsson (2015)
6.	The chance to introduce innovative (rather than imitative) goods, services, or processes to an industry or economic market-place.	Appears to refer to external conditions; explicitly limited to innovative endeavours.
7.	An idea for an innovation that may have value after further investment.	Also restricted to innovative endeavours, but clearly referring to subjective ideas.
8.	Projected courses of action to introduce (and profit from) new and/or improved supply–demand combinations that seek to address market failure problems.	Action path focus; requires a degree of innovation; introduces intentionality as regards profit and addressing market failure.
9.	A future situation that is both desirable and feasible, regardless of the resources currently under the control of the entrepreneur.	Taken literally, opportunity is neither a current situation nor an idea, but a future situation. Note that favourability (“feasible”) is known.
10.	The progress (idea + action) along a continuum ranging from an initial insight to a fully shaped idea about starting and operating a business.	Focus on subjective ideas (like 8) but also includes action. The evolving, process nature is emphasized even more than in (5, 8).
12.	Perceived as positive situations that are controllable (...) must represent a desirable future state, involving growth or at least change; and the individual must believe it is possible to reach that state.	Similar to (9) but emphasizes controllability. Illustrates ambiguity or indecision as regards objective/subjective and current/future.

Source: Davidsson, 2015.

Table 1 contains various definitions of the term “opportunity” related to entrepreneurship. All definitions focus on opportunities to make a profit or introduce new products or services to the market. Opportunities are usually external and inherent in the innovation process and involve a degree of risk and uncertainty. The definitions emphasize the importance of subjective ideas and actions, as well as the ambiguity regarding the nature of the opportunity and the timing of their implementation. An important element is also the ability to control the situation and the belief in the possibility of achieving the desired state.

## 2.2. Innovation – a good influence on entrepreneurship

Contemporary organizations are faced with a rapidly changing environment characterized by volatility, uncertainty, complexity, and ambiguity (VUCA) (Akbari, Omrane, Hoseinzadeh, Nikookar, 2022). To stay competitive, they are compelled to constantly seek new solutions that guarantee competitive advantage (Szutowski,



Ratajczak, 2016). In this context, innovation is considered one of the most important factors contributing to business success in dynamic markets and VUCA environments.

Innovation is a process that involves developing new ideas, gaining knowledge and/or technology, and transforming them into new products or services. The new output is then offered to customers to expand markets and increase profits (Francis, Mani, Sharma, Wu, 2021). Moreover, it comes in different forms, including product, market, process, or social innovation.

There are plenty of different definitions or research approaches to characterize the innovation in the business field. First of all, it can be divided into the two groups: managerial and organizational. For Drucker (1985), innovation is equal to changes which create possibilities to gain a new level of achievement. Thompson (1965) used the following definition “the creation, acceptance, and application of new ideas, products, processes, and services”. Furthermore, Damanpour and Gopalakrishnan (2001) describe innovation as “the acceptance of any new idea or behavior related to a product, service, system, policy, and performance plan” of any entrepreneurship. The last but not least definition was described by Camisón-Zornoza et al. (2004) as “the novelty of the idea that will in turn improve the organizational performance”.

From the other side, there is an organizational point of view, where innovation can be seen as the utilization of fresh concepts and ideas which pertains to the effective integration and application of imaginative notions within an enterprise Amabile et al. (1996). Innovation involves the implementation of novel tactics, administrative techniques, and promotional selections within organizations which is often connected to encompass the creation, execution, and novel amalgamation of resources (Akbari et al., 2022). Furthermore, it is also referred to as a new organizational approach in the business methods of a company, workplace arrangement, or external associations (Jiménez-Jiménez, Sanz-Valle, 2011). There are various studies that confirm the above definitions in a real industry field, which will be comprehensively demonstrated in the next section.

### **3. AGILE ENTERPRISES – THE ANALYSIS OF PRACTICAL EXAMPLES**

In this section of the article, we provide practical examples of companies where the implementation of some innovation created new entrepreneurial opportunities. These opportunities are strongly connected and correlated with making different kinds of profits which is well-described in several other scientific dissertations (Trzcieliński, 2006; Trzcieliński, 2011; Trzcieliński, Włodarkiewicz-Klimek, Pawłowski, 2013).



The article (Yiu, Cheung, 2023) explains how to teach innovation using the case study method in real estate education. This method motivates students to acquire new knowledge to establish new practices and theories in innovative applications, such as FinTech, and in real estate. The paper emphasizes that innovation is the key to success in PropTech. Recently, large corporations have tried piloting co-creation projects with start-ups to stimulate innovation. From the students' case studies, it was found that co-creation is more effective in innovation because start-ups have more flexibility to respond to change and can more easily suffer the consequences of failure. In contrast, monolithic organizations are more organized and resistant to change and avoid risk because the same failure could damage their brand and customer trust.

The article (Nunes, Russo, 2019) describes a study of business model innovation in medium and large Brazilian manufacturing companies located in the state of Rio do Sul. The objective of the study was to understand how companies can change their business models to achieve competitiveness and adapt to changing market conditions. The study included a holistic multiple case study of five companies. The case studies conducted show that companies that successfully innovate their business models are characterized by greater competitiveness and better ability to adapt to changing market conditions. Collaboration between departments within organizations and external partners has been shown to be crucial for effective innovation in business models.

Wasdani (2012) conducted an empirical study, analyzing data from 132 small and medium-sized enterprises in India presenting statistical results. Correlations were shown between opportunity recognition skills, paths to entrepreneurship, and types of innovation. It should be noted that the correlations indicate the existence of relationships, but not necessarily causality. The authors employed factor analysis to identify three key factors in business opportunity recognition skills. The first factor, systematic analysis, exhibited a significant negative correlation with radical innovation. This implies that developing radical innovations requires breaking away from existing patterns of thought and utilizing divergent, rather than convergent, thinking which is characterized by systematic analysis. Radical innovation is the result of holistic and intuitive thinking. The second factor, alertness (vigilance), demonstrated a significant positive correlation with marketing innovation. This suggests that entrepreneurs must be constantly vigilant and receptive to changes and market signals to be innovative in marketing. Lastly, the third factor, implementation, showed a significant positive correlation with innovation in border management. This implies that the implementation of new business opportunities requires the cooperation from external entities that provide the necessary resources for such implementations.

Wang, Ellinger, Wu (2013) the authors conducted an empirical study on a sample of 258 R&D employees working in various companies. The authors used various statistical methods to examine the relationship between independent variables and the ability to identify business opportunities. The results of the study indicated that R&D personnel in companies can play an important role in identifying business opportunities that lead to the development of innovative products or services. The main



factors – technical knowledge, creativity, communication skills, and relationships in the industry – can affect the ability to identify business opportunities. In addition, companies should pay special attention to R&D personnel and create the right working environment that would encourage them to identify new business opportunities. Various tools and strategies can be used to do this, such as training, mentoring, developing networks, and investing in R&D. The need to consider the diversity of perspectives and experiences of R&D employees was also pointed out, which can help better utilize their knowledge and skills in the process of identifying business opportunities.

A questionnaire (including 250 managers operating in all production companies of the Rasht Industrial Complex) conducted by Akbari et al. (2022) confirms that innovation has a positive and significant moderate effect on the social and economic dimensions of corporate social responsibility. Other researchers gained similar results (Cegarra-Navarro, Reverte, Gómez-Melero, Wensley, 2016; Fauzi, Idris, 2010; Nelling, Webb, 2009). Furthermore, these results have shown that the economic and social dimensions of corporate social responsibility mediate the relationship between innovation and performance (Akbari et al., 2022).

Research (Blażlak, 2016) shows that only 42.6% of enterprises (of the 110 tested) with a prepared strategy plan resources for innovation. Employee training, implemented by 24.6% of those surveyed, is an important element affecting innovation. The innovation process requires special mechanisms, such as recognizing the needs of customers and competitors, promoting creativity among employees, planning and selecting ideas, and using tools. Only 16.4% of companies reward ideas put into production, and almost 20% do not allow employees to contribute new ideas. The development of a new product determines the cost and features of the final product, and the time required varies by industry.

In the paper by Audretsch (2007), the author argues that innovative entrepreneurship is key to creating new business opportunities and contributes to economic growth and competitiveness. The article also examines the determinants of innovative entrepreneurship and public policies that can support innovation and entrepreneurship. Although the article does not directly present numerical relationships, it offers valuable insights into the concept of “innovative entrepreneurship” and analyzes the determinants of innovative entrepreneurship and public policies that can support innovation and entrepreneurship. The following are determinants of innovative entrepreneurship:

- knowledge and human capital: Having a skilled, creative, and well-educated workforce is the key to generating innovation and promoting entrepreneurship,
- technology infrastructure: Access to technology infrastructure, such as research laboratories, technology parks, or incubators, can support the development of innovation and entrepreneurship,
- networking and cooperation: Collaboration between companies, research institutions, universities, and others can lead to the exchange of knowledge, resources, and ideas, which, in turn, can support innovative entrepreneurship,





- financing and investment: Access to capital, both in the form of private and public investment, is essential for the development of innovation and entrepreneurship.

The article (Audretsch, 2007) is theoretical and conceptual and focuses on understanding the links between innovation, entrepreneurship, and technological change. However, it provides a valuable perspective for those seeking new business opportunities, as understanding these connections can lead to the discovery of new market opportunities.

The article (Tylzanowski, 2015) presents innovation as a key factor for the development of modern enterprises. The author suggests using the concept of open innovation in the enterprise, which allows the use of external sources of innovation, such as business partners, customers, or researchers. They provide (in addition to survival in the market) an increase in the value of the enterprise by increasing profits, reducing costs, and improving the company's image. It is suggested that innovation should be treated as a creative process, not just an outcome. In this context, the priority should be given to employee creativity, which should be developed and supported by companies.

Research (Borowiec, 2015) showed that 45% (579 responses were studied) of small and medium enterprises in Poland that won tenders acted innovatively in 2013. Entrepreneurs with a university or high school education made up the majority (93%). Innovation growth in SME companies participating in tenders was highest in the “one-two innovation” category. Only 3% of the companies surveyed sold their innovations to public institutions. The biggest barriers were the criterion of lowest price and the amount of risk associated with innovation. The results of the survey suggest that innovation activity influences the financial performance of SMEs, and many companies include pro-innovation strategies. The goal of innovation activity was usually to improve the quality of the product and increase turnover, and a small percentage of companies cooperated with R&D units.

The paper by Zahoor et al. (2022) discusses the importance of dynamic capabilities and strategic agility for B2B high-tech small and medium-sized enterprises (SMEs) during the COVID-19 pandemic, based on case studies from Finland. The study conducted case studies of five such companies and found that companies with these capabilities were able to survive and thrive during the pandemic by seizing new opportunities, increasing their digitization capabilities, and accessing new markets and customers. SMEs that responded to the pandemic often switched to remote work, reduced expenses, and participated in international activities. The study highlights the role of dynamic capabilities in the survival and success of B2B SMEs, particularly scenario planning. The study is specific to Finland's high-tech sector, which is mostly composed of small and medium-sized enterprises.

As demonstrated in the case of Galileusz (Żychlewicz, 2014), a company that continuously analyzes the market and responds to its needs, tracking new technologies available on the market and implementing them into its economic activity when necessary, with the ability to adapt to global market changes and fulfill the demands of



a socially responsible enterprise – the above are characteristics of an innovative enterprise. In addition, Galileusz expands its business beyond the local market by developing franchises.

In summary, innovation is a primary source of competitive advantage for enterprises and its essence lies in the psychological characteristics of individuals or groups that express a positive attitude towards novelty, their ability to assimilate new ideas, and even their ability to create them (Trzecieliński, 2011). Based on the theoretical assumptions and literature research it can be concluded that there are very few examples of the industry showing the implemented innovations to determine their impact on the possibility of opportunity creation. Moreover, authors found no scientific articles on this subject which are about railroad building enterprises. This aspect could be a valuable fill in the research gap.

## **4. THE CASE OF A COMPANY THAT USES INNOVATION TO CREATE OPPORTUNITIES**

### **4.1. Scope of activity**

The company started its activity in 1989 under the name REM-TOR. Currently, it operates under the name “Przedsiębiorstwo REMTOR Sp. z o.o.”. In order to meet the requirements of the market, current and future business partners, the Management Board of the Company decided in 2004 to implement the Quality Management System and confirm its compliance with the ISO 9001:2000 standard, issued by a recognized certification body. The mission of REMTOR sp. z o.o. is to provide the best technical solutions in the railway industry throughout Poland in the area of rail infrastructure construction. The vision of REMTOR sp. z o.o. is to create an organization that will include the implementation of large railway construction projects. The scope of activity is to meet European standards and create competition in Europe. The company has a vision of acquiring in the future the best professionals with specialized qualifications who will allow us to carry out any task related to the construction of railway infrastructure.

REMTOR Sp. z o.o. offers construction, repairs, ongoing maintenance and maintenance of railway stations, lines and sidings, construction and repairs of tram tracks and turnouts, construction of streets, roads, and squares, construction of sanitary and rainwater sewage systems. Examples of the implementation of maintenance and construction work performed by the company are shown in Fig. 2.





Fig. 2. Examples of the implementation of maintenance and construction work (Portfolio of Remtor sp. z o.o., 2023)

At the request of investors, it develops construction and executive designs for ongoing investments along with obtaining the relevant permits. The company performs periodic inspections of the technical condition of railway sidings. The company offers services in the field of welding rails with termite in tracks, turnouts, and crossings using dry, prefabricated forms. Welding applies to rails type 60E1 (UIC60) and 49E1 (S49). Another service offered is the regeneration of railway superstructure elements using the electric arc surfacing method.

## 4.2. Opportunity created by innovation

This section presents an analysis of historical data on REMTOR's revenues and profits, along with its innovation activities. Fig. 3 shows historical data on company revenues and profits with the designation of significant innovation activities along with a subjective quantitative evaluation of these innovations.

Until 2009, the company provided services in line with the assumptions consistent with the beginning of the business since 1989, namely the construction and maintenance of track infrastructure on railroad sidings. The beginning of the innovative activity is considered to be the increase in the team's competence and responsibility of the team in management engineering obtained in the studies.

When analyzing individual innovative activities of the company and their impact on financial performance, the following relationships can be observed. In 2010, there

was an increase in the team's competence through the completion of a first degree in management studies (Fig. 3a). In this year, the media reports and forecasts of the rail infrastructure manager (PKP PLK SA) in Poland indicated that spending on track modernization is expected to increase to about PLN 6 billion per year in 2011-2014, a third more than was planned for 2010. As a result, the company planned to intensify its activities on the bidding market, increasing its chances of achieving the outsourced services included in its bids.

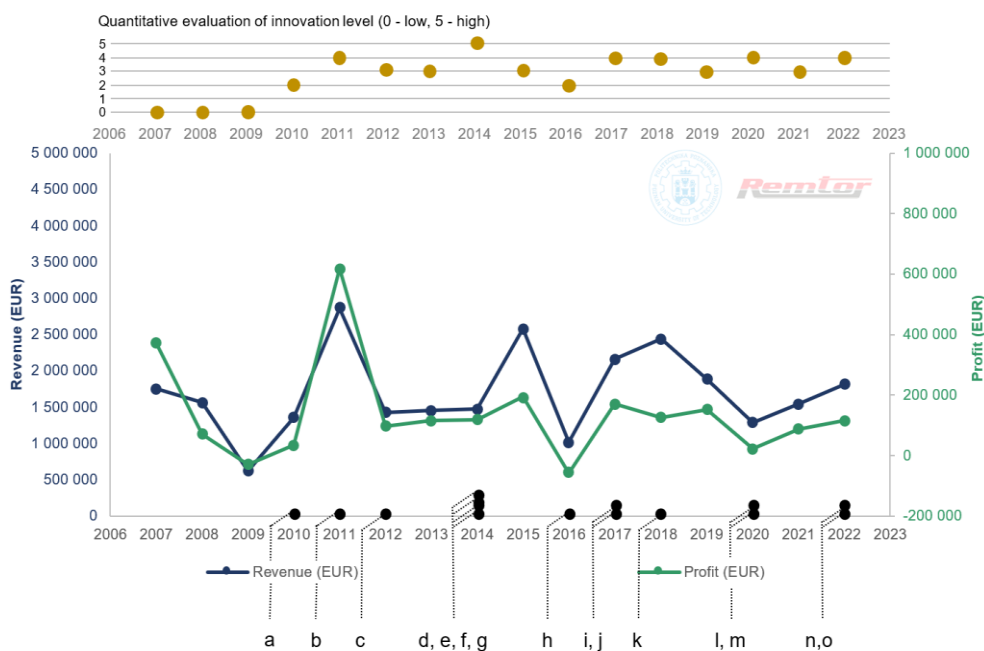


Fig. 3. Historical data of the company's revenues and profits with the designation of significant innovation activities (a-o) along with a subjective quantitative assessment (yellow dots)

In 2011 the company achieved a significant increase in revenue to €2,862,253.69, and profit rose to €617,896.50 (Fig. 3b). The reason for this was a contract for the construction of a cargo container terminal and the implementation of outsourcing of terminal engineering design and rail traffic control (*RTC*) services. The use of outsourcing services helped a company increase its chances of winning a tender by reducing costs, providing access to specialists, greater flexibility, focusing on key areas and saving time. In 2012, the company decided to implement an innovative technology for thermite welding and turnout arc surfacing (Fig. 3c), which was related to the implementation of preparations to obtain ISO certification for new services. Until 2014, the company handled standard orders. In the same year, the company obtained ISO certification (Fig. 3d) and began implementing a new service (Fig. 3e). In addition,

a grant was obtained for the purchase of a construction machine, excavator (Fig. 3g). These activities have contributed to an increase in competitiveness, which translated into an increase in revenue to €1,472,748.42 and profit to €118,745,92. These measures allowed the company to enter the market with a new service, accelerated construction work, win more offers, and increase competitiveness, which affected profits in the following years. In the same year, the team again expanded its expertise in the field of management engineering, gaining a master's degree (Fig. 3h). In 2016, the company's revenues fell dramatically, which is directly related to the economic changes in Poland, which have significantly hampered the development of infrastructure in the rail industry (least profits in the period analyzed). In addition, in this year, an increase in the team's competence was observed by gaining the rail transport studies in the second-degree Poznan University of Technology (PUT) programme (Fig. 3h).

In 2017, innovations were implemented for the editing and workflow of internal company documents (including tenders) using cloud file storage services (Fig. 3i). This allowed the team to access documentation from any device connected to the Internet. It also allowed files to be shared with others and be synchronized between different devices, so that the latest version of a file can be accessed anytime and anywhere. In the same year, a road-rail excavator with a wagon was purchased (Fig. 3j). As a result of these activities, further increases were recorded in the construction market, which led to an increase in revenue of € 2,165,158.34 and profit of € 17,513,533.60. In 2018, a new leveler was purchased (Fig. 3k), which allowed faster measurements and fewer people to operate, which, along with active participation in tenders, contributed to a further increase in revenue to €2,443,364,79.

In 2020, despite the COVID-19 pandemic, the company used an innovative management approach: an agile enterprise (Fig. 3l) with online consultation and technical dialogues (Fig. 3m). This allowed the company to reduce losses and maintain a profit of €23,320,31. Details of the company's operations during the COVID19 pandemic are described in more detail in the article by Chróst (2020). Finally, in 2022, the long-term effect of implementing in 2014 innovation (the thermite welding and arc surfacing of turnouts) allows them to win a training contract for Alstom (Fig. 3n). This shows that in 2014 the company was open to making changes and looking for ways to improve the quality of its services or products. Adopting this approach required flexibility and the ability to anticipate future customer needs. Winning a tender for training in this service for the renowned Alstom company in 2022 demonstrates that the company has continued on its innovative path and has been able to successfully leverage its previous experience to grow its business. Furthermore, the decision has been made to start implementing measures in the direction of zero-emission of the company (Fig. 3o).

With the measures described above in mind, a quantitative innovation evaluation was carried out on a scale of 0 to 5, where 5 represents the highest subjective level of innovation. Between 2007 and 2009, the company focused on the construction and maintenance of the track infrastructure without any clear innovation, therefore,



the lack of any level of innovation was determined. In 2010, this level was established at 2 due to the acquisition of additional personnel competencies in management engineering. However, starting in 2011, the company began to make changes in its strategy, such as the implementation of outsourcing in RTC and engineering design, a contract for the construction of a cargo container terminal, and innovative welding technologies. The level of innovation for these activities was rated 4.

In the following years, 2012-2013, the company continued to develop on previously introduced innovations, completing the necessary documentation for ISO certification. Although the company introduced new technologies, this did not translate into financial results, hence the innovation level was assessed at 3. For 2014, the innovation level was established at 5. The increase in team competence, the obtaining of ISO certification, the acquisition of financing for construction machinery, and the implementation of thermo-weld and turnout arc surfacing technology were the main reasons of that. In the following year (2015), the company continued its development based on previously introduced innovations but did not introduce any new significant changes, which was rated 3. In 2016, the reduction in the number of investments in Poland affected the company's performance, but innovation remained at 3 according to the increase in the team's competence (the rail transport studies on the PUT master's degree). This education has mainly allowed the company to better understand the operation of the railroad system, to develop technical competence and to analyze trends and innovations in railway industry. It follows trends and innovations in this field. In 2017-2018, the level of innovation was established at 4 by introducing innovations in cloud-based workflows and purchasing new machinery and equipment, which helped streamline internal processes and increase work efficiency. The year 2019 was evaluated as 3, as the company continued to build on previously introduced innovations without making significant changes. Despite the COVID-19 pandemic in 2020, the company took an innovative approach to management and online negotiations, reducing losses, which was rated 4. In the following year (2021), the company maintained the level of innovation of the previous year, but without making significant new changes, which was rated 3. In 2022, the long-term effect of implementing innovations and moving toward zero emissions indicates that the company maintained its innovation, which was rated 4.

The assessment of the level of innovation in each year can be subjective, but based on the information presented, it can be seen that the company is taking various measures to increase innovation and adapt to changing market conditions. It is also worth noting that some years are more innovative than others, which may be due to various factors, such as the economic situation, market competition, or the company's investment opportunities. However, the key to success is long-term thinking and continuing to innovate to remain competitive and increase financial performance.



## 5. THEORETICAL IMPLICATIONS

The case study of a railroad company can contribute to the knowledge of innovation implementation in the railroad sector, confirms theories on the adaptability of organizations and their ability to survive in a dynamic environment, and fits into the theory of organizational agility. The case study can also help to better understand the impact of innovation introduction on the company's financial performance, enriching theories on innovation with a socioecological perspective, and developing theoretical areas of records management and communication. The impact of investments in employee competence development on innovation, agile mindset in business management, the link between innovation and macroeconomic conditions, and the role of external collaboration or outsourcing are other aspects that can expand theories on the impact of innovation on organizations.

Based on the case study of the railway company and its innovations, a number of theoretical implications can be made, which have the potential to expand knowledge in the fields of innovation, organizational management and the impact of the environment on business development. The main theoretical implication of the presented work that may be valuable to science is how the authors developed the subjective scale as an assessment tool. It seems to be not so complicated, however, this approach resolves and indicates certain key relationships. Furthermore, it shows the way the relations between main company variables were identified over the past few years. The study of this case can inspire further research on the introduction of innovation in various industries and the identification of factors that foster the creation of innovative enterprises.

### 5.1. Practical implications

The examination of the railway company underscores the importance of being adaptable to market fluctuations, investing in the development of employee skills, fostering organizational nimbleness, cultivating a reputation for responsible business practices, and adopting novel technologies and innovations as key success factors. Other important aspects include long-term vision and strategy, incorporating innovation in document management, allocating resources to advanced tools and equipment, and understanding the influence of innovation on a company's financial health. Embracing innovations in a timely manner can lead to increased competitiveness, improved market alignment, and resilience during challenging times, such as the COVID-19 pandemic or a downturn in investments in Poland.

Based on the aforementioned analysis, businesses should aim to innovate across product and service offerings, as well as within their organizational and managerial structures. The persistent pursuit of new solutions and an ability to adapt to evolving market circumstances are crucial to maintaining long-term success and competitive



advantage in the marketplace. The practical insights shared in this article can act as a foundation for further investigation into the role of innovation in fostering growth across various industry sectors, as well as identifying factors that encourage and enable innovative practices and opportunities.

## 5.2. Limitations and future research

The analysis presented in the study focuses on the single case of a railroad company, which limits the generalizability of the results to other organizations. Future studies could include a larger number of companies from the railroad sector and other industries to obtain more representative results. The study lacks a long-term perspective, which may limit a full understanding of the impact innovation on the organization. Furthermore, the study relies mainly on a description of the company's operations and financial data, which limits the ability to use advanced statistical methods. Subjective assessments of innovation can also affect the reliability of the results. Furthermore, the case study analysis is on a company operating in Poland, which may limit the applicability of the results to other cultural and institutional contexts. Finally, the study does not consider the role of leaders and organizational structures in the innovation process, which may limit a full understanding of the mechanisms that foster innovation. Future research should take these aspects into account to gain a deeper understanding of the relationship between innovation and corporate performance.

## 6. SUMMARY AND CONCLUSIONS

The paper presents an in-depth analysis of the relationship between innovation and opportunity creation within the context of a selected railway construction company. The author emphasizes the importance of adaptability to market fluctuations, investment in employee skill development, organizational nimbleness, responsible business practices, and the adoption of novel technologies and innovations as key success factors. The author also highlights the significance of long-term vision and strategy, incorporation of innovation in document management, resource allocation to advanced tools and equipment, and understanding the influence of innovation on a company's financial health. The study concludes that embracing innovations in a timely manner can lead to increased competitiveness, improved market alignment, and resilience during challenging times. The practical insights shared in this article can act as a foundation for further investigation into the role of innovation in fostering growth across various industry sectors, as well as identifying factors that encourage and enable innovative practices and opportunities.





In the surveyed company, the implemented innovation expanded the company's service offer and enabled the creation of an opportunity associated with a new service consisting of training in the previously implemented technology. The following are conclusions that confirm the link between innovation and opportunity:

- innovation supports the process of creating opportunities through the company's actions in a reactive and proactive way. In the analyzed company, the management acted reactively, recognizing the possibility of implementing a new service to meet the needs of customers,
- innovation doesn't have to be groundbreaking – it doesn't have to create new customer or service needs; the key element is the implementation of a new product or service for a given organization,
- innovation can be implemented to a small extent in the company, enabling the long-term discovery of a previously unknown opportunity and its exploitation,
- creating opportunities by innovating service companies can have a long-life cycle, and the concerned company has recognized and seized opportunities after eight years,
- the innovation process is supported by the psychological abilities of the company's management and managers, who are open to new calls and make decisions related to a change about which they are not certain and at the moment are not able to predict its effects (opportunities),
- the process of creating opportunities through the implementation of innovation can increase the agility of the company and increase the ability to reconfigure enterprise resources,
- the company has shown cleverness, intelligence and cunning in recognizing and seizing the opportunity that has arisen,
- the opportunity arose as a result of an external situation: a shortage of qualified staff in Saudi Arabia and the construction of six metro lines in Riyadh.

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## OKAZJA JAKO POCHODNA INNOWACJI – STUDIUM PRZYPADKU PRZEDSIĘBIORSTWA SEKTORA KOLEJOWEGO

### Streszczenie

W artykule omówiono zagadnienia związane ze sprawnym zarządzaniem przedsiębiorstwem, w szczególności aspekty związane z okazjami wynikającymi z wdrażania różnego rodzaju innowacji. Głównym celem artykułu było przedstawienie innowacji wdrożonych przez wybrane przedsiębiorstwo z branży kolejowej w celu określenia ich wpływu na możliwość prokurowania okazji. Przedstawiono dogłębną analizę literatury związanej z zagadnieniami teoretycznymi, a także opis konkretnych przypadków, dla których wdrożenie innowacji skutkowało pojawieniem się okazji, które doprowadziły do różnego rodzaju zysków przedsiębiorstwa. W pracy przedstawiono funkcjonowanie wybranego przedsiębiorstwa budownictwa kolejowego na przestrzeni kilku lat, pokazując jego przychody i zyski. Istotne było wskazanie innowacji w poszczególnych latach i ich wpływu na działalność przedsiębiorstwa, a zwłaszcza na pojawianie się okazji. Na podstawie studium przypadku opracowano subiektywną skalę oceny poziomu innowacyjności. W ten sposób aspekt tworzenia okazji został odniesiony do wdrożonych innowacji, które przełożyły się na zyski w firmie. Oprócz tego kompleksowo opisano ograniczenia i dalsze kierunki badań. Najważniejszym wnioskiem płynącym z pracy jest potwierdzenie, że kreowanie okazji wynika z inwestowania w innowacyjne rozwiązania w zarządzaniu przedsiębiorstwem.

**Słowa kluczowe:** innowacje, okazja, przedsiębiorstwo zwinne, przemysł kolejowy

