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# TRANSPORT AND COMMUNICATIONS

*Scientific journal*

## TRANSPORT AND COMMUNICATIONS

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# Factors and Principles of Corporate Sustainable Development

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**Abstract** The article aims to the identification of internal and external factors that have an impact on the integration of sustainable development into the company's strategy and the identification of the principles of sustainable development. Part of the contribution is primary marketing research, which is focused on the perception of sustainable business development by consumers, the identification of the most important pillar of sustainability and the impact of sustainable business development on the perception of corporate identity by consumers.

**Keywords** sustainable development, corporate strategy, principles of sustainable development, customers

**JEL** Q01, Q56

## 1. Introduction

Sustainable development represents the concept of social development respecting the balance of three pillars - economic, social, and environmental. His model was created in response to scientific findings that the current development of society is not realistically sustainable in the future. However, the transition from old forms of development, based on extensive economic growth, to sustainable development entails a whole series of changes and measures, the implementation of which seems to be a very difficult task. It is a problem requiring long-term and worldwide attention, which, precisely because of its global dimension, required the discussion of related issues at the transnational level. As a result of international discussions, it has become a ubiquitous term since the beginning of the nineties. [1]

The concepts of sustainability and sustainable development are becoming more and more important. As environmental and resource scarcity issues continue to come to the fore, there is growing pressure to integrate sustainability into all aspects of our lives and achieve sustainable development. Integration is supported not only by the voluntary behavior of companies, but also by pressure from regulators, states, and other interested parties. Businesses themselves and other organizations also contribute to the promotion of sustainability, which are trying to use the growing popularity of this concept to their advantage and thereby gain a competitive advantage, even if in some cases it is just the use of a popular word without real activities in this area. Although the original idea of sustainability, or of sustainable development used almost exclusively in connection with the environment and natural resources, nowadays the word sustainability is used in a wide range of fields and activities. The implementation

of sustainable development is becoming an increasingly solid part of corporate strategies. Businesses should not focus only on profit, their strategy should include economic, environmental, and social aspects, so that the ethical, rational and sustainable execution of all processes and activities of the business is ensured. In their development, the concepts were adapted to the current requirements of a complex global environment, but the basic principles and goals, as well as the problems of their implementation, remained almost unchanged. [2][3]

## 2. Theoretical background

Sustainable development is built on three basic pillars. It is important that companies do not focus only on selected pillars, but that they perceive all three pillars as equal. The implementation of the pillars at the core of the corporate strategy is important not only from the point of view of the integrity of the business, but it can also lead to a strengthening of the relationship with customers, an increase in performance, a strengthening of the supply chain or an increase in the value of the enterprise. Business sustainability can be explained as the process of managing an organization concerning to various aspects, e.g. economic, social, and environmental. [4] In 1999, United Nations Secretary-General Kofi Annan launched the world's largest corporate sustainability initiative, known as the UN Global Compact, to encourage businesses worldwide to align their strategies and operations with universal human rights principles, work, the environment, and the fight against corruption and have taken steps that support social goals. Business sustainability gained considerable attention after the global crisis of 2007–2009, being seen to

ensure the long-term sustainability of public companies and their accountability to various stakeholders. [4][5]

The most widely used definition of business sustainability is essentially an adaptation of the definition of sustainable development to business. The International Institute for Sustainable Development (IISD) defines business sustainability "as the adoption of business strategies and activities that meet the needs of the business and its stakeholders today while protecting the maintenance and enhancement of human and natural resources that will be needed in the future." Dyllick and Hockerts argue that the needs to be met relate to direct and indirect stakeholders and express the principle of the future in terms of the needs of future stakeholders rather than only in terms of natural resources. Nita and Stefea describe business sustainability "as a business strategy that drives the long-term growth and profitability of a business by mandating the inclusion of environmental and social issues in the business model." A sustainable business can be defined as "an ethical and authentic entity that develops appropriate structures and plans, so that it can achieve its goals defined on the economic, environmental and social level and thus ensure its rationally growth." [6]

Business sustainability is a multidisciplinary function of accounting, economics, ethics, finance, management, marketing, law, and supply chain management, among others, with a strong focus on improving economic viability, ethical behavior, ecological health, management measures, and social justice. It can bring benefits in terms of risk management, cost savings, access to capital, customer relations, human resource management and innovation capacity. It also facilitates the involvement of stakeholders in the field of sustainable growth and risk management in building trust in the company and together with shareholders by increasing the efficient allocation of capital to achieve long-term investment goals. Business sustainability is also considered the ethical conduct of business activities with effective corporate governance to ensure the continuous operation and continuity of the business. [5][7]

Implementation of the concept of sustainable development into the company's strategy should be a complex process. Enterprises can draw inspiration from existing approaches of enterprises that have achieved sustainable development or theoretical approaches of various authors. However, the problem may be the insufficient complexity of these approaches or the indisposition of generally recognized principles of sustainable development. Agenda 2030 was created to promote sustainable development and integrate economic, social, and environmental aspects. The agenda contains seventeen sustainable development goals and 169 sub-goals. The agenda was created under the auspices of the United Nations, which also created the UN Global Compact initiative, which unites more than 13,000 businesses in supporting the integration of sustainable development and the concept of socially responsible business into corporate strategies. The goals of sustainable development and its pillars are closely related. When fulfilling the 2030 Agenda, it is important that not only states, but also all interested parties, including businesses, are involved. [8][9]

In connection with the implementation of new concepts and changing the goals of companies, it is also necessary to focus on the creation of new business models. One of the most popular tools for creating and designing business models is the Business model canvas. The problem is that this instrument is originally focused mainly on economic aspects, thus the condition that the economic, environmental, and social pillars are perceived equally is not met. The Canvas model extends the so-called Triple Layer Business Model Canvas that includes social and environmental layers. The extended model has a clearly defined structure, with all three layers of the extended model consisting of nine parts. Some companies have already implemented sustainable development goals in their strategy or have created their own sustainable development strategy. For example, PepsiCo created the Pep+ strategy, Banco de Brasil created Agenda 2030 BB. Businesses focus, for example, on reducing emissions and resource consumption, increasing the use of renewable energy sources, promoting diversity and inclusion, protecting biodiversity, promoting fair remuneration or supporting affected communities. [10][11][12]

### 3. Methodology

The paper aims to identify the principles of sustainable development and internal and external factors that influence the integration of sustainable development into the company's strategy. Part of the contribution is the evaluation of primary marketing research aimed at the sustainable development of the company from the point of view of consumers. The implementation of primary marketing research was aimed at finding out Slovak consumers' awareness of sustainable development and the impact of sustainable development on consumers' perception of the company's identity. Primary marketing research was carried out on a sample of adult respondents, that is, aged 18 and over. The questionnaire was shared via the social network Facebook. The calculated sample size was 385 respondents.

The following formula was used to calculate the sample of respondents:

$$n \geq \frac{N * t_{1-\frac{\alpha}{2}}^2 * \sigma^2}{(N - 1) * \Delta^2 + t_{1-\frac{\alpha}{2}}^2 * \sigma^2}$$

where  $n$  = minimum sample size;  $t_{1-\alpha/2}$  = critical value determined from tables;  $\sigma^2$  = variance;  $\Delta$  = maximum permissible margin of error;  $N$  = size of base file.

The questionnaire was successfully completed by 388 respondents. The research problem, objectives, assumptions, and questions are shown in the following table. Research problem – Perception of sustainable development by Slovak consumers.

**Table 1.** Research objectives

Research objectives	Research assumptions	Research questions
RO1: To find out the perception of sustainable activities of companies by consumers.	RA1: Respondents perceived the implementation of electric cars the most.	RQ1: If you know a business that has implemented any of the trends listed, please mark the trend:
RO2: To find out whether the sustainable development of the company affects the perception of the company's identity.	RA2: The perception of the company's identity would be positively influenced by no more than 30% of respondents.	RQ2: Would the perception of the business identity be affected if you knew the business was sustainable?
RO3: Find out which pillar of sustainable development is most important to consumers.	RA3: For consumers, the environmental pillar of sustainable development is the most important.	RQ3: The implementation of sustainable activities is the most important for you in:

## 4. Results

The basic pillars of sustainable development consist of the concept of TBL. In addition to the pillars, it would be appropriate to assign its basic principles to sustainable development. However, the problem is that the basic principles of sustainable development have not yet been officially formulated, or there is no universally valid description of them. Therefore, part of the contribution is an effort to formulate the basic principles of sustainable business development. Twenty principles of sustainable development were identified based on the information obtained, the analysis carried out and the information sources used. The principles of sustainable business development below should be a guide for the business community to adapt their business models by more systematically incorporating the challenges of sustainable development into the core of their strategy.

- Equal focus on the economic, social, and environmental pillars of sustainable development. [1][6][13][14][15][16]
- KPI implementations for the measurability of implemented activities. [4][8][14][15]
- Reporting on the company's activities and transparency in sharing implemented steps, activities, and plans. [4][6][17][18]
- Placing sustainable development at the core of the company's strategy. [8][16][18][19][20]
- Involvement of interested parties. [20][22][23]

- Perception of prosperity in the long term. [4][6][22]
- Responsible handling of all resources. [6][22][23]
- Minimizing the negative impacts of the company's activities on its surroundings. [7][22]
- Implementation of activities with a positive impact on stakeholders and the company's surroundings beyond the scope of applicable legislation. [4][6][24]
- Compliance with ethical standards. [19][25]
- Fair-trade business practices. [26][27][28]
- Striving for the highest possible level of provided services or products. [29]
- Fostering mutually beneficial relationships with stakeholders. [4][19][21]
- Strive for return on investment and protection of company assets. [20][24][25]
- Increasing efficiency. [7][20][21]
- Integration of innovations. [20][22]
- The principle of equal opportunities. [16][18][19][23]
- Implementation of circular economy principles. [18][23][26][28]
- Integration of ESG criteria. [26]
- Precautionary principle. [28]

The principles of sustainable development can be considered as principles that companies should meet in the comprehensive integration of sustainable development in the company. Among the most frequently occurring principles are the equal integration of the pillars of sustainable development, placing sustainable development at the core of the company's strategy, cooperation with interested parties and KPI integration. These principles should form a compass that determines the direction of each company in its transformation in accordance with the principles of sustainable development.

Like the area of principles of sustainable development, no generally applied factors are available from the point of view of factors influencing the sustainable development of a company. Paradoxically, publications and authors dealing with the sustainable development of the company hardly discuss the factors influencing the sustainable development of the company. The available sources mention as factors of the sustainable development of the company mostly only factors that can be considered only as general factors that somehow affect the company and not as factors that have an impact on the sustainable development of the company. Based on the analysis of the available literature and the terminological base, the following internal and external factors influencing the sustainable development of the company were identified.

Internal factors identified include:

- Size of the company. [29]
- Focus of the company. [29]
- Will of management or owners. [28]
- Company strategy. [18]
- Company structure. [21]
- Knowledge of sustainable development. [7]
- Financial difficulty of implementation. [25]
- Financial condition of the company. [22]
- Short term/long term profit generation plan. [6]
- Innovation capacity. [29]

- Internal company culture. [8]
- Human resource. [29]
- Interest in gaining a competitive advantage. [29]
- Interest in improving the perception of the company's identity. [22]

- Openness to new possibilities. [23]
- Efficiency of internal company processes. [20]

The identified external factors that have an impact on the integration of sustainable development into the company's strategy include:

- Size of the company. [29]
- Legislation, national and transnational strategies, regulation. [18]
- Political situation and stability of the external environment. [22]
- Market trends. [21]
- Stakeholder pressure. [22]
- State support. [19]
- Economic factors. [21]
- Social factors. [21]
- Environmental factors [21]
- Attractiveness of sustainable development. [24]
- Existing approaches and models of implementation of sustainable development. [16]
- Price and availability of necessary resources. [23]

Sixteen internal and eleven external factors that affect the sustainable development of the company were identified. It would be appropriate to test the mentioned factors in practice, or to verify with primary marketing research whether and how the representatives of Slovak companies perceive the factors affecting sustainable development. It is not easy to determine the general factors affecting sustainable development, unless we know more specific information about the company, the area in which it operates, the sustainable strategy and goals of the company. Each business can approach sustainable development differently, focusing on different areas or solutions.

Most respondents said they know a business that has implemented renewable energy sources. The second most common answer was using or selling sustainable products. None of the respondents identified a company that would implement ESG criteria. Of the respondents who identified a company that implements one of the mentioned trends, 56% were women and 44% were men. VP1 has not been confirmed. The evaluation of the question, which was aimed at finding out the impact of sustainable development on the perception of the company's identity, is shown in the following table.

**Table 2.** The impact of sustainable development on the company's identity

Answer	Quantity
Positive	183
Negative	12
Neutral	195

The sustainable development of the company would have a positive effect on the perception of the company's identity in 38% of respondents, a neutral effect in 50% of respondents and 12% of respondents would be negatively affected. VP2 was not confirmed because sustainable development had an 8% greater positive impact compared to the established value. Interestingly, positive influence prevailed in all age categories except for the 45-54 and 65 and over categories, in which neutral influence prevailed. From the point of view of gender, no significant differences were observed.

If the company implemented one sustainable solution, up to 33% of the total sample of respondents would perceive the identity of the company positively, 4% negatively and 63% of the respondents answered - neutral. If the company were to implement additional solutions in the field of sustainable development of the company, it would positively affect the perception of the company's identity in only 22% of the total sample of respondents, 65% of respondents would not be affected, and 3% of respondents answered negatively. 57% of respondents would prefer sustainable products when purchasing, 30% of respondents said they don't know, and 13% of respondents would not prefer sustainable products when purchasing. 36% of respondents would prefer producers who were labeled as sustainable when purchasing, 27% of respondents would not prefer such producers, and 37% of respondents could not say. The following table shows the evaluation of the question aimed at identifying the most important pillar of sustainable development from the point of view of customers.

**Table 3.** Selection of the most important pillar of sustainable development

Answer	Quantity
Economic	32
Social	78
Environmental	278

VP3 was confirmed, among the pillars of sustainable development, the environmental pillar is the most important for the respondents. Interestingly, this answer was the most popular across all age groups and genders.

## 5. Conclusions

Business sustainability represents the behavior of the business, its activities and strategies that meet the current needs

of the business and all stakeholders about concerning the economic, human, and environmental resources that will be needed in the future. When integrating sustainable development, the company should focus on the principles of sustainable development. The most frequently stated principles include the equal fulfillment of the economic, social and environmental pillars of sustainable development; KPI implementation; reporting of non-financial data; transparency; integration of sustainable development into the core of corporate strategy; stakeholder engagement; or responsible handling of all resources. When implementing sustainable development, the company must also consider internal and external factors that may affect the implementation. Internal factors include, for example, the will of the company's management; financial difficulty of implementation; internal company culture; knowledge of sustainable development or business focus. External factors that influence the integration of sustainable development include, for example, pressure from stakeholders; attractiveness of sustainable development; the price and availability of the necessary resources or the existence and applicability of existing approaches and models for the implementation of sustainable development.

Through primary marketing research, it was found that most respondents encountered the terms sustainability, respectively sustainable development, and more than a third of respondents know a company that has implemented one of the sustainable trends. The identity of the company would be positively affected by the implementation of sustainable development for more than one third of respondents, 57% of respondents would prefer sustainable products when purchasing, respectively 30% of respondents would prefer sustainable producers, and from the respondents' point of view, the most important pillar of sustainable development is the environmental pillar. The implemented marketing research will need to be expanded to obtain the perception of sustainable development by businesses, to obtain a comprehensive view of sustainable development, whether from the perspective of theory, businesses, or consumers.

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# Evolution of the Theory of Constraints: A Literature Review

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**Abstract** The presented article deals with the analysis of current literature, focusing on the issue of the theory of constraints (ToC). The literature review is arranged in the structure of long-term defined periods and offers an insight into the development of this discipline up to 2005. The authors propose the extension of the given classification according to the ToC application after 2005, when the given approach is extended most often to Supply Chain management and, together with Lean and Six Sigma, to small and medium-sized enterprises.

**Keywords** Theory of constraints, optimization, goal, management, drum-buffer-rope, operations research, review

**JEL** C44, C61, M11

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## 1. Introduction

The goal of every company (as a business entity) is to gain a dominant position on the market, which will make it more efficient. To achieve this situation, the firm chooses a strategy and takes into account other competitors in the market and their activities. However, companies should focus primarily on themselves and correctly identify their own structure, setup processes, project management and other aspects, whether it is a manufacturing or service sector. The described situation is then an ideal state for the application of the Theory of Constraints (TOC), which serves to identify weak (vulnerable) points in the chain. The method does not look at the individual components of the process independently, but as an interdependent system in which the weakest part slows down the entire process.

The concept of TOC has been evolving since the late 1970s, when it was created as a tool to improve manufacturing processes by removing constraints. However, it soon proved to be much more complex and significantly influenced the field of cost accounting, project management, operations management, etc. In the last 30 years, the philosophical approach has been implemented by public and private sector organizations, every industry, small businesses and international corporations.

The aim of this research article is to conduct a literature search of professional publications in the years indicated and in accordance with the periods presented by Watson, Blackstone & Gardiner (2007) to identify the specifics of these

works and eras. Based on the literature published after 2004, the authors will further try to propose other eras in a similar context, which will correspond to the following periods up to the present (year 2023).

## 2. Literature review

The philosophical discipline of management known by the name ToC first appeared in the literature in 1984, when the book by the Israeli physicist Eliyahu M. Goldratt was published under the name *The Goal*. It is appropriate to state that this book is not a professional publication, but a novel from a corporate environment. In this book, Goldratt describes an unsatisfactory situation in a fictitious company and at the same time comes up with a solution that leads to the achievement of the set goals. What is important is that it does not use any (known at the time) management procedures or techniques that would lead to the fulfillment of goals, but a system of continuous and clearly defined steps that could not be classified as among known techniques.

The literature review presents a generally known classification of individual ToC periods. At this time, a number of relevant literature was created, which enriched various scientific fields and directed this scientific discipline into its current form.

The mentioned ToC era classification was developed by the authors Watson, Blackstone & Gardiner (2007) and the 5 eras include: the optimized product technology era, the goal era, the haystack syndrome era, the it's not luck era and the

critical chain era. The listed period names are taken from selected books by E.M. Goldratt that are most relevant to the period. The mentioned period classification system was further presented by Panizzolo (2016), Ramasu, Sobiya & Akinlabi (2017), Miguel et al. (2017), Lokhande (2021), Jadhav & Dhawale (2021) and also developed by Şimşit, Günay & Vayvay (2014) and Kumar, Siddiqui & Suhail (2020). Another system for classifying literature by period is presented by McCleskey (2020), who focuses more on the application part and looks for connections primarily between the literature listed in the 21st century. Development of publications in the period after 2004 was also presented by Miguel et al. (2017).

### 2.1. The optimized production technology era (1979-1984)

The first "Optimized Production Technology Era" covers the period between 1979 and 1984. It was during this period that Goldratt first introduced his concept of optimized production plans, which he implemented on his friend's poultry farm to increase production with limited resources. Goldratt (1980) subsequently presented his findings at the APICS International Conference. The system achieved considerable success, especially on the American continent, and in the following years Goldratt carried out more than 100 similar implementations in various enterprises (Bylinsky, 1983).

A significant problem of the system was its non-transparency and the absence of a universal description, which would enable its greater popularity in the professional literature (Bylinsky, 1983). In this context, Aggarwal (1985) adds that the implementation of OPT into enterprise systems was technologically difficult and at the same time financially expensive. Jacobs (1983) points out that not all implementations have been successful and some have even led to litigation. It further states that it has never been proven that OPT provides an optimal schedule of work and activities. The algorithmization of the OPT system was attempted by Fox (1984), which was based on practical knowledge of identifying bottlenecks in a local factory.

Fox (1984) and Aggarwal (1985) further state that although OPT cannot be algorithmized, it represents significant competition for current operations management systems (eg JIT, MRP,...). Numerous researches have shown that OPT (then known as TOC) achieves better results than JIT, MRP, but also Lean or agile management approaches.

### 2.2. The goal era (1984-1990)

The new optimization system for manufacturing companies has created an extraordinary buzz and also a lot of questions. No one has been able to describe said tool, including the authors himself. Goldratt held several meetings with business representatives and attended conferences, but was unable to explain his procedures himself. Even the scientific community had a significant problem with the algorithmization of procedures. So Goldratt & Cox (1984) changed his strategy and published a new business novel called "The Goal".

It describes the process of identifying weak points as well as specific techniques suitable for application at given

decision points. Heuristics based on TOC are also presented, and the authors present the so-called POOGI (Process of On-Going Improvement), which consists of the application of five steps of implementing the TOC concept in any process of any organization. As stated by Watson, Blackstone & Gardiner (2007), these five steps 5FS (Five Focusing Steps) includes (i) identifying system constraints, (ii) deciding how to use system constraints, (iii) subjecting all other decisions to the above, (iv) increasing system constraints, and (v) if there is a limitation in any of the previous steps, return to step 1. This system is based on the assumption that there is at least one constraint in every system (Goldratt, 1990). Scheinkopf (1999) and also Coman & Ronen (1994) tried to expand the conditions for system implementation, according to which the goal of the system, the purpose of the system and the method of measuring the system's performance must be identified.

Now, with the basic description of the system, research lawyers have begun to focus on procedures for maximizing the use of bottlenecks in corporate systems. Independent results (Lundrigan, 1986; Meleton, 1986; and Cook, 1994) point to the fact that the application of TOC has a positive economic effect on the enterprise, reducing inventory and operating costs and increasing system productivity. In the book, Goldratt (1984) further introduces the DBR (Drum-Buffer-Rope) concept, which a few years later will become the most important and fundamental planning technique in TOC. The system anticipates the errors of human workers and their slowdown is pumped into the buffer memory, thereby not jeopardizing the system as a whole.

### 2.3. The haystack syndrome era (1990-1994)

Already in the previous period, the public had the opportunity to familiarize themselves with the new TOC system and understand the main ideas of its operation. The problem was that many companies were not able to reflect the desired results (from a financial point of view) after implementing the steps, although it was objectively obvious that the system was working better and more efficiently. It was not possible to measure the performance of the system, and only companies that implemented similar types of changes in production could be compared relevantly. The whole problem had its origins in business cost accounting, as Goldratt (1990) explained in a new book, *The Haystack Syndrome*. This is because cost accounting distorts information about real costs, which mystifies decision-makers and gives them misleading information. Goldratt (1983) stated much earlier that cost accounting is the key enemy of TOC.

It is important to note that Goldratt was not the only one who despised cost accounting. The problematic nature of traditional accounting principles was mentioned by Johnson & Kaplan (1987) in highly flexible production systems, and Smith (2000) drew attention to the historical importance of information with insufficient explanatory value for future use. Fry & Cox (1989) with Goldratt and other experts worked on a new accounting model that would focus on processes and measure the performance of a business as its overall financial performance. This resulted in the Throughput Accounting

(abbreviated TA) system, which focuses less on operating costs, accounts for revenues after sales are completed and does not allocate added value to material stocks during the production process (Noreen, Smith & Mackey, 1995). Boyd & Cox (2002) subsequently compared both systems based on several years of observation. The mentioned setup led to the immediate ability to measure and compare the outputs of any business. Similar results were reached by Stefano, Antunes & Piran (2022), who, in the case of using the given system, draws attention to smaller fluctuations in demand and equalization of stocks, which subsequently positively affects business decisions.

#### **2.4. The it's not luck era (1994 – 1997)**

The fourth period of TOC development is defined by the emergence of a tool for searching for solutions in sophisticated processes, which is the Thinking Processes (TP). When publishing the book "It's not Luck" (Goldratt, 1994), the goal was not to respond to deficiencies or social demand as in previous cases. The main goal was to implement new knowledge within the continuous improvement of cognitive systems. Goldratt (1994) states that in order to achieve improvement, it is necessary to answer the questions: "What to change?" "What to change it into?" "How to cause the change?" Kim, Mabin & Davies (2008) dealt with the implementation of the procedure in other scientific disciplines.

The connection of TP with the application part was noticed by Şimşit, Günay & Vayvay (2014), who state that if TOC is a philosophical tool for managing production and other processes in the company, then TP is a system for its implementation. Gattiker & Boyd (1999) drew attention to the advantages of TP, according to which the system has a great ability to work on continuous improvement of customer services. Scheinkopf (1999) or Chaudhari & Mukhopadhyay (2003) further dealt with the application of TP in solving business problems.

#### **2.5. The critical chain era (1997 – 2004)**

The complex of methods for project management CCPM (Critical Chain Project Management) is one of the most important applications of TOC techniques, which was already presented at the International Jonah Conference in 1990. The given concept was not accepted at the time and it received greater development only after the presentation of another business novel "Critical Chain" in 1997. The basic idea of CCPM is to manage projects using resources and their availability in the implementation of tasks. It differs from traditional project management methods in the system of assigning duration to activities, the use of buffers for the purpose of drawing time reserves, and the elimination of resource conflicts in activities. The most visible adjustment compared to other project methods is the procedure applied when determining the duration of individual activities and the project as a whole. Instead of a normal duration estimate that reflects a 95% certainty of completion, CCPM durations are based on 50% estimates, resulting in shorter activity durations. If this duration is exceeded, a buffer is placed at the end of the project, from which the mentioned deficiencies are drawn. From

this idea, it is clear that CCPM never works with an exact project completion date, however, the method makes it possible to determine when it will be completed at the latest.

Goldratt (1997) states that many traditionally managed projects fail due to the unpredictable behavior of human resources, as aspects of human behavior are difficult to influence, let alone plan. Other sources cite frequent project failures as a result of inefficient multitasking, i.e. working on multiple activities at the same time. Other negative influences include the student syndrome, Murphy's project law or Parkinson's law (Robinson & Richards, 2010). He further states the suitability of the application of the given method in completely new and never-realized projects. Even so, studies on successful applications of the CCPM method can be found (Anastasiu, Campian & Roman, 2023).

### **3. Literature after 2004**

It is interesting to see how the individual periods appropriately delimit development, and with his novels Goldratt was able to partially guide the scientific sphere in the use of individual approaches to the TOC, although often he did not directly create a description of more sophisticated approaches.

Now, based on the knowledge gained, it is appropriate to propose further development and classification of TOC activity in the periods from 2005 to 2022, which represent new ideas or the application of methods in new areas. It should be noted that it is not easy to clearly determine (and time-bound) what the professional public is most concerned with in the TOC. Just the fifth era itself is difficult to specify in this way, because the conceptual boom of the CCPM project method came only with its wide use around 2010 and continues to this day.

Watson, Blackstone & Gardiner (2007), who determined the current classification of individual periods (eras), also thought about the future development of TOC and its importance in the world. At the beginning of the 21st century, TOC experienced a significant boom in professional literature (McCleskey, 2020) accompanied by an increase in publications, and TOC ideas also began to be applied in completely different industries. According to Watson, Blackstone & Gardiner (2007), the method entered the 6th era, when instead of an alternative way of management, the technique began to become mainstream. It is therefore difficult to keep track of all the streams in which TOC is developing, how much and how fast. Symbolically, this change is completed by the retirement of a number of current academics and experts, who are being replaced by a new open-minded generation.

#### **3.1. TOC in supply chain management**

However, if we focus purely on new publications and what the professional public has been dealing with immediately after the end of the 5th Era, we notice a significant increase in publications in the field of supply chain optimization using TOC techniques. Alber & Walker (1998) were among the first to draw attention to the benefits of strategic cooperation

and directly mentions the increase in income and the reduction of unexpected costs in the long run. The idea was further developed by Rahman (2002), who applied TA to the supply chain not only to identify critical success factors in supply chain management, but also to understand causal relationships.

The real foundation of TOC in supply chains was laid by Watson, Polito (2003) who created a simulation model. This served as a basis for the comparison of multi-echelon distribution models. While the original model used partial centralization of stocks with orders planned by Distribution Resource Planning, the other two models used the Theory of Constraints-based heuristic for buffering and inventory replenishment. The actual application of the method in a real environment was then dealt with by Simatupang, Wright, Sri-dharan (2004), who presented several recommendations for further research - quantification of replenishment and emergency levels, the evaluation of the selfenforcing property of collaborative metrics, and the inclusion of reverse logistics.

The issue of TOC in the supply chain was further addressed by Balakrishnan, Cheng (2005) or Wu, Huang and Jen (2012), who followed the strengths and pitfalls of the TOC supply chain replenishment system (TOC-SCRS) method implemented in a number of companies. The practical application in the form of a case study was further dealt with by Simchi-Levi et al. (2008), Wang, Lai & Shi (2011), Al Amin, Rahman & Shahriar (2020), Opoku (2022), Orue et al. (2021) or Mason-Jones, Davied & Thomas (2022). Current publications testify to the fact that the topic of TOC implementation in the supply chain is still relevant. Gupta & Andersen (2018) or Singh & Misra (2018) dealt with the measurement of efficiency within the supply chain. An interesting way to avoid problems during the implementation of the technique was proposed by Lizarralde, Mediavilla & Apaolaza (2020), who have designed and created a systematic process for the first two steps of TOC.

### 3.2. TOC as a sales and marketing tool

At the turn of the millennium, TOC still appeared as an alternative but quite universal tool applicable to a wide range of industries. In addition to successful implementations in production processes and projects, articles began to appear dealing with the possibility of using TOC for the purpose of setting and evaluating market prices and using it for product mix decisions. Fredendall & Lea (1997) even created the first product mix heuristic for these purposes, where they implemented two of the five steps of the TOC process. These were: (1) Identify the system's constraint(s) and (2) Decide how to exploit the system's constraint(s). The load on the resource is calculated after the production of all products is completed, with the bottleneck being the resource whose capacity is less than the market demand. Throughput is then the difference between the selling price and the cost of raw materials. The authors also introduce the term contribution margin.

Onwubolu (2001) states that the product mix decision is one application of TOC that involves determination of the quantity and the identification of each product to produce. Relatively contradictory findings are presented by

Aryanezhad, Komijan (2004), according to which the current TOC model is ineffective and unusable for the purpose of determining the product mix. They then draw attention to its weaknesses and propose their own solution based on the use of integer linear programming methods. Another constructive heuristic based on the knapsack problem was introduced by Sobreiro & Nagano (2012). Another version of the model, which was based on TOC and branch and bound product-mix calculation decisions, was then created by Mehdizadeh, Jalili (2018).

Due to the proximity of the given topic, it is advisable to also focus on the use of TOC for setting and evaluating market prices. Corbett (1998), Smith (2000) and Caspari, Caspari (2004) dealt with this issue marginally in their books. Since these theories have never been elaborated in a limited number of publication outputs in recent years, it cannot be argued that the development of TOC for sales and marketing has been meaningful and effective.

### 3.3. TOC, lean and six sigma as support systems

Subject of investigation by new experts in TOC in recent years is a completely new area. Just as it was possible to combine TOC procedures with project management methods (which created the CCPM method), TOC procedures can be combined with other scientific disciplines or industries. In this context, Lean management and the Six Sigma management strategy are most often talked about recently. Although the professional public is sometimes inclined to this idea, it cannot be said that these procedures are interchangeable.

Lean is a technique that pursues added value for the customer while reducing costs and maintaining quality; Six Sigma performs statistical analysis of a wide volume of data in order to improve business, production and logistics processes and consistently meet customer expectations; TOC aims to improve system performance by removing bottlenecks and increasing throughput. From the point of view of logic, the mentioned techniques are not substitutes, but complement each other.

One of the first to deal with the issue of comparing these three approaches (TOC, Lean, Six Sigma) was Nave (2002). He tried to create a manual according to which a company in a selected situation and with set goals should choose the optimal tool for achieving them. The integration of Six Sigma methods into the TOC system for continuous improvement to improve production system performance is presented in a case study by Ehie, Sheu (2005). Soni (2011) further drew attention to the four possibilities of combining Six Sigma and TOC, which include - identification of a significant opportunity, analysis of the problem, development of solutions, and continuous improvement.

Although these initial studies had a pioneering character, the given combination of methods regularly began to appear in the professional literature only after 2015. Jesus Pacheco et al. (2015) tried to analyze the points of convergence and divergence between TOC, Lean and Six Sigma in the framework of continuous improvement of production systems. The conclusions of the research conducted on 28 evaluation criteria confirmed that all three methods overlap with each other.

Bostan (2018) dealt with a similar analysis of the interdependencies of these three approaches. Ekles & Turkmen (2022) proposes an updated integration model for ToC and Six Sigma. Aripin, Nawanir & Lee (2023) deals with the possibility of combining Lean and ToC. A model integrating TOC, Lean and Six Sigma procedures of the production process was presented by Dias, Silva & Tenera (2019), and their work was followed by Jesus Pacheco et al. (2019), who proposed several procedures for mutual integration of TOC and Lean in order to further improve processes. The proposal of a complex integrated framework under the name TLS (ToC, Lean, Six Sigma) is presented by Gupta, Digalwar & Goyal (2022).

It should be noted that there are not only ideas to link TOC with Lean and Six Sigma in the professional literature - Cieřla, Kolny (2019) propose the integration of TOC into the Business Intelligence System (BIS) in order to solve problems and improve the performance of organizations. Puche et al. (2019) then presented a comparison and the possibilities of mutual integration of Kanban and Drum-Buffer-Rope methods in TOC.

## 4. Discussion

It is worth noting that a number of authors have already dealt with the analysis of literature reviews in the area of the TOC. It is now appropriate to confront their ideas with the views and findings of the authors of this study.

The first thing to mention is the literature review presented by Watson, Blackstone & Gardiner (2007), who established the classification of individual TOC periods that is used until today and which is based on the problems solved in five eras. The very concept of the contribution draws attention to the detailed approach of the authors, who devote themselves significantly to the description of all techniques and contexts. In extent of knowledge this work has never been surpassed. As a negative aspect, it should be noted that the study is a bit stingy with the number of sources and real applications presented, while the reflections and theses of some authors in the given period were completely omitted. Nevertheless, this is a suitable and ideal publication, presenting an insight into the first quarter of a century of TOC.

The literature review presented by řimřit, Gūnay & Vayvay (2014) is significantly based on the classification created by Watson, Blackstone & Gardiner (2007). The authors quite inexplicably completely neglects the last era, concerning the CCPM, which she explains by the lack of contemporary literature. The limitation of the theory in The Haystack Syndrome Era to the issue of "Throughput Accounting", which is mentioned only marginally, is a bit incomprehensible. However, the authors appropriately draws attention to a large number of other methods (JIT, MRP, FMS,...) in the beginnings of TOC, which represented an obstacle to greater advancement. She also describes The Goal Era in detail.

Interesting research is also presented by Kumar, Siddiqui & Suhail (2020), who narrows down the classification of Watson, Blackstone & Gardiner (2007) by the period to only very general developments with a minimum of references to

the literature of the time and thus presents the basic, but organized and balanced facts. However, the significant added value of their study is the catalogue of TOC applications in the environment of business companies incl. a brief description of the outputs realized following the implementation of the TOC. Kumar, Siddiqui & Suhail (2020) also draws attention to the attitude of sceptics, according to whom TOC does not offer optimal solutions, but feasible solutions. He also adds that the TOC implementation has helped to improve already efficient systems such as Ford or NASA.

A completely different approach was taken by McCleskey (2020), who, as one of the few authors, does not stick to the set classification and presents his own. These are: (1) TOC in The Early Years; (2) TOC in expansion years; (3) TOC for the last 5 years. Its main goal is to provide a comprehensive list of authors who dealt with the issue of TOC in various sectors and in given periods. Overall, this is a high-quality summary of the literature, which is sometimes too detailed, while some cited sources deal with the issue too marginally. McCleskey, as one of the few authors, also states future expectations from TOC. Specifically, the authors believes that suitable areas for further research include capacity management, empirical work on CCPM, and practical studies on the TOC thinking process.

The authors of this study is most in favour of the concepts of Watson, Blackstone & Gardiner (2007) and McCleskey (2020), which are most consistent with this research article. Watson offers a detailed description of the problem, while McCleskey focuses more on analysis of published studies. Watson focuses on the classification of TOC periods, while McCleskey classifies the use of TOC in individual industries. Watson deals with the older period (up to 2005), McCleskey concentrates on the period in the 21st century. It can be said that these two publications together form a strong informational and universal base focused on the current concept of TOC.

Dozens of different literature reviews have already been published that dealt with the issue of the TOC, and only a part of them use different classification options. Among them, the classification proposed by Watson, Blackstone & Gardiner (2007) is most often used. In them, however, very few authors addressed the idea: "What happens after the 5th era, which ended in 2005?" and suggested further development. In the case of this contribution, the authors tried to explore and describe this development (between 2005 and 2022).

As a result of the extraordinary increase in publications dealing with TOC after 2000, it is very difficult to navigate current trends. Around the same time when (for example) the CCPM method was created and TOC became an important part of project management, many publications were also created about the use of TOC in Supply Chain Management, and the method also had benefits in other industries. While previously specialists and academics focused on TOC as a whole and were guided by published trends, today many of them are much more specialized and overall trends can be very difficult to track and analyse.

In total, three selected areas were listed in which TOC significantly developed further after 2005, which are (1) TOC

in Supply Chain management; (2) TOC as a sales and marketing tool; and (3) TOC, Lean and Six Sigma as support systems. Especially the last-mentioned area is extremely current, as many new models were presented after 2019. It should be emphasized that these are not the only trends, because the importance of TOC has been manifested in the last 20 years also in healthcare, storage, accounting, education and many other areas (McCleskey, 2020).

## 5. Conclusions

Many years have passed since the TOC system could be simply classified and written about in individual periods. Today, TOC is part of the mainstream and is appearing in businesses in all industries, small and large. While previously it was possible to classify TOC according to the observed horizon of years, today it is more appropriate to perform this classification by sector.

However, it is worth emphasizing that TOC is a system designed primarily for medium and large manufacturing companies. The authors thus believe that there are potential opportunities for TOC use by small businesses, especially in the service sector. However, the implementation of this system is usually very expensive, and for these companies, the implementation of the given system may not be financially effective. FPEDAS Productions has tried its best efforts to ensure that the templates have the same appearance.

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# CRM for Boosting a Business Value, Efficiency and Higher Profit

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**Abstract** Transport is a technological process of moving people, objects or energy and knowledge of the logistics system and its processes is essential for fully functioning and effective logistic activities in the field of goods turnover. Building an appropriate relationship with the customer, taking care of customer service standards and professional customer service is a long-term and developmental process, which is mutual benefit transaction. Transport sector continue to grow year after year rapidly and it is highly competitive evidence by the fact that transport companies operate in the EU common market. Companies that invest in relations choose good and wisely. Customer satisfaction should be constantly tested in terms of satisfaction and loyalty as well as the perception of the standards introduced and services offered. The aim of the article is to show that the implementation of CRM increases business value, efficiency and increases profits of companies. The development and functioning of the global economy market is not possible without a service provider - consumer relationship.

**Keywords** logistics, customer relationship management, enterprise growth, profit of companies

**JEL** L91

## 1. Introduction

Transport sector continue to grow year after year very rapidly and it is highly competitive evidence by the fact that transport companies operate in the EU common market. Companies that invest in relations choose wisely. The priority here is to build not only casual, but long-term relations and focus on their quality. This produces loyal customers and valuable feedback.

The CRM system is customer relationship management software that can be used in virtually any company including a transport company. It is used by large corporations, medium-sized and small companies, and even start-ups starting their business. The most important task related to the selection and adaptation of CRM to the company's operations is the need to define the needs and functionality of the solution. Accordingly, before choosing a system suitable for the company, it is necessary to determine what we expect from the software among hundreds of functionalities, and, in particular, what actions are necessary to increase sales and, consequently, increase the company's profit. It is commonly said that CRM software improves the operation of the company, enabling it to achieve its goals. Thanks to its versatility, the CRM system is perfect for many industries, which means that all companies need CRM solutions to increase business value, efficiency and higher profits. The benefits of implementing a CRM system are pure practice, not just a theory - the implementation of CRM translates into a significant increase in sales, in some cases by as much as 30%, and therefore - as a

consequence - also implies approx. 30% higher profit of the company. This is the main effect of the benefits of an overall improvement in customer relations, organization and work culture.

## 2. Objective, Materials and Research Methods

This part of the article describes both the purpose of the work, as well as the materials used and all the research methods used.

### 2.1. Objective

The aim of this study is not to duplicate studies proving the validity of the thesis that has been proven many times over that CRM is a customer relationship management software that can be used in any company. The aim of the work is to identify the ways of achieving these goals by organizations implementing CRM. This problem appears quite widely in English-language publications, but mainly in the form of managerial guides or specific "manuals" of CRM implementations.

Knowing the theoretical assumptions related to relationship marketing and customer relationship management, and at the same time actively participating in the process of implementing this strategy in practice, you can face technical and organizational problems. Observing the process of transforming the original CRM assumptions in the course of the clash of the needs of individual implementation stakeholders

in an international company, you can hear about the unique possibility of drawing original conclusions and almost immediate verification.

The author of this work, combining the practical experiences of people implementing CRM in enterprises with the conclusions of the publications provided by leading institutions dealing with consulting in the field of CRM implementation and the content of books on the management of strategic changes taking place in organizations (not only in the context of CRM implementation), during the studies and research works, formulated the assumption that due to the huge impact on the success of CRM in the process of implementing this strategy and the importance of activities required to ensure long-term positive effects, customer relationship management should be discussed not in two, but three aspects: marketing strategy, information technology and multifaceted change management. The conclusion that CRM is not only an IT system or a company's strategy to build long-term relationships with customers is therefore not enough to fully explain its importance for the company, and even more so to achieve success in its implementation.

The aim of this study is to provide arguments, stemming both from theory and economic practice, to support the statement that we can actually talk about CRM as an innovation resulting from rational managerial decisions, continued, controlled and adapted to changing conditions, with the most important change criterion, which is the optimization of the chain of creating benefits attractive from the point of view of customers, taking into account the economic account that guarantees the company's owners the expected return on invested capital. Taking all that into consideration, CRM needs to be perceived as a strategic management program/process with the goal being implementation and then development of a highly effective relational business model. The implementation of such a task is, in turn, the key to gaining a permanent competitive advantage based on knowledge about customers and the developed ways of using it.

Wherever products or services are sold, companies must take care of the most important link in the sales process, i.e. the customer. Despite the fact that they have the best product or service, well-thought-out advertising, an innovative store or trusted, creative employees, very often nobody buys products or services in the budgeted amount, therefore no turnover is generated, and thus the company does not generate enough profit, but sometimes it generates losses instead. Very often, in today's highly competitive market realities, the customer buys a product only once and then forgets about the company. This also applies to the area of transport services. So the question is: "How to make the client come back to the company on a regular basis?". The answer is to build a relationship with him. This goal can be achieved, for example, by saving the customer's purchase history and other important data in the database, which, when properly used, will generate effective sales. Hence, with a high degree of certainty, the company will know whether a given customer might be interested in a new product in the future and how to build or present a product or service in such a way that it is attractive for the customer, and above all, the company will

know how and when to contact a given customer. In such situations, CRM, that is programs for managing customer relations, come to help.

## 2.2. Materials, Input Documents

Knowledge from scientific articles and papers published in scientific journals and conference proceedings published in the Web of Science and Scopus databases, as well as information from web portals focused on issues related to this dissertation, were used as elementary sources of information for the elaboration of the dissertation work. Book publications by domestic and foreign authors were also used.

A valuable source of information is also the processed results obtained from the interviews focused on the issue of this work in companies that have implemented CRM.

## 2.3. Research Methods

When doing research it is possible to utilize a range of specific methods that we call research methods. Research carried out within this dissertation will be executed through the following methods. Methods will be combined and complemented as required.

### 2.3.1. Interview Questionnaire, Survey Questionnaire and In-Dept Interview

A technique that enables us to obtain information from respondent via answering the prepared questions. It is a controlled interview and it can be either standardised or non-standardised. The first one stems from the upfront prepared and verified record sheet that is similar to questionnaire. Interviewer selects questions from this sheet and then records the answers of the respondent. The second one is an open interview in which the questions are directed on particular area or topic; however, they are not prepared upfront. It is a flexible technique that is very useful when verifying data acquired by other techniques. Interview can be apparent or concealed i.e. the interviewer is not making any apparent notes.

The author plan to conduct research among at least 20 transport companies: In order to better understand the current situation a number of interviews will be carry out with selected people. As well, a survey is planned to be carried out with members of companies with implemented CRM system. During this survey different variables will be measured being the main topics: increases the company's profit, increases the number of the company's customers and influence on customer satisfaction and customer loyalty.

Examples of interview questionnaire to be used in this dissertation thesis are: interviews of a strategic nature (addressed to strategists in the organization: Presidents of the Management Board, Members of the Management Board, Directors) and interviews concerning managerial competences (addressed to lower management: Managers).

I have already done 4 focus group interview questionnaires, which provide qualitative insights, while 56 survey question-

naires move quantitative data. My next step will be to be conduct in-depth interviews (it is plan because until today I have not done any research called in-depth interviews). I am also planning further research in the form of survey questionnaires (my goal is to do quantitative studies (PAPI survey; 100 to 150 pieces at 20-30 companies) and focus group interview questionnaires (my goal is to do qualitative tests - FGI; 3-5 items; group interview; 6-8 people).

### 2.3.2. Statistical Methods

Statistical method is the collection, organization, analysis, interpretation, and presentation of data. It deals with all aspects of this, including the planning of data collection in terms of the design of surveys and experiments. Statistical data are sets of quantitative values that summarize, through mathematical operation, or express the parameters that represent a population or some other sample.

This dissertation will include data collection that will be analysed statistically. When the quantitative data is requires processing, we utilize the resources of mathematical statistics such as mean, dispersion, tables, graphs, etc.

### 2.3.3. Experimental Methods

Represents a way of scientific recognition through which we deliberately and with respect to a plan invoke the researched process whereby changing the conditions in which the phenomenon takes place and we monitor and control their influence. Experiment can be carried out in the field or in the laboratory. Prerequisite of every experiment is the knowledge of the conditions that can have an influence on the phenomenon. By changing one or more conditions (independent variable) we cause changes in other conditions (dependent variable). Experiment enables us to verify results acquired by other methods and it points to the rate of their objectivity.

### 2.3.4. Monographic Methods

Concentrates on research of one particular case. This method understands the researched object as a whole in contrast to statistical method that selects just one aspect. Object is chosen deliberately and the research is carried out under normal conditions.

### 2.3.5. Observation

It is the simplest technique of research using which we can derive various data. The weak point of this method is its low level of qualification. Overall advantage of observation is the real environment that it is not possible to duplicate. Observation can be direct and indirect (e.g. through video recordings). The author due to its current position is able to observe during daily operations the influence implementation of CRM to management carry out by different people. Importantly to mention here is that confidential information is not disclosed

and no names will be mentioned due to the restricted character of this type of information.

### 2.3.6. Documents Review

Review of various documents is necessary in order to gain theoretical perspective of the researched problem. Example of documents to be used in this dissertation thesis are: analysis of reports on the activities of individual enterprises and procedures used in transport companies.

## 3. Results of the Work

As already mentioned, the literature review shows that only two literature items provide a specific amount of increase in the company's profit after the implementation of CRM and the fact that the implementation of CRM translates into a significant increase in sales, in some cases by as much as 30%, and thus - implies also an increase in the company's profit - therefore, the topic of calculating the company's profit after the implementation of the CRM system compared to the state before the implementation is not yet exhausted.

According to the rules of economics, the goal of every enterprise is to earn a profit. When a company aims to increase profit, the necessary first step is to retain as many customers as possible. In chapter 3 of this paper, methods of customer retention as well as the importance and methods of measuring customer satisfaction will be described.

Customer satisfaction is of fundamental importance for efficient and effective logistics activities in the field of trade in goods. The functioning of enterprises operating in contemporary global markets without effective logistics is almost impossible, hence the constant search for tools to improve this process. Currently, there is a lot of competition in the field of transport services, as evidenced by the fact that transport companies operate on the common market of the European Union. For this reason, in order to maintain existing customers, but also to attract new ones, it is important to build relationships with customers from the position of transport companies. The aim of the author's doctoral dissertation is to propose a methodology for building relationships with customers in the specific conditions of transport services.

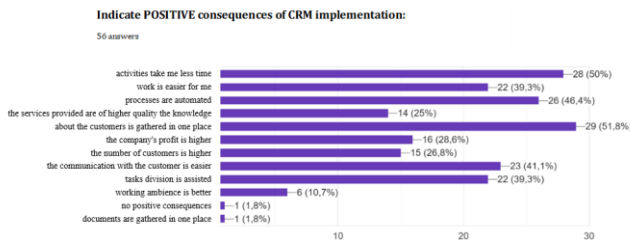
The author of the work therefore constructed a tool - a questionnaire for employees of companies in which the CRM system was implemented, to find out if and how the implementation of CRM in the enterprise changed the number of customers and whether and how it affected the company's profits.

The survey questionnaire contains 12 questions, which are described below.

The respondents who participated in the survey mainly represented the following industries: industry (12.5%), construction (10.5%), forestry (8.9%) transport (12.5%) and other industries. The respondents mainly represented large enterprises employing over 50 people (64.3%), but also medium-sized enterprises employing between 11 and 50 people

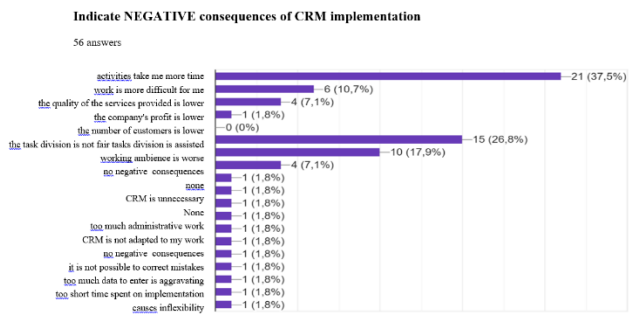
(25%) and small enterprises employing up to 10 people (10.7%) and they worked mainly in the sales department (17.9%), in the operational department (also 17.9%) and in the R&D department (14.3%).

To the question: Indicate POSITIVE consequences of CRM implementation, the respondents chosen 3 following positive effects of CRM implementation: knowledge about the customers is gathered in one place (51.8%), activities take me less time (50%) processes are automated (46.4%). Moreover to the question: Indicate the most important POSITIVE consequences of CRM implementation, the respondents chosen 3 main following positive effects of CRM implementation: gathers knowledge about customers in one place (23.2%), activities take less time than before (17.9%) and increases the number of the customers (12.5%). The results of the survey regarding the positive effects of the implementation of the CRM system are shown in Figure 1.



**Figure 1.** Question number 4 of the survey questionnaire for the employees of the companies where CRM system has been implemented. Own elaboration.

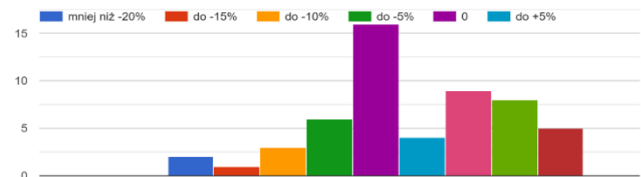
According to the research, the implementation of CRM also brings negative effects, because to the question: Indicate NEGATIVE consequences of CRM implementation, the respondents chosen 3 following negative effects of CRM implementation: activities take me more time (37.5%), the task division is not fair tasks division is assisted (26.8%) and working ambience is worse (17.9%). As is shown in Figure 10 only one negative consequence of CRM implementation is the result: activities take more time than before (35.7%). The results of the survey regarding the negative effects of the implementation of the CRM system are shown in Figure 2.



**Figure 2.** Question number 5 of the survey questionnaire for the employees of the companies where CRM system has been implemented. Own elaboration.

After CRM implementation the number of my customers changed (decreased/ increased)

56 answers

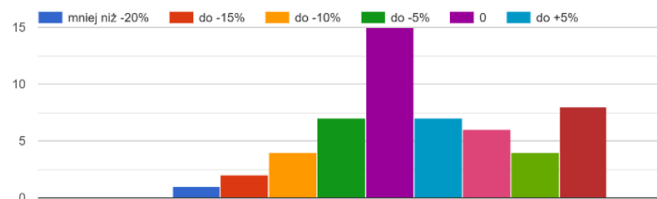


**Figure 3.** Question number 8 of the survey questionnaire for the employees of the companies where CRM system has been implemented. Own elaboration.

However, the most important fact that was found during the study is the information that the implementation of CRM results in an increase in company profits and an increase in the number of company customers. Both of these facts are shown in Figure 3 and Figure 4.

After CRM implementation profit of my company changed (decreased/ increased)

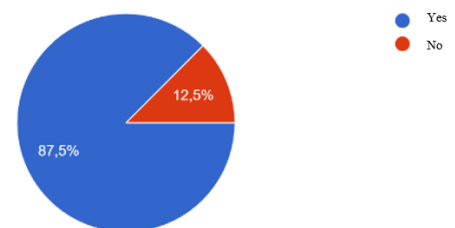
56 answers



**Figure 4.** Question number 9 of the survey questionnaire for the employees of the companies where CRM system has been implemented. Own elaboration.

### Are you satisfied with CRM implementation?

56 answers



**Figure 5.** Question number 10 of the survey questionnaire for the employees of the companies where CRM system has been implemented. Own elaboration.

As a result, most of the respondents (as much as 87.5%) are satisfied with the implementation of CRM in their company, what are shown in Figure 5. Direct interviews also show that employees are satisfied with the implementation of the CRM IT system. This is the result of an increase in the number of customers of the surveyed companies, and thus also an increase in the profit of the companies.

## 5. Conclusions

The research presented above shows that the vast majority of enterprises, as much as 87.5%, are satisfied with the implementation of CRM in their own company.

The results of 56 questionnaires, 2 in-depth interviews and 4 "focus groups" conducted by the author of the study presented above show that the implementation of CRM resulted in an increase in the number of customers. The results are shown in detail in Figure 3 - the study shows that the sum of positive responses (the number of customers increased by 5, 10, 15, and even 20%) is greater than the sum of negative responses. Figure 4 shows the respondents' answers to the question whether the company's profit has changed (decreased or increased) after the implementation of CRM. This study also shows that the sum of the positive responses (the gain increased by 5, 10, 15, and even 20%) is greater than the sum of the negative responses.

The schedule of research works includes several elements that only together will provide an answer to the question whether the company's profit significantly changes as a result of the implementation of CRM to transport companies. The survey shows that only a properly implemented system can increase the number of customers. The research shows that not all companies have properly implemented the CRM system. If the company has incorrectly implemented CRM, we have a confirmed hypothesis that such a system does not support the company in its development, does not increase the number of customers and does not increase the company's profit.

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