

Controlling in the management of an enterprise distributing liquid fuels

DISSERTATION SUMMARY

Author: Paweł Bełch

Supervisor: dr hab., prof. UE Marta Nowak

Introduction

Progressive globalization, consolidation of enterprises, rapid technology development, negative economic effects of the COVID-19 pandemic and the war in Ukraine, digital and energy transformation, the growing importance of ecology - these are processes that have a violent or even revolutionary impact on changes in the environment of modern enterprises. They must equal the growing expectations of customers in terms of the goods and services offered, competition and the requirements of operating on a global, unstable market in the conditions of an economy based on intellectual capital.

The company has to constantly monitor and improve internal economic operations. It should pay attention to its development, eliminate difficulties, solve problems and counteract potential threats. The company also has to efficiently use its resources and coordinate them in order to achieve the set goal.

Efficient and effective management of an enterprise distributing liquid fuels depends on the quality of decisions made. Controlling is a very important method of company management, supporting the making of rational decisions. Although there are publications on controlling, there are no publications on controlling in the management of a company distributing fuels in the literature, hence the knowledge gap is identified.

Controlling a company distributing liquid fuels becomes particularly important when we look at its dynamically changing, turbulent environment. It should be tailored to the specifics and individual needs of an economic entity. Proper implementation and use of controlling should resemble the process of „tailoring clothes to measure”, so that in the future it is possible

to systematically achieve the overriding goal of the company's operation, i.e. obtain a positive financial result from business activities - generate profit.

Controlling in the management of an enterprise distributing liquid fuels is an important and interesting research area. It creates a significant field of reflection for both science and business practice. The numerous interviews with decision-makers in various entities distributing liquid fuels conducted in the course of the research allow us to state that they usually see controlling as an opportunity for growth and development of their enterprises, and sometimes simply for survival. The intensification of the ongoing globalization processes often increases the difficulties in running a business. Enterprises face increasing competitive challenges and unstable market conditions. Ultimately, it may lead to a gradual decline in the level of economic efficiency of these entities.

In everyday management, managers of companies distributing liquid fuels more and more often have to make unique decisions, the so-called unprogrammed, which have a vague structure. Additionally, they are undertaken under time pressure. Thanks to the implementation of controlling, the company can cope better with the changing environment. This is because it supports making decisions that reduce economic risk. It also contributes to the improvement of consistency and compliance of all responsibility centres (e.g. departments, segments) of the organizational structure of an economic unit.

Selection of research issues

The choice of the area of theoretical considerations and empirical research in this doctoral dissertation was dictated by the following considerations:

- the existence of a cognitive gap and the need for empirical research in the area of controlling in the management of a company distributing liquid fuels,
- the complexity of trading issues in liquid fuels concerning the parameters and physicochemical and fractional properties of petroleum products¹; presenting this issue in the context of shaping the financial result of an enterprise distributing liquid fuels,
- lack of studies taking into account the analysis of the level of application and functioning of controlling in enterprises operating in Poland that distribute liquid fuels,

¹ For example: the occurrence of: deviations related to the change in fuel volume, the temperature of the „cold filter blockage”, the reference temperature of 15°C (settlement temperature), physical losses occurring during the trading of liquid fuels (during storage, transport, loading, reloading, unloading).

- lack of publications on the identification and assessment of the impact of implementing the concept of controlling in an enterprise distributing liquid fuels on the level of its economic efficiency,
- the need to search for and use a new management method in companies distributing liquid fuels²,
- growing interest in controlling among companies distributing liquid fuels - its application and suitability,
- the demand reported by enterprises for the results of empirical research in the area of controlling in the management of enterprises distributing liquid fuels,
- the low level of current application of controlling in enterprises distributing liquid fuels³.

The choice of research issues was additionally determined by the possibility of implementing the results of work in business practice.

Established goals

The main goal of the PhD dissertation was to present the possibility of using controlling in the management of an enterprise distributing liquid fuels and to assess the usefulness of controlling in increasing the level of economic efficiency of the enterprise.

Achieving the main goal was possible through the implementation of the following specific goals < SG >. They were:

- presentation of the organizational and legal conditions as well as the specifics of running a business in the field of trading in liquid fuels – dangerous materials < SG1 >,
- characteristics of strategic and operational management of an enterprise distributing liquid fuels < SG2 >,
- identification of problems and difficulties in the management of an enterprise distributing liquid fuels < SG3 >,
- defining the essence, significance and scope of controlling in an enterprise distributing liquid fuels < SG4 >,

² It is related to the necessity to continuously improve the management of the enterprise distributing liquid fuels. Strong competition and growing requirements of wholesale and retail customers force companies distributing liquid fuels to optimize their own commercial mechanisms, implement new operating strategies and develop the company. Some entities distributing liquid fuels see controlling as a panacea for the problem of declining economic efficiency of their operations.

³ Based on own, preliminary research in this area, made with the help of participant observation.

- presentation of the practical use of IT applications in the management of an enterprise distributing liquid fuels < SG5 > ,
- formulation of original definitions:
 - companies distributing liquid fuels,
 - transport of liquid fuels,
 - managing a company distributing liquid fuels,
 - controlling of a company distributing liquid fuels,
 - controller in a company distributing liquid fuels < SG6 > ,
- development, implementation and application of the proprietary concept of controlling in the management of an enterprise distributing liquid fuels for the purposes of increasing the level of economic efficiency of the enterprise < SG7 > ,
- defining the tasks of a controller in an enterprise distributing liquid fuels < SG8 > ,
- development, implementation and practical verification of the proprietary system of controlling meters in a company distributing liquid fuels - including: procurement controlling, sales controlling, transport controlling, warehouse controlling and research and development controlling < SG9 > ,
- diagnosis of the level of application and functioning of controlling in enterprises operating in Poland that distribute liquid fuels on the basis of a license for trading in liquid fuels (TLF), issued by the Energy Regulatory Office < SG10 > .

Subject and entity of the dissertation

The subject matter of the dissertation covered issues in the areas of management of an enterprise distributing liquid fuels, controlling, transportation of liquid fuels as dangerous materials and economic efficiency. The entity was a company distributing liquid fuels, in which it was possible to apply and verify proprietary solutions in the area of controlling. In addition, the subjects of the survey were the enterprises distributing liquid fuels, whose business in this area is based on a license for trading in liquid fuels - TLF, issued by the President of the Energy Regulatory Office (licensing authority).

Hypotheses

Hypotheses were formulated:

- *H1: Organizational conditions affect the use of controlling in enterprises distributing liquid fuels.*

- *H1a: The larger the company distributing liquid fuels (measured by the number of employees), the more controlling is used.*
- *H1b: Enterprises distributing liquid fuels with domestic (Polish) capital use controlling less often than others - it is most common in enterprises with foreign capital.*
- *H1c: Controlling is most often used in global enterprises distributing liquid fuels, and least often in domestic enterprises.*
- *H1d: Controlling is used much more often in enterprises dealing with wholesale distribution of liquid fuels than in enterprises dealing solely with retail distribution of liquid fuels.*
- *H2: Controlling has a greater positive impact on the proper and effective management of an enterprise distributing liquid fuels, when functional controlling is used in this unit, while this impact is the lowest in the case of using enterprise controlling.*
- *H3: Properly implemented and used controlling in a company distributing liquid fuels increases the level of economic efficiency of this entity.*

Research procedure

Achieving the assumed goals and verifying the research hypotheses required the use of a research procedure, which included:

- a critical review of Polish and foreign literature (in English and German),
- analysis of legal acts related to the subject of research,
- analysis of the content of documents (internal and external) of the surveyed company distributing liquid fuels (including statements, reports and reports: financial, statistical, environmental, transport, concession),
- survey research using the questionnaire as a research tool, expert verification of the questionnaire,
- case study,
- in-depth interviews with decision-makers in companies distributing liquid fuels,
- methods of logical inference (induction, deduction),
- methods of analysis and synthesis,
- reasoning by analogy.

Research on controlling in the management of a company distributing liquid fuels was carried out in two ways. They consisted of:

- diagnosing the state of application of controlling in enterprises operating in Poland that distribute liquid fuels,
- developing, implementing and verifying the proprietary concept of controlling and a system of controlling measures in an enterprise distributing liquid fuels from the Podkarpackie Voivodeship, and then assessing the impact of the implementation of this concept on the level of economic efficiency of the audited entity (case study).

The formulated goals and the hypotheses were reflected in the structure of the dissertation. It consists of four chapters preceded by an introduction and summarized in the ending. The work is complemented by: a table of contents, a bibliography (with a breakdown into literature, legal acts, internet sources, other sources), a list of figures, a list of tables and an appendix (research questionnaire).

First chapter: A company distributing liquid fuels

The first chapter contains the characteristics, classification and properties of liquid fuels. The paper presents the specificity and organizational and legal conditions of the operation of a company distributing liquid fuels, with particular emphasis on the license for trading in liquid fuels (TLF). A general analysis of the production of liquid fuels in Poland in 2010-2019 was performed, as well as the demand and supply determinants on the global crude oil market. This chapter also presents the issue of carrying out the transport of liquid fuels in the light of the applicable legal provisions (taking into account the risks in transport posed by dangerous goods).

Second chapter: Management of a company distributing liquid fuels

The second chapter covers the analysis of decision-making processes in the management of a company distributing liquid fuels (in strategic and operational terms) and the analysis of the term „efficiency” (with an emphasis on economic efficiency). The IT applications most often used in the management of an entity trading in liquid fuels were presented. An original division of the main management functions in an enterprise distributing liquid fuels is presented. For the purposes of the dissertation, due to insufficient specification in the literature on the subject, an original definition of the management of an enterprise distributing liquid fuels was adopted, along with a review of the resources of this type of energy entity.

Third chapter: Controlling as a modern method of managing an enterprise distributing liquid fuels

The third chapter reviews the definition of controlling. The essence and significance of controlling in an enterprise distributing liquid fuels and the role of a controller were determined, showing it in the cybernetic system of a company distributing liquid fuels as a navigator - advisor to the management board. Conditions for the implementation of controlling in an enterprise distributing liquid fuels (stages, organizational factors, structure of achievable goals) were described. This chapter also presents the proprietary system of selected controlling measures in a company distributing liquid fuels (including: procurement controlling, sales controlling, transport controlling, warehouse controlling and research and development controlling), in which proprietary units of freight work in fuel transport were proposed. Due to the lack of the subject literature, the concept of controlling of an enterprise distributing liquid fuels and the concept of a controller in an enterprise distributing liquid fuels were defined (with a detailed description of its functions and tasks).

Fourth chapter: Controlling in the management of an enterprise distributing liquid fuels - the results of empirical research

The fourth chapter is the research part of the dissertation. It describes the adopted methodology as well as the scope, schemes and organization of empirical research that was carried out in two areas. The paper presents the results of the survey conducted among enterprises distributing liquid fuels on the functioning of controlling in these units. The course and results of research in a selected company distributing liquid fuels (case study) were presented, in which an original concept of controlling developed for this entity was implemented along with a proprietary system of controlling measures.

Realization of the assumed goals

The most important results of the dissertation are presented in the tables: S.1., S.2., S.3. The presented summaries indicate the relationship between the results and the implementation of specific objectives.

Table S.1. The most important results of the research – specific goal: 1, 2, 3

Specific goal	The results of the dissertation (subsection)
<p>< SG1 > presentation of the organizational and legal conditions as well as the specifics of running a business in the field of trading in liquid fuels – dangerous materials</p>	<ul style="list-style-type: none"> • presentation of the specificity of the company distributing liquid fuels (1.2.), • the use of the author's perspective of describing the essence of distribution and the concept of transport (1.2., 1.4.), • an indication of the differences and similarities between the license and the license (1.3.), • defining the organizational conditions and legal requirements for trading in liquid fuels (1.3.), • presentation of the procedure for granting concessions to companies to trade in liquid fuels TLF (1.3.), • analysis of the implementation process of the National Index Target (NIT) according to the so-called first sale construction (1.3.), • proprietary approach to various types of transport (1.4.), • indication of the essence of the transport of liquid fuels, which is a specific area of economic activity in the field of cargo transport (1.4.), • characteristics of the risks in transport posed by dangerous goods (1.4.), • compilation of a list of legal acts regarding the international transport of dangerous goods in individual modes of transport (1.4.).
<p>< SG2 > characteristics of strategic and operational management of an enterprise distributing liquid fuels</p>	<ul style="list-style-type: none"> • analysis of the correct, i.e. effective and efficient management of the enterprise (2.1. - 2.3.), • presentation of decision-making processes in the management of an enterprise distributing liquid fuels (2.1.), • developing a proprietary division of the main management functions in an enterprise distributing liquid fuels (2.1.), • review of various theoretical interpretations regarding strategic and operational management of the enterprise (2.3.), • presentation of the issues of strategic and operational management aimed at managing an enterprise distributing liquid fuels (2.3.), • development of a SWOT analysis scheme for the operations of an enterprise distributing liquid fuels (2.3.), • developing stages of strategic management of an enterprise distributing liquid fuels (2.3.).
<p>< SG3 > identification of problems and difficulties in the management of an enterprise distributing liquid fuels</p>	<ul style="list-style-type: none"> • presenting liquid fuels as specific petroleum products that are difficult and complicated to trade (1.2. - 1.4., 2.4.), • recognition of liquid fuels as substances that change their volume and density depending on the temperature (1.1., 2.4.), • identification of problems related to the settlement of the amount of liquid fuels (1.2., 2.4.), • presentation of two types of temperatures (actual and reference 15°C) separated in the trade of liquid fuels and the related difficulties (1.1., 2.3., 2.4.), • presentation of the mechanism for the occurrence of deviations in the quantity of fuels (losses or surpluses) at each stage of trading in these products (2.4., 4.3.), • presentation of complaint procedures in the area of bipolar liquid fuel distribution (2.1., 3.2.), • identification of specific decision problems in a company distributing liquid fuels, incl. determining the optimal size of orders, the temperature of the „cold filter blockage”, balancing the costs of orders and transport, natural losses and deviations in the volume of liquid fuels arising during their turnover (2.1., 2.4., 3.4, 4.3., 4.4.), • identification of difficulties in the management of an enterprise distributing dangerous materials (1.4., 2.2., 2.4., 4.3.).

Source: own study.

For the purposes of the implementation of the specific goal 1 of the dissertation, an analysis of the production of liquid fuels in Poland over the decade was also carried out, as well as an analysis of the demand and supply determinants on the global crude oil market (*subsection 1.1.*). Characterization and classification of liquid fuels was carried out with an original review of their properties (*1.1.*). The instruments used by the European Union in the area of operations of transport entities as well as the specific objectives of the EU's strategy for the impact of the EU on transport were presented (*1.4.*). Moreover, a variety of definitions of an enterprise and the system of its logistic processes are presented (*1.2.*).

Table S.2. The most important results of the research – specific goal: 4, 5, 6, 7

Specific goal	The results of the dissertation (<i>subsection</i>)
<p>< SG4 > defining the essence, significance and scope of controlling in an enterprise distributing liquid fuels</p>	<ul style="list-style-type: none"> • original review of the definition of controlling (<i>3.1.</i>), • presentation of the meaning, types and criteria for the division of controlling (<i>3.1.</i>), • specifying controlling in an enterprise distributing liquid fuels as a very important method of managing this economic entity (<i>3.2., 3.3., 4.4.</i>).
<p>< SG5 > presentation of the practical use of IT applications in the management of an enterprise distributing liquid fuels</p>	<ul style="list-style-type: none"> • characteristics of the <i>global information society</i>, in which information and the knowledge resulting from it, as well as information technologies become the basic production factors (<i>2.4.</i>), • presentation of the important role of IT applications in the proper management of an enterprise distributing liquid fuels (<i>2.4., 4.2., 4.3.</i>), • identification of problems occurring during the settlement of the amount of liquid fuels, the temperature of which is constantly changing at each stage of their turnover (<i>2.4., 4.3.</i>), • a critical review of the most commonly used IT applications in the management of a company distributing liquid fuels, presentation of the use of these applications in business practice (<i>2.4., 4.2., 4.3.</i>), • presentation of universal telematic applications commonly used in commercial and transport companies, and also used in the management of a company distributing liquid fuels (<i>2.4., 4.2., 4.3.</i>).
<p>< SG6 > formulation of original definitions: companies distributing liquid fuels, transport of liquid fuels, managing a company distributing liquid fuels, controlling of a company distributing liquid fuels, controller in a company distributing liquid fuels</p>	<ul style="list-style-type: none"> • defining the company distributing liquid fuels (<i>1.2.</i>), • defining the transportation of liquid fuels (<i>1.4.</i>), • defining the management of an enterprise distributing liquid fuels along with an original review of the resources of this type of energy entity (<i>2.1.</i>), • defining the controlling of an enterprise distributing liquid fuels (<i>3.1.</i>), • defining a controller in an enterprise distributing liquid fuels, detailing a number of its functions and tasks (<i>3.2.</i>).

Specific goal	The results of the dissertation (subsection)
<p style="text-align: center;">< SG7 ></p> <p style="text-align: center;">development, implementation and application of the proprietary concept of controlling in the management of an enterprise distributing liquid fuels for the purposes of increasing the level of economic efficiency of the enterprise</p>	<ul style="list-style-type: none"> • determining the conditions for implementing controlling in an enterprise distributing liquid fuels (3.3.), • developing the stages of implementing controlling in an enterprise distributing liquid fuels (3.3.), • development of efficiency classification with particular emphasis on economic efficiency (2.2.), • presentation of the efficiency category of a company distributing liquid fuels (2.2.), • development, implementation and verification of the proprietary controlling concept in an enterprise distributing liquid fuels (3.3., 3.4, 4.3., 4.4.), • analysis and evaluation of the impact of the implementation of the proprietary controlling concept on the level of economic efficiency of the examined enterprise (4.3., 4.4.).

Source: own study.

In the area of development, implementation and verification of the proprietary controlling concept in a company distributing liquid fuels (implementation of specific goal 7), the following research activities were carried out (4.3.):

- in the current calculations and analyses in the audited company, an original system of controlling measures was used (including proprietary freight work units dedicated to the transport of liquid fuels),
- a proprietary approach was implemented to solve the problem of the formation of deviations in the volume of liquid fuels during their turnover, i.e. during: storage, receipt, release, transport, loading, reloading and unloading,
- monitoring was introduced and greater control was introduced when releasing fuels to own vehicles by retrofitting the operated ground tanks,
- the use of the *Kalk15* fuel application was initiated to calculate the volume, density and mass of fuel for the reference temperature of 15°C or the actual temperature,
- an electronic system for controlling the quantity of fuels transported in tanks was introduced,
- the level of maintained fuel stocks was reduced (from 15% to 20%),
- a commission system of remuneration for a sales representative for the sale of liquid fuels was introduced,
- two training sessions were conducted for employees of the examined company (from the sales department and drivers),
- recommendations were made for:
 - introducing broader marketing activities,

- pay particular attention to the low level of profitability of one from owned petrol stations (a package of corrective actions has been proposed),
- employment of a second sales representative for the sale of liquid fuels in order to increase the serviced territory for the sale of wholesale fuels,
- introducing a customer creditworthiness assessment system and a commercial cooperation scheme in terms of customer requirements relating to financial collateral.

Table S.3. The most important results of the research – specific goal: 8, 9, 10

Specific goal	The results of the dissertation (<i>subsection</i>)
<p style="text-align: center;">< SG8 ></p> <p style="text-align: center;">defining the tasks of a controller in an enterprise distributing liquid fuels</p>	<ul style="list-style-type: none"> • presenting a controller as an executor of tasks and controlling functions in an enterprise distributing liquid fuels (3.2.), • defining the role of the controller by showing him in the cybernetic system of a company distributing liquid fuels as a navigator – advisor to the management board (3.2.), • visualizing controlling as an interaction between the controller and a manager on the material and personal level (3.2.), • the functional location of the controller in the structure of the company distributing liquid fuels in the staff and line position (3.2.), • specification of the controller function (advisory, supporting, coordinating, supervisory) and a number of its tasks in a company distributing liquid fuels (3.2.).
<p style="text-align: center;">< SG9 ></p> <p style="text-align: center;">development, implementation and practical verification of the proprietary system of controlling meters in a company distributing liquid fuels - including: procurement controlling, sales controlling, transport controlling, warehouse controlling and research and development controlling</p>	<ul style="list-style-type: none"> • development of a proprietary system of controlling meters, dedicated to a company distributing liquid fuels, including: procurement controlling, sales controlling, transport controlling, warehouse controlling and research and development controlling (3.4.), • proposing proprietary freight work units in the transport of liquid fuels as part of the controlling meter system (3.4.): <i>liter-kilometer</i> (<i>liter x kilometer; lkm</i>) and <i>meter-kilometer</i> (<i>cubic meter x kilometer; m³km</i>), • implementation of a proprietary system of controlling meters in the surveyed enterprise distributing liquid fuels and its practical verification (4.3., 4.4.), • conducting (using the proprietary system of controlling measures) an analysis of the impact of controlling on increasing the level of economic efficiency of the surveyed enterprise distributing liquid fuels (4.4.).
<p style="text-align: center;">< SG10 ></p> <p style="text-align: center;">diagnosis of the level of application and functioning of controlling in enterprises operating in Poland that distribute liquid fuels on the basis of a license for trading in liquid fuels (TLF), issued by the Energy Regulatory Office</p>	<ul style="list-style-type: none"> • conducting empirical research, the effect of which is the diagnosis of the application and functioning of controlling in enterprises distributing liquid fuels on the basis of concessions for trading in liquid fuels TLF (4.1., 4.2.), • statistical analysis of the obtained research material (4.2.).

Source: own study.

Research carried out

The research on the use of controlling in the management of an enterprise distributing liquid fuels was carried out in two ways. This is shown schematically in Figure 1.

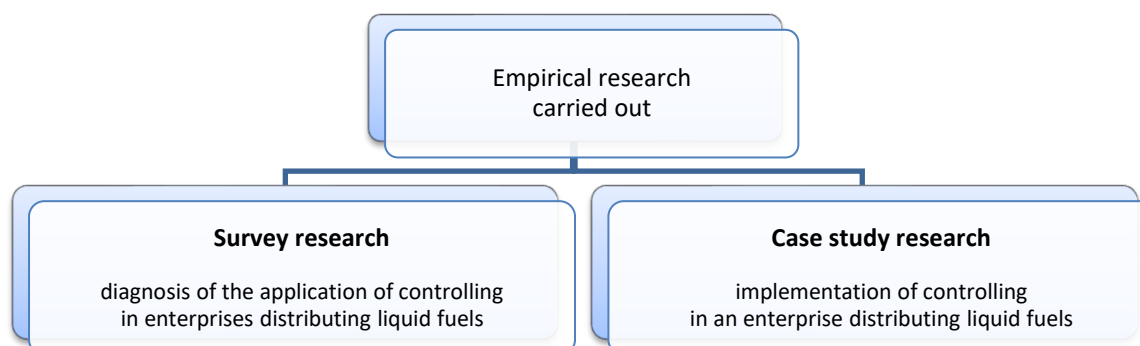


Figure 1. Empirical research carried out

Source: own study.

The research tool was a questionnaire (in electronic or paper form). The survey was anonymous, the research group was defined in a non-random, deliberate manner. It was made up of all companies distributing liquid fuels that operate in Poland on the basis of the TLF license held, i.e. 5,689 energy entities (general population). As a result of the survey, 227 correctly completed questionnaires were collected and accepted for further research and analyses (response rate at the level of 3.99%).

Among the surveyed companies distributing liquid fuels, small entities prevailed - 83, constituting 36.5% of all respondents. Then, entities: micro - 28.2% (64), medium - 26.0% (59) and large - 9.3% (21). The vast majority are enterprises where commercial activities predominate - 54.6% (124) and commercial and service activities - 29.1% (66). Taking into account the organizational and legal form, the largest number, as many as 118, were limited liability companies - 52% of enterprises and sole proprietorships - 25.6% (58). Among the respondents, the largest group (165) were entities with only domestic - Polish capital, i.e. 72.7% of enterprises. Subsequent entities: where Polish capital predominates - 17.2% (39); where foreign capital predominates - 7.0% (16); which have only foreign capital - 3.1% (7).

Nearly $\frac{3}{4}$ of the surveyed organizations are domestic enterprises - 71.8% (163). The degree of internationalization of economic activity of other enterprises is as follows: 17.6% - international (40), 8.4% - multinational (19), 2.2% - global (5). All 227 companies have an TLF concessions. In addition, 8.4% (19) of the surveyed business entities have an FTF

concessions (for foreign trade in liquid fuels), and 3.5% (8) - SLF (for storage or transshipment of liquid fuels). Only 0.4%, i.e. one enterprise has PLF concessions (for the production of liquid fuels) and one TLF concession (for the transmission of liquid fuels) - the same economic entity:

- retail (at petrol stations / stations) - 91.6% (208),
- wholesale (with delivery of liquid fuels by tanker vehicle to the customer - "on site") - 21.6% (49); including: retail and wholesale - 13.2% (30), only retail - 78.4% (178), only wholesale - 8.4% (19).

Among the sample of 227 companies participating in the survey, the distribution of liquid fuels is carried out in the sales segment:

- retail (at petrol stations) - 91.6% (208),
- wholesale (with delivery of liquid fuels by tanker vehicle to the customer - „on site”) - 21.6% (49); including: retail and wholesale - 13.2% (30), only retail - 78.4% (178), only wholesale - 8.4% (19).

The main goal of the survey was to diagnose the level of application and functioning of controlling in enterprises operating in Poland that distribute liquid fuels. Controlling is used in only 9.7% - 22 examined units. There is no controlling in 90.3% - 205 companies.

Among the 22 surveyed enterprises that use controlling in their activities, 86.4% (19) of units indicated the functioning of operational controlling and 77.3% (17) of strategic controlling. 63.6% of respondents (14) have both operational and strategic controlling. 22.7% (5) of enterprises use only operational controlling, while 13.6% (3) only strategic controlling.

Most of the surveyed business entities, i.e. 27.4% (6), use enterprise controlling (performing controlling tasks for the entire enterprise). In the group of the remaining 16 enterprises, there is: integrated controlling (taking into account the company's relations with the environment) - 22.7% (5), functional controlling (performing controlling tasks in individual areas of functions, e.g. transport, supply, production, sales, marketing, logistics, finances) - 22.7% (5), process controlling (fulfilling controlling tasks in the system of implemented processes) - 13.6% (3), project controlling (focused on efficient and effective preparation and monitoring of the course of project projects in the enterprise) - 13, 6% (3).

Taking into account the areas of activity in which controlling was distinguished in the surveyed enterprises, only one unit did not indicate distribution controlling. The presented result of 95.5% (21) reflects the main area of economic activity of the respondents, which is distribution. A very high percentage was also recorded for controlling: sales - 90.9% (20), supplies - 86.4% (19), transport - 86.4% (19), logistics - 86.4% (19) and warehousing - 77.3%

(17). From the point of view of the specificity of the distribution of liquid fuels, these are the key areas of "interest" for energy companies (e.g. in the conducted analyses in the field of proper management and rational management).

In nearly $\frac{3}{4}$ of the surveyed companies with implemented controlling, the controller is directly subordinate to the company's management - exactly 72.8% (16). In the remaining six units, the controller reports directly to: the financial director - 13.6% (3), the chief accountant - 13.6% (3). There were no responses indicating any other subordination in this respect.

Based on the research carried out with the participation of companies distributing liquid fuels, it can be concluded that among the group of 22 entities with implemented controlling, as many as 86.4% (19) supports its functioning using the break-even point method (BEP). In addition, the most frequently used methods / techniques include: sales area analysis - 81.8% (18), discount analysis - 81.8% (18), XYZ analysis - 77.3% (17), SWOT analysis - 72.7% (16). An interesting conclusion is that there is no enterprise in this group that used controlling without supporting it with some of the methods or techniques listed in the table.

Among KPIs - key performance indicators, the most frequently used by the respondents are: ROA / ROE / ROI - 86.4% (19); dynamic profitability, calculated on the basis of operating cash flow - 86.4% (19); gross profit margin on sales (or gross profit margin) - 81.8% (18) and qualitative assessment indicators - 81.8% (18). The smallest number of enterprises (10) use EVA (Economic Value Added) or MVA (Market Value Added) - 45.5%.

All respondents (22) indicated that the introduction of controlling influenced the proper and effective management of the enterprise.

Significant conclusions can be drawn from the analysis of the benefits perceived by the respondents, achieved thanks to the introduction of controlling in the management of a company distributing liquid fuels. All surveyed entities (100% - 22) noted an increase in the effectiveness of planning and control and steering in the enterprise, as well as the rationalization of the costs of its operations. As many as 95.5% (21) monitor managers making more accurate and rational decisions in the company. 86.4% (19) of units indicated that thanks to the implementation of controlling, the company's management has reliable information that enables them to make the right decisions. Almost $\frac{3}{4}$ of the respondents, i.e. 72.7% (16), attribute to controlling the integration of managerial activities belonging to various functional areas of the company. On the basis of the presented results, it can be concluded that the introduction of controlling in the analysed enterprises had a significant positive effect on the management of these entities, so controlling significantly supports the proper and effective functioning of these enterprises.

As many as 90.9% (20) of the respondents stated that the controlling introduced in the company had a large or medium impact on increasing the level of economic efficiency of the conducted activity. There was no reply about the lack of the described impact.

Statistical analyses were carried out in which mainly the test for the independence of Chi-square variables was used. Phi and V Kramer coefficients were used to determine the strength of the relationship. Additional tests were performed using the exact method or Monte Carlo method for each analysis using the Chi-square test.

In the period: September 2021 - January 2022, an empirical study was carried out using the case study research method. It concerned the implementation of the proprietary concept of controlling in an enterprise distributing liquid fuels, as well as the identification and assessment of the impact of this implementation on the level of economic efficiency of the examined enterprise.

As part of the implementation of the controlling concept, after previous analyses of the company's documentation and conducting a series of in-depth interviews, significant changes were introduced in the operations of the audited entity. They are presented in the summary of this dissertation on the implementation of specific goal 7 (SG7).

An original system of selected measures in the controlling area was used, which allowed for the measurement and evaluation of the impact of controlling on the economic efficiency of the examined enterprise. KPIs were also used in this research area.

As a result of the research, a positive impact of the implementation of controlling on the economic efficiency of the analysed enterprise was demonstrated.

The proprietary solutions proposed in this paper in the area of implementing controlling in an enterprise distributing liquid fuels have not yet appeared in business practice.

Verification of hypotheses, main conclusions

The most important conclusions from the conducted research of a cognitive nature:

- organizational conditions affect the use of controlling in enterprises distributing liquid fuels - **hypothesis H1, which was fully confirmed** (*in subsections 4.1., 4.2.*):
 - the larger the company distributing liquid fuels (measured by the number of employees), the more controlling is used (H1a),
 - enterprises distributing liquid fuels with domestic (Polish) capital use controlling less often than others - it is most common in enterprises with foreign capital (H1b),

- controlling is most often used in global enterprises distributing liquid fuels, and least often in domestic enterprises (H1c),
- controlling is used much more often in enterprises dealing with wholesale distribution of liquid fuels than in enterprises dealing solely with retail distribution of liquid fuels (H1d),
- properly implemented and used controlling in a company distributing liquid fuels increases the level of economic efficiency of this entity - **hypothesis H3, which has been confirmed** (4.1., 4.3., 4.4.),
- some companies distributing liquid fuels use certain controlling instruments as well as methods and techniques supporting controlling in their activities, while being unaware of this fact; the functioning of controlling (including the „unnamed” one) in the surveyed companies distributing liquid fuels may be at a higher percentage level than the obtained result - 9.7% of the surveyed entities,
- there is a possibility of a much wider use of controlling in the economic practice of enterprises distributing liquid fuels,
- the surveyed companies distributing liquid fuels using controlling unanimously assess it positively,
- the use of controlling should be popularized in the activities of enterprises distributing liquid fuels.

The hypothesis H2 has not been verified (4.1., 4.2.), assuming that controlling has a greater positive impact on the proper and effective management of a company distributing liquid fuels when functional controlling is used in this unit, while this impact is the lowest in the case of using company controlling. Due to the small number of enterprises in the study of enterprises using functional controlling (5) and enterprises using enterprise controlling (6), it was impossible to conduct reliable analyses in this respect.

The result of the conducted empirical research may be implications for economic practice. The management staff lacks an appropriate model for implementing and applying controlling in an enterprise distributing liquid fuels. The answer to this lack is the development of an original controlling concept in an enterprise distributing liquid fuels. It presents, inter alia, proprietary approach to solving the problem of the formation of deviations in the volume of liquid fuels during their turnover and the proprietary system of controlling measures, under which proprietary work units for the transport of liquid fuels were proposed. According to the author of this dissertation, the own concept of controlling implemented in the examined

company could also be successfully applied in other companies distributing liquid fuels in which controlling does not function. It should be emphasized that, of course, this would require adaptation of this concept, because controlling should be a system tailored to the individual needs of business entities. The circle of people interested in the results of the conducted research should include mainly representatives of the management board, commercial directors, logistics managers, transport managers and controllers of companies distributing liquid fuels.

Suggestions for future research

According to the author, it is worth continuing the empirical research conducted in the dissertation. Further research could concern the implementation and verification of further controlling tools in other companies distributing liquid fuels. The development of a broader instrumentation in this area would allow for the creation of a more universal controlling model, dedicated to enterprises distributing liquid fuels in the country and abroad. An important aspect in the scope of continuing the research seems to be the assessment of the possibility of using benchmarking in the controlling concept of a company distributing liquid fuels. The conducted research can be focused on a more detailed identification of the relationship between the implementation of additional controlling instruments and the change in the level of economic efficiency of the enterprise, using the triangulation of research methods.

Among the proposed further directions of research, the following can also be mentioned:

- development of the presented system of controlling measures and its practical verification,
- identification of factors influencing the quality of the controller's work in an enterprise distributing liquid fuels,
- developing a profile of qualification requirements for the position of controller in an enterprise distributing liquid fuels,
- analysis of the impact of the implementation and application of controlling on the psychology of work in an enterprise distributing liquid fuels,
- analysis of the impact of transport controlling in an enterprise distributing liquid fuels on the protection of the natural environment.

The effects of the considerations presented in this dissertation are implications for both theory and business practice.