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ANALYSIS OF THE FACTORS AFFECTING FUNCTIONAL CONTROLLING AND CONTROLLING AWARENESS AMONG LARGE HUNGARIAN COMPANIES

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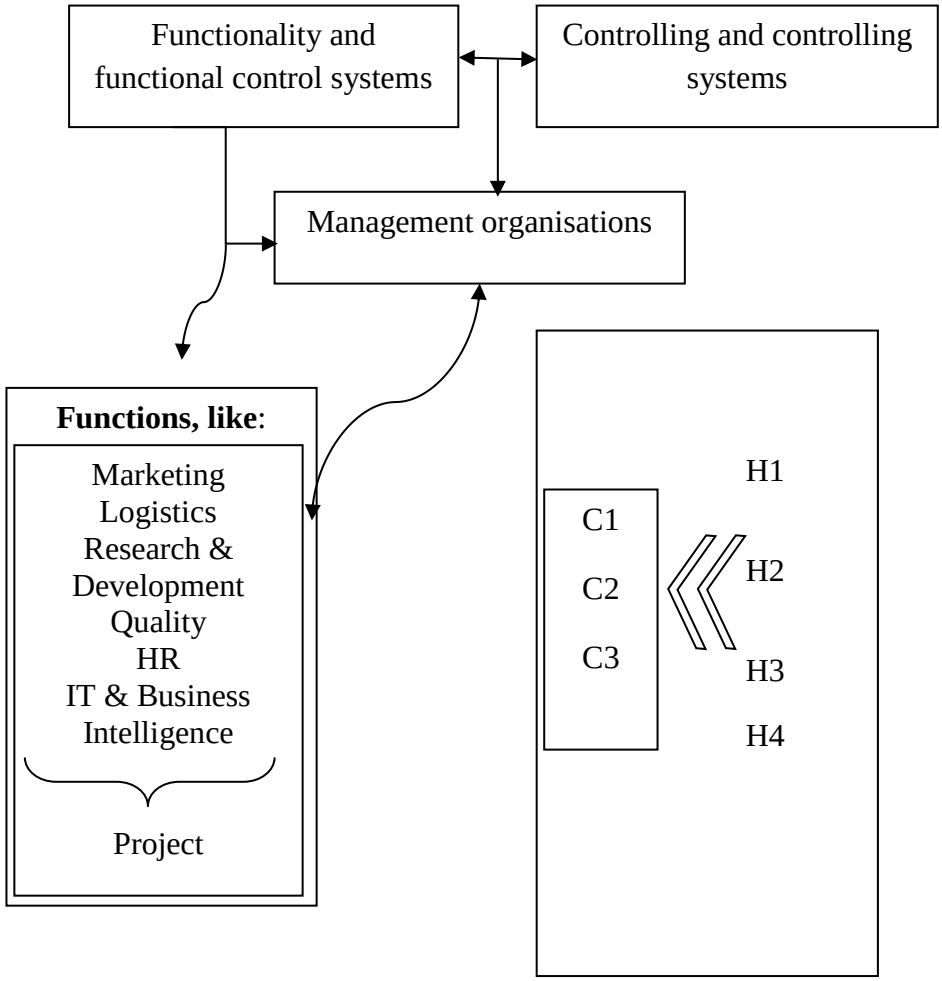
1. INTRODUCTION

In the last decades, digitalisation and industrial development have led to a significant evolution of farm management processes (BOWERSOX et al. 2002). As a result of IT and mathematical-statistical advances, the available data has become more extensive and comprehensive, which provides the basis for information-optimized business operations (SALIMYANOVA et al. 2019). These developments and opportunities have had a significant impact on the field of controlling and as a function. Through these changes, the traditional role of controlling has become more expansive and financial-accounting perspectives have been reassessed. Indeed, initially, controlling was mainly linked to money, but it gradually expanded to include performance, capacity and capability functions. Financial control tends to be a centralised function, while performance, capacity and capability control is typically a decentralised function (KAPITÁNY 1991). The controlling processes that monitor and support managers in different functional areas of the company are called functional controlling (VÉRY 2009). Functional controlling requires different methods and criteria to support effective monitoring and managerial decision-making (KOVÁCS 2019).

In presenting my research topic, I will describe the functional controlling systems that support corporate operations. The need for companies to make decisions with and after processing sufficient and relevant information has emerged in the context of fierce global market competition, which can be seen as a rather basic criterion (TÓTH - ZÉMAN 2003). This has given rise to a structured system that collects, summarises, selects and processes information along different structures, which provides a quick and efficient response to potential problems that may arise during the management of the company (ZÉMAN 2016). It is in the context of these needs that the importance of the control system has been assessed. But here too, an important factor was that controlling should not receive information in bulk, but structure it by area and function (GOELDEL 2010).

After all, companies are made up of structures and the function is at the centre of each structure.
The functional approach focuses on the subsystems and their interaction. The functional control system controls the functional areas of the enterprise (TÓTH – ZÉMAN 2003).
The topicality of the topic is that in recent years the focus has shifted from the methods of controlling to the different goals and expectations of controlling for companies. Examples to illustrate this process are the decline of cost analysis methods and the development of control systems that also monitor the fulfilment of strategic aspects. These developments can also be observed in our country, both in corporate and academic research (ZÉMAN et al. 2014).
The history of controlling in Hungary began with the change of regime. Companies needed a system to coordinate profit, money and asset management (CHIKÁN 2003). Of course, companies had already had it in some similar form, but the difference was twofold. Firstly, they did not form a single, unified system, and secondly, they did not serve the same specific purpose as the controlling function itself. In those years, there was not yet a fundamental need to operate a clear, transparent system (GLEICH – LAUBER 2013).
Nowadays, however, the multiplicity of concepts is beginning to form a clear system of what exactly controlling is and in which cases it provides supportive assistance to companies. Thus, controlling is nothing more than a subsystem of management that coordinates planning, control and information provision (CHAMPY 2000). Nowadays, this is also the most common formulation of controlling in our country (ZÉMAN et al. 2011).
One of the most important objectives of a controlling system is to ensure that measures are taken to improve profitability and the financing situation as early as the planning stage (AMANN - PETZOLD 2014). In all cases, the information provided by the controlling system has the fundamental purpose of supporting managers and decision-makers by means of various financial and operational tools and methods (HORVÁTH 1993).
Based on these ideas and my research objectives and hypotheses, I have formulated the concepts of "embeddedness of the controlling system", "functional areas of the controlling system" and "controlling awareness" (Figure 1)



1. figure: Flowchart of doctoral research
Source: based on own analysis, (2020), own editing

In what follows, I will define some of the concepts that arise and need to be defined in the formulation of the objectives and hypotheses. These concepts will be explained in more detail in later chapters, but I think it is important to list the concepts that are of particular relevance to my thesis before presenting my hypotheses:

Functions: function is the origin of all structures. The function is the origin of all functions.

Functional controlling: The term used to describe the managers of the functional areas of a business organisation and the supporting controlling processes and related activities.

Organisational performance (management): A control system that focuses on the controlling process and its management, is future-oriented in its thinking, links objectives between functional areas, and is also concerned with continuous system improvements, data quality and economic rationality. Organizational performance management is a set of methodologies, processes and IT solutions that enable an analytical approach to the way organizations operate, thus ensuring goal-oriented decision support. From an IT perspective, it can be seen as a framework that provides a unified, single user interface for accessing information, strategic and operational planning and measurement, and reporting on transactional systems.

Controlling awareness: the concept is intended to present the extent to which a company makes use of the possibilities offered by controlling tools and how it exercises them. Control awareness is an expression of the extent to which enterprises use control and its tools. The higher the level of complexity of the system used by a company, the stronger its control awareness.

Geopolitics and geo-economics: Geopolitics is the study of the geography of political processes and the relations between them and international politics at a given moment. Geo-economics is defined as a tool for analysing state strategies that focus on how these strategies aim to safeguard the national economy, how they focus on domestic exports and services, how the state tries to maximise its share of the world market, how it can control markets for certain products and how it tries to acquire new technologies.

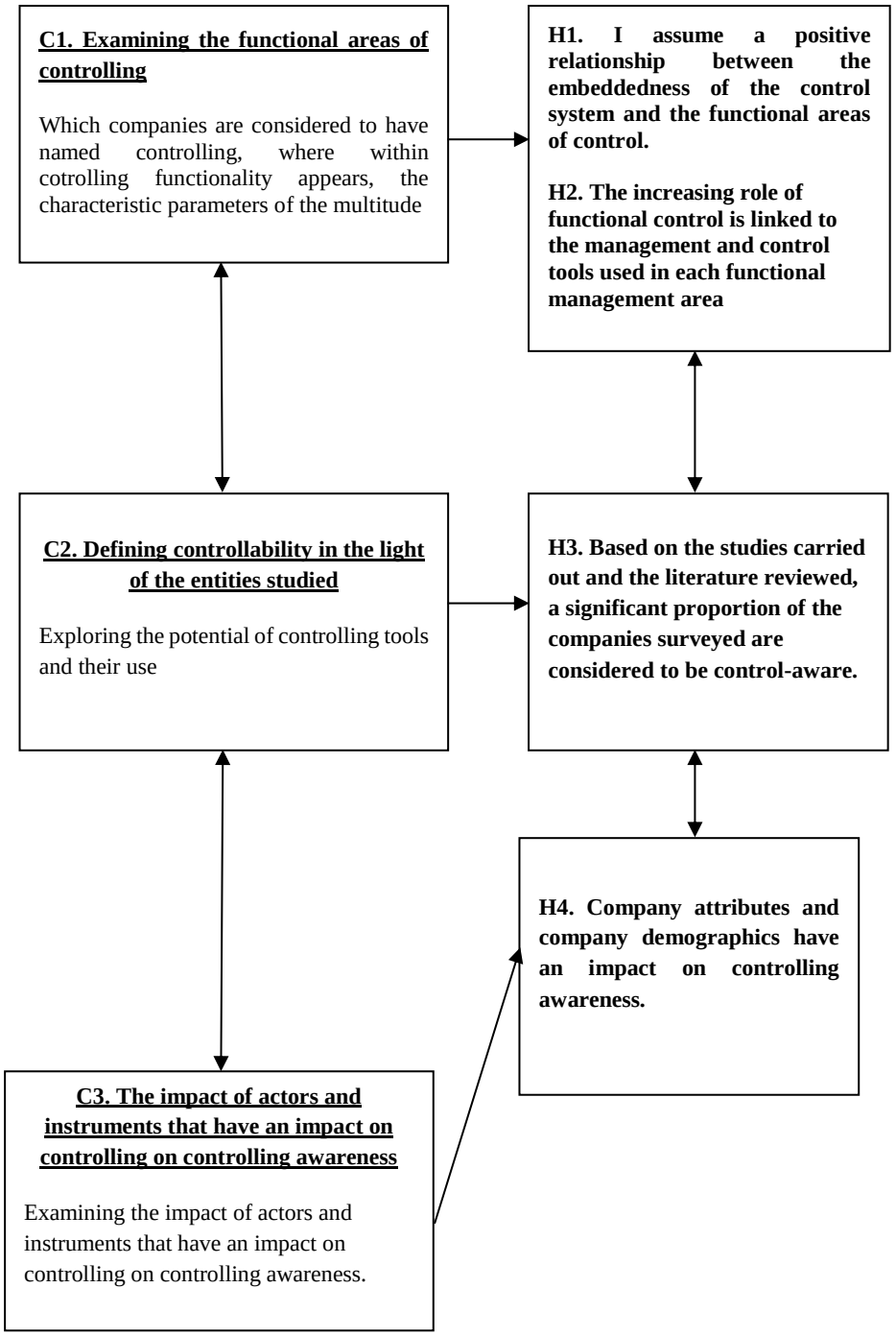
While geopolitics assesses the power and advocacy success of its actors in terms of their control over a given territorial unit, geoeconomics measures the same in terms of the degree of influence over markets and the availability of available technologies. In terms of the actors involved, the differentiation can be observed in that geopolitics focuses more on the role of states and groups of states, while geoeconomics focuses more on the activities of multinational corporations and states, state bureaucracies (LOROT 1999).

2. ANTECEDENTS AND OBJECTIVES OF THE WORK

The topicality of the topic is that the development of the organisational processes of corporate management and the benefits of digitalisation have led to an increasing specialisation of controlling and its focus on specific management areas. This is borne out by the fact that even before the pandemic, companies were already striving to digitise their processes, which is a prerequisite for the further development of control systems, as information is one of the most important factors of production in the 21st century.

The first step in examining the hypotheses and objectives set out in my research was to process and review the literature relevant to my chosen research topic. This gave me a good basis to start to investigate a narrower cross-section within the field of controlling, focusing on function and functionality. I wanted to explore functionality and its dimensions in the form of a questionnaire, as this gave me a broad enough spectrum to give a true and as colourful a picture as possible of the controlling area under study, in terms of size, industry, national or foreign. I conducted the questionnaire survey through several forums and channels, with ongoing professional consultations which were of great help. The professional consultations and a proper study of the literature led me to the conclusion that, in order to have a separate and properly illustrated representation of functional controlling activities, it was necessary for the company under study to have reached a certain size of enterprise. This conclusion is echoed in the questionnaire, which, through a series of questions, deals with the different economic units

In the light of these answers, a pattern of entities which characterise the business entities and on the basis of which the objectives and hypotheses set out are confirmed is beginning to emerge (Figure 2).



2. figure: Description of the relationship between the hypotheses and the objectives

Source: based on own analysis, (2020), own edit

2.1 Details of objectives

C1

My first objective during my research was "to study the functional areas of controlling". By means of a questionnaire survey, I wanted to assess the prevalence of functional areas in the corporate control system and which tool is used most by companies.

C2

I have defined the concept of **"controlling awareness"**, which, based on the studies carried out, indicates the extent to which a given company makes use of the possibilities offered by controlling tools and the way in which it exercises them. Controlling awareness is the level of the extent to which controlling is used, the way in which controlling tools are applied. The higher the level of complexity of the system used by the company, the greater the level of awareness of control. I test this factor with the functional control variables. Control awareness means that the company has functional control tools in addition to the basic control functions.

C3

To what extent do the actors and instruments that influence controlling influence the awareness of controlling. These include company size, ownership structure, industry, other company characteristics and functional control tools.

2.2. Hypotheses

The embeddedness of the control system, measured by the frequency with which control processes and plans are reviewed, and the assumption of a positive relationship between the functional areas of control.

The embeddedness of the control system measures the frequency with which the firm's methodology for preparing its financial plans is reviewed, fulfilling the feedback function of the control loop (SAJTOS - MITEVA 2007). This variable was obtained from a factor analysis of the first set of questions 5 to 6 of the questionnaire (1.5 to 6 Frequency and the variables of the first set of questions 1.1 to 1.2) (KVALE 2005).

Controlling as a management support system consists of planning, monitoring, feedback (ANTHONY - GOVINDARAJAN 2006). One important function is therefore related to planning, as these factors determine the ability of the firm to prepare for unexpected situations. Although the importance of planning is not reflected in the context of legislation, it is nevertheless a core function of the control system. Accordingly, the embeddedness of the control system was based on these factors, and two sets of questions in my questionnaire referred to this (questions 1.5 and 1.6).

In addition to planning, strategic and operational controlling tasks also determine the depth of the corporate controlling system. This is the context in which strategic and operational controlling is present, and this is answered in question groups 1.1 and 1.2 of the questionnaire.

I measured the embeddedness of the controlling system by the sum of the variables in this group of questions.

I examined the role of the functional areas of controlling in forecasting in relation to the functional areas shown in Figure 2. In my research, I also grouped these variables based on factor analysis (1.7.MC_frequency, 1.7.MC_weekly, 1.7.LC_frequency,1.7.KF_frequency, 1.7.KF_weekly, 1.7.LC_frequency, 1.7.HR C_frequency, 1.7.HR C_weekly).

These variables cover different functional controlling areas, such as marketing controlling, logistics controlling, HR controlling, and R&D controlling, as well as quality controlling in the questionnaire.

I have assumed that the two areas are related because the use of strategic and operational controlling tools and the importance of planning are related to the planning systems in the functional controlling area, as corporate planning also covers these functional management areas.

The prominent role of controlling in the organisation has been described by Simon and his colleagues (SIMON et al. 1954). A series of national and international studies confirm that in an ever-changing geo-economic environment, the need for companies to be more and more aware of controlling and the setting up and proper use of the controlling system itself is becoming increasingly important (see BURNS - SCAPENS (2000), SZILÁGYI (2018), ZÉMAN et al. (2018)).

Strategic, operational and risk management, which form the basis of the control system, encompasses all areas of the enterprise, providing them with stability, system and opportunity for development (LAM 2003).

The control system is diversified in its orientation, but it is important to highlight the criteria along which areas and functions can be characterised. This is **future-oriented thinking** and a **goal-oriented focus**, which also implies a **narrow focus**. And **a focus on cost** leads to a **decision-oriented mindset**. (ANTHONY - GOVINDARAJAN 2006).

The key tasks of a controlling system include improving its own organisation and continuously updating the application of controlling methods to respond to the challenges of the market environment, as well as performing basic functions such as planning, monitoring and providing information (KÖRMENDI - TÓTH 2011). As a subsystem of internal management of organisations, controlling can be continuous and deliver consistently good performance if it shares the same vision and orientation with controlling methods and its functions.

H2

The strengthening of functional control was tested in question group 2. With these questions I wanted to test how they see the integration of corporate controlling into the system. Strength of the controlling function (Strength of function 2.0 C) was created by factor analysis from question group 2 of the questionnaire. The

message of this variable is that functional controlling can make a strong contribution to optimising the strategic and operational functioning of the company (MALLYA 2007).

The functional areas of controlling variable group was extracted from question set 1.9, these questions contained statements on the use of different functional controlling tools. The relationship between the variables was examined by correlation analysis. **My hypothesis was that the strengthening of the role of functional control is related to the management and control tools applied in each functional management area, i.e. a causal relationship can be established between the two factors.**

This can be explained by the fact that some management tools have been incorporated earlier in the company's operations, but their monitoring induces the use of control tools, which in turn leads to an increase in the role of functional controlling.

H3

Based on the studies and literature (HORVÁTH (2011), SINKOVICS (2013), ZÉMAN et al. (2018)), a significant proportion of the companies surveyed are considered to be controlling-conscious.

The conceptual scope of controlling awareness indicates the extent to which a given company makes use of the possibilities offered by controlling and the frequency with which it applies and uses them. Control awareness is a complex concept, as it includes the extensive use of functional control tools in addition to basic control tools. I define these concepts by grouping them together through an analysis of the questionnaire. In doing so, I carried out a cluster analysis of the factors formed from the groups of questions 1.1, 1.2,1.3,1.4,1.5,1.6,1.8,1.9 and 2.0, on the basis of which I measured the controlling awareness of the companies.

My hypothesis is based on the fact that a significant proportion of respondents are classified as large companies in terms of the number of employees, where the diversity of activities, the market position of the company, or possibly its ownership structure, requires the company to incorporate a broad spectrum of applied controlling tools, philosophies and methods. Hence, a correlation between my definition of complex controlling awareness and firm size can be shown.

H4

Firm attributes and firm demographics have an impact on controlling awareness. I hypothesise an influence of industry characteristics, as well as, control consciousness, which I investigate using cross-tabulation analysis to identify possible relationships.

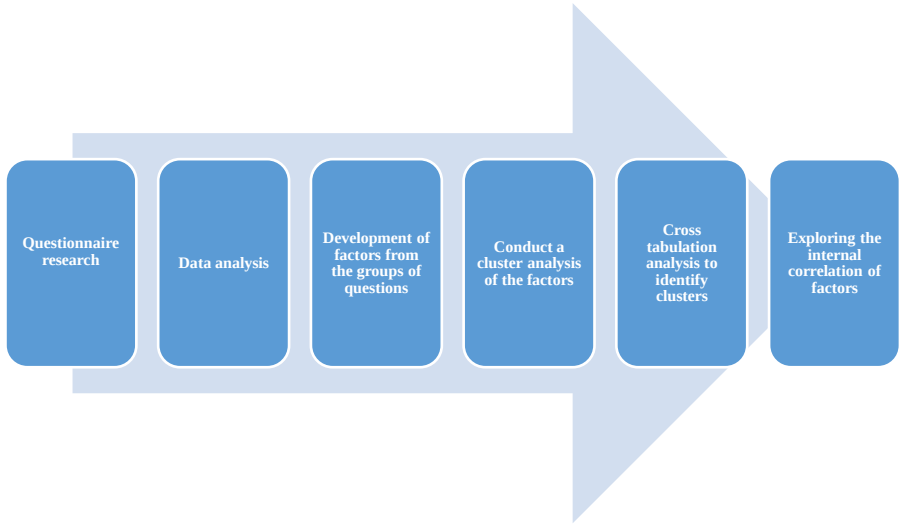
By examining the relationship between organisational characteristics and controlling awareness, it is possible to interpret controlling awareness more accurately and to identify the various latent variables that determine and influence controlling awareness.

3. MATERIAL AND METHODS

3.1. Research methodology

The method I used in my research was quantitative analysis. The process of my research is illustrated in Figure 3. The research was based on primary data collection. The data was collected using an expert questionnaire method (KVALE 2005). The questionnaire was administered between summer 2018 and spring 2019. After cleaning and structuring the results of this questionnaire, I processed the responses. The total number of evaluable results from the questionnaire was 138. The 138 evaluable results obtained were coded in a form suitable for further analysis (MAJOROS 2004).

In the second step of the research process, data analysis was carried out using MS Office and SPSS software packages. Using various descriptive statistical methods, I examined the distribution of the variables in the questionnaire, which is presented in Appendix 3.



3. figure: Description of the research process
Source: Own research, 2021

In order to group and aggregate the variables in the analysis, I performed a factor analysis (SZÉKELYI - BARNA 2008). Using this method, my aim was to logically condense the data content of the main groups of questions and to create and construct variables that are well explained from a professional point of view.

The groups of questions included in the cluster analysis refer to the topics that are relevant to the research. These themes relate to the exploitation of the opportunities offered by controlling for the companies concerned and the frequency with which different methods are used. Correlation analysis was carried out to test the correlation between the variables obtained in the factor analysis.

The results of the research are based on the results generated by the factor analysis, and as a consequence, it is possible to assess the attitudes towards controlling of the different grouped organisations and the use and frequency of use of different controlling methods.

I define these factors uniformly as controlling awareness. In order to be able to define this controlling awareness accurately and to distinguish between the groups, I have used cluster analysis. The cluster analysis was thus intended to help me identify the degree of controllability, and thus to group the enterprises under study, by means of the variables created in the factor analysis. In order to further refine the cluster data, I carried out cross tabulation analyses on the business demographic variables included in the questionnaire.

Chi2 test and Cramer V index were used in the analysis.

SPSS output was processed in Excel using conditional formatting. This provides a more appropriate view of the differences that the dendrogram illustrates when grouping along different levels of significance. In other words, the differences that separate the groups from each other are made visually apparent.

Finally, the content of the questionnaire is presented, with nominal and ordinal variables dominating the questions. For the latter, I used a Likert scale with a 1-5 scale.

3.2. A Presentation of the sample

Looking at the institutions asked to respond, the majority of the companies are subsidiaries and the majority are limited liability companies. In addition, there is a high number and proportion of companies that are independent of the group.

Among the sample respondents, the predominant type of organisation is linear, while functional organisations are the most common type of organisation. Linear organisations have recently experienced a renaissance, mainly due to new management philosophies.

In the remainder of the questionnaire, the respondent was asked which position he/she held in the company. The results showed that the third most common type of respondent was the respondent with the highest proportion of ownership rights, who was a partner in the business.

In addition, there was a predominance of controller, which was the most common respondent position, and senior manager, which was the second most common respondent.

The analysis revealed that a significant proportion of organisations have a controller, as employees in this position were the most likely to respond to the questions. Moreover, it is commonplace that a large company requires a controlling system.

Continuing with the analysis of the data obtained, it can be said that, in terms of the number of employees, it can be observed that mainly large companies responded to the questionnaire, while in terms of revenue, the majority of companies achieved a value of over HUF 13.5 billion in the year of response. The responding companies were therefore mainly large enterprises.

After analysing the responses, it was found that large companies accounted for the majority of the responses in terms of SME size categories, with a share of 82%. Hence, the survey is mainly focused on large enterprises.

In summary, around 80% of the companies are classified as large enterprises based on the three business categories surveyed, which supports the large enterprise focus. The preference for large companies is explained by the fact that they are the main ones operating complex control systems.

From an industrial point of view, the picture is homogeneous, with companies from the services sector and the distributive trades being the main respondents to the questionnaire. Manufacturing, construction and financial services played a minor role in the sample. Therefore, the experience mainly relates to large companies in the trade and services sectors.

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4. RESULTS AND DISCUSSION

4.1. Factor analysis

Factor analysis was used to group the variables in the question sets of the questionnaire. My principle in factor analysis was to provide a detailed presentation where the analysis was able to identify more than one factor.

4.1.1. Strategic functions in the applications of controlling

For the interpretation of the results, I will not present the SPSS output "Total Variance Expained" or the line graph visualising it, as they are large in size and thus scope, but their information content can be summarised in one sentence. With a two-component model, the segment called "controlling application of strategic functions" is well explained, since its combined coefficient of variation is 93,47%, which can be considered statistically unobjectionable.

Thus, the components of Factor 1 are Business Development, Enterprise Value Creation Planning, Competition Analysis/Benchmarking, Financial Policy, Investment Economics, and Capital Structure/Capital Investment. I have named this factor Growth Support.

The elements of Factor 2 are Strategic Scenario Building, Long Term Financial Planning, Risk Management Policy, Risk-Return Optimization. This factor is called Risk Management Dominance. Based on this factor, it can be concluded that the variables of this factor mainly refer to the coexistence of the strategic focal points of controlling.

The KMO test value was 0.65, which means that the variables are suitable for clustering.

4.1.2. Az Operational functions in the application of controlling

In the present case, two factors were also included in the model, which together account for a cumulative standard deviation of more than 91,5%, i.e. a low level of data loss. The KMO test value in this case was 0.687 and the Bartlett test was significant.

The first factor includes Transaction Processing, Short-term Financial Planning, Management Reporting/Analysis, Funding Policy/Liquidity Management, Capital Allocation, Risk Exposure Management and Cost Management. Factor name: Financial and Performance Controlling. These variables are therefore mainly key activities in the operational toolbox of financial management control.
The controlling process interfaces variable was primarily grouped into one factor, here there was no significant difference in the precision of the plans, i.e. no time difference between the respondents.
The second factor includes Operational Scenario Preparation, Tied Working Capital Management and Investment Cash Flow Management. This factor is called Operational Financial Management. The variables are mainly the operational components of controlling, with a financial focus.

4.1.3. Review frequency of marketing controlling

A two-component model explains this segment well, as their combined standard deviation is 99,35%. Among the respondents, marketing controlling is either almost immediately linked to their functional contact points or, more commonly, the time span is monthly, quarterly, semi-annually or annually. The KMO test score is 0.688.

4.1.4. Frequency of research and development controlling reviews

In terms of R&D activity, 26,8% of the respondents are engaged in R&D on a daily basis, while a similar proportion is observed in the weekly dimension, so the two figures are in line with those observed for marketing controlling.

For the factor analysis of the research development controlling review frequency with a coefficient of variation of 99,8%, the model is considered usable. I obtain similar results to the previous study, hence a relationship between the two factors can be assumed. It can be seen that, basically, managers either deal with these types of issues in the short or medium term.

4.1.5. Review frequency of human resources controlling

For HR controlling, I also used a very strong model with a coefficient of variation above 97%. One can only say similar things about the interpretation of the analysis that I have already explained.

The KMO test value was 0.66.

So, basically, human resource management tasks are also present in the life of the interviewed companies either in the very short or in the medium term. This is therefore illustrated by the output of the two-item factor analysis used earlier.

In the case of human resources management, it can be seen that, similar to R&D and marketing management, the factors are developed for the short term and the annual horizon respectively. Thus, for these functional areas, enterprises can be divided into two main groups, those that review their controlling activities at least weekly and those that do so less frequently.

For logistics controlling and quality controlling, it was not possible to identify more than one factor, although the analysis was carried out. For these variables, there is no isolated variation in the review of the controlling system, which I explored using the single factor model.

I then subject the resulting variables to correlation analysis to see if the hypothesized relationship is proven.

4.1.6. A summary of the links between controlling processes and functionality

In the following, I have examined the extent to which controlling processes address the interfaces of functionality. I examined this in the interviews in the cases of marketing controlling, logistics controlling, research and development controlling, quality controlling and human resources controlling.
In all three cases, it can be said that the first factor is called daily, weekly reviews, and the second is called monthly, quarterly, semi-annual or annual reviews. The heading may seem a little too exact, but it is justified to use it in order to avoid misunderstandings and inaccuracies.
The group of questions tested the extent to which they agree with the change in the functionality of controlling. With regard to the first question, 55,8% of the respondents stated that there was a tendency for the controlling functions to become more complex, while 55,8% of the respondents indicated that they could answer to a large extent. 82,6% of the respondents confirmed the need to provide more frequent and more information to the actors of the system, 50,7% considered the strengthening of the coordination functions of management to be significant, while only 26,8% stated that the weight of controlling in strategic issues was increasing to a significant extent. Management accounting is the most important contributor according to the respondents, with a lesser role for management information systems. The latter has a greater role for functional area statements, but is also significantly supported by BI systems. The greatest support is provided by the control system as a whole, according to respondents.

4.1.7. Usefulness of reporting systems for management support

For the present analysis, the KMO test was 0.7. Again, SPSS built a model with a standard deviation of 94,8%, i.e. a fully usable model, with the variables named as elements of strategic marketing controlling and operational marketing controlling (except for the other variable).
The individual factors are not separated along this grouping, i.e., they are used by the respondents in a mixed way.
The factors can best be distinguished along the lines of the complexity of the methodologies.

The companies in the first factor (also) use more and more complex systems, while the second factor typically uses only two general and simpler methods.

4.2. Cluster analysis

I grouped the aggregate variables, factor variables, obtained in the fall part of my research, with the aim of assessing the degree of controlling awareness.

In the cluster analysis, I identified and named 3 different groups using the SPSS Statistic program as follows:

- Cluster 1: Non-controlling companies
- Cluster 2: Medium control conscious companies
- Cluster 3: Highly controlling companies

In naming the clusters, the decisive factor was which cluster had the highest descriptive statistics. This was used to determine the degree of controlling. If this factor was not the criterion, but the nature of the relationships between the variables, the naming of the first cluster would not be changed. An alternative name for the third cluster could be strategic functional controlling, since both strategic factors and daily and weekly functional controlling are the determining factors, in addition to the importance of the controlling functions and their reinforcement. Thus, further positive changes in the control system can be expected in these firms, which could be innovators in this area. The second cluster represents the functional controlling in operation, in my opinion, since the explicit impact of capital management, operational financial management and controlling is the dominant one, and the functional areas in this cluster were the highest.

To check the quality of the cluster analysis, I carried out an analysis of variance, which summarized the data obtained. I can say that I found a significant relationship for 8 variables, which can be considered fully acceptable for a 138-variable data set, i.e. I do not raise any statistical objections to the results of the cluster analysis (especially since the KMO values found in the factor analysis were also between 0.6 and 0.8.)

For the first cluster, the companies under consideration are below the overall (Total) average for all variables. This is also the case for the median and the standard deviation. The minimum value for Total was found for this cluster, while the maximum value was the lowest for this cluster compared to the other two clusters.

The values for the second cluster were mixed. Along some variables they performed the best, while in other categories they performed particularly poorly.

Companies in the third cluster score at or near the maximum for most variables. However, for 9 variables, they scored lowest for Total. The most prominent gaps are along the explicit impact of Operational Financial Management and Controlling. Among these, the mean, median, minimum, maximum and standard deviation are the lowest.

4.3. Correlation analysis

I also examined the factor analysis data using correlation analysis. The idea is to explore the relationship between criteria in a framework that helps describe a phenomenon through a mathematical model. The assumption is that one phenomenon is associated with the evolution of another. In our case, I am therefore trying to answer the question of which activity is associated with the performance of another process and to what extent.

Summarising the data obtained, I consider the relationship to be strong from 0.7. Thus, the values obtained show that 11 variables are strongly related to capital management. Strategic management alone shows a strong relationship with frequency. The variable Planning and Strategy shows a strong correlation with 14 other variables, while the variables MC_weekly, KF daily, C asset management, C explicit effect and Leadership show a strong correlation with Operational financial management.

Summarizing the data examined, it can be said that if an organization wants to improve and efficiently run a predefined activity, its controlling activities, they can have an impact on various other processes and controlling methods. So, in order to develop effective controlling, it is necessary for companies to have a broad and clear understanding of the mechanisms of action of

controlling and functional controlling, as it has become clear through this analysis that there are many interrelationships based on this.

4.4. The cross-tab analysis

The categories used for cluster analysis were refined using cross tabulation analysis. By analysing the values obtained, it can be concluded that the majority of non-controlling companies were independent companies or companies operating in the form of an LLC. The majority of the highly controlling companies are subsidiaries, where the reporting systems and methods of the parent companies are widespread. Included here are also public limited companies, whose activities make it important to have an adequate controlling background, a statement which also applies to parent companies. Firms with a medium level of control are typically limited liability companies and to a lesser extent subsidiaries.

Looking at the data on firm size, the larger and more specialised the firm, the more likely it is to be considered a control-conscious firm. Another finding was that the possibility of interviewing the controller was most frequent in companies with a strong awareness of control, while there were also a number of such opportunities in companies with a medium awareness of control, but none in companies with no awareness. The study also showed that the most successful companies were from the service sector. Their share is high in all three awareness categories. The group of non-control-aware companies includes, in addition to the above-mentioned segment, construction, manufacturing and trading companies. The moderately control-aware companies all come from the services sector. The group of highly control-conscious firms is more dispersed, comprising companies from the agricultural, manufacturing, construction, commercial, financial, insurance, services, energy and other sectors.

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5. CONCLUSIONS AND SUGGESTIONS

The results of my research are summarised in the table below:

1. table: Testing hypotheses

Hypothesis	Applied methodology	Decision
H1	Factor analysis, varimax procedure and correlation analysis	Accepted
H2	Factor analysis, varimax procedure and correlation analysis	Accepted
H3	Cluster analysis	Accepted
H4	Cross-tab analysis	Accepted

Source: based on own analysis, (2019), own editing

For the **first hypothesis** of my research, I generated the variables from the questionnaire variables and their results using cluster analysis. My analysis clearly proved that there is a significant correlation between the frequency of reviewing the control system and the frequency of reviewing and predicting the functional control system. Based on the frequency, it can be concluded that forecasting and reviewing mainly takes place at least quarterly, which shows the prevalence of functional control. On this basis, the hypothesis is accepted.

My **second hypothesis** concerned the extent to which the control system and the strengthening of the control functions have an impact on the revision of the values included in functional controlling. I used correlation analysis to show relationships between the variables included in the study. This relationship was found to be strong for frequent review, but, even with weekly or daily frequency, the relationship was stronger than medium for most functional control areas. Based on these factors, the hypothesis was confirmed.

Related to my **third hypothesis**, I clustered the variables obtained from the factor analysis based on cluster analysis. As a result of this cluster analysis, I was able to classify the organisations under study into three distinct groups:

- Highly control-conscious companies,
- Medium control conscious companies,
- Non-controlling companies.

The distribution shows that the vast majority of the companies in the sample, 55,8%, are considered to be highly control conscious, while the share of moderately control conscious companies is 26,8%. This leads to the conclusion that a significant proportion of the companies surveyed have confidence in their control methods and apply the principles of control, which also includes functional control. The hypothesis is thus considered to be accepted.

In my **fourth hypothesis**, I investigate the identification and interpretation of controlling awareness using firm demographic characteristics and other attributes.

I tested the hypothesis using a cross tabulation analysis, the results of which revealed a relationship between ownership characteristics, organizational type, firm size, and industry characteristics of the firm under study. The strength of the relationship was stronger than medium for firm ownership and firm type characteristics and for industry based on the Cramer V index. Based on these results, I accepted the hypothesis.

6. NEW SCIENTIFIC RESULTS

1. I used multivariate methods to identify the degree of embeddedness of controlling. My research has found that the embeddedness of the control system influences the frequency of review of functional control, which typically occurs at least annually in the areas of functional control.

2. My research found that the strengthening, consolidation and deepening of the controlling function entails the integration of controlling into other management areas. My scientific thesis is that the evolution of controlling promotes a move towards complexity and, with it, its application in functional areas.

3. In my third hypothesis, I used cluster analysis to identify three groups of variables obtained by factor analysis, which are significantly distinct from each other. My scientific finding is that the vast majority of the companies in the sample have a well-established control system, that it is continuously improved and that the system's operation extends to functional control areas.

4. My fourth thesis is that the level of control awareness is influenced by firm characteristics. From my studies, it has been shown that firm form, ownership structure and industry characteristics influence the level of control awareness of firms, while the effect of firm size is less significant.

7. SUMMARY

In my research I tried to review the national and international literature on controlling, with a focus on the literature in functional areas. The main result of my literature search was the delineation of functional areas of controlling. In my review of the literature, I clearly showed that functional controlling is a significant area of academic research. A number of case studies suggest that controlling methods and systems related to different business functions are an evolving area in business that should be given priority in the present and future. Based on the literature reviewed, it can be argued that the traditional finance-focused area of controlling has been complemented in recent years by a number of other methods and perspectives focusing on other functions, whereby the financial perspective has lost its importance.

Following the literature review, I compiled an expert questionnaire, which was sent to respondents on paper and online, and received responses between summer 2018 and summer 2019. In total, I received 138 evaluable, fully analysable questionnaires from my respondents.

After data analysis of the returned responses, I conducted data analysis and formulated hypotheses, which were partly informed by the data analysis and partly informed by the literature. For data analysis, I used SPSS and Excel software packages and their various modules. In analysing the data, I created independent groups of variables from the main headings of my questionnaire using factor analysis. Using these independent groups, I carried out several further analyses. Among these methods, cluster analysis and cross tabulation analysis methods were used.

Correlation analysis was carried out between the factors identified by factor analysis in order to verify my first and second hypotheses. My tests revealed a clear relationship between the variables under study. From the factors obtained, I carried out a cluster analysis to group the companies into three groups. I named these three groups according to their level of controlling awareness. In order to identify the clusters, I performed a cross tabulation analysis with the company attributes in order to identify the clusters obtained from the cluster analysis. As a result, I determined which corporate attributes are associated with

controlling awareness. To conclude my research, I evaluated my hypotheses and formulated four scientific theses.

The results of my research offer the possibility to improve the controlling awareness of different enterprises. My analyses pointed to the fact that if enterprises increase the effectiveness of controlling in the enterprise, the effectiveness and role of functional controlling can be increased along with it. Through my analysis, I have highlighted the role and emphasis of functional controlling. Through my findings, I have concluded that the different functional controlling methods are very significant in the present for certain cluster of firms.

I identify the integration of functional controlling methods as a further research option. The creation of a model to integrate different methods that operate independently of each other.

There is also research potential, in my opinion, in mapping the corporate and functional level controlling methods in different industries and in identifying the latent variables that hinder the effective functioning of controlling and functional controlling. Exploring the different skills and competencies expected of functional controlling managers and controllers is another avenue for research, as well as exploring how these competencies differ from those expected of general and overall corporate (mainly financial) controllers.

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