EXAMINATION OF THE EXPECTATIONS OF CONTROLLERS ON THE LABOUR MARKET

Veronika Fenyves[*], Tibor Tarnóczi[**]

* Corresponding author, Faculty of Economics and Business, University of Debrecen, Hungary
Contact details: Faculty of Economics and Business, University of Debrecen, 4002 Debrecen Pf. 400, Hungary
** Faculty of Economics and Business, University of Debrecen, Hungary

Abstract

In today's globalised and accelerated world, competition between companies has become much more intense. Information, knowledge and speed play an important role in decision making. This means that only companies that have the necessary information and can quickly convert it into organisational knowledge are able to meet the new challenges. The corporate controlling system plays a major role in generating information and thus supporting decision making. Controlling is based on the collaboration between the management and the controller. Controllers' suitability to perform this activity is determined by their professional skills, personality, human qualities and the socio-economic environment in which they work. The purpose of our study is to determine, through a questionnaire survey, what expectations the labour market places on controllers. Our respondents were managers, financial managers and controllers of enterprises and other business organisations. The sample to be processed consisted of 124 completed and evaluable questionnaires. Descriptive statistical methods and principal component analysis were used to process the database. Using these methods, we present the expectations of business leaders and decision-makers on controllers. Expectations include knowledge of accounting, finance, and the given area of business activity. Of personal skills, expected characteristics include the ability to think in context, analytical skills, logical thinking and the ability to perform analytical and creative work.

Keywords: Controller, Organisational Requirements, Personal Ability, Personal Competencies, Working Knowledge

Authors' individual contribution: Conceptualization - V.F.; Methodology - T.T.; Writing – V.F. and T.T.; Investigation – T.T.; Formal Analysis– T.T.; Resources - V.F. and T.T.; Supervision – V.F.; Writing – Original Draft- T.T. and V.F.; Writing – Review & Editing - V.F.

1. INTRODUCTION

In the current sense of the word, controlling methodology appeared in the management practice of companies and institutions already in the middle of the 19th century. Controlling is an indispensable part of corporate management, which has been confirmed by several controlling experts and researchers in the recent period. In this regard, Horvath and Partners (2007) stated that "the controlling concept in corporate practice has constantly been evolving over the last 20 years and has become a management function that an enterprise can no longer be without". Controlling is an activity that is closely linked to the management of organisations, with a key role in providing relevant information to decision-makers. The main task of the management is the successful operation of the organisations, companies or non-profit institutions that it manages. Actual management requirements are determined by factors affecting the state of the organisation (company) and the environment. Because the company is a goal-driven, dynamic system, it must adapt to changes in the company and environment during its operation. For today, controlling plays an almost indispensable role

in the realisation of this task (Hanyecz, 2011). In the globalised world economy of the 21st century, companies place greater emphasis on using management systems that mainly provide financial decision-support information to assist management (Zéman, 2016). In international practice, the need for management information in the face of intense competition has been clearly demonstrated as an internal cause of the development of controlling systems. Management must grasp all means by which it can dynamically, efficiently and flexibly manage the company (Zéman & Tóth, 2017). Controlling is a concept closely related to management, with a strong emphasis on planning and control and providing the information needed for decision-makers (Anthony & Govindarajan, 2007). Hence, there are many different ways to succeed in corporate practice. The criterion of efficiency is most often seen in the harmony between individual management subsystems and characteristics. That is, any management style can be successful if it is consistent with the external and internal environment. Controlling, and the controller as a person is one of the elements of the internal environment. While this internal environment can be shaped by managers, in the case of more senior executives and newcomers, the existing operation of controlling influences whether or not a specific leader with a particular style can succeed in an organisation. A rational leader without data is not fully functional, while the organisation may find it unnecessary to make frequent, detailed analyses with an intuitive leader (Szukits, 2017). Recently, the role of controlling has become more important in the life of companies, and its tasks have also been expanded. As a subsystem of management, the roles of corporate controlling are coordinating, planning, supervising and supplying information aimed at achieving and realising corporate goals, both at strategic and operational levels (Zéman & Komáromi, 2012). The controller is one of the most important actors of the controlling activity. Successful business management requires close collaboration between the manager and the controller. The person who will become a good controller is highly dependent on the given individual, i.e., it is influenced by that individual's professional skills, personality and human qualities to a large extent. However, in addition to the individual's characteristics, the socio-economic environment in which the controller works is also an important, influential factor. The purpose of this study is to show what decision-makers expect from controllers. The rest of this paper is organised as follows: Section 2 contains the technical literature review, Section 3 presents the database and methodology used, Section 4 contains Results and discussion and Section 5 concludes the paper.

2. LITERATURE REVIEW

The controller, as a consultant, supports the work of the manager, collects data and information for decision-making, and uses it to inform the manager. A recent statement by German professional organisations (ICV - International Controller Verein and IGC - International Group of Controlling) identifies the controller as a business partner of German corporate executives and mentions controlling as a key success factor for companies

(Gänsslen et al., 2013). The controller ensures that the management plans and monitors its activity while considering corporate revenue, too. Also, controllers make sure that the necessary information is available (De Loo et al., 2006). Controllers are responsible for the information they compile and prepare, while the management is responsible for the decisions made based on this information. These decisions appear in the form of approved plans. In some respects, the controller is the "economic conscience" of the enterprise (Horvath & Partners, 2007). The controller's main task is to use the available tools to support management, provide consultancy, and generate information that meets management needs. In addition to the above, the controller's tasks include the further development of various controlling tools and methods (Wolf et al., 2015).

It is essential to distinguish between controlling as a function and the controller as the bearer of this function. From the company management's point of view, controlling is one of the central management tasks, since all managers perform controlling functions among their duties. Controlling, as a process and way of thinking, is created through the joint work of the manager and the controller and forms a certain "intersection" (Horvath & Partners, 2007). The function of the controller is, therefore, not a competitor to the management. On the contrary, it supports management in achieving the planned objectives. Successful business management requires close collaboration between the manager and the controller. The controller, as a consultant, supports the manager (Szukits, 2019; Howell, 2006). The manager sets goals, strategies, adopts and approves plans, is responsible for implementation and results, makes decisions, performs control and takes measures. The controller organises and coordinates the management processes, develops the planning system, analyses, detects differences, provides information for decisions and elaborates recommendations (Sebes, 2013). In recent years, the controller has become a partner of management, a "business partner", and controlling has broadly supported leadership in achieving its goals (Bán & Zéman, 2014; Graham et al., 2012).

In the words of Abdalla (2007a), controllers provide a supportive decision-making service to management for goal-oriented planning and management.

Controlling does not primarily refer to a place or person, but rather a function that may be performed by different people, or by the management itself, without a particular person holding the position of a "controller". In small and medium-sized enterprises, in particular, the management or the accounting manager performs the controlling tasks. As long as the environment of an organisation is easy to understand, the manager can perform all management functions on his/her own, including the monitoring of the fulfilment of plans (Abdalla, 2007a). However, in the vast majority of companies with more than 200 employees, controlling tasks are performed by an independent controller (Horvath & Partners, 2007). In the opinion of Greenhalgh (2000), the tasks of the controller are greatly influenced by the size of the company. In large companies, a large controlling organisation is

established, and controllers perform their duties as specialists, while in small and medium-sized companies, they perform several different tasks. Controllers are greatly needed in the corporate and medium-sized enterprise sector, to which the controllers of hospitals and municipalities can be linked, too (Azudin & Manson, 2018). In medium-sized and large enterprises, the design, analysis and control work is done by a specialist, i.e. the controller. This position does not exist in small companies for several reasons. Small companies either do not have the financial means to hire a permanent professional, they perform the controlling tasks differently, or rely solely on intuition. However, it is a potential solution for small businesses to build a controlling structure with the help of an external consultant. The role of the controller in a given company is influenced by a variety of external environmental and internal corporate factors (Burns & Baldvinsdottir, 2005).

The controller's coordination role includes ensuring that management plans and monitors its activity while taking corporate revenue into consideration, too. Also, controllers make sure that the necessary information is available. The role of the controller in the planning process is to coordinate the sub-plans and to organise the whole planning process. Consequently, controllers normally do not carry out design and control tasks by themselves, as the management performs these duties. It should be noted that in the case of small and medium-sized enterprises, it is often the case that the scope of the controller goes beyond pure management and coordination tasks. Accordingly, in operational practice, the controller often takes over actual design tasks that should be performed within the responsible organisational unit. This is especially true for participation in business policy development and strategic planning (Horvath & Partners, 2007). In times of scarcity, all attention is directed to cost control professionals, as studied by Szukits (2014), whose research findings have shown a significant effect. The information compiled and prepared by the controller is necessary for managerial decision-making, and the resulting decisions become actual plans (Coman et al., 2012, Hartmann & Maas, 2010). It is the relationship of trust between the manager and the controller that fundamentally influences the cooperation between the two. In this case, it is the relationship between the company's CEO and the chief controller. Since the controller and the manager work in close cooperation, the manager evaluates the controller's performance, while the controller can also evaluate and criticise the manager's work since the controller has the information necessary to evaluate the results. This is a matter of mutual vulnerability, which one is reluctant to accept against those whom one does not trust (Hanyecz, 2011).

There are high standards which the controller must conform to in terms of their professional and personality characteristics. The importance of personal factors is more significant than in other workplace relationships, and both parties are usually ready to develop personal relationships, as this is an element that increases the efficiency of their work (Hanyecz, 2011). It is also part of the professional requirements of a controller to thoroughly know the controlling toolkit and to use it in a decision-

oriented way (Horvath & Partners, 2007). The knowledge structure that a controller needs to cover a wide range of professional fields. Each main and secondary corporate process has evolved over the past decades to develop into a series of applied management science professions. As a result, in the case of corporate profitability, or specific and independent business processes within the company, there was a need for developing and applying controlling methods in the given field, profession, or functional management area. In addition to the general controlling knowledge in each area, special knowledge is required – concerning the technical and other aspects of the given field (Sinkovics, 2009). The same is confirmed by Horvath & Partners (2007): "Increasing the range of knowledge is essential for future controllers. Expertise in finance is also required, both to enable the controller to provide capital value-oriented information and to make use of the opportunities offered by the international capital market optimally, while controllers are required to have thorough IT skills".

General controllers should have a profound knowledge of accounting and finance, even if not at the level of accounting professionals, but they must be knowledgeable users of accounting records (Rouwelaar, 2007, Reid & Smith, 2002). The general controller should have the theoretical and practical knowledge of the profession in general, as well as planning skills, while they should be able to observe the ongoing processes, evaluate the obtained results, make recommendations and prepare the material supporting managerial decisions.

In addition to obtaining purely methodological knowledge, in order to perform their task, controllers must also meet human and personality requirements, which Horvath & Partners (2007) grouped as:

– *Ability to manage debates and negotiations.* Due to the neutral position of controllers as information providers and decision supporting parties, they are often responsible for managing discussions between departments and different professional areas. As the leader of dispute, they need to be careful in their reasoning to be objective and to make decisions based on relevant and objective information. In this process, the controller must not represent any position, unilaterally convince anyone, but they must support the opinion-forming process. In disputes, tolerance and adaptability are just as important personality traits of the controller as their persuasive power.

– *Ability to coordinate subdivisions.* Complex coordination and problem solving require intensive material and temporal coordination. Accordingly, it is the controller's task to align stakeholder interests with the corporate goals as much as possible, which also requires the controller to have leadership skills.

– *Motivational skills.* In obtaining and processing information, the controller is dependent on the involvement of the affected subdivisions. Decisions can only be correct to the extent that information is available. Consequently, it is an important task of the controller to motivate the project participants. In many cases, controllers

must use their persuasive power to prove that a certain piece of information requested from specialists is not for supervision purposes, but to prove or disprove the cost-effectiveness of certain measures.

Due to their information supply function, controllers are responsible for continuously gathering and prioritising information and ensuring the timely communication of this information to those concerned. It has already been mentioned that the controller forms a bridge between those working at different levels. "This role manifests itself by informing employees about the goals of the managers and the planned measures, while at the same time informing the managers about the satisfaction level of employees, their initiatives and their problems. The most useful way of transmitting information is through the internal network. In addition to informing the target audience extensively, this network also makes it possible to archive information. In order for communication to be useful, it is necessary to integrate it organically into the organisational culture" (Böcskei, 2009).
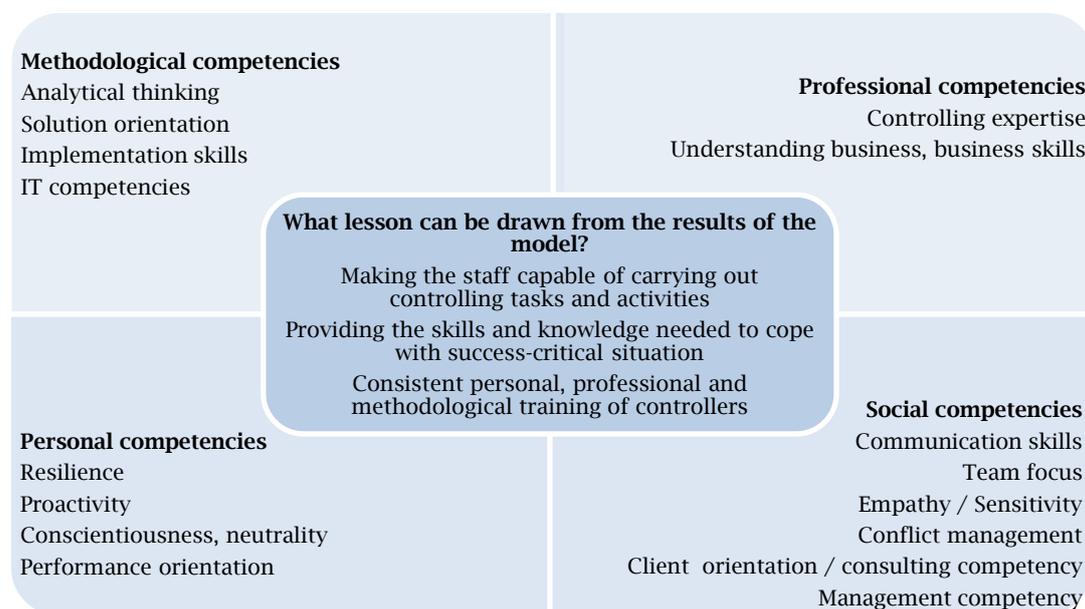
The work of the controller includes not only methodological but also behavioural elements. Methodological elements include managerial accounting and planning, and the behavioural part is represented by management through goals (Fourné et al., 2018). It is stated that firms can gain access to financial and non-financial information to help improve their current operations through the use of

Management Accounting Practices (Azudin & Manson, 2018).

According to Abdalla (2007), a controller should have the following characteristics and capabilities:

- *Conflict management.* Due to the nature of their tasks, controllers are constantly in conflict. Good controllers must accept these conflicts and make their environment accept their work. Otherwise, the atmosphere will freeze around them, and they will not have access to vital information. Different controller roles mean different abilities and skills, which also determine the competencies required for a specific job.
- *Creativity.* Decision-making work often requires new solutions and multi-perspective analysis of possible solutions.
- *Precision.* Even the slightest mistake in the controller's work can be irreversible. If it turns out that a controller has made a calculation error, this can put their entire work into question and can potentially lead to wrong decisions.
- *Openness.* Controllers must be the first to realise the need for change, the external and internal threats to the development of the organisation, and they must be the first to consider the possible way out.
- *Discernment and clear wording.*

Figure 1. The model is constituting the basis of the first Hungarian controlling competency survey

Methodological competencies
Analytical thinking
Solution orientation
Implementation skills
IT competencies

Professional competencies
Controlling expertise
Understanding business, business skills

What lesson can be drawn from the results of the model?
Making the staff capable of carrying out controlling tasks and activities
Providing the skills and knowledge needed to cope with success-critical situation
Consistent personal, professional and methodological training of controllers

Personal competencies
Resilience
Proactivity
Conscientiousness, neutrality
Performance orientation

Social competencies
Communication skills
Team focus
Empathy / Sensitivity
Conflict management
Client orientation / consulting competency
Management competency

Source: Solti, 2013.

In the spring of 2013, IFUA Horváth & Partners, with the support of Profession.hu, launched the first Hungarian controlling competency survey under the name of Successful Controller Survey 2013. This survey aims to examine what competencies a successful controller should have today and what in today's economic circumstances, they need to focus on in order to perform their job effectively. The competency model underlying the survey consisted of 16 different elements, which can be grouped into four main competencies (Figure 1):

professional, methodological, social and personal competencies (Solti, 2013). The model identifies the types of competencies needed in the controlling field and allows employees to see the skills and knowledge needed to cope with success-critical situations. In addition, it can be determined what improvements employees need to meet the ever-changing environmental demands.

If controlling professionals are to provide comprehensive support to corporate executives, they must have a wide range of capabilities that cover six

key competencies. These competencies are already formulated in the classical role, but they are even more important for business partner controllers. The analysing ability and the solid, in-depth methodological knowledge, as well as solid personality, a thorough knowledge of the business field, and behavioural knowledge must all be possessed by the controller. These traits must become general features of the controller. In terms of its importance – as a sixth competency – communication abilities should also be emphasised because anyone unable to convey their thoughts and findings will fail in a business partnership. It is often the area that needs improvement the most in economists' set of tools (Bán & Zéman, 2014).

Horváth & Partners has conducted a similar survey in Germany as in Hungary. In Table 1, the results of the Hungarian and German survey are presented, where competency was rated on a five-point scale (1: not important, 2: less important, 3: important, 4: very important, 5: essential). In Germany, individual competencies are rated similarly to Hungary, but there are important differences in terms of the ranking of competencies (Solti, 2013).

Analytical thinking and analytical skills are the keys to controllers' success in both countries. The reason for this is that the information needs of managers are constantly growing, requiring reports containing complex and relevant information. In interpreting reports, managers need to be supported by qualitative analyses. Resilience is essential for successful work due to the constant and ever-increasing information needs. Today it is becoming less typical that controlling is performed in monthly cycles with increasing workload each month. Rather, meeting the constant and ever-changing demands for information keeps the organisation up to speed. For this reason, resilience is the second most important competency, according to both surveys (Solti, 2013).

Table 1. Results of the controlling competency survey in Hungary and Germany

	Hungarian competency rank				*German competency rank*		
1	Analytical thinking	4.1		1	Analytical thinking	4.0	
2	Resilience	4.1		2	Resilience	3.9	
3	Client orientation / consulting skills	4.0		3	Team focus / cooperation	3.9	
4	Team focus / cooperation	3.9		4	Undertaking conflicts	3.9	
5	Implementation ability	3.9		5	Understanding business, business skills	3.8	
6	Conscientiousness, neutrality	3.9		6	Conscientiousness, neutrality	3.7	
7	Undertaking conflicts	3.9		7	Communication abilities	3.7	
8	IT competency*	3.8		8	Controlling expertise	3.7	
9	Performance orientation	3.8		9	Implementation ability	3.7	
10	Management competency	3.8		10	Client orientation / consulting skills	3.7	
11	Solution orientation	3.8		11	Empathy / sensitivity	3.6	
12	Understanding business, business expertise	3.7		12	Performance orientation	3.6	
13	Communication abilities	3.7		13	Solution orientation	3.5	
14	Proactivity	3.7		14	Management competency	3.5	
15	Controlling expertise	3.7		15	Proactivity	3.5	
16	Empathy / sensitivity	3.5		16			

*Note: * only in the Hungarian survey.*
Source: Solti, 2013.

Customer orientation and consulting skills are the third most important factor in successful work in the Hungarian survey. In accordance, in addition to the classic controller roles (inspector, analyst roles), management advisory roles are also present in most companies. This fact points into the direction that the controller needs to become a business partner of the manager, and it is not enough to simply supply numbers reliably. The hypothesis that business focus and understanding business is appreciated in the work of controllers has only proved true in Germany. The importance of this competency is identified in Hungary by simply knowing product portfolio and corporate strategy, much less extending to industry knowledge, competitors or even the corporate value chain. Altogether, this competency is 12th in the Hungarian ranking, while German controllers rank it as the 5th most important competency. This could also set the development path for Hungarian controllers. Due to the new competencies that come to the fore as a result of the changing environment, controllers would require special training, but as the survey has shown, only a few companies acted." (Solti, 2013).

Altogether, the survey concludes that a successful controller must rise above the mere numerical production of reports. A successful controller is required to have strong analytical skills, high resilience and consulting expertise, as is the only way they can serve their customer, i.e., the manager. It is only with these competencies that the controller can effectively support decision-making, which is increasingly needed in an accelerated economic environment (Zoni & Merchant, 2007). In order to be successful as a controller, they need to gain a better understanding of the business to which the company can also contribute through specialised training (Solti, 2013).

3. DATA AND METHODOLOGY

The database was compiled by a questionnaire survey, in which the expectations from controllers were surveyed in March 2018. The advantages of the questionnaire survey are that it is simple to apply, the questions are prepared in advance (closed questions), they take relatively little time to answer, and the interviewer can obtain important information by evaluating the answers (Ács, 2014). It is an often mentioned disadvantage that respondents may not be able and willing to answer, and answers may be deliberately dishonest. The online questionnaire method was chosen because it can be filled by a wider range of people than printed questionnaires. The questions were previously formulated statements, i.e. they belong to the group of closed questions, and also several subtypes can be found in the questionnaire. On the one hand, there were single answer questions, such as the definition of the principal activity and ownership structure of a business. On the other hand, there

were questions employing the five-step Likert scale that measured, for example, the personal skills and knowledge of the controller. The Likert scale is a scale with five response categories and, in addition to the statements, respondents must indicate numbers ranging between "not important" and "very important" and between "not relevant" and "completely true". It is an easy-to-use and popular measurement scale (Sajtos & Mitev, 2009). The questionnaire was made using the EvaSys system and the respondents, who were managers, financial managers and controllers of different business organisations, answered the questionnaire online, using the form provided by EvaSys.

The sample consisted of 124 completed and evaluable questionnaires. In Hungary, according to the provisions of Act XXXIV of 2004, enterprises can be classified into micro, small, medium and large enterprise categories. The classification is based on 3 indices: the number of employees, the annual net sales and the balance sheet total. A micro-enterprise is defined as an enterprise that has less than 10 employees and an annual net turnover of up to 2 million EUR or a balance sheet total of up to 2 million EUR. A small enterprise is considered to be an enterprise that has 10-50 employees and an annual net turnover or balance sheet total is between 2 million EUR and 10 million EUR. A medium-sized enterprise is defined as an enterprise which has between 50 and 250 employees and an annual net turnover of between 10 million EUR and 50 million EUR or a balance sheet total of between 10 million EUR and 43 million. EUR A large enterprise is defined as an enterprise with more than 250 employees and an annual net turnover of more than 50 million EUR or a balance sheet total of more than 43 million EUR.

In terms of company size, 40% of the respondents were large companies, 28% were medium-sized enterprises, 15% were small, and 15% were micro-enterprises, while 2% of respondents did not answer this question (Figure 2).

Figure 2. Distribution of respondents based on company size
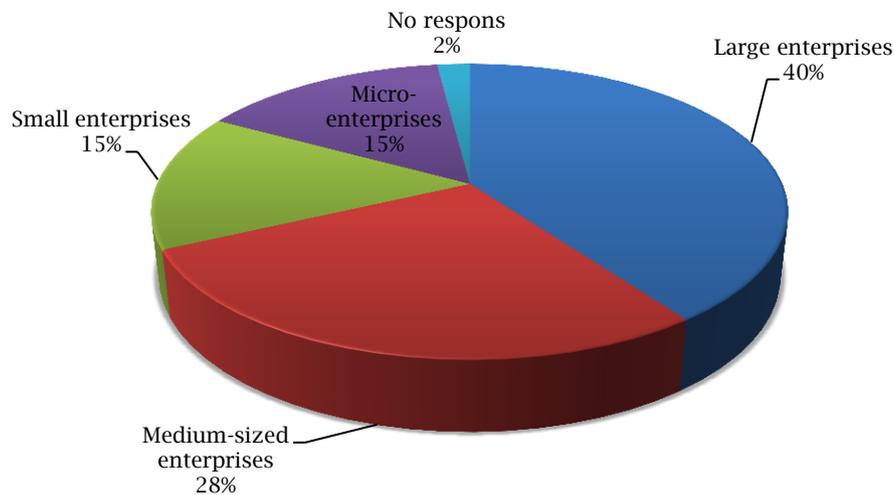
Source: Own calculation based on the provided database.

The analysis was performed using Microsoft Excel and R. The basic task of statistical analysis is to reveal the relationships between the variables and to quantify them. Analyses often require multiple variables to be examined to understand the given problem better. Measuring multiple variables on a larger number of elements can potentially mean treating a large dataset as one unit, which is a difficult task. When exploring the relationships between variables, one must work while analysing the relationships of several variables that may be interdependent, which can be performed and interpreted using a multivariate method (Barna & Székelyi, 2002). One such method is principal component analysis, which can be used to reduce the number of variables and to determine the order of variables that can be assigned to principal components because the magnitude of the explanatory power of each principal component is also calculated. Consequently, one of the aims of using principal component analysis may be to describe the estimated covariance structure from a sample of the original variables, with a few linear combinations of variables as possible, in a way to lose as little of the total explanatory power as possible. By default, as many principal components as the number of variables are created. Usually, not all principal components are needed, but efforts must be made to describe or replace the original dataset with the first few principal components (Tóthné, 2011). Principal components do not correlate with each other.

The eigenvalues obtained in the principal component analysis are equal to the variance explained by the associated principal component. Each principal component with an eigenvalue greater than 1 has greater explanatory power than the original variables. There are many ways to decide how many principal components to keep in the analysis. One commonly used rule is to keep principal components with eigenvalues greater than 1 (Münnich et al., 2006). Another option is to use a scree plot, which also uses the eigenvalue by plotting them and the acceptable principal component number is at the eigenvalue where the line graph drawn to eigenvalues shows a relatively larger break. Both rules are applied in this paper. In order to emphasise the principal component weights, 'varimax' rotation was performed. Variables for each principal component can be determined using the principal component weights. The values of the principal component weights range from -1 to

+1. The principal component weight vectors are independent. The 'principal' function of the package 'psych' (R Foundation for Statistical Computing) was used for the principal component analysis.

4. RESULTS AND DISCUSSION

In this study, we examined the views of managers and decision-makers on the knowledge, capabilities, and personal skills a controller is required to have.

Based on the examination of the knowledge required for controllers (Table 2), respondents rated the knowledge of the given field of business with the highest average score (4.73), which also appeared in the literature review, where different authors evaluated this topic differently, but agreed that it would be difficult to provide appropriate decision support "services" without a certain level of specialist knowledge. It is also clear from the answers given to the question that this aspect is considered very important by the surveyed companies as well. Accounting (4.36) and financial expertise (4.31) were rated to be the second and third most important factors with almost the same average score (Table 5). Both areas provide very important data for managerial decision-making, and the importance of accounting in providing business-related information is unquestionable.

Table 2. Rating of the areas of knowledge controllers are required to have

Name	Average	Order
Organisational expertise	3.84	6
Accounting knowledge	4.36	2
IT skills	4.00	4
Statistical knowledge	3.98	5
Language skills	3.40	7
Financial knowledge	4.31	3
Marketing knowledge	2.94	9
Legal knowledge	3.27	8
Knowledge of the given business area	4.73	1

Source: Own calculation based on the provided database.

This degree of qualification of these two areas of knowledge confirms the technical literature sources, i.e. controllers should have a deep knowledge of accounting and finance. Of the different fields, IT skills received a 4.0 average score and were rated to be the 4th main area, which also confirms that using computers and software plays a very important role in the work of controllers. All other areas of knowledge received a rating of less than four. Surprisingly, marketing knowledge was rated to be the last, even though it should be more important in today's fierce competition. However, this knowledge may not be required of the controller, as there are specialists for each field. The 5th place of statistical knowledge (average value: 3.98) also points out that companies also consider methodological knowledge important in the work of controllers. Also, a higher score was expected for foreign language skills, but this factor may not be that important for the responding companies.

Table 3 summarises the responses obtained when qualifying the abilities and skills a controller is required to have. The respondents rated the capabilities that may be important for a controller on a five-point scale. Table 3 shows that twelve abilities had to be assessed by those who completed the questionnaire. The highest mean scores were given to contextual thinking (4.83) and analytical skills (4.80). Two factors, reliability (4.79) and

precision (4.74), scored above 4.7, followed by problem-recognition and problem-solving abilities, with a mean score of 4.60. Responsiveness to new things (4.26), creativity (4.21) and managerial attitude (4.12) were also evaluated by respondents with mean values above four, while three factors were rated below four as follows: decision-making ability (3.94), rational risk-taking (3.92) and outstanding communication skills (3.83).

Table 3. Rating the abilities controllers are required to have

Name	Average	Order
Analytical skills	4.80	2
Creativity	4.21	7
Managerial attitude	4.12	9
Responsiveness to new things	4.26	6
Rational risk-taking	3.92	11
Decision-making ability	3.94	10
Contextual thinking	4.83	1
Communication abilities	4.18	8
Problem-recognition and problem solving abilities	4.60	5
Precision	4.74	4
Reliability	4.79	3
Outstanding communication skills	3.83	12

Source: Own calculation based on the provided database

The answers shown in Table 3 broadly reflect the importance of controllers' capabilities, also referred to in the technical literature. There is only one feature – communication abilities – that was expected to have a higher rating, as even technical literature sources refer to this factor as a very important skill for controllers.

Respondents also rated the personal requirements for controllers on a 5-point scale, the results of which are shown in Table 4. Of the eight listed personal skills, seven had an average score above four, with only the group leadership and coordination ability scoring lower (3.86). The highest average score (4.85) was assigned to contextual thinking, followed by the requirement of logical thinking (4.84) and the third most important factor was the ability to work analytically and creatively with an average score of 4.62.

Table 4. Rating the personal skills controllers are required to have

Name	Average	Order
Good written and verbal expression skills	4.33	5
Ability to work analytically and creatively	4.62	3
Logical thinking	4.84	2
Propensity for teamwork	4.28	6
Group leadership and coordination ability	3.86	8
Interest in novelties and willingness to learn	4.34	4
Contextual thinking	4.85	1
Endurance and tirelessness	4.08	7

Source: Own calculation based on the provided database

This factor was followed by an interest in novelties and willingness to learn (4.34), good written and verbal expression (4.33), propensity for teamwork (4.28), and endurance and tirelessness (4.08). In our opinions, this order could already be expected if we also consider the outcome of the abilities expected from controllers in Table 3. In addition, this result is supported by technical literature sources. However, it is very important to emphasise that contextual thinking (4.85) and logical thinking (4.84) was ranked to be the first two factors by companies giving very high ratings.

Unfortunately, in the context of today's mass education, it is often the case that these two requirements are overlooked or neglected.

Respondents rated the knowledge, skills and personal requirements required for controllers on a 5-point scale. A total of 28 statements were made about these three areas. A principal component analysis was performed in order to reduce the number of factors and to determine the background variables that can be linked to the questions. The principal component analysis also enables the ranking of the background variables created, since this method also determines the explanatory power of the principal components.

Table 5. Key features of the principal components obtained during the principal component analysis in terms of knowledge, capabilities and personal requirements required for controllers

| Principal components	Eigenvalues	Explained ratio	Cumulative explained ratio
Principal component 1	3.45	21%	21%
Principal component 2	3.02	18%	39%
Principal component 3	2.91	18%	57%
Principal component 4	2.72	17%	74%
Principal component 5	2.22	13%	87%
Principal component 6	2.14	13%	100%

Source: Own construction

The fundamental aim of the principal component analysis was to reduce the 28 variables by using the principal components so that the explanatory power is not significantly reduced and the information can be expressed in a more concise form. The principal component analysis, using the values of its vectors, determines the order of importance of the variables associated with the principal components and of the principal components as background variables. The principal component analysis reveals the internal structure of data in a way that best explains the dispersion of the dataset. The most important features of the PCA results are shown in Table 4, which demonstrates that the eigenvalue of each factor is greater than 1.

As mentioned in the methodology description, a scree plot was used to determine the number of principal components. Based on Figure 3, which contains the scree plot, it can be seen that there is an even more significant decrease around 6, while 7 and eight are at nearly the same level, and the eigenvalue decreases below one at the value of 9 or above. Taking into account the plot, we decided to consider not only eigenvalues above 1, but also the scree plot and chose to count with six principal components, as shown in Table 4.

Figure 3. The scree plot
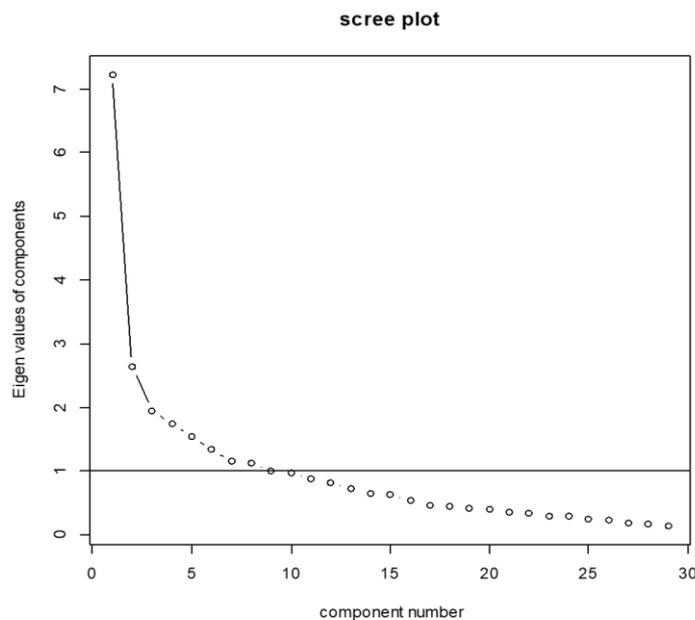
Source: Own calculation based on the provided database.

It can also be seen from Table 6 that, as is the case with the principal component method, principal component 1 has the greatest explanatory power, and it is steadily decreasing with the other principal components. The questions (variables) belonging to the examined group of the questionnaire were classified into their principal components using their factor weights. Only questions with a factor weight of not less than 0.5 were considered in the classification. Using this latter rule, all 28 variables were assigned to a principal component. Consequently, we were able to assign questions to a total of 6 principal components and these six principal components account for almost 100% of the total variance. The classification of questions to principal components is shown in Appendix A1, and the questions assigned to the given principal component are indicated in the same colour.

Table 6. Principal component names and their order by explanatory power

Number/order of principal components	Name of the principal component	Explained ratio
1	info communication and cooperation capabilities	21%
2	decision-making ability	18%
3	innovation ability	18%
4	ability to prepare decisions	17%
5	business intelligence capability	13%
6	ability to provide grounds for decisions	13%

Source: Own calculation based on the provided database.

Appendix A1 shows that principal component 1 includes IT and foreign language skills of the knowledge group, communication abilities and outstanding communication skills of the abilities group, while good written and verbal expression skills, propensity for teamwork and endurance and tirelessness of the personal skills group. We decided to call PC 1 "info-communication and cooperation capabilities". Principal component 2 includes organisational, accounting, and financial expertise of the knowledge group, managerial attitude, rational risk-taking and decision-making ability of the abilities group and group leadership and coordination ability of the personal skills group. PC 2 is called "decision-making ability". Principal component 3 contains the knowledge of the given business area of the knowledge group, creativity and responsiveness to new things of the abilities group, as well as interest in novelties and willingness to learn of the personal skills group. PC 3 is named "innovation ability". Principal component 4 includes analytical skills, contextual thinking and precision of the abilities group and the ability to work analytically and creatively and logical thinking of the personal skills group. PC 4 is named "ability to prepare decisions". Principal component 5 contains problem-recognition and problem-solving abilities and reliability and is called "business intelligence capability". Principal component 6 included marketing, legal and statistical knowledge, and we named it the "ability to provide grounds for decisions" (Table 5).

5. CONCLUSION

The purpose of this study was to investigate and present the expectations of corporate executives and decision-makers in the controller profession through an online questionnaire survey (mostly closed-ended) and to compare the obtained results with those in the literature. After the survey, the 124 evaluable questionnaires were analysed using descriptive statistical methods and principal component analysis. On the basis of the examination, it was found that in the qualification of the knowledge required for the controller, the knowledge of the given business area was rated with the highest average score, followed by the accounting and financial knowledge. These results confirmed the results of previous research. When examining the capabilities required of the controller, the highest scores were given to contextual thinking

and analytical skills. When examining personal requirements of controllers, the highest average scores were given to contextual thinking, the requirement for logical thinking, and the ability to work analytically and creatively.

With the help of principal component analysis, we determined the order of importance of the variables related to the principal components and that of the principal components as background variables. Our goal was to reduce the 28 variables by using the principal components so that the explanatory power is not significantly reduced, and the information can be expressed in a more concise form. We were able to assign questions to 6 principal components and found that the six principal components account for 100% of the total variance. Principal component 1 is "info-communication and cooperation capabilities", principal component 2 is "decision-making ability", principal component 3 is "innovation ability", principal component 4 is the "ability to prepare decisions", principal component 5 is "business intelligence capability" and principal component 6 is the "ability to provide grounds for decisions". Since the order of the principal components represents the order of the explanatory power, it can be concluded that companies attach great importance to the ability of info-communication and cooperation.

There are limitations to our research, the consideration of which will allow for future research. The current study was limited to the sample of company executives and decision-makers completing the questionnaire, and the 124 questionnaires may limit the generalisability of the obtained results. Also, the possibility to fill in the questionnaire online does not guarantee that the actual recipient (the decision-maker) was the one filling in the questionnaire. It can be concluded from the received answers that the respondents were professionally competent and due attention was paid to the completion of the questionnaire. The questions were typically closed-ended, and we did not provide an opportunity to present other alternatives for the respondents. In the future, we would like to refine our questionnaire based on personal interviews, and, as a next step, we plan to expand our survey to a larger number of samples (both in Hungary and other countries) and to include open-ended questions. This study would also provide an opportunity to compare the expectations from controllers across sectors and / or countries.

REFERENCES

1. Abdalla, R. (2007a). A controller helye és szerepe a szervezet vezetői csapatában (hálózatában). *A Controller, 3*(6/2), 1-3.
2. Abdalla, R. (2007b). A controlleri munka új kihívásai, az érzelmi intelligencia *A Controller, 3*(10), 1-3.
3. Ács, P. (2014). *Gyakorlati adatelemzés. Pécsi tudományegyetem.* Retrieved 2019, July 22, from http://www.etk.pte.hu/protected/OktatasiAnyagok/!Palyazati/ GyakorlatiAdatelemzes.pdf
4. Anthony, R. N., & Govindarajan, V. (2007). Management control systems. Pennsylvania, US: McGraw-Hill.

5. Azudin, A., & Mansor, N. (2018). Management accounting practices of SMEs: The impact of organisational DNA, business potential and operational technology. *Asia Pacific Management Review, 23*(3), 222-226. https://doi.org/10.1016/j.apmrv.2017.07.014
6. Bán, E., & Zéman, Z. (2014). Controlling a vezetés szolgálatában, történeti fejlődés, perspektívák. *A Virtuális Intézet Közép-Európa Kutatására közleményei, 6*(1-2), 439-447.
7. Barna, I., & Székelyi, M. (2004). *Túlélőkészlet az SPSS-hez. Többváltozós elemzési technikáról társadalomkutatók számára.* Budapest, Hungary: Typotex Kiadó.
8. Böcskei, E. (2009). A controlling szerepe és jelentősége a közszolgálati szférában – minőség és controlling kapcsolata. *A Controller, 5(3),* 8-10.
9. Burns, J., & Baldvinsdottir, G. (2005). An Institutional perspective of accountants new roles – the interplay of contradictions and praxis. *European Accounting Review, 14*(4), 725–757. https://doi.org/10.1080/09638180500194171
10. Coman, D. M., Coman, M. D., & Boca, I. F. (2012). Managerial accounting – a source of information for an efficient management in SME. *Procedia - Social and Behavioral Sciences, 62,* 521-525. https://doi.org/10.1016/j.sbspro.2012.09.085
11. De Loo, I., Nederlof, P., & Verstegen, B. (2006). Detecting behavioural patterns of Dutch controller graduates through interpretive interactionism principles. *Qualitative Research in Accounting & Management, 3*(1), 46-66. https://doi.org/10.1108/11766090610659742
12. Fourné, S. P. L., Guessow, D., & Schäffer, U. (2018). Controller roles: Scale development and validation. In M. Epstein, F. Verbeeten and S. Widener (Eds.), *Performance measurement and management control: The relevance of performance measurement and management control research (Studies in Managerial and Financial Accounting, 33),* (pp. 143-190). Bradford, United Kingdom: Emerald Publishing Limited. https://doi.org/10.1108/S1479-351220180000033007
13. Gänsslen, S., Losbichler, H., Niedermayr, R., Weber, J. (2013). *Grundsatzposition des Internationalen Controller Vereins (ICV) und der International Group of Controlling (IGC).* Retrieved from http://www.controllerverein.com/Selbstverstandnis.104868.html
14. Graham, A., Davey-Evans, S., & Toon, I. (2012). The developing role of the financial controller: evidence from the UK. *Journal of Applied Accounting Research, 13*(1), 71-88. https://doi.org/10.1108/09675421211231934
15. Greenhalgh, R. W. (2000). Information and the transnational SME controller. *Management Accounting Research, 11*(4), 413-426. https://doi.org/10.1006/mare.2000.0143
16. Hanyecz, L. (2011). Modern vezetői controlling Gazdálkodás – menedzsment. Retrieved from https://saldokiado.hu/assets/res/download/_modern-vezetoi-controlling.pdf
17. Hartmann, F. G. H., & Maas, V. S. (2010) Why business unit controllers create budget slack: Involvement in management, social pressure, and machiavellianism. *Behavioral Research in Accounting, 22*(2), 27-49. https://doi.org/10.2308/bria.2010.22.2.27
18. Horváth, P., & Partners (2007). *Controlling, Út egy hatékony controlling rendszerhez.* Budapest, Hungary: Complex Kiadó Jogi és Üzleti Tartalomszolgáltató Kft.
19. Howell, R. A. (2006). The CFO: From controller to global strategic partner. Financial Executive, *22*(3). Retrieved from https://go.gale.com/ps/anonymous?id=GALE%7CA144751761&sid=googleScholar&v=2.1&it= r&linkacces s=abs&issn=08954186&p=AONE&sw=w
20. Reid, G. C., & Smith, J. A. (2002). The impact of contingencies on management ac-counting system development. *Management Accounting Research, 11*(4), 427-450. https://doi.org/10.1006/mare.2000.0140
21. Sajtos, L., & Mitev, A. (2009). *SPSS Kutatási és adatelemzési kézikönyv.* Budapest, Hungary: Alinea Kiadó.
22. Sebes, J. (2013). *A kontrolling kiemelt kérdései Budapest.* Hungary: Kolor Optika Nyomda és Kiadó.
23. Sinkovics, A. (2009). Milyen legyen a controllertudás szerkezete? *A Controller, 5*(10), 1-2.
24. Solti, G. (2013). *Mitől lesz sikeres egy controller?* Retrieved 2019, July, 24 from https://www.controllingportal.hu/mitol_lesz_sikeres_egy_controller_/
25. Szukits, Á. (2014). A controlling szervezeti jelentősége a magyar vállalatoknál: Befolyásoló tényezők és időbeli változások kvantitatív elemzése *Vezetéstudomány, 45* (9), 12-25.
26. Szukits, Á. (2017). A controlleri szakma hazai középvállalatokban: Mennyiben meghatározó a felsővezető vezetési stílusa? *Köz-Gazdaság XII*(5), 191-205.
27. Szukits, Á. (2019). Controllers' profession in contemporary organisations - Evidence from Hungary. *Journal For East European Management Studies, 24*(1), 8-31. https://doi.org/10.5771/0949-6181-2019-1-8
28. ten Rouwelaar, J. H. (2007) *Theoretical review and framework: The roles of controllers.* http://dx.doi.org/10.2139/ssrn.982831
29. Tóthné Parázsó, L. (2011). *A kutatásmódszertan matematikai alapjai. Eszterházy Károly Főiskola.* Retrieved 2019, July, 1 .from http://www.tankonyvtar.hu/hu/tartalom/tamop425/0005_31_kutatasmod szertan_scorm_07
30. Wolf, S., Weißenberger, B., Claus Wehner, M., & Kabst, R. (2015). Controllers as business partners in managerial decision-making. *Journal of Accounting & Organisational Change, 11*(1), 24-46. https://doi.org/10.1108/JAOC-10-2012-0100
31. Zéman, Z. (2016). A kontrolling fejlődéstörténetének főbb irányzatai. *Journal of Economy & Society, 2,.* 77-91. https://doi.org/10.21637/GT.2016.2.04.
32. Zéman, Z., & Komáromi, K. (2012). Pénzügyi controlling, a pénzügyi menedzsment kiemelt döntéstámogató eszköze. *A Controller, 8*(9), 3-5.
33. Zéman, Z., & Tóth, A. (2017). *Strarégiai pénzügyi controlling és menedzsment.* Budapest, Hungary: Akadémia Kiadó.
34. Zoni, L., & Merchant, K. (2007). Controller involvement in management: An empirical study in large Italian corporations. *Journal of Accounting & Organisational Change, 3*(1), 29-43. https://doi.org/10.1108/18325910710732849

APPENDIX A1

Table A. 1. Classification of the knowledge, capabilities and personal skills required from the controller into a principal component

Explained variance	21%	18%	18%	17%	13%	13%
Expectations from controllers	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
IT skills	0.5369	0.1868	-0.0026	0.2800	-0.2199	0.1373
Foreign language skills	0.5028	0.0459	0.0768	0.0084	0.0606	0.2228
Communication abilities	0.6670	0.1316	0.0686	0.0270	0.3597	-0.1312
Outstanding communication skills	0.6711	0.1121	0.1779	0.0910	0.3682	0.1579
Good written and verbal expression skills	0.5795	0.2445	0.0476	0.2330	0.2389	-0.1681
Propensity for teamwork	0.5665	0.3590	0.2542	0.1060	0.1044	-0.0631
Endurance and tirelessness	0.6054	-0.0865	0.2911	-0.0838	0.0175	0.2644
Organisational expertise	0.1304	0.5547	0.3468	-0.0038	-0.2444	0.0440
Accounting knowledge	0.4464	0.5015	-0.1669	0.3689	0.2995	0.0017
Financial knowledge	0.1024	0.6807	-0.2575	0.1606	0.3011	0.0842
Managerial attitude	0.0888	0.5077	0.1446	0.3160	-0.0955	0.2252
Rational risk taking	0.0238	0.6147	0.2555	-0.0696	0.1526	0.3941
Rational risk taking	0.0591	0.5004	0.3598	-0.0708	0.2768	0.1184
Group leadership and coordination ability	0.3175	0.6604	0.2008	-0.0384	-0.0816	0.0227
Knowledge of the given business area	-0.0759	-0.0456	0.5674	0.2113	0.1769	-0.0440
Creativity	0.3064	0.1314	0.6876	0.1601	-0.0894	0.1181
Responsiveness to new things	0.1617	0.2253	0.7043	0.0050	0.2044	0.1528
Interest in novelties and willingness to learn	0.2449	0.2653	0.6907	-0.0139	0.1535	-0.0024
Analytical skills	-0.0543	0.1089	-0.0711	0.7317	-0.0180	-0.0802
Contextual thinking	0.3668	0.0065	0.0608	0.5697	0.2634	-0.1099
Precision	0.0909	0.0099	0.1163	0.5805	0.3957	0.2695
Ability to work analytically and creatively	0.1926	-0.0502	0.1372	0.5704	-0.0741	0.3159
Logical thinking	0.0110	0.0373	0.3830	0.6738	0.2861	-0.0624
Problem-recognition and problem-solving abilities	0.2946	0.0729	0.3108	0.0508	0.6850	0.0433
Reliability	0.2167	0.0491	0.1079	0.2022	0.7227	0.1336
Marketing knowledge	0.1489	0.3197	0.1752	-0.1691	-0.0785	0.6960
Legal knowledge	-0.0740	0.4002	0.0442	0.0245	0.0706	0.7040
Statistical knowledge	0.1453	-0.0641	-0.0966	0.1892	0.1730	0.6732
Contextual thinking	0.3213	0.0763	0.3677	0.3667	-0.1539	-0.1016

Source: own calculation based on the provided database.