





## CONTROLLING – AN EMPIRICAL STUDY AND PROPOSAL OF A RELEVANT MODEL FOR SUSTAINABLE BUSINESS AND DEVELOPMENT IN SLOVAKIA

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Received 03 March 2021; accepted 04 July 2021

**Abstract.** The economic crisis triggered by the COVID-19 pandemic suggests that enterprises should manage their business in the wider system of public, social and environmental relations. Sustainable socially responsible business is becoming a lifeline for enterprises, they need to make the most effective decisions about the future direction. This can be achieved by interconnection of sustainable socially responsible business and controlling. Following the empirical survey research carried out using 151 Slovak enterprises the maturity of enterprises concerning the use of controlling and its financial, investment, cost, quality and personnel controlling subsystems was defined. Fisher's f-test was used for Three-factor analysis of variance questions. The results achieved in the research showing significant differences between analyzed categories of enterprises in terms of size and their subject of business. Based on the analyses of the secondary sources and on results of the research, a framework concept of the structure of corporate controlling for Slovak enterprises was proposed which represents an innovative sustainable business model in practice, the application of which in practice will be a prerequisite for the growth of performance and financial health of enterprises.

**Keywords:** controlling, socially responsible business, business model, development of enterprises, innovative and sustainable business, Slovak business environment.

**JEL Classification:** M12, M21, M29.

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## Introduction

At the time of the global pandemic, the business sector is currently facing a crisis. All enterprises are endangered, regardless of their size. Partial or complete restrictions of business operation imposed by the state directly jeopardized their existence. The objective of these state measures was to slow down the spread of the new coronavirus COVID-19, which reflected in the reduction of revenues, profits and cash flow of the enterprises. All these negative impacts may subsequently lead to the reduction of the market capitalization of an enterprise.

In view of the above, new ways how to “startup” their business activities are being sought. Important for maintaining their business is not only to analyze the external environment, or rely on the state aid, but to look for and reveal internal reserves. Enterprises can influence their internal environment and immediately implement the measures. Based on current measures to support entrepreneurship, the European Union emphasizes the way of sustainability. Considering the current situation, it seems the most appropriate for enterprises to implement the principles of sustainable socially responsible business (SRB), which aims not only to maximize profits but to focus on social, community and environmental goals. The socially responsible business takes into account all business stakeholders. Identifying the expectations of stakeholders and taking them into account in business decisions is a prerequisite for sustainable positive business results with a positive environmental and social impact on society (Malá et al., 2017; Alshammari, 2015; Štrukelj et al., 2020; Belas et al., 2020; Matten & Moon, 2008; Ashrafi et al., 2020).

Thus, decision-making is a key factor in success. Managers shall be able to handle the flow of information, process it, analyze it, make an output, and make the right decisions based on it (Riemenschneider et al., 2003; Berens & Wuller, 2007; Ahlrichs, 2012). A traditional supplier of top management decision support is the controlling function (Laval & Stefea, 2018). According to Sedliačiková et al. (2016, 2019), Písař and Kupec (2019), controlling is often taken incorrectly to mean control, but controlling is much more than that. Controlling is a cross-functional performance management concept tasked with the performance-based coordination of planning, control and the provision of information.

The aim of the paper is based on the analyses of the secondary sources and based on mapping the state of controlling use in the practice of Slovak enterprises, a framework concept of the structure of corporate controlling for Slovak enterprises was proposed which represents an innovative sustainable business model in practice, the application of which in practice will be a prerequisite for the growth of performance and financial health of enterprises.

With regard to the studied domestic and foreign literature (Jelacic et al., 2015; Potkány & Kováč, 2015; Šatanová & Potkány, 2004; Ahlrichs, 2012; Rausch et al., 2013; Berens & Wuller, 2007; Krastev, 2019; Dobers & Wolff, 2000; Boons & Lüdeke-Freund, 2013; Sedliačiková et al., 2015), the research question was expressed: *What is the current state in using controlling in small, medium and large enterprises in Slovakia?*

This paper is divided into four key sections. Section 1 reviews the theoretical background. Section 2 defines structure of the survey sample and empirical methodology. Section 3 presents primary empirical results, proposal of sustainable controlling business model for Slovak enterprises and discussion. Last section includes conclusions and several limits of the research.

## 1. Literature review

The socially responsible business has never had the potential for businesses as it does now. This is mainly due to the situation, as the sale of e-shops has not been affected by political measures to prevent the spread of COVID-19, not only at the national but also at the international level.

The objective of sustainable SRB is to focus on three basic aspects at the same time: environmental (impact of business on the environment), social (impact of business on stakeholders) and economic (effective management of the company to make a profit). SRB is understood and evaluated within the EU as part of the competitive performance not only of the individual enterprises but also of the country. The carried-out evaluations of SRB in individual countries and their international comparison indicate a certain correlation between the economic performance and achieved a level of SRB – “socially responsible” countries reach generally a higher level of economic performance and at the same time invest more into individual SRB areas (Dahlsrud, 2008; Cek & Eyupoglu, 2020; Ashrafi et al., 2020; Lu et al., 2020; Šabíková, 2018; Krechowicz & Kiliańska, 2021).

In terms of environment, responsible business presents the monitoring and reduction of negative impacts of the enterprise on the environment. The most important corporate decisions relate the area of recycling, using ecological products, keeping standards ISO 14000 and EMAS, protection of natural resources, using alternative energetic sources etc. (Matten & Moon, 2008; Ashrafi et al., 2020; Crowther & Aras, 2008).

Responsible business in the social area represents the monitoring and minimizing the negative effects of business activities on the social system. The social aspect of SRB is oriented primarily on employees to create above-standard conditions for the performance of their work (Alshammari, 2015; Matten & Moon, 2008).

The economic aspects of the SRB include a set of behavioural patterns that ensure that many subjects in the economic system do not see a free market economy and competition as a threat, but as an opportunity for their development and growth. The company is subject to various requirements of stakeholders concerning their economic responsibility. In view of the above, management supporting tools seem to be key factors. Thanks to their application in the enterprise, it is possible to achieve a sustainable socially responsible business. Controlling is one of such tools. Thanks to its use, it is possible to meet the economic, social and environmental aspects of the SRB. It is a new trend of controlling that seeks to evaluate ecological variants of individual options/activities (Crowther & Aras, 2008; Sedliačiková et al., 2019; Malá et al., 2019; Malesios et al., 2021; Magrizos et al., 2021).

If we want to understand the essence of *corporate controlling*, firstly we have to define the scope of controlling in general. According to Rausch et al. (2013) and Písař and Kůpec (2019), *controlling* in the broadest sense means to support managerial decision-making through planning, guidance and control in all functional areas and on all levels of business activities. Controlling can be therefore considered as a service function of management, the subject of which is to obtain the required information about the planned and current levels of economic phenomena and processes with a special focus on detecting deviations from the current course from the planned course. The identified deviations are analyzed and

measures are proposed to eliminate the shortcomings. Only through effective management of the enterprise, it is possible to develop actively business activities, create and maintain the environment in which it will be possible to achieve the set of enterprise objectives.

According to Ahlrichs (2012), strategic as well as operational management of all kind needs a specific toolset of steering instruments to achieve the defined business targets. Business controlling is definitely required in complex situations like reaching for real sustainability. A steering cycle with clear targets, planning and achievement measurements, and active steering with counter-measures is the basic instrument of business controlling. According to Rausch et al. (2013), nowadays it is essential to cope with present shortcomings particularly in the European business environment in a more appropriate way and, consequently, to initiate improvements towards social and ecological sustainability of business and controlling activities.

The detailed characteristics of controlling and its systems are described by the authors (Sedliačiková et al., 2015, 2016, 2019; Berens & Wuller, 2007; Krastev, 2019; Jelacic et al., 2015; Hitka et al., 2007, 2018; Stańczyk & Stuss, 2018; Břečková & Havlíček, 2013) in their publications.

## **2. Materials and methods**

The purpose of the study is the idea of identifying the current state of use of controlling in the practice of small, medium and large enterprises and the subsequent design of a framework concept of the structure of corporate controlling for Slovak enterprises. In the first stage of the solution, it was necessary to carry out a literary review of domestic and especially foreign authors based on the analysis of secondary sources. Based on this analysis, the objective and methodology of the primary research were determined. The results of the research led the authors to identify the current state and create a framework concept of corporate controlling for Slovak enterprises, which in practice represents an innovative sustainable model. This model will be a prerequisite for the growth of performance and financial health of enterprises in the Slovak Republic.

The aim of the questionnaire survey was to determine and evaluate the maturity of Slovak enterprises concerning the use of controlling and its subsystems. The survey was carried out in the year 2019. Presented results were focused on the target group of small, medium and large enterprises with the seat in the Slovak Republic. The determination of size categories of enterprises is based on the European Commission Directive No. 2003/361/EC (2003). For the purposes of the study, a small enterprise was considered to be an enterprise that employs up to 50 employees and its annual turnover is up to EUR 10 million. We consider a medium-sized enterprise to be one where up to 250 employees are employed and its turnover is up to EUR 50 million. A large company employs more than 250 employees and its turnover is more than EUR 50 million. (European Commission Directive No. 2003/361/EC, 2003). Other classification features included the basic characteristics: length of operation of the company on the market and type of company.

The questionnaire was distributed to 1400 business entities operating in Slovakia. Out of the total number of respondents, the return rate of the questionnaires represented 10.76%, which is 151 enterprises. The structure of the research sample is shown in Table 1.

Table 1. Structure of the survey sample

Size of enterprise	Small trading enterprise			Total	Small manufacturing enterprise			Total	Small service enterprise			Total
	>15 years	<15 years	<5 years		>15 years	<15 years	<5 years		>15 years	<15 years	<5 years	
Length on the market	>15 years	<15 years	<5 years	–	>15 years	<15 years	<5 years	–	>15 years	<15 years	<5 years	–
Quantity	11	6	2	19	11	6	1	18	16	6	3	25
Size of enterprise	Medium trading enterprise			Total	Medium manufacturing enterprise			Total	Medium service enterprise			Total
	>15 years	<15 years	<5 years		>15 years	<15 years	<5 years		>15 years	<15 years	<5 years	
Length on the market	>15 years	<15 years	<5 years	–	>15 years	<15 years	<5 years	–	>15 years	<15 years	<5 years	–
Quantity	8	1	1	10	34	8	1	43	18	1	1	20
Size of enterprise	Large trading enterprise			Total	Large manufacturing enterprise			Total	Large service enterprise			Total
	>15 years	<15 years	<5 years		>15 years	<15 years	<5 years		>15 years	<15 years	<5 years	
Length on the market	>15 years	<15 years	<5 years	–	>15 years	<15 years	<5 years	–	>15 years	<15 years	<5 years	–
Quantity	1	2	1	4	7	1	1	9	1	1	1	3

The questionnaire consisted of two parts. Part A (questions A1–A3) focused on the characteristics of the enterprises in terms of their size (small, medium or large), type (manufacturing, trading or service enterprises) and length of operation on the market (less than 1 year, less than 5 years, less than 15 years or more than 15 years). The goal of the part B (questions V1–V6) was to identify and evaluate the maturity of Slovak enterprises concerning the use of controlling and its subsystems (financial, investment, cost controlling, quality controlling and personnel controlling).

The sample size was determined using the following equation (Kaščáková & Nedelová, 2014):

$$n = \frac{z_{\alpha/2}^2 \times p \times (1-p)}{\Delta p^2} \quad (1)$$

The  $n$  is the size of the sample set,  $z_{\alpha/2}$  is the value of the standard normal random variable (reliability specified at the 95% level, i.e.  $\alpha = 0.05$  corresponds to  $z = 1.96$ ),  $\Delta p$  is the required exactness (error of estimation determined at 8.00%), and  $p$  is the ratio (relative frequency) quality sign in the basic set (determined at 50%). The actual sample size was 151 enterprises, and only 11% of the questionnaires were returned. This was considered to be a representative sample size.

The questionnaire survey was evaluated descriptively and graphically. In the next phase, mathematical (inductive) statistics were used in order to assess the statistical significance of the influence of factors (size of the enterprise, length of operation on the market and type of enterprise) on the application of controlling and its systems. Each evaluated question

contained a basic table of three-factor analysis of variance. The tables also show Fisher's *f*-test, which expresses the proportion of variance caused by the factor in a given row and the variance from the last row of random factors. If the value is greater than 1.0 in the *f*-test, it indicates that the variance caused by the factor is greater than the variance caused by random factors. The difference between the compared averages is not at the level of random deviations, so the difference is statistically significant.

### 3. Results and discussion

The evaluation of the first question V1 in the questionnaire focused on the use of controlling as a management tool in enterprises, shows two opposing tendencies. In the first case, 62.5% of large enterprises use controlling as a management tool, while the same percentage of small enterprises (62.9%) do not use this tool. In the second case, 27.4% of small enterprises use controlling and 25.0% of large enterprises do not. Medium-sized enterprises (23.3%) showed the greatest ignorance of the concept of controlling in comparison with other size categories of enterprises. A positive finding is that 58.9% of medium-sized enterprises use this tool intensively. Studies abroad also came with similar results (Feldbauer-Durstmüller & Hiebl, 2015). Small and medium-sized enterprises use controlling as a management tool to a lesser extent than larger enterprises, even though controlling brings several benefits for small enterprises. Todorović-Dudić et al. (2017) argue, for example, that small enterprises can identify potential threats in a timely manner through appropriate strategic controlling, thus avoiding acute crises and problems with the enterprise's sustainability.

Table 2 shows that the use of controlling (V1) depending on the factors A1 (size of the enterprise), A2 (type of enterprise) and A3 (length on the market) depends mainly on the size of the enterprise (A1), i.e. it is a statistically significant dependence. Other factors proved to be statistically insignificant. The size of the enterprise is a statistically significant factor ( $p = 0.016$ ). The interaction between type and presence on the market was close to the bor-

Table 2. Three-factor analysis of variance V1

Source of variability	Sums of squares	Degrees of freedom	Variance	Fisher's F-test	p-value
Total average	167.252	1	167.252	232.231	0.000
Size	6.208	2	3.104	4.310	0.016
Type of enterprise	1.057	2	0.528	0.733	0.482
Length	0.206	2	0.103	0.143	0.867
Size × type of enterprise	2.645	4	0.661	0.918	0.456
Size × length	1.674	4	0.418	0.581	0.677
Type of enterprise × length	5.417	4	1.354	1.881	0.118
Size × type × length	3.319	8	0.415	0.576	0.796
Random factors	89.304	124	0.720		

der of statistical significance ( $p = 0.118$ ). Given that the size of the enterprise is statistically significant, it can be stated that in medium and large enterprises, the use of controlling is statistically significantly higher than in small enterprises. Foreign authors (Riemenschneider et al., 2003; Osmanagić-Bedenik, 2015; Chaudhuri et al., 2011) emphasize that especially large enterprises have employees or even entire departments, which deal exclusively with the issue of controlling, i.e. processing of inputs, outputs and reports. For managers, responsible for all tasks in a small enterprise, adding a similar activity is challenging and burdensome.

Cost controlling is used by a high percentage of enterprises, regardless of their size. The results are shown in following Figure 1.

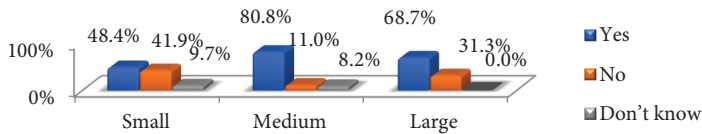


Figure 1. Use of cost controlling in the enterprises

The second question in the questionnaire (V2) was focused on the determination of the use of cost controlling in enterprises. Table 3 shows that only the interaction between type and length on the market was statistically significant ( $p = 0.070$ ). Factor A2 (type of enterprise) was close to statistical significance ( $p = 0.103$ ). Only manufacturing enterprises within 5 years, regardless of size, use cost controlling more intensively compared to other enterprises that have been operating on the market for a long time. In addition, as emphasized by (Osmanagić-Bedenik, 2015; Písař & Kupec, 2019), costs are used in an enterprise to assess the effectiveness of the business activity and to create business plans. In the case of start-ups or “young” enterprises, monitoring of costs is particularly important, especially because of their retention on the market, as costs affect the enterprise competitiveness and profit.

Table 3. Three-factor analysis of variance V2

Source of variability	Sums of squares	Degrees of freedom	Variance	Fisher's F-test	p-value
Total average	112.539	1	112.539	176.561	0.000
Size	2.104	2	1.052	1.650	0.196
Type of enterprise	2.951	2	1.475	2.315	0.103
Length	1.391	2	0.696	1.091	0.339
Size × type of enterprise	1.671	4	0.418	0.655	0.624
Size × length	2.054	4	0.513	0.806	0.524
Type of enterprise × length	5.674	4	1.418	2.225	0.070
Size × type × length	5.105	8	0.638	1.001	0.439
Random factors	79.037	124	0.637		

A relatively high percentage of all size categories of enterprises expressed a positive attitude towards the use of financial controlling (Figure 2). The achieved results are also supported by the authors (Krastev, 2019; Todorović-Dudić et al., 2017), who state that financial



controlling is understood in practice as the management of cash flows that condition its sustainability and development in the market.

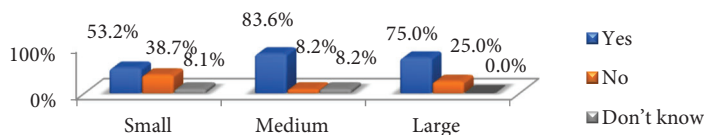


Figure 2. Use of financial controlling in the enterprises

According to Table 4, the question V3 focused on the usability of financial controlling did not manifest itself statistically significant depending on any factor (A1 = size of the enterprise, A2 = type of enterprise, A3 = length of operation on the market). Only the interaction between the type of enterprise and the length of operation on the market was close to the border of statistical significance ( $p = 0.121$ ). The difference between manufacturing enterprises and other enterprises is not as significant as in the case of the use of cost controlling. Manufacturing enterprises, especially the large ones, use financial controlling more often and, depending on the type of enterprise, medium service enterprises use financial controlling the most. Trading enterprises that operate on the market only shortly, mostly underestimate the significance of financial controlling. As stated Sedliačiková et al. (2019), in the field of finance, one of the biggest threats faced by all size categories of Slovak enterprises is liquidity and maintaining the solvency.

Table 4. Three-factor analysis of variance V3

Source of variability	Sums of squares	Degrees of freedom	Variance	Fisher's F-test	p-value
Total average	104.712	1	104.712	174.360	0.000
Size	1.660	2	0.830	1.382	0.255
Type of enterprise	2.149	2	1.074	1.789	0.171
Length	1.208	2	0.604	1.006	0.369
Size × type of enterprise	1.253	4	0.313	0.521	0.720
Size × length	1.875	4	0.469	0.781	0.540
Type of enterprise × length	4.473	4	1.118	1.862	0.121
Size × type × length	4.441	8	0.555	0.924	0.499
Random factors	74.468	124	0.601		

A high percentage of small enterprises (66.1%) do not use investment controlling and only 25.8% of small enterprises use this controlling subsystem. The opposite trend can be observed in large enterprises, where 68.8% of enterprises use and 25% do not use investment controlling. More than half of medium enterprises (56.2%) use investment controlling and 32.9% of medium enterprises do not. Ignorance of investment controlling in all size categories of enterprises ranged from 6% to 10%. Research results (Ropega, 2011) have confirmed that small enterprises often focus on sustainability rather than new investment than large ones. These statements support the achieved results.



The individual dependencies of V4 (use of investment controlling) against the factors A1 (size), A2 (type), A3 (length on market) can be observed in Table 5. The size of the enterprise (A1) is a statistically significant factor ( $p = 0.010$ ). Other factors proved to be statistically insignificant. Only the interaction of size and type of enterprise ( $p = 0.130$ ) was close to the limit of statistical significance. The only interaction between business type and length proved to be statistically significant ( $p = 0.050$ ). The results show that investment controlling is mostly used by large enterprises and the lowest use of investment controlling is at small enterprises.

Table 5. Three-factor analysis of variance V4

Source of variability	Sums of squares	Degrees of freedom	Variance	Fisher's F-test	p-value
Total average	177.998	1	177.998	229.259	0.000
Size	7.444	2	3.722	4.794	0.010
Type of enterprise	0.973	2	0.486	0.626	0.536
Length	0.732	2	0.366	0.471	0.625
Size × type of enterprise	5.639	4	1.410	1.816	0.130
Size × length	0.153	4	0.038	0.049	0.995
Type of enterprise × length	7.591	4	1.898	2.444	0.050
Size × type × length	6.268	8	0.784	1.009	0.433
Random factors	96.274	124	0.776		

The highest share in the non-use of the quality controlling was achieved by small enterprises (53.2%) and only 38.2% of small enterprises use this controlling subsystem. More than half of the medium (54.8%) and large (56.3%) enterprises use this subsystem intensively. The same concordance was manifested in its non-use, i.e. 35.6% of medium and 37.5% of large enterprises do not use it. As stated in (Sedliačiková et al., 2019; Jelacic et al., 2015), the concept of quality controlling hasn't been sufficiently developed in Slovakia yet, nevertheless, with increasing competition, more and more enterprises are becoming interested in this area. This is mainly due to the fact that the economic and sustainable aspects of quality come to the foreground, i.e. to offer an affordable product, production, use and environmentally friendly disposal.

In question V5 (use of quality controlling), statistical significance was confirmed only for the interaction of size, type of enterprise and length of operation ( $p = 0.020$ ). Other factors, such as the size of the enterprise, type and length of operation, again act as random factors and do not have a significant impact on the use of investment controlling (Table 6). The major usability of controlling can be observed at manufacturing enterprises operating on the market for up to 5 years. According to the results (Sedliačiková et al., 2019; Jelacic et al., 2015; Ahlrichs, 2012; Muntean, 2018), it is necessary to introduce quality controlling in enterprises of all size categories, as this has a direct impact on the financial controlling of the product.

Table 6. Three-factor analysis of variance V5

Source of variability	Sums of squares	Degrees of freedom	Variance	Fisher's F-test	p-value
Total average	151.220	1	151.220	168.950	0.000
Size	2.087	2	1.043	1.166	0.315
Type of enterprise	1.291	2	0.645	0.721	0.488
Length	1.527	2	0.764	0.853	0.429
Size × type of enterprise	1.789	4	0.447	0.500	0.736
Size × length	0.687	4	0.172	0.192	0.942
Type of enterprise × length	10.878	4	2.719	3.038	0.020
Size × type × length	3.685	8	0.461	0.515	0.844
Random factors	110.987	124	0.895		

The use of personnel controlling achieved the highest negative values among all controlling subsystems (Figure 3). As the authors emphasize (Alshammari, 2015; Beaver, 2003), successful and ambitious enterprises must emphasize staff optimization, i.e. effective and coordinated work of human resources to achieve business objectives.

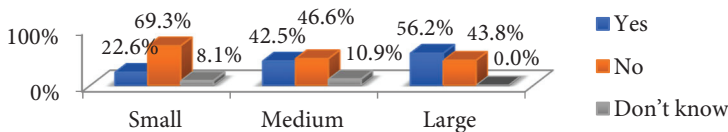


Figure 3. Use of personnel controlling in the enterprises

The last question V6 dealt with the use of personnel controlling. Table 7 shows that the size of the enterprise is a statistically significant factor ( $p = 0.074$ ). Statistical significance ( $p = 0.004$ ) was also noted for the interaction between type and length of operation on the market. The results show that with the growing size of the enterprise, there is improved use of personnel controlling. Trading enterprises use personnel controlling to a lower extent compared to manufacturing enterprises and service enterprises. According to the authors (Hitka et al., 2007, 2018), employees must be adequately motivated and willing to work for the enterprise, as large enterprises do not prefer a family atmosphere as in the case of small enterprises.

Table 7. Three-factor analysis of variance V6

Source of variability	Sums of squares	Degrees of freedom	Variance	Fisher's F-test	p-value
Total average	207.410	1	207.410	277.760	0.000
Size	3.979	2	1.990	2.664	0.074
Type of enterprise	3.402	2	1.701	2.278	0.107
Length	0.205	2	0.102	0.137	0.872
Size × type of enterprise	2.807	4	0.702	0.940	0.443
Size × length	1.989	4	0.497	0.666	0.617
Type of enterprise × length	12.241	4	3.060	4.098	0.004
Size × type × length	6.899	8	0.862	1.155	0.332
Random factors	92.593	124	0.747		

The results showed that large enterprises are often more advanced in thinking and understanding the use of controlling and its individual subsystems. These are often multinational enterprises that have been doing business in the market for many years. Controlling came to Slovakia from abroad and therefore it was and is introduced in large enterprises rather than in enterprises that were established later and do not perceive the overall effect of this modern management tool. We consider it positive that small and medium-sized enterprises are aware of the existence of controlling and many of them have already used actively at least some of the controlling subsystems. In view of the above, it can be stated that it is necessary to create a comprehensive framework concept of corporate controlling structure and its individual subsystems for Slovak enterprises, which will promote the effective functioning of controlling as a whole in small, medium and large enterprises, and thus support their development and sustainability.

Based on the analysis of secondary sources (Malá et al., 2017; Ashrafi et al., 2020; Sedliačiková et al., 2016, 2019; Jelacic et al., 2015; Boons & Lüdeke-Freund, 2013) and the results of the questionnaire survey, a framework concept of the structure of corporate controlling for Slovak enterprises was proposed, which represents a sustainable business model in practice, the application of which in practice will be a prerequisite for performance growth and financial health of enterprises.

As shown in Figure 4, the economic aspect of the SRB is a basis that is influenced by both environmental and social factors. The economic aspect contains a set of behavioural patterns that ensure that many subjects in the economic system do not see a free market economy and competition as a threat, but as an opportunity for their development and growth. (Alshammari, 2015; Matten & Moon, 2008). For this purpose, controlling is an ideal managerial support tool. Enterprise controlling can be divided into several subsystems. In terms of time, we divide controlling into long-term – strategic and short-term – operational. *Strategic controlling* means the systematic monitoring of future opportunities and threats. The orientation of strategic controlling is mostly external, but it also reflects the necessary views of the enterprise's internal environment. *Operational controlling* is focused on the present, the aspect of the future is given by the planning horizon, limited to short-term and medium-term results and their evaluation. It deals mainly with information obtained at present, respectively in the past. The orientation of operational controlling is mainly inside the enterprise (Sedliačiková et al., 2019; Todorović-Dudić et al., 2017).

Operational controlling can be divided into cost, financial, investment, personnel controlling and quality controlling (Sedliačiková et al., 2019). The goal of *financial controlling* is solving of problems related to financial (liquidity) of the enterprise at any moment while taking into account profitability objectives. The central role of financial controlling is to support the management of funds needed to cover payments incurred in the corporate transformation process with regard to environmental and social aspects (Sedliačiková et al., 2016). *Cost controlling (cost, operational, profit)* is focused on cost, revenue and profit management. It is also possible to include personnel controlling and quality controlling in cost controlling (Písař & Kupec, 2019; Sedliačiková et al., 2020).

*Investment controlling* represents a complex of activities that take place in the preparatory and implementation phase of investment decisions as well as the current phase of using

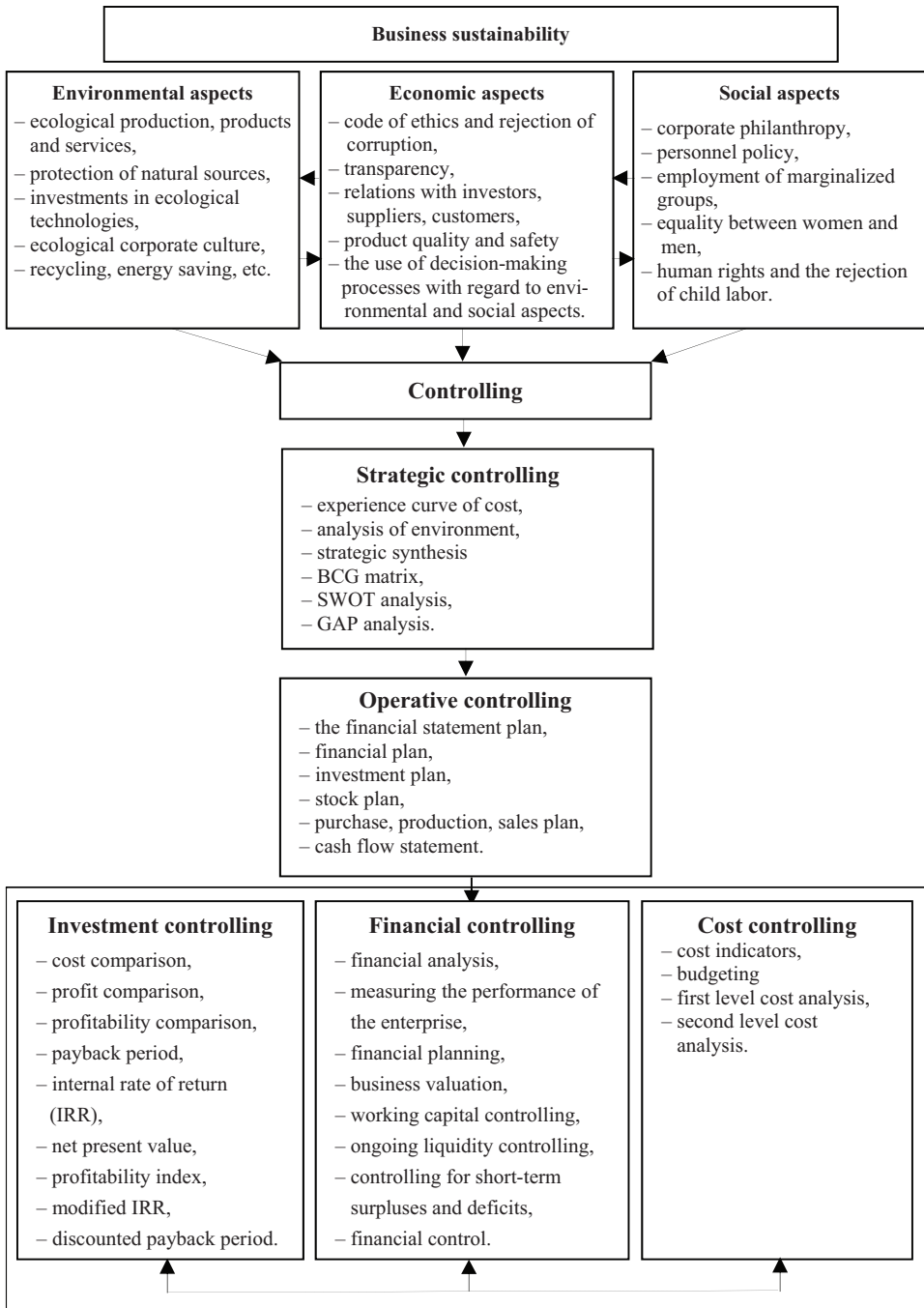


Figure 4. Sustainable controlling business model

investments in order to monitor the fulfilment of corporate objectives. It is based on information about expected revenues, costs and cash flows (Sedliačiková et al., 2019; 2015; Krastev, 2019). Strategic and operational controlling cannot be separated because they form one interconnected system, interact and complement each other (Sedliačiková et al., 2020).

For contemporary enterprises, focusing only on achieving economic goals is insufficient if the social and environmental factors are excluded from consideration. This fact was enhanced by the COVID-19 pandemic, which has had an enormous impact on the global health, economic and social environment. At the same time, the pandemic also clearly highlighted the existence of environmental factors and the issues related to quality of environment. Enterprises need to take account of all stakeholders their activities have an effect on (Ashrafi et al., 2020; Cek & Eyupoglu, 2020; Lu et al., 2020; Krechowicz & Kiliańska, 2021; Ding et al., 2021; Boubakri et al., 2021). One of the possible solutions to ensure balance between the economic, social and environmental objectives of an enterprise is to link SRB with supportive management tools, the example of which is controlling.

SRB interconnected with controlling brings many positive economic benefits for the enterprise. For the owners, controlling can evaluate options of financial flows of the enterprises, provide long-term stability (financial controlling follows indicators such as liquidity and profitability), the financial controlling can at the same time fairly remunerate employees through monitoring of deviations from plans. Controlling participates in satisfaction of customers, reduction of the number of complaints and claims and also differentiation of products and services in terms of age structure, which are more available thereafter. In connection with suppliers, controlling takes into account the quality and price of the offer as well as compliance with the agreed delivery dates of products and maturity dates (monitoring of indicators). At the same time, the enterprise can receive tax relief or grants or subsidies from the government.

With regard to the achieved results, the personnel controlling is not separately shown in the model. The reason is the lack of interest of Slovak enterprises in this part of controlling. As the authors agree (Sedliačiková et al., 2012, 2019; Hitka et al., 2018; Osmanagić-Bedenik, 2015), personnel controlling is part of cost controlling, where it can be included.

The created sustainable controlling business model for Slovak enterprises (Figure 4) is a prerequisite for the growth of performance and financial health of enterprises in the Slovak Republic. The authors point out that this framework concept is designed at a general level so that it can be implemented in every Slovak enterprise with respect to its specifics.

Basis of the lasting success of an enterprise is to respect others, i.e., not only social factors but also environmental. The enterprise shall implement in its management system also environmental protection. In this way, it is possible to achieve the integration of economic and environmental interests (Ahrichs, 2012; Alshammari, 2015; Cek & Eyupoglu, 2020; Lu et al., 2020). The implementation can bring the enterprise several economic benefits, which is possible to use for presentation of the value of the enterprise in relation to the stakeholders, mainly shareholders. Controlling as a supporting management tool ensures a balance between what is ecological, but on the other hand, from an economic point of view, beneficial to the enterprise, thus does not forget about social factors such as quality and safety of use of the offered products. Controlling can respect interests of all individual stakeholders:

helps owners in the environmental field to reconsider the various options in terms of investment, finance, costs in the short and long term; at the same time, controlling seeks ways to reduce the consumption of energy and material resources, ensures the ability to recycle used products, seeks suppliers who comply with international environmental standards (of course with regard to economic and social aspects) and monitors the environmental impact from the political point of view. It results from the above mentioned that it is possible to fulfil the interconnection of environmental aspects of sustainable SRB and supporting controlling tool and at the same time respect the economic and social aspects.

## **Conclusions**

The aim of the questionnaire survey was to determine and evaluate the maturity of Slovak enterprises concerning the use of controlling and its subsystems. The statistical analysis resulted in several differences among the surveyed enterprises. The basic tables of the three-factor analysis showed that the size of the enterprise (A1) was the most frequently occurring statistically significant factor. The size of the enterprise significantly affected individual answers. Using mathematical-statistical analysis, it was possible to notice that there were differences when comparing the size of the enterprises, but it was not so clear in case of the type of business. In the question V1, controlling is at least used by small trading enterprises, small manufacturing enterprises and large service enterprises. Large service enterprises stated in the question V2 that they used the cost controlling at least.

The designed sustainable controlling business model interconnects two optionally used tools in the enterprise – SRB and controlling. Controlling, as a supporting tool for decision-making, considers all aspects of SRB – economic, environmental and social.

The basic limitations of the research include the fact that it was conducted only in Slovakia, among small, medium and large enterprises, while these results cannot be generalized and applied to European or global conditions. On the other hand, this opens up an opportunity for further research within the European Union. The need to investigate the link between controlling and social and environmental factors has also been emphasized by the current COVID crisis, which was followed by the economic crisis.

## **Acknowledgements**

The research was supported by Slovak Research and Development Agency, APVV-18-0520, APVV-18-0378, APVV-17-0456, APVV-17-0583, APVV-20-0004 and by funds of KEGA 005TU Z-4/2020 as well as funding from the project VEGA 1/0161/21.

## **Author contributions**

MS, MM, DM and ZR conceived the study and were responsible for the design and development of the data analysis. MS, MM and DM were responsible for data collection and analysis. MS, MM, DM and ZR were responsible for data interpretation. MS, MM, DM and ZR wrote the first draft of the article.

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