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## The Role of Business Intelligence in Shaping Organizations in Emerging Economies

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### Abstract

Globalization and ever-increasing competition affects all existing companies, as well as those in emerging economies. For this reason, companies are constantly improving their own management systems and trying to gain a competitive advantage in the market in addition to eliminating shortcomings. In emerging economies in Central Europe, including Slovakia, there are still not well-established tools to support management decisions that are able to reveal reserves, identify deviations from the required state and reflect all these attributes in the system of motivation, evaluation and remuneration of employees. Such a tool is controlling, the implementation of which is a prerequisite for growth in performance and market value of the company. The aim of the paper is to identify and present the optimal software support for controlling for a given segment of companies based on the mapping of the current state of using Business Intelligence to support controlling in micro and small enterprises (MSEs) in the conditions of a specific developing economy, namely Slovakia. This information system will allow MSEs to respond flexibly to market changes, offer alternative options to support management decisions and is able to simulate the impact of any change in the plan on the company's management. The issue was examined in Slovak business practice through empirical research. We focused on groups of micro and small businesses, as these account for 99% of the country's market potential. While the introduction of the controlling module into the basic IS of the company or Business Intelligence are investment-intensive for MSEs, as a real option, affordable

*software support for controlling based on the MS Excel program was identified in practice. Given the above, a prototype of a controlling information system called "SOFIN-KA" was designed and successfully tested in the practice of the Slovak Republic in a program in MS Excel, which is customizable to the size of each MSEs.*

**Keywords:** *Business Intelligence, controlling, emerging economies, globalization, MS Excel*

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## **1. Introduction**

Globalization, as agreed by Perez-Nordtvedt et al. (2008) and Deming (2017), are currently considered to be a key factor in the further development of the world economy. At the same time, it provokes considerable discussions in theoretical circles, in government as well as in society as a whole. Globalization in business is characterized mainly by the growing scope of cross-border economic activities, i.e. penetration of competition into domestic markets and the opening of foreign markets, international acquisitions, strategic alliances, as well as their impact on industrial restructuring. Globalization brings with it an unprecedented increase in competition at both the micro and macro levels. Emerging economies have also had to engage in the process of globalization and adapt their business strategy in this direction. The last two decades, as reported by Pajtinková Bartáková et al. (2012), in the development of the economies of developing countries, they were characterized by improving and building, in particular, distribution systems in the context of expanding international trade. Our main economies include Brazil, China, India, Russia and South Africa. In the case of Central Europe, a significant example of an emerging economy is the Slovak Republic, in which micro and small enterprises (SMEs), as in developed EU countries, form a crucial part of the country's economic potential. In the Slovak Republic, approximately 93% of enterprises are micro-enterprises (0 - 9 employees), 6% are small enterprises (10 - 49 employees), 0.8% are medium-sized enterprises (50 - 249 employees) and only 0.2% are large enterprises (with more than 250 employees). MSEs are significantly involved in creating added value, providing jobs, while their progress and success create new jobs and strengthen the economy (SBA Fact Sheet Slovakia, 2018).

For the success of the MSEs in the current turbulent business environment, it is important to make better and faster decisions, which means to operate more efficiently, increase its competitiveness and develop further. Micro and small business managers need to be able to handle the flow of information, process it, analyze it, make an output, and make the right decisions based on it. It follows from the above that new requirements are placed on the MSEs in the field of management. However, MSEs in emerging economies, including Slovakia, currently do not often have sufficiently established tools to support management decisions that

are able to reveal reserves, identify deviations from the required state, the causes of their occurrence, assign them based on the principle of responsibility for their emergence individual departments and then reflect them in the system of motivation, evaluation and remuneration of employees. One of the ways to solve this problem is controlling, which is an effective tool for active management of the future of the company, which aims to provide real information in real time to increase the performance and financial health of the company (Sedliačiková et al., 2019). At present, it is not possible to implement controlling without adequate software support. Business intelligence is software that aims to acquire, process, analyze and present data. It serves to support decision-making and planning in business. The term Business Intelligence was first defined in 1989, but the rapid development occurred later, evident before the onset of the economic crisis. In Slovakia, information systems of the ERP (enterprise resource planning) type, which can be considered as the predecessors of information systems (IS) of the Business Intelligence type, are still very popular at present. Their role is to integrate, automate and manage various areas of business from production, logistics, sales, asset management, customer relations to invoicing and accounting (Chaudhuri et al., 2011). This fact led us to write the submitted paper. The aim of the paper is based on mapping the current state of using Business Intelligence to support controlling in micro and small enterprises in the conditions of a particular emerging economy, Slovakia, as well as to identify and present the optimal software support for controlling for a given business segment. Such an information system will allow MSEs to respond flexibly to market changes, offer alternative options for managerial decisions, and will be able to simulate the impact of any change in the plan on the company's management and performance.

## **2. Material**

The concept of controlling penetrated European terminology from the USA, where it first appeared in economic theory and practice at the end of the 19th century. The word base is the term "to control". In practice, more than 50 different meanings of the term have been found, in the sense of lead, manage, regulate, govern, administer, control (Horvath and Partners, 2004). It follows that to understand controlling only in the sense of "control" (as is often the case) would be a significant curtailment of the real content of this concept, as it would only be a control of corporate activities. Controlling is an effective tool for active management of the company's future, which connects several management and information subsystems (planning, control, budgeting, calculations, accounting, statistics, other forms of records and reporting, etc.). Its task is to provide information for the company's management, preparation of documents for setting the company's goals and planning, monitoring the implementation of the plan, detecting deviations, their analysis, analysis and proposal of corrective measures (Sedliačiková, Šatanová and Foltínová, 2012). The aim of controlling is not to replace the work of the manager, but information support in planning and setting business goals, continuous

acquisition and processing of information to support decision-making, creating methodological procedures to support managerial decisions, designing alternative solutions, simulating their impacts, supporting control with emphasis on analysis deviations, processing information into reports and summaries, preparing forecasts (forecast, estimate) and proposing corrective measures. It follows from the above that the functions of controlling are advisory, informational, innovative, coordinating and controlling, but not managerial (Sedliačiková, 2010).

In current business theory there are several approaches that define the structure of controlling in a company (Freiberg, 1996; Foltínová, 1997; Blazek et al., 2002; Claussen, 2003; Fickert et al., 2003; Horváthová and Gallo, 2003; Krause and Dayanand, 2010; Šatanová, et al., 2010; Fischer et al., 2012 and others). The limitation of these approaches is that they are designed regardless of the size of the business. After the analysis of several approaches, as well as on the basis of our own empirical research in practice (Sedliačiková, 2015), the concept of controlling structure for small and medium-sized enterprises (SMEs) was proposed (Hajdúchová and Sedliačiková, 2019). In terms of the dimension of time, it is possible to divide controlling into strategic and operational. In this approach, operational controlling is divided into: financial, cost, investment, personnel controlling and quality controlling.

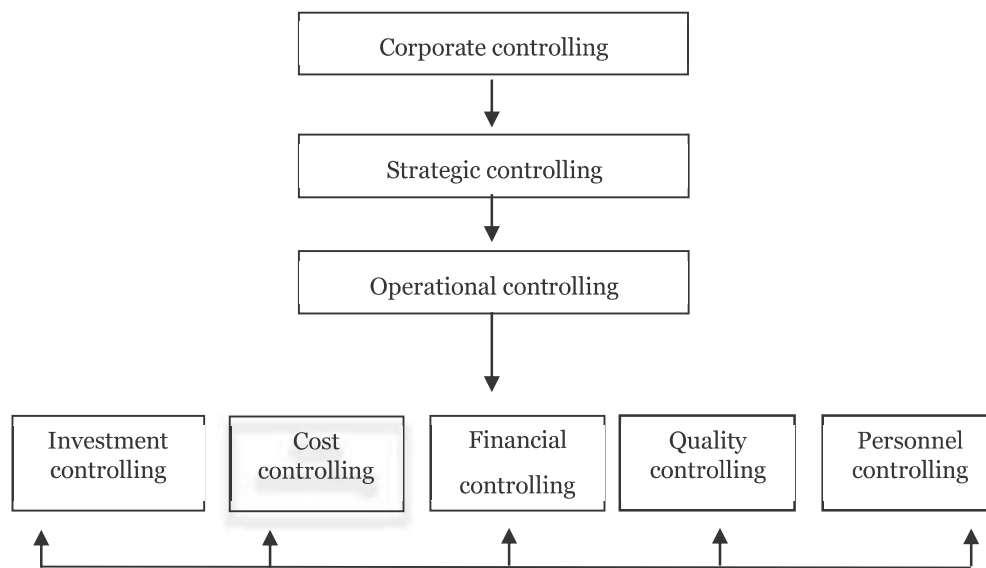


Figure 1: Structure of Controlling in SMEs

Source: Hajdúchová, Sedliačiková, 2019

Cost, financial and investment controlling are considered to be crucial subsystems in terms of the possibilities of applying control in SMEs. As stated by several authors, financial controlling

plays a key role, which is the core of controlling in SMEs, because it has an integrative function (Sedliačiková, 2015).

Strategic controlling is typical for its future orientation. It has a medium to long-term character. It is a systematic monitoring of future opportunities and threats (Rašner and Rajnoha, 2006). Operational controlling is focused on the present, resp. short-term future. It deals mainly with information obtained at present, resp. in the past. Opportunities and threats are transformed into costs, revenues, expenses and incomes. The essence of operational controlling is to formulate a system of profit management, cover contribution and cash flow (Šatanová et al., 2010). The aim of financial controlling is to solve the problems of financial balance (liquidity) of the company at all times, while taking into account the objectives of profitability (Sedliačiková, 2010). The central task of financial controlling is to support the management of funds needed to cover payments incurred in the corporate transformation process (Sedliačiková et al., 2016). Cost controlling (in-house, profitable) is focused on the issue of cost, revenue and profit management.

It is mainly economic (value) management, the essence of which lies in the calculation and cost system, which is modeled to suit each company. Its task is to solve problems of cost analysis, calculation methods and procedures (using the calculation of incomplete costs, which is based on the principle of addressability, not on the principle of averaging), cost budgets, pricing methodology and monitoring deviations from the plan based on flexible budget (Šatanová et al., 2010). Investment controlling is focused on detecting and assessing investment opportunities, project planning and their economic parameters. Its task is to design methodologies for evaluating the effectiveness of investment projects, as well as monitoring deviations in time, material and volume parameters of the investment (Sedliačiková, 2013). Quality control is a partial subsystem of corporate controlling and at the same time a supporting tool of quality management. It aims to support future-oriented management of minimizing the cost of poor quality, optimizing quality costs and increasing the quality of processes in order to achieve customer satisfaction with a direct impact on business management. Personnel controlling is focused on the proactive solution of human resources issues. Its goal is to monitor deviations of personnel indicators from the plan and the task is to monitor the return on investment in human resources in order to maximize the benefit of human resources for the company (Hitka, Lorincová and Sedliačiková, 2018). Strategic and operational controlling cannot be separated because they form one interconnected system, interact with each other and complement each other. It is necessary to realize that there is only one controlling, in individual functional areas of business management.

Controlling is currently not possible to implement in companies without adequate software support. As can be seen from Table 1, which presents a comparison of basic options for software support for controlling in companies.

Table 1: Comparison of Three Basic Variants for Controlling Software Support

	MS Excel	Controlling module within the basic corporate IS	Sophisticated controlling IS base on business intelligence
P	<ul style="list-style-type: none"> <li>• low price</li> </ul>	<ul style="list-style-type: none"> <li>• on-line work with data</li> </ul>	<ul style="list-style-type: none"> <li>• on-line work with data</li> </ul>
R	<ul style="list-style-type: none"> <li>• the possibility of modifying the IS with the company's own</li> </ul>	<ul style="list-style-type: none"> <li>• access rights and high system security</li> </ul>	<ul style="list-style-type: none"> <li>• access rights and high system security</li> </ul>
O	<ul style="list-style-type: none"> <li>• management and programming</li> </ul>	<ul style="list-style-type: none"> <li>• relatively short time response even with</li> </ul>	<ul style="list-style-type: none"> <li>• short time response even with more demanding recalculations</li> </ul>
S	<ul style="list-style-type: none"> <li>• capacities</li> <li>• high intensity learning process</li> </ul>	<ul style="list-style-type: none"> <li>• more demanding recalculations</li> </ul>	<ul style="list-style-type: none"> <li>• simulation of alternative solutions</li> <li>• simulation of the impacts of alternative solutions</li> </ul>
C	<ul style="list-style-type: none"> <li>• work with data is only possible in batches</li> </ul>	<ul style="list-style-type: none"> <li>• higher price</li> </ul>	<ul style="list-style-type: none"> <li>• higher price</li> </ul>
O	<ul style="list-style-type: none"> <li>• access rights and low system security</li> </ul>	<ul style="list-style-type: none"> <li>• time and money required to modify the basic solution (supplier company)</li> </ul>	<ul style="list-style-type: none"> <li>• time and money required to modify the basic solution (supplier company)</li> </ul>
N	<ul style="list-style-type: none"> <li>• relatively long time response for moreš</li> </ul>	<ul style="list-style-type: none"> <li>• lower intensity of the learning process</li> </ul>	
S	<ul style="list-style-type: none"> <li>• demanding recalculations</li> </ul>		

Source: Sedliačiková, 2015

The controlling information system is often referred to in foreign literature as IS-Controlling, which is a subsystem of IT-Controlling. IT-Controlling is a combination of controlling and information technology (IT) (Hess, 2007). Current business models, resp. current trends require more intensive support through IT, which is associated with a constant increase in procurement costs. However, due to the tight integration of business processes and IT, it is difficult to determine the added value that established technologies have brought. IS-Controlling is given a central role to support business management. IS-Controlling plans,

guards and manages the information flow in the company, which includes electronically entered data on costs, sales, etc. (Becker, Winkelmann, 2004).

### 3. Methods

The research took place in four key phases. In the first phase of the solution, an analysis of secondary sources was performed through a literature search of domestic and foreign professional and scientific publications, and the concept of the structure and content focus of controlling for SMEs was presented.

In the second phase, an analysis of the current state of use and perception of controlling information systems in the MSEs in Slovakia was carried out. Empirical research was carried out using the survey method. The questionnaire was sent to 2,415 MSEs, while the research model consists of 421 respondents, i.e. 17.43%. According to the methodology for determining the minimum sample size, as described below, we can determine the minimum sample size of respondents in order to maintain the condition of generalization of results (Kaščáková et al., 2014).

$$n \geq \frac{z^2 \cdot p \cdot (1-p)}{c^2} \quad (1)$$

kde: where:

n - minimum required number of respondents

Z - is the value based on statistical tables - at a confidence level of 95%, the variable is equal to 1.96

p - character share - ri of unknown values, 0.5 is substituted for p

c - permissible margin of error (in the current marketing survey it is set on a scale from 2% to 10%). For the needs of economic applications, a significance level of 5% ( $\alpha = 0.05$ ) is used.

After substituting the appropriate values into the formula, the authors were able to calculate the minimum size of the sample:

$$n \geq \frac{z^2 \cdot p \cdot (1-p)}{c^2} \quad \rightarrow \quad n \geq \frac{1,96^2 \cdot 0,5 \cdot (1 - 0,5)}{0,05^2} \quad \rightarrow \quad n \geq 384$$



The calculation shows that the sample must consist of at least 384 respondents, ie. MSEs from the Slovak Republic. As 421 respondents took part in the survey, the results of the survey can be generalized to the whole basic set - the survey meets the condition of a minimum scope.

In the third stage, based on the analysis of primary and secondary sources, a controlling IS in the MS Excel environment was designed and presented. Various functions of patterning, formatting and hypertext links were used in the creation of the IS, which ensured the "semaphore" evaluation of individual analyzes.

In the final phase, the method of summarization evaluated the achieved results and defined the benefits for the theory, science and especially for the practice of MSEs.

#### **4. Results and Discussion**

The results of the questionnaire survey showed that up to 84.2% of Slovak MSEs do not use any information system in their company to support managerial decisions. On the contrary, the information systems are used by only 15.8% of MSEs. Similar results were obtained by foreign authors Gunther and Schomaker, 2012; Feldbauer-Durstmuller and Hiebl, 2015, who found that MSEs use IS to support managerial decisions to a minimal extent compared to larger companies. At the same time, they emphasize that adapting controlling brings them specific benefits (Berens and Wuller (2007), for example, MSEs can identify potential threats in a timely manner through appropriate strategic controlling, thus avoiding acute crises in their business and reducing their insolvency. Other research abroad (Qureshi et al., 2009; Qureshi et al., 2008; Berens et al. 2007) has also identified significant evidence that IT helps micro-enterprises to operate more efficiently.

The main reason for not using information systems is mainly the financial complexity of their procurement, as stated by 94% of respondents. The other most common reasons are: resistance from employees (2.5%), lack of technical equipment (1.9%), long implementation process (1.3%) and the possibility of others indicated by 0.3% of respondents. The author Peter (2017) considers the biggest barriers to the implementation of new IS and innovations are especially their financial demands and lack of know-how. Another major barrier was identified in the study by Qureshi et al. (2008), namely the Employees' Department. In particular, micro-enterprises are usually managed by one person, who is responsible for the entire operation of the enterprise. That is why it is necessary to adapt the IS so that it does not delay the entrepreneur, but on the contrary, it helps him to speed up and simplify the work with information.



If there was a financially inexpensive information system to support managerial decisions, it would be used by up to 91.8% of Slovak MSEs. Despite the financial simplicity of the information system, 5% of respondents would not use it and 3.2% could not express themselves unambiguously. Riemendscheider et al. (2003) conducted similar research on a thousand small businesses and found that businesses are ready to overcome most barriers to IT adoption. This is because the pressure to maintain a competitive position and support customer service is greater than the barriers to the deployment of IS. In the study, they assumed that MaMPs expect that if they can process information faster and more efficiently, be more accessible to customers and have a better overview of their business and its surroundings, it will mean a gradual growth of existing capacity and a gradual transformation to dynamic and an effective larger national enterprise (Levy et al., 2001; Matthews, 2007; Servon and Doshna, 2000).

Based on the analysis of primary and secondary sources, it can be stated that for the needs of the application of controlling in micro and small enterprises, one of the most suitable software solutions is the use of MS Excel from MS Office (Sedliačiková, 2015). For this reason, the comprehensive concept of the structure and content focus of controlling for SMEs was transformed into a practical level in the form of a design of a controlling information system (KIS) "SOFIN-KA". This name consists of the abbreviations of the first letters of the individual controlling subsystems, namely S - strategic, O - operational, F - financial, I - investment, N - cost, K - controlling, A - assistant. The designation controlling assistant was chosen because the system only serves as an aid to the manager. A breakdown of the subsystems is presented in Figure 2.

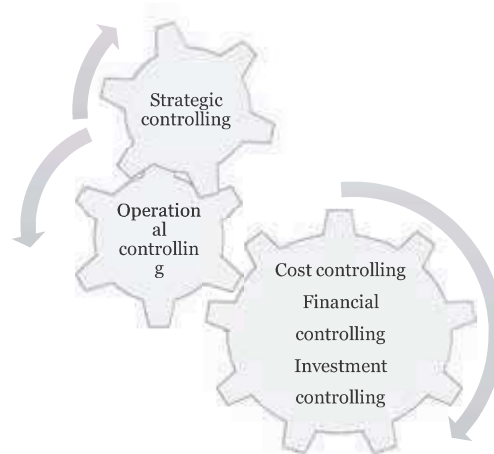


Figure 2: Controlling IS „SOFIN-KA“

Source: Marková, Sedliačiková, Gurová, 2017

KIS was built based on the following idea: “Everything in the company works together like gears. If one of them gets stuck, does not provide correct, timely, accurate and addressable information, the whole system, the company ceases to function effectively” (Hamáry Gurová and Sedliačiková, 2016). The system provides output information, the quality of which corresponds to the quality of the input information to the system. After entering Excel, the tab will be displayed, namely the most important subsystems from the proposed concept of enterprise controlling for MSEs. By clicking on the module e.g. financial controlling, another tab will open presenting the financial controlling activities.

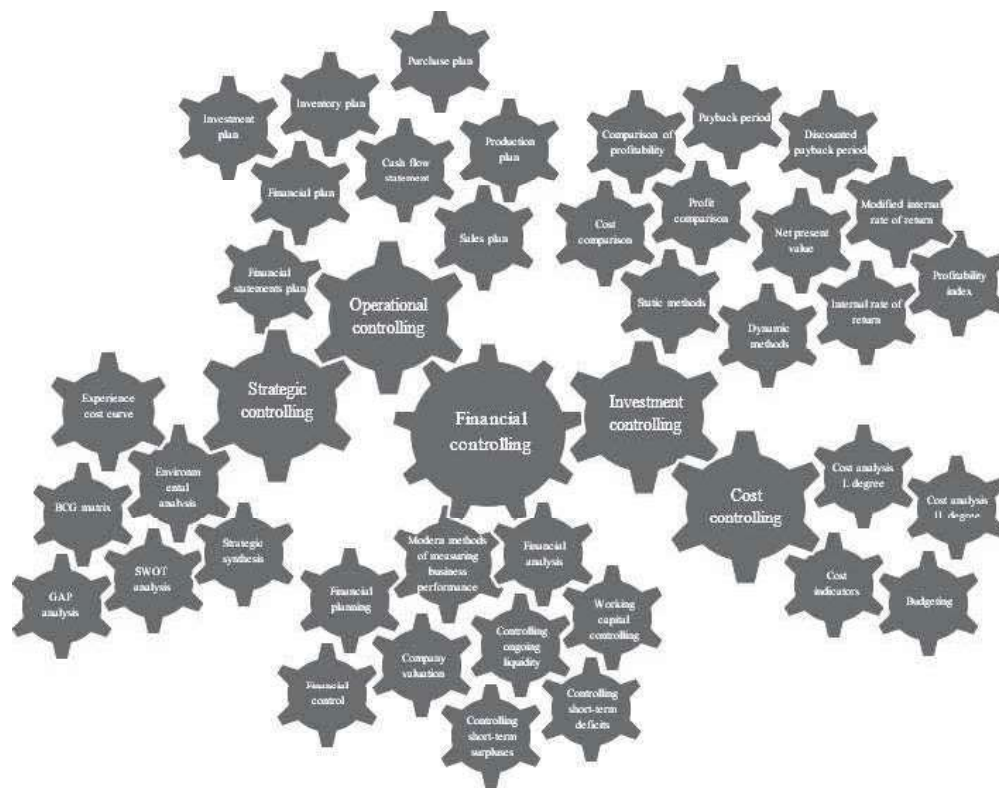


Figure 3: Breakdown of Analyzes in Individual Dimensions

In order for the system to work, it is necessary to fill in the input data from the balance sheet and profit and loss statement. This software support is based on "traffic light" business management and allows MSEs to respond flexibly to market changes and offers alternative solutions without managers having to spend hours on complex calculations and spreadsheets. It can also simulate the effects of any change in the plan on business management, and the company can quickly respond to operational and strategic management and adapt plans to new market conditions. The data entered in the input forms affect the number of analyzes and

always at least a pair of subsystems, which are again affected by other subsystems (the principle of gears). The whole KIS is based on moving through various hyperlinks, through which the user can easily move. The areas in which the user can enter data to perform the necessary analyzes or model potentially possible situations are color-coded cells. KIS also allows the user to perform analyzes on its competitors, to the extent that it has the necessary input data on the counterparty, which can be obtained from various publicly available registers (eg register of financial statements, FINSTAT and others). Also, selected indicators and analyzes are supplemented by notes that bring the user closer to the interpretation of the results (Marková, Sedliačiková and Gurová, 2017). A breakdown of the maximum package of analyzes and methods that can be performed within the individual subsystems that "SOFIN-KA" offers as a comprehensive KIS is shown in Figure 3.

As can be seen from Figure 3, the dominant area of the whole system is financial controlling, because this area is key in terms of everyday decision-making of MSEs managers (Drábek, Sedliačiková, 2003). As stated by Beck, Deminguc-kunt (2006) and Ropega (2011), one of the shortcomings of MSEs management is that they are only interested in this area in selected situations and do not attach due importance to it. Following on from financial stability, according to Reichman (2010), the main task of a company's financial management, and thus of financial controlling, is to ensure liquidity. Maintaining this constant payment readiness and financial balance must be respected in the light of profitability objectives

In the proposed KIS "SOFIN-KA", the main task of the subsystem is strategic controlling, so that the user can identify his position in the market and possibly find out according to the incorporated methodology which strategy would be most suitable for his company. These analyzes can only be performed provided that the user has the relevant input data.

Due to the fact that the orientation of operational controlling is for a period of less than one year, this subsystem is usable on a daily basis for the owner and manager of the MSEs, because it can create quarterly or monthly plans. In the structure of the operational controlling subsystem, the most important role is played by forms such as the planned balance sheet and the planned profit and loss account (or in the case of simple accounting - the planned statement of assets and liabilities, income statement). As agreed by the authors Horváth (2009) and Hamáry Gurová, Sedliačiková (2016), the currently planned balance sheet and the planned profit and loss statement are the basis from which the primary plan (sales plan) and other secondary plans are derived for example purchase plan, inventory plan, production plan, investment plan, etc. They also affect other parts of the whole system.

Innovative business plans require careful planning and evaluation of efficiency and profitability. For this purpose, the investment controlling subsystem is located in KIS "SOFIN-

KA". As stated by Drábek (2003), to evaluate the economic efficiency of investments, it is necessary to use static but especially dynamic methods of evaluation of investment projects. These methods were incorporated into the KIS (Figure 3).

The cost controlling subsystem includes a deeper cost analysis and for its needs requires a connection to the accounting IS, resp. regular updating of the form with input data.

KIS "SOFIN-KA" has been successfully tested and installed in several Slovak micro and small enterprises. In practice, it has been confirmed that it is an affordable, relatively simple and effective tool for creating optimal and flexible management decisions, which is tailored for each MaMP.

## 5. Conclusion

Micro and small businesses are an important segment not only in emerging economies. The flexibility and competitiveness of the European economy depend on their prosperity and financial health. In today's turbulent business environment, it is important for managers to be able to make quick and effective decisions and for that, they need an efficient, fast and effective management information system.

The effort of every company is to have such an IS that allows it to determine the best path to the set goal without long-term analysis and recalculations. Better and faster decision-making means working more efficiently, increasing your competitiveness and developing further. And so information technology and IS have become a very important helper for companies to support managerial decisions. IS provide high analytical comfort and easy access to clearly collected data. Currently, there are various IS that, after entering the necessary data, could relieve the manager of a number of tasks. For software support of controlling, it is possible to define three basic variants of the environment (Nelles, 2011): based on MS Excel, as a Controlling module within the basic IS of the company and through IS based on Business Intelligence, which works as a managerial superstructure of the basic IS. The achieved results of empirical research in the MSEs environment in Slovakia clearly showed that due to financial demands, this group of companies cannot afford to implement software support for controlling based on Business Intelligence or based on the Controlling module within the basic IS of the company. Thus, in terms of affordability and relative simplicity of the solution, the implementation of software support for controlling based on the MS Excel program was identified as the most suitable alternative for MSEs. More than 90% of all Slovak MSEs in this program wants to use IS. Due to the requirements of practice, the KIS "SOFIN-KA" was created in the MS Excel program. The unique IS "SOFIN-KA" represents the maximum possible package of offered methods and analyzes that the given system provides. However, this IS is

adaptable for the needs of management tailored to each MSEs based on requirements. KIS IS is based on the principle of gears, which represent the interconnection of individual controlling subsystems. It is programmed on the basis of "traffic light" management, which informs the manager whether the company is in green or red numbers. The IS also offers explanations of the individual values of the calculated indicators. The dominant subsystem of IS is financial controlling, because it is necessary in terms of daily decisions of managers for MSEs. KIS IS enables MSEs' managers to make optimal managerial decisions in real time in individual functional areas of business management.

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## References

- Beck, T. & Demircuc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, 30(11), 2931-2943. doi:10.1016/j.jbankfin.2006.05.009
- Becker, J. & Winkelmann, A. (2004). IV-Controlling. *Wirtschaftsinformatik*. 46(3), 213-221. doi: 10.1007/BF03250939
- Berens, W. & Wuller, F. (2007). Strategisches Controlling in KMU: Bedeutung, Umsetzungsstand und edv-technische Unterstutzung. *Controlling*, 19(7), 393-404.
- Blazek, A. & Eiselmayer, K. (2002). *Finanz – Controlling. Planung und Steuerung von Bilanzen und Finanzen*. Berlin: Verlag für Controllingwissen, 2002. 312 s.
- Claussen, H. (2003). Instrumente für das Finanzcontrolling. *Controlling NEWS*, 2, 17-18.
- Deming, D. J. (2017). The growing importance of social skills in the labor market. *Quarterly Journal of Economics*, 132, 1593-1640.
- Drábek, J. (2003). *Investičný kontroling*. Zvolen : Lokálne stredisko dištančného vzdelávania TU Zvolen.

- Drábek, J. & Sedliačiková, M. (2003). Miesto a úloha finančného controlling v štruktúre podnikového controllingu. Paper presented at the *Ekonomika a manažment podnikov*. Zvolen, Slovakia.
- Feldbauer-Durstmüller, B. & Hiebl, M. R. W. (2015). *Aktuelle Trends und Entwicklungen im Controlling in und für KMU: Eine Einführung der Gastherausgeber*. *ZfKE – Zeitschrift für KMU und Entrepreneurship*, 63(3-4), 193-208.
- Fickert, R., Geuppert, F., Künzle, A. (2003). *Finanzcontrolling*. Bern: Fr. 98.-Haupt Verlag. Stuttgart: Schäffer-Poeschel Verlag.
- Fischer, T. M., Möller, K., Schultze, W. (2012). *Controlling – Crundlagen Instrumente, Perspektiven*. Stuttgart: Schäffer-Poeschel Verlag.
- Foltínová, A. (1997). Finančný controlling podniku. *Finančný poradca podnikateľa*, 2(3), 33-50.
- Freiberg, F. (1996). *Finančný controlling*. Bratislava: Elita.
- Gunther, T. & Schomaker, M. (2012). 10 Thesen für mehr Effizienz in der Planung mittelständischer Unternehmen. *Zeitschrift für Controlling & Management*, 56,(3), 18-30.
- Hajdúchová, I. & Sedliačiková, M. (2019). Finančné účtovníctvo a finančný controlling. Zvolen : Technická univerzita vo Zvolene.
- Hamárý Gurová, D. & Sedliačiková, M. (2016). How to improve managerial decisions in micro and small enterprises. *Economy, finance and business management X*.143-152.
- Hess, T. (2007). IT-Controlling: eine separate Welt. *Controlling & Management*, 51(4), 225-225. doi: 10.1007/s12176-007-0062-4
- Hitka, M., Lorincová, S., Sedliačiková, M. (2018). *Personálny manažment*. Zvolen: Vydavateľstvo TU Zvolen.
- Horváth, P. (2009). *Controlling*. München: Vahlen, Franz.
- Horváth & Partners. (2004). *Nová koncepcie controllingu*. Praha: Profess Constulting.
- Horváthová, J. & Gallo, P. (2003). *Controlling*. Prešov: Dominanta.

- Chaudhuri, S., Dayal, U. & Narasayya, V. (2011). An overview of business intelligence technology. *Communications of the ACM Magazine*, 54(8), 88-98. doi: 10.1145/1978542.1978562
- Kaščáková, A., Nedelová G. (2014). Dotazníkový prieskum II. – overovanie hypotéz. *Forum Statisticum Slovacum: vedecký recenzovaný časopis Slovenskej štatistickej a demografickej spoločnosti*, 10, 109-114.
- Krause, H. U. & Dayanand, A. (2010). *Controlling-Kennzahlen - Key Performance Indicators*. Oldenbourg: Oldenbourg Wissenschaftsverlag.
- Levy, M., Powell, P. & Yetton, P. (2001). SMES: Aligning IS and the Strategic Context. *Journal of Information Technology*, 16(3), 133-144.
- Marková, V., Sedláčiková, M., Hamáry Gurová, D. (2017). *Kontroloing - vstupy versus výstupy = Controlling - input versus output*. Paper presented at the Proceedings of 9th annual international scientific conference Competition, Jihlava, Czech Republic.
- Matthews, P. (2007). ICT Assimilation and SME Expansion. *Journal of International Development*. 19(1007), 817-927.
- Nelles, S. (2011). *Excell 2010 im Controlling. Das umfassende Handbuch*. Bonn: Gallileo Press.
- Pajtinková Bartáková, G. & Gubiniová, K. (2012). *Udržateľný marketingový manažment*. Bratislava: Inštitút aplikovaného manažmentu (IAM press).
- Perez-Nordtvedt, L. & Kedia, B. L.; Datta, D. K. et al. (2008). Effectiveness and efficiency of cross border knowledge transfer: an empirical examination. *Journal of Management Studies*, 45, 714-744.
- Peter, K. M. (2017). *KMU-Transformation: Als KMU die Digitale Transformation erfolgreich umsetzen.: Forschungsergebnisse und Praxisleitfaden*. Berlin: BoD – Books on Demand.
- Qureshi, S., Kamal, M. & Wolcott, P. (2008). *Sustainability of Information Technology Therapy on Micro-enterprise Development*. Paper presented at the Hawaii International Conference on System Sciences, Proceedings of the 41st Annual, Hawaii, USA.



- Qureshi, S., Kamal, M. & Wolcott, P. (2009). Information Technology Interventions for Growth and Competitiveness in Micro-Enterprises. *International Journal of E-Business Research*, 5(1), 117-140.
- Rašner, J. & Rajnoha, R. (2006). *Nástroje riadenia efektívnosti podnikových procesov*. Zvolen : Technická univerzita Zvolen.
- Reichmann, T. (2010). *Controlling mit Kennzahlen und Management-Tools: Die systemgestützte Controlling-Konzeption*. München: Vahlen, Franz.
- Riemenschneider, C. K., Harrison, D. A. & Mykytyn, P. P. (2003). Understanding it adoption decisions in small business: integrating current theories. *Information & Management*. 40(4), 269-285.
- Ropega, J. 2011. The Reasons and Symptoms of Failure in SME. *International Advances in Economic Research*, 17(4), 476-483. doi: 10.1007/s11294-011-9316-1
- SBA Fact Sheet Slovakia. (2018). Správa o stave malého a stredného podnikania v Slovenskej republike v roku 2017. Retrieved from <http://www.sbagency.sk/>.
- Sedliačiková, M. (2010). *Teória a prax controllingu v oblasti finančného riadenia podniku..* Zvolen: Technická univerzita vo Zvolene.
- Sedliačiková, M. (2013). Evaluation of economic efficiency of the investment project through controlling's methods. *Annals of Warsaw University of Life Sciences. Forestry and Wood Technology*, 84, 153-158.
- Sedliačiková, M. (2015). *Finančný kontroling v malých a stredných podnikoch - teória a prax*. Zvolen : Technická univerzita vo Zvolene.
- Sedliačiková, M., Hajdúchová, I., Krištofik, P., Vizslai, Gaff, M. (2016). Improving the Performance of Small and Medium Wood-Processing Enterprises. In *BioResources*. 11(1), 439-450.
- Sedliačiková, M., Hajdúchová, I. (2019). Finančné účtovníctvo a finančný kontroling. Zvolen : Vydavateľstvo Technickej univerzity vo Zvolene.
- Sedliačiková, M., Šatanová, A., Foltínová, A. (2012). Finančný controlling v teórii a praxi malých a stredných podnikov. *Ekonomický časopis/Journal of Economic*. 60(9), 949-966.

Servon, L. J. & Doshna, J. P. (2000). Microenterprise and the economic development toolkit: A small part of the big picture. *Journal of Developmental Entrepreneurship*. 5(3), 183.

Šatanová, A., Drábek, J., Rajnoha, R., Volčko, I., Sedlačiková, M. et al. (2010). *Kontroling*. Zvolen: Vydavateľstvo TU vo Zvolene.

