

Evolutionary forms of business models and their impact on enterprises in the scientific community

Robert von Böhlen

Institute of Management, Faculty of Business and Management, Brno University of Technology, Antonínská 548/1, 601 90, Czech Republic

Abstract

The goal of this paper is the evolution of the business model form and its impact on corporate strategy and its paradigm shift. The data source for the analysis of the article was the academic database Web of Science for the years 1952 to 2022, which formed the database for the bibliographic analysis using VoS Viewer. Using comparative keyword analysis and regression, the top five most frequent keywords in the WoS database over the last 20 years were determined, and the researchers looked back at both the prospective demand for the topic and its historical development, with the support of predictions for future years. The main result showed the use of the words "performance", "impact", "management" and performance, with the model gaining more emphasis in recent years, reflecting the current changing highly turbulent dynamic environment, which is influenced by globalization, digitalization, and automation in recent years the most significant potential subject of impact research on performance shows the deployment of AI technology in strategy formation and strategic modelling.

Keywords: Web of Science, Business model, corporate strategy, VoS Viewer, Model, Performance

Introduction

The Web of Science (WoS) database can be viewed as a comprehensive bibliographic database that provides access to high-quality literature in various disciplines (Singh et al., 2020). From a scientific perspective, the WoS database can be a valuable resource for researchers and scientists seeking to conduct literature reviews, identify important research trends, and assess the impact of their own research outputs (Liu, Huang & Wang, 2021). The database allows users to track citations between articles, identify highly cited papers, and track the impact of research over time, providing a comprehensive view of

the research landscape in a particular field (Budimir et al., 2021). In addition to research applications, the WoS database can also be used for research evaluation and assessment purposes (Krueger, Megits, 2021). However, as it is the case in today's world, the business model is adopted by all businesses, either explicitly or implicitly (Telnov et al., 2022). The business model is not an end in itself, but a means to make money. In essence, it must be the one through which profit is to be made (Montemari et al., 2022). In recent years, more and more companies have become aware of the importance of business model innovation (Muller, Buliga & Voigt, 2021). On the one hand, the phenomenon of business model homogenization is becoming more and more evident, resulting in the loss of firms' traditional competitive advantages and ultimately forcing firms to continuously innovate their business models (Kollmann, Dobrovič, 2022; Zapletalová, 2023; Straková et al. 2021). On the other hand, the rapid growth of personalized consumer demand is making it increasingly difficult for marketers to win customer orders (Correani et al., 2020). In order to grow, companies need to create new business models. The focus on business models is extensive in the literature and definitions vary. Businesses of all types and sizes are under constant pressure to improve business performance (Világi, Konečný & Ruschak, 2022). They strive for success, but some fail, and others experience periods of success, this eventually fades away, thus achieving sustained success and receiving well-deserved success (Titisari et al., 2022), which is also due to the impact of the COVID-19 pandemic (Žárská, Sochuľáková, 2022). Few businesses get the respect and admiration they were supposed to be worthy of. Thus, it can be used to assess and improve all aspects of the organization including leadership, strategy and planning, people, information, and knowledge (Domanířová, Milichovský & Kuba, 2020). The foundation of any successful business is the business model (Niewiadomski, 2020), it describes how the company plans to generate revenue and make a profit by providing value to customers (Elia, Lerro & Schiuma, 2022).

Literature review

The WoS database is one of the most prestigious resources in the field of scientific research (Caputo, Kargina, 2022). This database provides information on thousands of articles in various fields of science. Nowadays, WoS is an essential tool for all scientists who want to be informed about new discoveries and research in their field (Scheidt, Meier, 2022). One of the key factors that make WoS so valuable is its emphasis on quality. The database contains articles that have been published in reputable scientific journals (Singh et al., 2021), which are carefully selected and evaluated based on criteria such as originality, accuracy, and significance (Zaghloul, 2022). This approach ensures that the information contained in the database is reliable and relevant (Martin-Martin et al., 2021). Another important feature of WoS is its ability to provide a comprehensive overview of a given area of scientific research (Gaviria-Marin, Merigo & Baier-Fuentes, 2019). The database allows searching articles by keywords, authors, journals, citations, and many other criteria. This approach allows researchers to quickly and easily find relevant information and compare research in different fields (Tuncay, 2022). Farrukh et al.

(2020) in their research tried to point out, the visualization of VoS viewer mapping by collecting bibliometric data from the WoS database.

A business model in corporate strategy involves understanding the role that the model plays in achieving the strategic objectives of the firm (Freudenreich, Luedeke-Freund & Schaltegger, 2020). However, according to Váchal, Talíř (2020) a large number of businesses do not have defined core strategic documents such as corporate strategy, vision and mission statements. And this is the case for small and medium-sized enterprises (Straková, Talíř, 2020). It includes the realization that the model is not simply a description of how the company operates (Cardoni, Kiseleva & Lombardi, 2020), but a critical tool for aligning resources (Bereznoy, 2019), optimizing operations and achieving long-term success (St-Hilaire, Boisselier, 2019). There are many ways to view the business model. One way to view it is as a framework for decision-making. Ferasso et al. (2020) sought to highlight in their research an understanding of the company's value proposition, target market, distribution channels, and revenue sources that can help decision-makers develop a strategy, in line with the company's objectives and resources. Another way to view the model in corporate strategy is to view it as a tool for managing risk and uncertainty (Brilinger et al., 2020). By anticipating changes in the market or industry, companies can adjust their strategies and mitigate potential risks (Istiak, Serletis, 2020).

The corporate strategy and business model, over time, must come up with some innovation, especially digitalization brings an increase in corporate margins and sales (Talíř, Straková, 2023). For the enterprise, this thus implies a process of creating new or improved ways of delivering value to customers (Jin et al., 2022; Cheng, Wang, 2022). Innovation itself can take many forms, from creating new products or services to exploring new distribution channels or sources of revenue (Bocken, Geradts, 2020). It can involve changing the way a company interacts with customers, suppliers, or other stakeholders, or finding new ways to use technology and data to create value (Keiningham et al., 2020). Innovation is important for several reasons. Sjodin et al. (2020) and Straková et al. (2021) in their research pointed out how to help companies remain competitive in rapidly changing markets as new technologies, internal sources and changing consumer preferences can disrupt traditional business models. Paiola, Gebauer (2020) in their research wanted to point out where to create new sources of revenue and find new markets for their products or services. Last but not least, Miroshnychenko et al. (2021) in their work pointed out how to increase customer satisfaction and loyalty by providing better products, services, and experiences. Among the business model innovations, we can include the subscription model. Huotari, Ritala (2021); Chaudhuri et al. (2022) used this model in their study, thus, they investigated the value of this model, how much it is based on the continuous provision of service or product to the customer, for a regular fee. Panda (2020); Layrisse, Reficco & Barrios (2021) in their research examined freemium models, how a basic service or product is offered for free, and charges for premium features or services. There are also sharing economy models (Geissinger, Laurell & Oberg, 2021; Reischl et al., 2022), value-based pricing models (Classen, Friedli, 2021) or platform-based models (Tian et al., 2022). Overall, business model innovation is a key driver of growth and success in today's business environment as companies strive to find new ways to create

value for their customers and stakeholders (Filser et al., 2021).

The business model also displays its performance, how well the company implements its corporate strategy and achieves its financial and operational goals (Nunes, Pereira, 2021). Performance is an important aspect of any model, helping companies measure their success, so it is necessary to create a functional organizational and management structure (Pang et al., 2019; Váchal, Talíř, 2020) and identify areas in which they need to improve (Chereau, Meschi, 2019; Rask, Gunzel-Jensen, 2020). There are several key business performance indicators that companies can use to evaluate their success, including profitability itself. According to Desyllas, Salter & Alexy (2022), there are other performance indicators such as return on investment, and employee and customer satisfaction. According to Kmecová et al. (2019) is unemployment the main macro indicator of the state. By tracking these key performance indicators, companies can identify trends, monitor progress, and adjust their business model as needed (Wang, Zhou, 2021). They can also use performance data to set goals, measure their success, communicate their success to stakeholders, outstanding professional standards and efficiency (Ali, 2023; Vlachý, 2019), ultimately performance is critical to the success of any business model as it provides a way for companies to measure their impact, identify areas for improvement and remain competitive in their market (Verhagen, de Reuver & Bouwman, 2023).

As tends to be the case, the model can also have a significant impact on corporate strategy as it outlines the company's approach to creating, delivering, and capturing value, and the development of international strategic alliances is increasingly important (Langley et al., 2021; Kasych, 2019). A strong business model can provide the basis for an effective corporate strategy by aligning the company's objectives with its capabilities and resources (Llopis-Albert, Rubio & Valaro, 2021). A model can influence corporate strategy in several ways, one of which is prioritization (Dembek et al., 2022). This can help companies identify their key priorities and focus on their core competencies. It can also help companies identify new opportunities for growth and innovation (Menter, Gocke & Zeeb, 2022). By understanding the needs and preferences of their customers, companies can explore new markets, products, and services that align with their existing strengths. As Junqueira, Pinochet, Magalhaes (2021) mentioned in their study that the business model overall plays a vital role in shaping corporate strategy because it provides a framework for understanding a company's strengths and weaknesses, identifying opportunities for growth and innovation, and aligning resources and investments with strategic objectives. By creating a strong model, companies can create a roadmap for success and achieve long-term growth and profitability (Rajnak, Puschmann, 2021).

Digital technologies have changed the way firms operate in business markets in terms of what they sell and how they sell it (Ritter, Pedersen, 2020). Digitalization in the business model means using digital technologies to transform and optimize business operations (Menchini et al., 2022), processes, and customer engagement (Linde et al., 2020), which also has a negative impact on the company and employees (Kuba, Milichovsky, 2019). In today's rapidly changing business environment, digitization has become essential for businesses of all sizes (Reim et al., 2022). Digitization can help businesses improve their agility and

responsiveness to market changes and increase value added as digital tools enable real-time tracking and analysis of business performance indicators (Caputo et al, 2021; Nagy, Zabožnik & Valaskova, 2022). It can be said that digitalization is essential in today's business environment to increase efficiency (Chen, Liu & Chen, 2022; Straková, Talíř & Váchal, 2022), improve customer experience, increase flexibility (Sehlin, Truedsson & Cronemyr, 2019), improve data analysis (Hallikas, Immonen & Brax, 2021) and increase competitiveness (Sergushina et al., 2021).

Based on the information identified in the literature search, the following research questions were identified:

- *RQ1: Which keywords are associated with the word business model?*
- *RQ2: What are the top five most used keywords?*
- *RQ3: What growth can be expected in the coming years?*

Based on the research questions, the following hypothesis was formulated:

- *H1: With the advent of new technologies and the focus of businesses on innovation, there is an expectation that the attention of academics to business model research has increased.*

Methods and Data

The source of data for the analysis of the article was the academic database Web of Science. Business model (All Fields), Business or Management or Economics (Web of Science Categories), and Article (Document Types) were selected. From the Web of Science database, 155 862 publications were extracted for the period 1952-2022, which form the database for bibliographic analysis using VoS Viewer.

After identifying the top 5 strongest keywords, data was collected on the increase in the occurrence of each keyword in the WoS database. For the WoS database, keyword searches were chosen for the categories of Business, Management, and Economics. These searches served as the database for the regression analysis.

Bibliographic analysis

Bibliometric analysis using Vos Viewer was used to determine research directions for the topic "business model". Based on this database, a bibliographic map was created to identify the strongest keywords (number of occurrences and frequent occurrences). Before creating the bibliographic map, it was necessary to select the type of analysis. The minimum number of occurrences of keywords is made in the form of bubbles and arranged according to colour in so-called clusters, which symbolize each category. The position of each bubble is also important for the subsequent analysis: the distance between each bubble symbolizes the common frequency of occurrence and the size of the bubble the number of occurrences in the articles studied (Robertson, Pitt & Ferreira, 2020).

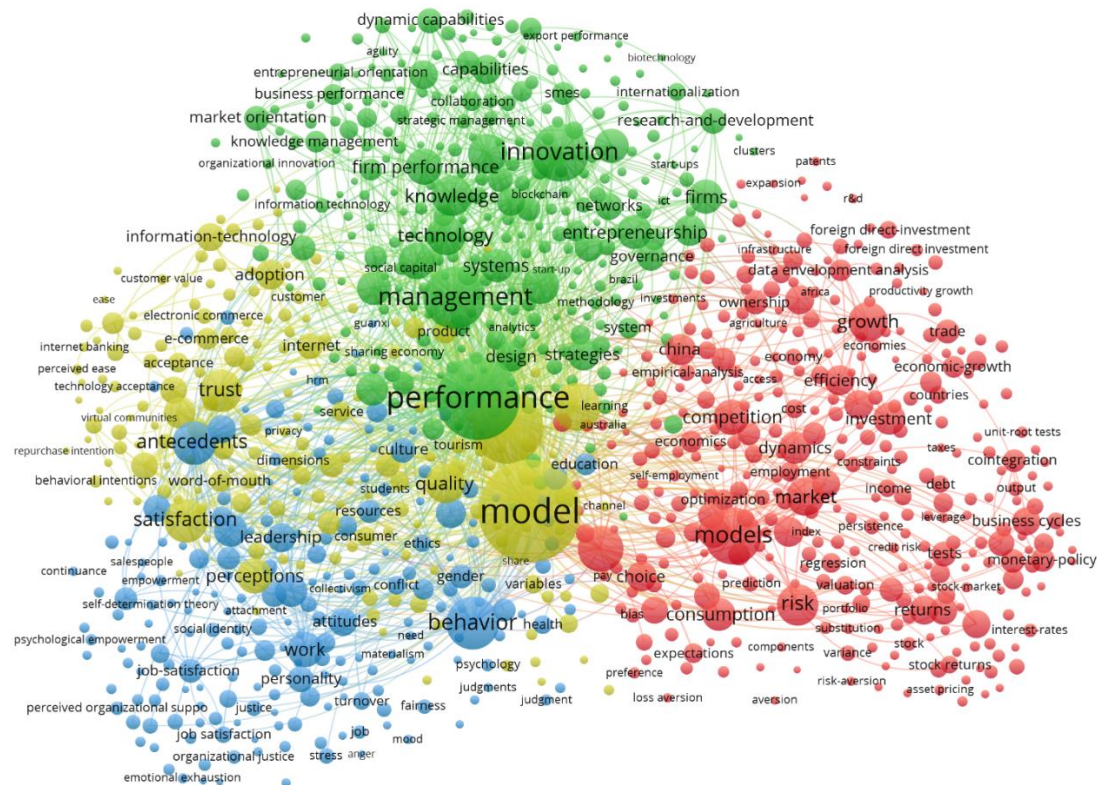
Keyword analysis

After the bibliometric analysis, the annual growth rate and the total number of the five strongest keywords were analysed. This analysis was done in order to better understand the Web of Science database. The second part of this analysis was the selection of four keywords for which it was possible to find the transcription of a linear function with a polynomial superstructure element using regression analysis. This type of regression analysis helped to determine the relationship between the variables under study and subsequently to determine the possible future direction of individual keywords. The result was a 3rd degree quadratic equation, which is used to determine the aforementioned future development (Mazandarani, Royo-Vela, 2022, Pisica et al., 2022).

Results

Based on the information found in the literature search, this paper will focus on the Web of Science database in the application of the business model in a corporate environment. A search of the Web of Science database with the parameters Business model (All Fields), Business or Management or Economics (Web of Science Categories) and Article (Document Types) resulted in 155 862 publications.

Figure 1: VoS analysis WoS



Source: Authors (2023)

For each of the searches described in the previous section, data on 155 862 articles published between 1952 and 2022 were exported. From this data, bibliographic maps

were then created to help illustrate the most frequently used keywords. The results showed that the strongest keyword associated with the search parameters was "Model". It can be seen that most of the keywords are different, but at the same time, the distances (keyword linkage) are different in most cases. For this reason, it is recommended to use articles from several databases to find out more.

Keyword comparison

Tab. 1: Comparison of 20 keywords using VoS Viewer

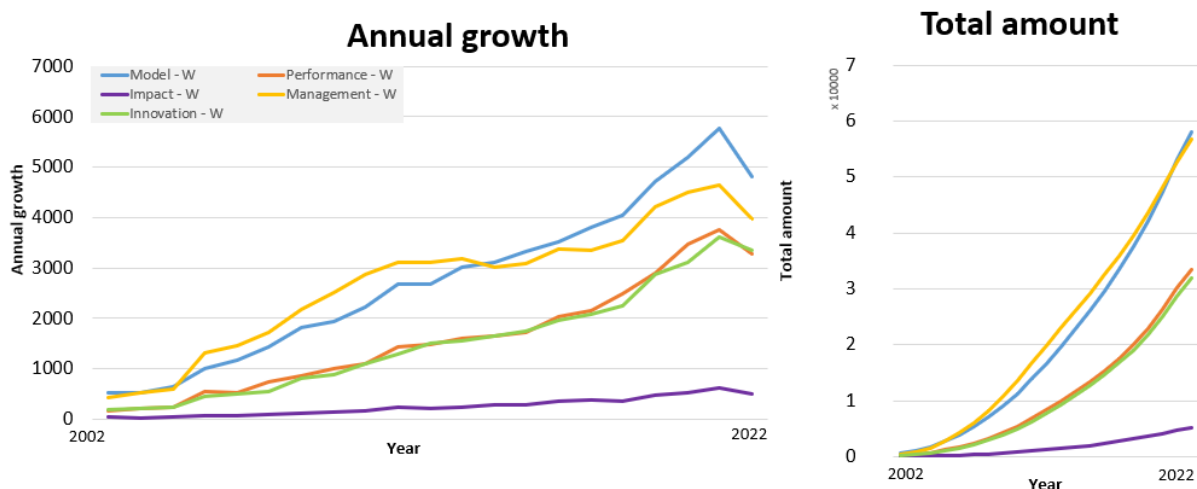
Web of Science					
Keyword	Occurrences	Link strength	Keyword	Occurrences	Link strength
Model	29664	167887	Trust	5109	38473
Performance	19421	132782	Information	6029	34808
Impact	14401	96579	Knowledge	4647	32615
Management	10916	71106	Strategy	4456	30902
Innovation	9627	65542	Technology	4352	29725
Behavior	7896	49891	Firm performance	3816	29269
Determinants	6391	43420	Quality	4541	28892
Models	9279	43195	Business	3967	26110
Antecedents	5302	42605	Perceptions	3626	25999
Satisfactions	5359	39430	Framework	3792	25066

Source: Authors (2023)

The assumption that it is desirable to use publications from multiple databases to investigate a search topic in more detail is confirmed by the previous table, which lists the 20 strongest keywords according to the Link Strength parameter, which indicates how often a keyword appears in combination with other keywords. Using this parameter, it can be seen that the strongest keyword is "Model". The VoS Viewer analysis also shows that the next most frequently used keyword is "Performance" in combination with Business Model.

Keyword occurrence analysis

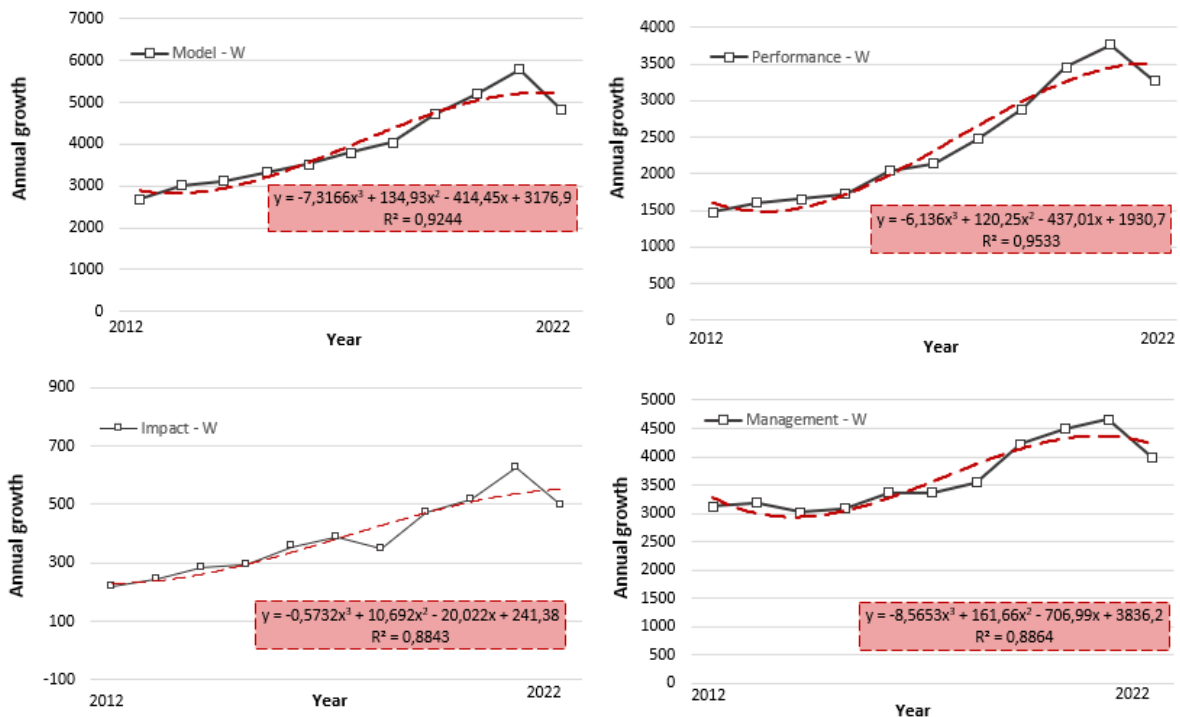
Graph 1: Evolution of keywords over the last 10 years



Source: Authors (2023)

Keyword occurrence analysis was performed on the keywords Model, Performance, Impact, Management and Innovation in the WoS database for the last 20 years. The results showed that the keyword "Model" became the overall strongest keyword in the WoS database. The least strong keyword was "Impact". This suggests that the Impact keyword in the context of business model publications is the least published keyword. The word "Performance" was the second most used word in the bibliometric analysis, while the word "Management" was the second most used word in the keyword occurrence analysis.

Graph. 2: Regression analysis of selected keywords



Source: Authors (2023)

The graph compares the growth of the four strongest keyword-enriched rewrite functions, which consist of polynomials of degree 3. The strongest keyword identified with respect to the search parameters was the keyword Model, with 43,993 articles published over the last 10 years. The second strongest keyword related to business models was keyword Management with 40025 articles in the WoS database.

The WoS database shows an increase in the number of articles in all cases yet shows a significant decrease in 2022 for all keywords tested. This means that a larger selection of articles on the topic "Business model" can be more easily found using the keyword "Model".

Following the results of the regression analysis, it was decided to present function prescriptions for each keyword with a prediction for 2023 to 2025. The first term analysed was the keyword "model", for which a regression function prescription was obtained:

$$y = -7,3166x^3 + 134,93x^2 - 414,45x + 3176,9 \tag{1}$$

where 5206 publications were published after the year 2023. Further calculations for the following years were made in the same way. The results are shown in the following table.

Tab. 2: Expected development of selected keywords

Keyword	WoS prediction 2023	WoS prediction 2024	WoS prediction 2025	WoS r
Model	5206	4991	4518	0,9244
Performance	3507	3400	3091	0,9533
Impact	552	551	529	0,8843
Management	4220	3831	3148	0,8864

Source: Authors (2023)

Discussion

The analysis method for this study was adopted from the Vos Viewer from an article on corporate strategy and the environment published by Farrukh et al. (2020). Compared to this publication, we provide a superstructure in the form of keyword analysis using regression analysis methods. Within this statement, we answered RQ1: Which keywords are associated with the word business model?

The 20 strongest keywords for the search term "business model" in the WoS database were determined. When comparing the keywords in the WoS program and the literature search, the literature search showed that the literature search matches the focus of the actual articles in the WoS database. The results of the bibliographic mapping showed that the keywords "Model" (29664 occurrences) and "Performance" (19421 occurrences) were the top-ranked keywords. Although the total number of publications in this area is high, it can be said that further research on this topic is needed. However, keyword analysis refutes this result, showing us the resulting feature graph, which is affected by the drop in publications that occurred in 2022.

The next line of research was to find the answer to our second chosen question RQ2: What are the top five most used keywords?

From the 20 keywords, the four most used keywords were selected, and the occurrence of Model, Performance, Impact, and Management was analysed. The results showed that the keyword "Model" was the most used keyword, while "Performance" was the least used keyword analysed in the VoS browser. "Impact" was the least used keyword. For this reason, it is likely that the keyword "Model" would have been more appropriate for articles and searches on this topic. The results showed that more publications containing the word "Model" than the word "Performance" were found for this search. At the same time, for selected parameters, the study also found a decline in the number of publications across WoS searches in 2022. This may be due to the effects of the COVID-19 pandemic, which had a significant impact on research and may have slowed down the peer review process for individual journals. Another possible reason may be the development of open-access publishing and preprint servers this may have led some researchers to publish

their research outputs outside of traditional publication routes, and this may have affected the length of time it takes for these publications to be included in the WoS database. A final possible reason may be an overall change in the focus of research and its funding, this may lead to fewer publications due to a shift to other disciplines. Overall, it should be considered that a number of factors could have contributed to the lack of publications in the WoS database in 2022.

The final avenue of research was to find an answer to our third chosen question RQ3: What growth can be expected in the coming years?

From the available keyword analysis, a transcript function was created to help us determine the possible future trend of growth in publications containing the four keywords we studied. It was found that there will be a significant decline in the WoS database in 2022 for all keywords tested. Following the results of the regression analysis, it was found that there could be a significant decrease in search terms in 2024 for the keywords "Model, Performance, Impact and Management". This may be due to a change in research focus or the impact of the COVID-19 pandemic itself, which has had a significant impact on scientific research and is thus a new term that was previously unknown.

After answering all the research questions, the hypothesis can be tested. *H1: With the advent of new technologies and the focus of businesses on innovation, there is an expectation that the attention of academics to business model research has increased.*

The results section of this research demonstrates the validity of hypothesis H1. By looking at peer-reviewed publications that deal with model research (keyword model), it can be confirmed that the rate of increase in research publications has accelerated in recent years. By confirming this hypothesis, it can be seen that research on business models is and will be an academically important topic in the coming years and thus changes in this area can be expected to accelerate. For these reasons, it can be argued that H1 has been confirmed.

Conclusion

The research focused on the analysis of keywords related to the business model and their occurrence in the WoS database. An analysis method based on Vos Viewer and regression analysis was used. The results showed that the keywords "Model" and "Performance" were the top-ranked and most used keywords in relation to the searches on business models. While the keyword "Impact" was the least used. Based on these results, it seems more appropriate to focus on the keyword "Model" for further research and searches. Further shows that the number of publications in the study area has seen a slight decrease in 2022. The results of the regression analysis suggest that there may be a decrease in searches for terms related to the "business model" in the coming years as well. It is predicted that the keywords "Model, Performance, Impact and Management" could see a significant decline in searches in 2024. This decline may be due to changes in research

focus or the overall impact of the COVID-19 pandemic and could have been aided by the development of open-access publishing and preprint servers, or by an overall change in research focus and funding. These factors may have led to a reduction in publishing in the WoS database and may have had an impact on the timing of the inclusion of publications in this database. It is important to consider that the lack of publications in the WoS database in 2022 may also be influenced by various factors and thus requires further investigation. However, depending on the development of individual keywords in the past years, it is possible to assume that the number of publications containing the monitored keywords will stabilize and return to the state of increase observed earlier. For this reason, it is necessary to monitor developments in the field of business models in order to correctly determine the focus of future research. Overall, the study provides useful insights into keywords and publication trends in the field and suggests the need for further research on this topic.

Acknowledgement

The article was written in cooperation with the Department of Management at the Institute of Technology and Economics mediated by Ing. Milan Talíř. To this fact, the funding is thus made from the joint project TAČR ÉTA: TL02000215 entitled: "Digital transformation for business model innovation in small and medium-sized enterprises in the Czech Republic", within the sustainability of the project.

References

- ALI Z., 2023. Predicting SMEs performance through green supply chain practices: a mediation model link of business process performance. *Asia Pacific Journal of Marketing and Logistics*, **35**(2), 432-450. <https://doi.org/10.1108/APJML-05-2021-0296>
- BEREZNOY A., 2019. Changing competitive landscape through business model innovation: the new imperative for corporate market strategy. *Journal of the Knowledge Economy*, **10**(4),1362-1383. <https://doi.org/10.1007/s13132-015-0324-x>
- BOCKEN N.M.P., GERADTS T.H.J., 2020. Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities. *Long Range Planning*, **53**(4). <https://doi.org/10.1016/j.lrp.2019.101950>
- BRILINGER A.S., ELS C., SCHAFER B., BENDER B., 2020. Business model risk and uncertainty factors: Toward building and maintaining profitable and sustainable business models. *Business Horizons*, **63**(1), 121-130. <https://doi.org/10.1016/j.bushor.2019.09.009>
- BUDIMIR G., RAHUMEH S., TAMIMI S., JUZNIC P., 2021. Comparison of self-citation patterns in WoS and Scopus databases based on national scientific production in Slovenia (1996-2020). *Scientometrics*, **126**(3), 2249-2267. <https://doi.org/10.1007/s11192-021-03862-w>
- CAPUTO A., KARGINA M., 2022. A user-friendly method to merge Scopus and Web of Science data during bibliometric analysis. *Journal of Marketing Analytics*, **10**(1), 82-88. <https://doi.org/10.1057/s41270-021-00142-7>
- CAPUTO A., PIZZI S., PELLEGRINI M.M., DABIC M., 2021. Digitalization and business models:

- Where are we going? A science map of the field. *Journal of Business Research*, **123**, 489-501. <https://doi.org/10.1016/j.jbusres.2020.09.053>
- CARDONI A., KISELEVA E., LOMBARDI R., 2020. A sustainable governance model to prevent corporate corruption: Integrating anticorruption practices, corporate strategy and business processes. *Business Strategy and the Environment*, **29**(3), 1173-1185. <https://doi.org/10.1002/bse.2424>
- CHAUDHURI R., CHATTERJEE S., GHOSH A., VRONTIS D., THRASSOU A., 2022. Sustainable innovation for shared mobility: contextual and consumer factors of an Indian car subscription business model. *International Journal of Entrepreneurial Behavior & Research*. <https://doi.org/10.1108/IJEBR-01-2022-0090>
- CHEN Y., LIU H., CHEN M., 2022. Achieving novelty and efficiency in business model design: Striking a balance between IT exploration and exploitation. *Information & Management*, **59**(3). <https://doi.org/10.1016/j.im.2020.103268>
- CHENG C, WANG L., 2022. How companies configure digital innovation attributes for business model innovation? A configurational view. *Technovation*, **112**. <https://doi.org/10.1016/j.technovation.2021.102398>
- CHEREAU P., MESCHI P.X., 2019. The performance implications of the strategy-business model fit. *Journal of Small Business and Enterprise Development*, **26**(3), 441-463. <https://doi.org/10.1108/JSBED-04-2018-0122>
- CLASSEN M., FRIEDLI T., 2021. 'It's not like we can charge for everything': revenue models to capture value from smart services in Pacific Asia. *Asia Pacific Business Review*, **27**(3), 405-430. <https://doi.org/10.1080/13602381.2021.1894770>
- CORREANI A., De MASSIS A., FRATTINI F., PETRUZZELLI A.M., NATALICCHIO A., 2020. Implementing a Digital Strategy: Learning from the Experience of Three Digital Transformation Projects. *California Management Review*, **62**(4), 37-56. <https://doi.org/10.1177/0008125620934864>
- DEMBEK K., LUDEKE-FREUND F., ROSATI F., FROESE T., 2022. Untangling business model outcomes, impacts and value. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.3249>
- DESYLLAS P., SALTER A., ALEXY O., 2022. The breadth of business model reconfiguration and firm performance. *Strategic Organization*, **20**(2), 231-269. <https://doi.org/10.1177/1476127020955138>
- DOMANIŽOVÁ P., MILICHOVSKÝ F., KUBA K., 2020. Business models, strategy and innovation in the new world of digitization. *Littera Scripta*, **13**(1), 17-31.
- ELIA G., LERRO A., SCHIUMA G., 2022. Leveraging knowledge management systems for business modelling in technology start-ups: an exploratory study. *Knowledge Management Research & Practice*, **20**(6), 913-924. <https://doi.org/10.1080/14778238.2022.2144511>
- FARRUKH M., MENG F., WU Y., NAWAZ K., 2020. Twenty-eight years of business strategy and the environment research: A bibliometric analysis. *Business Strategy and the Environment*, **29**(6), 2572-2582. <https://doi.org/10.1002/bse.2521>
- FERASSO M., BELIAEVA T., KRAUS S., CLAUSS T., RIBEIRO-SORIANO D., 2020. Circular economy business models: The state of research and avenues ahead. *Business Strategy and the Environment*, **29**(8), 3006-3024. <https://doi.org/10.1002/bse.2554>
- FILSER M., KRAUS S., BREIER M., NENOVA I., PUUMALAINEN K., 2021. Business model innovation:

- Identifying foundations and trajectories. *Business Strategy and the Environment*, **30**(2), 891-907. <https://doi.org/10.1002/bse.2660>
- FREUDENREICH B., LUEDEKE-FREUND F, SCHALTEGGER S., 2020. A stakeholder theory perspective on business models: Value creation for sustainability. *Journal of Business Ethics*, **166**(1), 3-18. <https://doi.org/10.1007/s10551-019-04112-z>
- GAVIRIA-MARIN M., MERIGO J.M., BAIER-FUENTES H., 2019. Knowledge management: A global examination based on bibliometric analysis. *Technological Forecasting and Social Change*, **140**, 194-220. <https://doi.org/10.1016/j.techfore.2018.07.006>
- GEISSINGER A., LAURELL C., OBERG C., 2021. Copycats among underdogs-echoing the sharing economy business model. *Industrial Marketing Management*, **96**, 287-299. <https://doi.org/10.1016/j.indmarman.2021.06.006>
- HALLIKAS J., IMMONEN M., BRAX S., 2021. Digitalizing procurement: the impact of data analytics on supply chain performance. *Supply Chain Management-an International Journal*, **26**(5), 629-646. <https://doi.org/10.1108/SCM-05-2020-0201>
- HUOTARI P., RITALA P., 2021. When to switch between subscription-based and ad-sponsored business models: Strategic implications of decreasing content novelty. *Journal of Business Research*, **126**, 14-28. <https://doi.org/10.1016/j.jbusres.2021.02.037>
- ISTIAK K., SERLETIS A., 2020. Risk, uncertainty, and leverage. *Economic Modelling*, **91**, 257-273. <https://doi.org/10.1016/j.econmod.2020.06.010>
- JIN Y., JI S., LIU L., WANG W., 2022. Business model innovation canvas: a visual business model innovation model. *European Journal of Innovation Management*, **25**(5), 1469-1493. <https://doi.org/10.1108/EJIM-02-2021-0079>
- JUNQUEIRA L.A.P., PINOCHET L.H.C., MAGALHAES K.E., 2021. Blockchain technology and the impact on business models. *Risus-Journal on Innovation and Sustainability*, **12**(2), 131-138. <https://doi.org/10.23925/2179-3565.2021v12i2p131-138>
- KASYCH A., 2019. Effectiveness of the companies participating in international strategic alliances: methodological and analytical aspects. *Littera Scripta*. **12**(1), 1-20.
- KEININGHAM T., AKSOY L., BRUCE H.L., CADET F., CLENNELL N., HODGKINSON I.R., KEARNEY, T., 2020. Customer experience driven business model Innovation. *Journal of Business Research*, **116**, 431-440. <https://doi.org/10.1016/j.jbusres.2019.08.003>
- KMECOVÁ I., STUHLÝ J., POLANECKÝ L., ŠUTA M., 2019. Analysing structure of employed and unemployed population of Czech Republic as part of human capital on labour market. *Littera Scripta*, **12**(1), 1-21.
- KOLLMANN J., DOBROVIČ J., 2022. Key factors of organizational and management structures in the formation of competitive strategy. *Journal of International Studies*, **15**(3), 130-144. <https://doi.org/10.14254/2071-8330.2022/15-3/9>
- KRUEGER T.M., MEGITS N., 2021. The impact of economics and finance research published in Central and Eastern Europe. *Journal of Eastern European and Central Asian Research*, **8**(1), 1-17. <https://doi.org/10.15549/jeecar.v8i1.647>
- KUBA K., MILICHOVSKÝ F., 2019. Industry 4.0 and its impact on employees' age. *Littera Scripta*. **12**(1), 1-12.
- LANGLEY D.J., VAN DOORN J., NG I.C.L., STIEGLITZ S., LAZOVIK A., BOONSTRA A., 2021. The Internet of Everything: Smart things and their impact on business models. *Journal of Business Research*, **122**, 853-863. <https://doi.org/10.1016/j.jbusres.2019.12.035>

- LAYRISSE F., REFICCO E., BARRIOS A., 2021. What social enterprises can learn from the freemium business model. *Academia-Revista Latinoamericana de Administracion*, **34**(1), 165-181. <https://doi.org/10.1108/ARLA-05-2020-0096>
- LINDE L., SJODIN D., PARIDA V., GEBAUER H., 2020. Evaluation of digital business model opportunities a framework for avoiding digitalization Traps. *Research-Technology Management*, **64**(1), 43-53. <https://doi.org/10.1080/08956308.2021.1842664>
- LIU W., HUANG M., WANG H., 2021. Same journal but different numbers of published records indexed in Scopus and Web of Science Core Collection: causes, consequences, and solutions. *Scientometrics*, **126**(5), 4541-4550. <https://doi.org/10.1007/s11192-021-03934-x>
- LLOPIS-ALBERT C., RUBIO F., VALERO F., 2021. Impact of digital transformation on the automotive industry. *Technological Forecasting and Social Change*, **162**. <https://doi.org/10.1016/j.techfore.2020.120343>
- MARTIN-MARTIN A., THELWALL M., ORDUNA-MALEA E., LOPEZ-COZAR E.D., 2021. Google Scholar, Microsoft Academic, Scopus, Dimensions, Web of Science, and OpenCitations' COCI: a multidisciplinary comparison of coverage via citations. *Scientometrics*, **126**(1), 871-906. <https://doi.org/10.1007/s11192-020-03690-4>
- MAZANDARANI M.R., ROYO-VELA M., 2022. Firms' internationalization through clusters: A keywords bibliometric analysis of 152 top publications in the period 2009-2018. *Cuadernos de Gestion*, **22**(1), 229-242. <https://doi.org/10.5295/cdg.211483mr>
- MENCHINI F., RUSSO P.T., SLAVOV T.N.B., SOUZA R.P., 2022. Strategic capabilities for business model digitalization. *Rege-revista de Gestao*, **29**(1), 2-16. <https://doi.org/10.1108/REGE-10-2020-0086>
- MENTER M., GOCKE L., ZEEB C., 2022. The Organizational Impact of Business Model Innovation: Assessing the Person-Organization Fit. *Journal of Management Studies*. <https://doi.org/10.1111/joms.12902>
- MIROSHNYCHENKO I., STROBL A., MATZLER K., DE MASSIS A., 2021. Absorptive capacity, strategic flexibility, and business model innovation: Empirical evidence from Italian SMEs. *Journal of Business Research*, **130**, 670-682. <https://doi.org/10.1016/j.jbusres.2020.02.015>
- MONTEMARI M., TARAN Y., SCHAPER S., NIELSEN C., THOMSEN P., SORT J., 2022. Business model innovation or Business model imitation - That is the question. *Technology Analysis & Strategic Management*. <https://doi.org/10.1080/09537325.2022.2034780>
- MULLER J.M., BULIGA O., VOIGT K.I., 2021. The role of absorptive capacity and innovation strategy in the design of industry 4.0 business Models-A comparison between SMEs and large enterprises. *European Management Journal*, **39**(3), 333-343. <https://doi.org/10.1016/j.emj.2020.01.002>
- NAGY M., ZÁBOJNÍK S., VALASKOVA K., 2022. Chasing up the value-added by implementing newest trends of Industry 4.0 – Evidence from Slovak automotive industry. *Littera Scripta*. 15, 142-158. doi:https://doi.org/10.36708/Littera_Scripta2022/1/10
- NIEWIADOMSKI P., 2020. Business model maturity in management theory and practice - defining from an expert perspective. *Management-Poland*, **24**(1), 81-103. <https://doi.org/10.2478/manment-2019-0037>
- NUNES M.P., PEREIRA R.D., 2021. Business model innovation and Business performance in an innovative environment. *International Journal of Innovation Management*, **25**(3). <https://doi.org/10.1142/S1363919621500365>
- PAIOLA M., GEBAUER H., 2020. Internet of things technologies, digital servitization and business

- model innovation in BtoB manufacturing firms. *Industrial Marketing Management*, **89**, 245-264. <https://doi.org/10.1016/j.indmarman.2020.03.009>
- PANDA B.K., 2020. Application of business model innovation for new enterprises: A case study of digital business using a freemium business model. *Journal of Management Development*, **39**(4), 517-524. <https://doi.org/10.1108/JMD-11-2018-0314>
- PANG C., WANG Q., LI Y., DUAN G., 2019. Integrative capability, business model innovation and performance: Contingent effect of business strategy. *European Journal of Innovation Management*, **22**(3), 541-561. <https://doi.org/10.1108/EJIM-09-2018-0208>
- PISICA, D., DAMMERS R., BOERSMA E., VOLOVICI V., 2022, Tenets of good practice in regression analysis. A Brief Tutorial. *World Neurosurgery*, **161**, 230. <https://doi.org/10.1016/j.wneu.2022.02.112>
- RAJNAK V., PUSCHMANN T., 2021. The impact of blockchain on business models in banking. *Information Systems and E-Business Management*, **19**(3), 809-861. <https://doi.org/10.1007/s10257-020-00468-2>
- RASK M., GUNZEL-JENSEN F., 2020. Business model design and performance in nascent markets. *Management Decision*, **58**(5), 927-947. <https://doi.org/10.1108/MD-10-2017-0924>
- REIM W., YLI-VIITALA P., ARRASVUORI J., PARIDA V., 2022. Tackling business model challenges in SME internationalization through digitalization. *Journal of Innovation & Knowledge*, **7**(3). <https://doi.org/10.1016/j.jik.2022.100199>
- REISCHL, A., TIBERIUS V., FILSER M., QUI Y., 2022. Value configurations in sharing economy business models. *Review of Managerial Science*, **16**(1), 89-112. <https://doi.org/10.1007/s11846-020-00433-w>
- RITTER T., PEDERSEN C.L., 2020. Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. *Industrial Marketing Management*, **86**. <https://doi.org/10.1016/j.indmarman.2019.11.019>
- ROBERTSON J., PITT L., FERREIRA C., 2020. Entrepreneurial ecosystems and the public sector: A bibliographic analysis. *Socio-economic Planning Sciences*, **72**. <https://doi.org/10.1016/j.seps.2020.100862>
- SCHEIDT B., MEIER A., 2022. Dimensions as a bibliometric database: Evaluation of content in comparison to Web of Science and Scopus. *Betriebswirtschaftliche Forschung und Praxis*, **74**(3). <https://doi.org/10.3389/frma.2020.593494>
- SEHLIN D., TRUEDSSON M., CRONEMYR P., 2019. A conceptual cooperative model designed for processes, digitalisation and Innovation. *International Journal of Quality and Service Sciences*, **11**(4), 504-522. <https://doi.org/10.1108/IJQSS-02-2019-0028>
- SERGUSHINA E., LEONTYEV D., KOZHUKALOVA O., DAMBAYEVA I., BEKHORASHVILI N., 2021. Digital economy as a factor in increasing the competitiveness of countries and industries: a quantitative analysis. *Economic Annals-XXI*, **188**(3-4), 69-76. <https://doi.org/10.21003/ea.V188-08>
- SINGH P., PIRYANI R., SINGH V.K., PINTO D., 2020. Revisiting subject classification in academic databases: A comparison of the classification accuracy of Web of Science, Scopus & Dimensions. *Journal of Intelligent & Fuzzy Systems*, **39**(2), 2471-2476. <https://doi.org/10.3233/JIFS-179906>
- SINGH V.K., SINGH P., KARMAKAR M., LETA J., MAYR P., 2021. The journal coverage of Web of Science, Scopus and Dimensions: A comparative analysis. *Scientometrics*, **126**(6), 5113-5142. <https://doi.org/10.1007/s11192-021-03948-5>
- SJODIN D., PARIDA V., JOVANOVIC M., VISNJIC I., 2020. Value Creation and Value Capture

- Alignment in Business Model Innovation: A Process View on Outcome-Based Business Models. *Journal of Product Innovation Management*, **37**(2), 158-183. <https://doi.org/10.1111/jpim.12516>
- ST-HILAIRE W.A., BOISSELIER P., 2019. The coordinated strategy for the optimization of the interaction level of business model. *Journal of Economic and Administrative Sciences*, **35**(2), 79-93. <https://doi.org/10.1108/JEAS-08-2017-0080>
- STRAKOVÁ J., TALÍŘ M. 2020. Strategic management and decision making of small and medium-sized enterprises in the Czech Republic. In J. Horák, J. Vrbka and Z. Rowland (Eds.). SHS Web of Conferences. Volume 73. *Les Ulis, Francie: EDP Sciences - Web of Conferences*, 10 s. ISBN 978-2-7598-9094-1.
- STRAKOVÁ J., TALÍŘ M., VÁCHAL J., 2022. Opportunities and threats of digital transformation of business models in SMES. *Economics and Sociology*. 15(3), 159–171.
- STRAKOVÁ J., TALÍŘ M., KOLLMANN J., PÁRTLOVÁ P., VÁCHAL J., 2021. An integrated model of corporate environment, including value chain, as a competitiveness tool for small and medium enterprises. *Polish Journal of Management Studies*. 23(1), 370–384.
- STRAKOVÁ J., VÁCHAL J., KOLLMANN J., TALÍŘ M., 2021. Development trends in organizational and management structures. Problems and perspectives in management. Sumy, Ukrajina: *LLC Consulting Publishing Company "Business Perspectives"*, 19(2) s. 495-506. ISSN 1727-7051.
- TALÍŘ M., STRAKOVÁ J., 2023. Innovation of the production process of engineering companies in relation to business portfolio. *VsI Entrepreneurship and Sustainability Center*. 10(4), 118-134.
- TELNOV Y.F., BRYZGALOV A.A., KOZYREV P.A., KOROLEVA D.S., 2022. Choosing the type of business model to implement the digital transformation strategy of a network enterprise. *Biznes Informatika-Business Informatics*, **16**(4), 50-67. <https://doi.org/10.17323/2587-814X.2022.4.50.67>
- TIAN J., COREYNEN W., MATTHYSSENS P., SHEN L., 2022. Platform-based servitization and business model adaptation by established manufacturers. *Technovation*, **118**. <https://doi.org/10.1016/j.technovation.2021.102222>
- TITISARI P., SUSANTO A.B., PRAJITIASARI E.D., WULANDARI G.A., 2022. Business model innovation based management system creative industry strategy in Jember Regency. *Quality-Access to Success*, **23**(188), 119-123. <https://doi.org/10.47750/QAS/23.188.17>
- TUNCAY S.S., 2022. Structural social capital articles in business administration literature on the Web of Science database: co-word analysis. *Middle East Journal of Management*, **9**(6), 589-611. <https://doi.org/10.1504/MEJM.2022.126312>
- VÁCHAL J., TALÍŘ M., 2020. The Development of organizational and management structures in small-scale and mid-scale entrepreneurship in the Czech Republic. In J. Horák, J. Vrbka and Z. Rowland (Eds.). SHS Web of Conferences. Volume 73. *Les Ulis, Francie: EDP Sciences - Web of Conferences*, 10 s. ISBN 978-2-7598-9094-1.
- VERHAGEN M., DE REUVER M., BOUWMAN H., 2023. Implementing business models into operations: Impact of business model implementation on performance. *Ieee Transactions on Engineering Management*, **70**(1), 173-183. <https://doi.org/10.1109/TEM.2020.3046365>
- VILÁGI R., KONEČNÝ M., RUSCHAK M., 2022. Impact of selected financial indicators on a company's reputation. *Entrepreneurship and Sustainability Issues*, **10**(2), 408-417. [https://doi.org/10.9770/jesi.2022.10.2\(25\)](https://doi.org/10.9770/jesi.2022.10.2(25))
- VLACHÝ J., 2019. A performance-based management model and its application. *Littera Scripta*. Czech Technical University in Prague, MIAS School of Business, 12(1), 1-15.
- WANG Z., ZHOU Y., 2021. Business model innovation, legitimacy and performance: social enterprises

in China. *Management Decision*, **59**(11), 2693-2712. <https://doi.org/10.1108/MD-05-2019-0678>

ZAGHLOUL H., 2022. Research gaps and future trends in educational media and educational theatre research: Analytical study in Scopus and Web of Science databases. *Media Education-Mediaobrazovanie*, **2**, 295-324. <https://doi.org/10.13187/me.2022.2.295>

ZAPLETALOVÁ S., 2023. The business excellence models and business strategy. *Total Quality Management & Business Excellence*, **34**(1), 131-147. <https://doi.org/10.1080/14783363.2022.2033615>

ŽÁRSKÁ V., SOCHULÁKOVÁ J., 2022. Impact of the Covid-19 pandemic on the operation of small and medium-sized enterprises. *Littera Scripta*, **15**(2), 45-57.

Contact address of the author(s):

Robert von Böhlen , Institute of Management, Faculty of Business and Management, Brno University of Technology, Antonínská 548/1, 601 90, Czech Republic, e-mail: 23257@vutbr.cz

-