

FACULTY OF BUSINESS AND ECONOMICS

UNIVERSITY OF PANNONIA

Pannon Management Review

**EDITOR:
ZOLTÁN VERES**

**ASSISTANT EDITOR:
ESZTER JÚLIA NÉMETH**

[HTTP://WWW.PMR.UNI-PANNON.HU](http://www.pmr.uni-pannon.hu)

PANNON MANAGEMENT REVIEW

Pannon Management Review contributes to bridging scholarly management research and management practitioner thinking worldwide. In particular, *Pannon Management Review* broadens the existing links between Hungarian scholars and practitioners, on the one hand, and the wider international academic and business communities, on the other – the Journal acts as an overall Central and Eastern European catalyst for the dissemination of international thinking, both scholarly and managerial. To this end, the articles published in *Pannon Management Review* reflect the extensive variety of interests, backgrounds, and levels of experience and expertise of its contributors, both scholars and practitioners – and seek to balance academic rigour with practical relevance in addressing issues of current managerial interest. The Journal also encourages the publication of articles outside the often narrow disciplinary constraints of traditional academic journals, and offers young scholars publication opportunities in a supportive, nurturing editorial environment.

Pannon Management Review publishes articles covering an extensive range of views. Inevitably, these views do not necessarily represent the views of the editorial team. Articles are screened – and any other reasonable precautions are taken – to ensure that their contents represent their authors' own work. Ultimately, however, *Pannon Management Review* cannot provide a foolproof guarantee and cannot accept responsibility for accuracy and completeness.

Hungarian copyright laws and international copyright conventions apply to the articles published in *Pannon Management Review*. The copyrights for the articles published in this journal belong to their respective authors. When quoting these articles and/or inserting brief excerpts from these articles in other works, proper attribution to the copyright-holder author and proper acknowledgement of *Pannon Management Review* (<http://www.pmr.uni-pannon.hu>) must be made. Reproduction and download for other than personal use are not permitted. Altering article contents is also a breach of copyright.

By publishing in *Pannon Management Review*, the authors will have confirmed authorship and originality of their work and will have agreed the following contractual arrangements: copyrighted material is clearly acknowledged; copyright permission had been obtained, where necessary; *Pannon Management Review* may communicate the work to the public, on a non-exclusive basis; *Pannon Management Review* may use the articles for promotional purposes; and authors may republish their articles elsewhere, with the acknowledgement, First published in *Pannon Management Review* (<http://pmr.uni-pannon.hu>)?.

CONTENTS

Editorial: Four Dimensions of Competitive Management Zoltán Veres	5
FROM THE RESEARCH CENTRE OF THE FACULTY OF BUSINESS AND ECONOMICS	
GNH, trust and artificial intelligence for sustainable knowledge Andrea Bencsik	9
Uncertainty and Decision Taking in Buyer-Supplier Relations Dirk-Jan F. Kamann	41
The first challenges of the 21th century for micro, small and medium enterprises in Hungary from the EU accession to climate change Zoltán András Dániel, Tamás Molnár & Dorottya Edina Kozma	71
YOUNG RESEARCHERS' SECTION	
Service Quality Dimensions of the Management Consulting Market Katalin Varga-Toldi & Zoltán Veres	97

ZOLTÁN VERES

EDITORIAL: FOUR DIMENSIONS OF COMPETITIVE MANAGEMENT

Dear Reader,

Welcome to this issue of Pannon Management Review at the end of the year of 2024. In this issue presentation of completed projects supported by Research Centre of the Faculty of Business and Economics continues.

The first three articles come **FROM THE RESEARCH CENTRE OF THE FACULTY OF BUSINESS AND ECONOMICS** summarizing the main results of the research teams. The overall picture is extremely heterogeneous, the research outcomes however are equally specific.

The first project titled *GNH, trust and artificial intelligence for sustainable knowledge* and led by Andrea Bencsik focused on a highly specific and rarely researched problem. It was to show how creating the conditions for organisational happiness leads to creating the foundations for sustainable knowledge. The studies related to happiness and well-being have gained importance for long, and these two terms have been used interchangeably or linked to other concepts and theories. The research team applied quantitative and qualitative methods to investigate the cornerstones. To conclude, there are several challenges facing leaders of organisations, and an understanding of the deeper context can lead to long-term sustainable management.

The research project *Uncertainty and Decision Taking in Buyer-Supplier Relations* of Dirk-Jan F. Kamann studied with a mix of various methodologies the different aspects that play a role in decision making and taking in buyer-supplier relations when facing uncertainty. The scientific outcome is three different results: an accumulative three-layered general model showing the assumed decision flow of the decision maker's process under uncertainty; modelling how relations are managed facing accumulated supply chain disturbances; and the role of network embeddedness and leadership style. As an added value of the results the general model is designed to be used for surveys and gamification experiments.

The research team of Zoltán András Dániel, Tamás Molnár and Dorottya Edina Kozma chose a kind of umbrella perspective when studying *The first challenges of the 21th century for micro, small and medium enterprises in Hungary from the EU accession to climate change*. As they stated the most important components of a region's competitiveness are economic growth, the development of infrastructure and human resources, a strong ability to attract capital, a high level of research and development, the growing role of SMEs, the intensity of job creation, the availability of human and physical resources to develop dominant industries, and a steady increase in knowledge and innovation capacity. The main goal of the research was to show the links between regional competitiveness and the competitiveness of SMEs and how these links can be transformed into positive synergies.

Finally in the **YOUNG RESEARCHERS' SECTION** the Reader can have a deep insight into the *Service Quality Dimensions of the Management Consulting Market*. This research was a module of the PhD program of Katalin Varga-Toldi under my supervision at the Doctoral School of Business and Management

of the University of Pannonia. Despite the fact that consulting is one of the most important and biggest sector in the market of professional services, few empirically grounded research data is available for measuring the service quality of management consulting service. The aim of this paper is to advance an empirically grounded approach to the study of utility and service quality preferences of management consulting projects, especially the service quality attributes and dimensions of management consulting service. Research results shows that consultants evaluate the importance of involvement dimension less than clients and there is a significant difference between the importance of sub-dimensions of relationship dimension.

We do hope, Dear Reader, that this issue provides exciting information for you on the competitive management.

Zoltán Veres, Professor of Marketing, at the University of Pannonia, Veszprém, Hungary, Head of Research Centre of the Faculty of Business and Economics and the Department of Marketing. He was born in Hungary and he received his university degrees from the Technical University of Budapest (Masters degree in Electrical Engineering) and the Budapest University of Economic Sciences (Masters degree in International Business). He obtained his PhD in economics, at the Hungarian Academy of Sciences. More recently, he obtained his habilitation degree at University of Szeged, Faculty of Economics and Business Administration.

He worked as project manager of numerous international industrial projects in the Mediterranean region (e.g. Greece, Middle East, North Africa) between 1977 and '90. Since 1990, he actively participates in the higher education. Among others he taught at the College for Foreign Trades; at the Ecole Supérieure de Commerce d'Angers and between 2004 and 2009 he was Head of Institute of Business Studies at the University of Szeged. In 2011 he was appointed professor of marketing at the Budapest Business School (BBS), Hungary, and between 2010 and 2014 he was also Head of Research Centre at BBS. Since 2014 he is Head of Department of Marketing at the Faculty of Business & Economics of the University of Pannonia, Veszprém, Hungary and the editor-in-chief of the Pannon Management Review.

Zoltán Veres has had consultancy practice and conducted numerous research projects on services marketing and project marketing. In 2001 and 2002 he was Head of Service Research Department at the multinational GfK Market Research Agency. He is a member of the research group of the European Network for Project Marketing and Systems Selling (Lyon); Advisory Board member of Academy of World Business, Marketing and Management Development, Perth (Australia); member of Comité Científico del Academia Europea de Dirección y Economía de la Empresa (Spain); Advisory Board member of the Nepalese Academy of Management; member of Association for Marketing Education and Research (Hungary) and of the Committee on Business Administration at the Hungarian Academy of Sciences; Advisory Board member of McMillan & Baneth Management Consulting Agency (Hungary) and consultant of Consact Quality Management Ltd. (Hungary).



He has more than 350 scientific publications, including the books of *Introduction to Market Research*, *Foundations of Services Marketing* and *Nonbusiness Marketing*. He has been editor of series to Academy Publishing House (Wolters Kluwer Group), Budapest. Besides Zoltán Veres has been editorial board member of the journals *Revista Internacional de Marketing Público y No Lucrativo* (Spain), *Вестник Красноярского государственного аграрного университета* (Krasnoyarsk, Russian Federation), *Tér-Gazdaság-Ember and Marketing & Menedzsment* (Hungary); member of *Социально-экономический и гуманитарный журнал Красноярского ГАУ*, member of *Journal of Global Strategic Management*, *Advisory Board and Review Committee*; member of *Asian Journal of Business Research*, *Editorial Review*.

FROM THE RESEARCH CENTRE OF THE FACULTY OF BUSINESS AND ECONOMICS

ANDREA BENCSIK

GNH, TRUST AND ARTIFICIAL INTELLIGENCE FOR SUSTAINABLE KNOWLEDGE

SUMMARY STUDY OF 4 YEARS OF RESEARCH

The above research has been given the green light for 3+1 years from June 2020 under the PE GSKK. The research aims to show how creating the conditions for organisational happiness leads to creating the foundations for sustainable knowledge. The path between the two disciplines is influenced by the impact of emerging technologies on well-being. In addition to the functioning of the knowledge management system, the creation of a learning organisation culture based on trust and the competencies of sustainability leadership emerge as requirements. Quantitative and qualitative methods have been used to investigate the cornerstones of this multi-year research, the results of which are described in detail below. To summarise the conclusion, there are several challenges facing leaders of organisations. In meeting the most popular requirements, it is not only the surface level that must be achieved but also an understanding of the deeper context that leads to long-term sustainable management.

Background and concept of the research

Today, knowledge management has become a more and more important tool for increasing organisational and national economic competitiveness through conscious and systemic management of knowledge.

The problem of knowledge loss goes back centuries, even millennia. No scientific solution has yet been found to address the problem. This is the professional gap that the research was launched to fill. The knowledge management process, and knowledge sharing within it, is the most critical phase based on the lack of an organisational culture of trust. Measuring the level of trust culture is one of the most difficult factors to quantify, but its main pillars can be identified. These include employee satisfaction, organisational happiness, employee well-being and factors influencing all of these.

To make the above-mentioned characteristics quantifiable, it is worthwhile to review the content of the global indicators that define contemporary thinking. GDP is an indicator that gives a good picture of the economic weight of a country, its performance and its evolution over time. The applicability of this indicator has been criticised in recent years for focusing only on quantifiable factors, ignoring the most important factor of production, the human being and all the consequences of his or her behaviour. So-called soft indicators have been developed and used as a complement, but they have not solved the problems raised. There was a need to develop a more universal indicator than GDP, which could measure

not only economic growth but also the level of social well-being and several other important areas. The indicator that we believe can replace and provide the right response to the criticisms is GNH (Gross National Happiness). Not only can it provide a tangible measure of the impact of soft factors, but it can also be used to assess the sustainability situation, which is increasingly being assessed today. The basic rationale of the Gross National Happiness (GNH) indicator system is to put sustainability and the role of the human factor at the centre of thinking at organisational, societal and economic levels. It can be used to quantify the pillars that underpin knowledge sharing and sustainability (trust, satisfaction, well-being, sustainability, etc.)

The main research question

How can we move from organisational happiness to sustainable knowledge, while keeping in mind the impact of emerging technology?

Further questions:

- Which is the most appropriate way to measure organisational happiness?
- Is the GNH logic applicable in domestic conditions?
- What is the role of trust in organisational happiness and, as a result, in the performance of the organisation as a whole?
- How does emerging technology affect the soft and hard factors of the organisation and overall organisational performance?
- What characteristics does an organisational culture need to have to sustain the highest levels of happiness at the individual and organisational level, and the highest levels of results over the long term?
- How can sustainability leadership shape sustainable organisational performance?
- What level of individual satisfaction, organisational happiness and leadership style is required to achieve sustainable knowledge, for sustainable organisational functioning?
- What is the logical relationship (based on this research model) between the organisational characteristics listed?

Research objective

- Using the ideas of Buddhist economics based on trust and the logic of GNH, to develop a model that can be applied under domestic conditions for balanced organisational functioning and sustainable knowledge.
- Application and evaluation of the business version of the original GNH questionnaire in a domestic context.
- Investigating the impact of artificial intelligence on organisational “happiness”, trust, and through this the potential for sustainable knowledge.
- Examining the conditions for sustainability leadership.
- Defining sustainable knowledge and its organisational applicability
- Composing the model based on the pillars examined.

The logical framework of the model consists of the following factors.

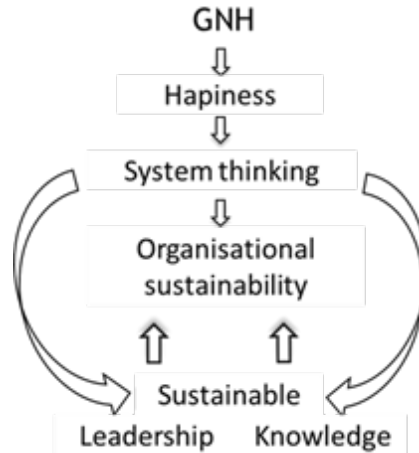


Figure 1 Logical research model
Source: own editing

Presentation of the research according to the logic of the successive phases

Phase 1: Application of GNH methodology in domestic conditions

Theoretical background

To move from GDP to the applicability of the GNH logic, it is necessary to go back to basics, by which I mean a brief overview of the shortcomings of GDP, followed by an outline of the basic idea of Buddhist economics as a prerequisite for the design of a system for measuring happiness. These areas are briefly discussed in the following chapters.

Gaps in GDP

GDP as a measure of the quality of social life has come under increasing criticism since the 1950s. The arguments put forward are summarised below (van den Bergh – Antal, 2014):

- Principles of good accounting.
- Interim considerations.
- Lexicographical preferences.
- An empirical study of happiness.
- Income distribution, relative income and competition to buy status goods.
- Formal versus informal economy.
- Environmental externalities and natural resource depletion (van den Bergh – Antal, 2014).

To overcome the problems mentioned above, the development of soft indicators, already mentioned in the introduction, has been prioritised. However, criticisms of these have prompted further reflection. Thus, the focus has been on balancing the logic of GNH, which requires a brief overview of Buddhist economics thinking to understand.

Buddhist economics

In his book “The Small is Beautiful” (2014), Schumacher contrasts his view of the work of modern and Buddhist economics. In modern, materialist economics, work is merely a “necessary evil”. For the employer, labour is a ‘cost factor’ and he does his utmost to minimise it. For the worker, it is a “nuisance”, since he could use his free time for something other than work, but he is only paid for the work.

The indicators proposed based on Buddhist thinking, which can make up for the shortcomings of GDP, favour sustainability, honesty, trust and satisfaction as social values (Ócsai, 2018). The calculation of these indicators is indeed a challenge, but with their help and objective indicators, we can judge more realistically the characteristics of an economy (Kovacs – Ócsai, 2015). The GNH calculation method allows the assessment of both objective and subjective parameters, and its thinking is based on happiness as the result of the totality of measurable elements.

The happiness

Research into happiness and the definition of the parameters that express it have been at the forefront of interest since antiquity. Aristotle used the term “eudaimonia”, which is often mistranslated as happiness. In contrast to happiness, eudaimonia did not mean a variable state, but ‘happiness’ for the whole of life, the successful conduct of life, and the good life (Warburton, 2005). The continuous striving to achieve a positive state is not a specific emotional state, but a continuously evolving and developing system of feelings, in which the process of achieving the state is important, not the specific feeling (Gjorevska, 2021). According to Epicurus (Paton, 1916), happiness is also the goal of life, but he understood happiness as peace of mind and tranquillity. In his view, the only obstacle to happiness was fear, or more precisely the fear of death, and it was only by overcoming the fear of death that one could achieve peace of mind and happiness.

The three related concepts used in the study are satisfaction, happiness and well-being. All three concepts are difficult to define and there is no agreed definition for any of them, most of them being defined in terms of each other. Based on the literature approaches reviewed, their meanings have been used in our study as follows.

Satisfaction is a mental or emotional state of contentment when one has accepted one’s situation (Graham et al., 2014). Happiness is an emotional state characterised by joy and a sense of contentment. It includes positive emotions and satisfaction with life. Because happiness is generally understood as a broad concept, psychologists and other social scientists use the term “subjective well-being” when discussing happiness (Nordenfelt, 1995). Subjective well-being generally refers to an individual’s overall current feelings about his or her personal life.

Following this terminology, our study identifies three levels of happiness. The first is pleasure, the “hedonistic happiness”, the level of satisfaction. The second is well-being, which refers to engagement and the release of emotions while completing a task or goal. This high level of experience is referred to as “flow” (Csikszentmihalyi, 2000). The third level corresponds to Aristotle’s “eudemonia” (Irwin, 2019).

This level of happiness is characterised by inner harmony, purpose in life, personal growth, constructive relationships, autonomy, and a general sense of psychological, physical and natural balance (Kopp – Pikó, 2006).

GNH

The GNH (Gross National Happiness) indicator, developed and used in the Kingdom of Bhutan, is a response to the criticisms of GDP and soft indicators and a way of addressing their shortcomings. The indicator was first mentioned in the 1970s by the fourth King of Bhutan, Jigme Singye Wangchuck. According to him, the aim of a government should not be to increase the value of GDP, but rather to increase the happiness of the country. GNH takes a holistic approach to measuring people's happiness and well-being. It is composed of four pillars (Good Governance, Strengthening and Promoting Culture, Environmental Protection, Sustainable and Equitable Social and Economic Development), which can be further broken down into 9 areas. These are:

- Psychological well-being
- Health
- Time use
- Education
- Cultural diversity and resilience
- Community vitality
- Good governance
- Ecological diversity and resilience
- Quality of life

The original logic was developed at the societal level, but in recent years a way of calculating this at the organisational/business level has been developed and is what we have targeted in our research (Zangmo, et al, 2017). In both cases, we arrive at the calculation of the happiness index through the measurement of individual human satisfaction and then happiness.

The GNH of Business (GNH of Business)

The integration of GNH into the business community was initiated by Dasho Tshering Tobgay, Prime Minister of Bhutan. He first presented the idea at the 6th International Conference on GNH in 2015. The Centre of Bhutan & GNH Studies (CBS) developed and published a draft of the GNH business integration in 2017, which was revised in 2018 (Zangmo, et al, 2017; 2018).

The business application was developed based on the 9 domains of the GNH, which were divided into 2 groups according to the assessment domains (see Figure 2.): employee happiness and organisational conditions of happiness (Zangmo, et al, 2017).

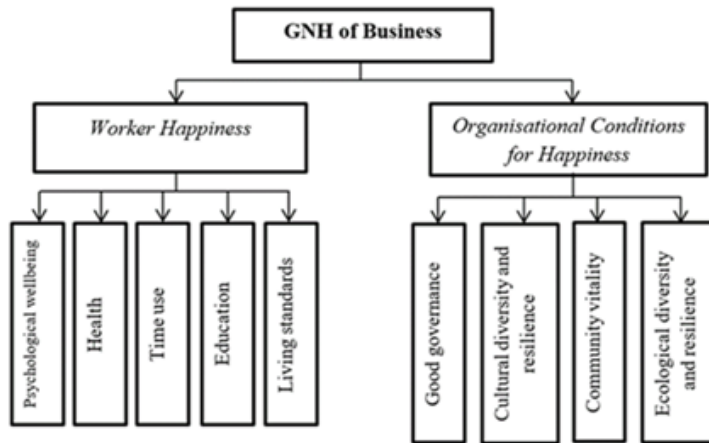


Figure 2 GNH's business framework
Source: Zangmo, et al. 2017

As illustrated in Figure 2., employee happiness represents employee satisfaction and happiness in each area of GNH. Through the organisational conditions of happiness, we obtain information on organisational behaviour and how this contributes to employee well-being and happiness (Zangmo, et al, 2017). All the areas presented here can be further broken down into indicators, which will be measured through questionnaire research.

No research has been found on the application of GNH to business (given its novelty and experimental methodology). Thus, the research we conducted can be considered as a pilot study, the experiences and results of which were used in further research.

Method

The research used the Hungarian version of the original questionnaires developed in Bhutan (GNH of Business), retaining all domains, indicators and questions for professional fidelity. In a few cases, corrections were necessary due to Western terminology, clarity or professional considerations (working hours (40 hours in our case instead of the original 48), wages (expressed in HUF instead of Bhutanese currency), spirituality (meditation instead of contemplation), scholarships (to raise opportunities in the home country). Overall, the results of the questionnaire survey were calculated at the organisational level and can be interpreted as an indicator of organisational happiness.

Calculation of GNH at the business level

The overall analysis methodology consists of three steps:

1. Defining and applying a compliance threshold (Employee happiness was assessed using 29 indicators, measuring 114 variables in five areas of the GNH. Similarly, 20 indicators of organizational conditions with 102 variables were measured and scored in 4 GNH domains.
2. Application of weighting. (Workers assessed based on the compliance threshold - values 0 and 1 - are multiplied by the weights.)

3. Summation and scoring (The value of the two previously calculated components was calculated by simple summation.) The value of the organisational happiness index is the weighted sum of the two components with equal proportions.

For employee happiness, each employee's score on the indicator it can be calculated using the formula below.

$$W_{hap} = \sum_{i=1}^n w_i x_i \quad (1)$$

where,

W_{hap} – employee happiness score

n – number of indicators

i – the i -th indicator

w_i – weight of the i -th indicator

x_i – value of the i -th indicator

To calculate the business value, the employee happiness score is obtained by summing the weighted indicator scores for all employees and dividing by the number of all employees in the study (n).

A similar method is used to calculate the organisational conditions, except that the calculation of average scores is not required, as indicators can usually be rated by a single manager. (In our case, since we did not assess a single organisation, we averaged the ratings given by managers.) The organisational happiness score can be calculated as follows:

$$O_{hap} = \sum_{i=1}^n w_i x_i \quad (2)$$

where,

O_{hap} – the organisational happiness score

n – number of indicators

i – the i -th indicator

w_i – weight of the i -th indicator

x_i – value of the i -th indicator

The business happiness index is calculated as a weighted sum of employee happiness and organisational conditions. A 50:50% ratio is calculated for both components. The correlation used to calculate the business value:

$$H = 0.5 \times W_{hap} + 0.5 \times O_{hap} \quad (3)$$

where

W_{hap} – happiness at work

O_{hap} – organisational conditions

Authentication/certification

Based on the calculated values, the business is classified as shown in Table 2.

Score	Certification	Comment
≤ 40%	below average	requires immediate intervention
40-59.9%	average	intervention is needed in certain areas
60-79.9%	good	improving performance in certain border areas
Above 80%	very good	GNH certificate, both values must reach 60%

Table 1 Categories and indicators of organisational happiness

Source: Zangmo, et al. 2018

Two conditions are required to obtain the certificate. A score above 80% and 60% in both parts (employee and organisational). In this case, this means reaching the upper limit of the average score according to the table.

It is important to note that the calculation of these values is not the ultimate goal, but rather a starting point for making the necessary changes. An overview of each area and an understanding of their impact on business operations will help you to formulate a strategy for improvement, assess risk and plan for opportunities. Once a business has obtained the GNH certificate, it is recommended that the assessment is re-conducted at certain intervals (3 years).

Conduct research

The sample

The survey was carried out in 2020-21 in the faculties of economics and economics teaching institutions (61 faculties/institutions) of higher education institutions in Hungary. 239 staff and 14 managers answered the questions. After testing the homogeneity of the sample, the responses were analysed.

Employee happiness survey

The calculation followed the same logic as the 3 steps described above. Then, the percentage of the compliance thresholds in each area was determined, i.e. the extent to which the employees in the study met the predefined compliance threshold. The weighted values for each area can be calculated separately and summed to obtain the employee happiness score in %. The summed results for the 29 indicators and the calculated values are shown in Table 2. (n=239).

Weight of area		Indicator weight	Weighted value
Psychological well-being	20%	2,5	7.88
Health	20%	2,86	7.12
Time use	20%	3,33	9.17
Education	20%	6,67	6.95
Quality of life	20%	4	1.56
Σ 32.68%			

Table 2 GNH areas and their weights together with calculated values
 Source: own editing

Measuring organisational conditions

The picture of organisational happiness conditions reflects business behaviour and phenomena related to the social well-being of employees. We calculated the organisational happiness conditions from 20 indicators. Similar to employee happiness measures, the compliance thresholds are based on standards previously developed in Bhutan (Ura et al., 2015).

The areas and indicators of organisational conditions, their weights and the results of the survey are summarised in Table 3. (n=14).

Category	Category weight	Indicator weight	Weighted value
Good governance	25%	4,17	21.72
Cultural diversity	25%	8,33	11.89
Community vitality	25%	4,17	16.93
Ecological diversity	25%	5	7.83
Σ 58.37%			

Table 3 Weighted values of organisational conditions
 Source: own editing

Based on the aggregated results, taking into account the 50-50% weighting, the happiness index is representative of the economic education in higher education in Hungary:

$$H = 0.5 \times 32.68 + 0.5 \times 58.37 = 16.34 + 29.19 = 45.53\% \quad (4)$$

The scores obtained are close to the lower end of the average category, indicating that intervention is needed in certain areas (see Table 4.).

Score	Certification	Comment
≤ 40%	below average	requires immediate intervention
40-59.9%	average	intervention is needed in certain areas
60-79.9%	good	improving performance in certain border areas
Above 80%	very good	GNH certificate, both values must reach 60%

Table 4 Result value category

Source: own editing

Conclusions

The research objective of the first phase has been achieved, proving that the Bhutanese logic, the calculation method based on the developed value measurement questionnaire, can be well adapted to the domestic conditions and provides informative results that can be immediately used in everyday decisions for all interested parties, both professional and non-professional. In the research, we surveyed employees working in the economics faculties of Hungarian higher education institutions, aiming to identify the strengths and weaknesses of this segment of higher education, which can be used to improve employee happiness and its organisational conditions, and as a result to raise the quality of education and student satisfaction. The development strategy can be formulated, risks can be assessed and measures to exploit opportunities can be planned more precisely.

The future research goal is to apply the method in business areas. The results are presented in the next section.

Phase 2 GNH assessment in a corporate environment

Since this phase of the research theoretically builds on the ideas of the previous step, I will not repeat the background literature presented above.

Method and sample

The methodology of the research also followed the same logic as described above, the difference being in the sample studied. In addition to the GNH questionnaire evaluation method, statistical analysis methods (PLS, cluster analysis, logistic regression and discriminant analysis) were used to analyse the results.

Building on the Orbis database, we were able to work with 768 responses from a sample filtered by Bhutanese criteria.

Research questions

The first question focused on sector-specific differences, exploring which economic area is the most preferable when choosing a career, and where workers feel happiest. For the second question, we looked at how the conditions of happiness organisations influence employees' happiness. The theoretical model of the research is shown in Figure 3.

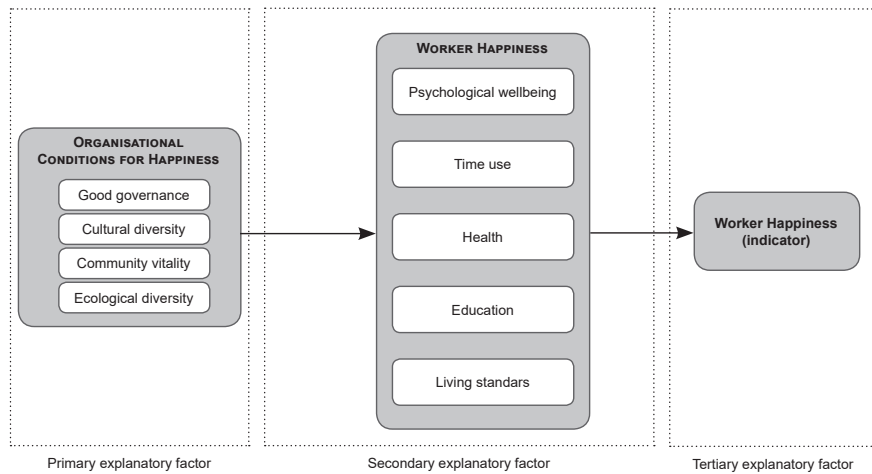


Figure 3 Research model: interrelations between individual and organisational domains
Source: own editing

The third question was to examine which indicators have the strongest influence on the final composite happiness index.

Results and conclusions

Based on the Bhutanese logic calculation method, the happiness scores of domestic organisations fall within the average range of values based on the values in the standard table. This means that areas (including indicators requiring specific improvement) can be identified where, depending on management decisions and appropriate interventions, employee well-being (happiness) at work can be increased. The results of the statistical analysis show that there is a significant difference between organisations in different economic sectors in terms of which organisations have the highest levels of well-being, satisfaction and happiness among employees.

Based on the sample results, the happiest workers are in the extraction sector (48.69), followed by construction (46.94). By sector, workers in community services had the lowest average score (39.62). This is supported by the results of multiple comparisons, as this sector showed the most significant differences compared to the others. The impact of COVID-19 is certainly having an effect here, as Trade also only scored 40.25 on average. With further analysis, the components of employee happiness can be identified, showing which areas need to be improved in a given sector, where there are larger gaps concerning each other.

In the second part of the research, the method of path analysis (PLS) was used to answer this question, which is a series of multivariate linear regression estimates (OLSs) built on each other. The results of the path analysis show that the indicators of “Organisational Conditions for Happiness” have a significant impact on the indicators of employee happiness. Employees’ happiness is deterministically influenced by the five components, with living standards and education having the greatest impact, which were effectively the two most critical components in employees’ evaluations.

In further analysis of the company sample (with the third question in mind), we wanted to identify the indicators within each domain that have the strongest influence on the final composite happiness index. This involved three steps, cluster analysis, logistic regression and discriminant analysis. Results show that for the domain “Psychological well-being”, job trust is the strongest explanatory indicator. Within the “Health” domain, the indicator of shared space has the highest impact. Within the “Time management” domain, work-life balance has the highest influence, while the indicator of support for professional training and development is the most influential in the “Education” domain. Finally, for “Living standards”, the most influential factor is the support of the workplace concerning retirement. It has been demonstrated that for each domain, it is possible to identify the critical factor that has the strongest impact on the domain values. Taken together, they support the findings of previous research that an organisational culture built on trust and a work-life balance of long-term security, continuous development and preparation for retirement ensure successful organisational performance and a sense of happiness among employees.

In the first phase of the research, it has been shown that trust is one of the most important organisational characteristics, which, in addition to a feeling of satisfaction and happiness, influences the operational quality of the organisation as a whole. The first element of the theoretical model has thus been validated. In the next step, the impact of emerging technology on the results obtained in the previous phase was assessed.

Phase 3 The influence of technostress on the GNH happiness index

In this step, we wanted to demonstrate that emerging technology has an impact on the evolution of previous research findings, namely on both employee satisfaction (through which organisational happiness), work-life balance and job confidence, all of which strengthen or weaken the previous findings.

Brief theoretical introduction

Stress is an often-mentioned negative phenomenon in today’s organisational practice, resulting from an imbalance between the demands of a given situation and the ability to meet them. Stress situations can manifest themselves in different forms, one of, which is increasingly demanding attention, is technostress, the result of the forced use of information systems.

Technostress has become an important area of scientific research in the last 10-15 years, and its study concerns both private and organisational situations. In this phase, we wanted to find out how employee and overall organisational happiness depends on the use of IT and artificial intelligence, which are the dominant factors of our time. To test this, a new set of companies was surveyed, in this case targeting organisations in Slovakia in addition to domestic companies.

Method and sample

The GNH calculation method also provided the basis for this step. The sampling was based on the Orbis database and targeted the SME sector for both nations in the Hungarian-Slovak border region. To assess the impact of technostress, items from the validated questionnaire developed by Tarafdar et al. (2019) were incorporated into the GNH questionnaire. In addition to the computational logic of the GNH, we used SPSS AMOS 27. We received responses from 315 Slovak and 323 Hungarian SMEs.

Analysis

For comparison, the analysis was carried out in two rounds. In the first step, the results calculated without the influence of technostress were used to calculate the individual and organisational happiness index based on the GNH calculation logic described above, and in the second step, the same values were calculated including the influence of technostress. The results demonstrate that the effect of technostress has a significant impact on individual and organisational happiness. Based on the responses, it can be said that when AI and the impact of technology are taken into account, the scores are below average and therefore immediate intervention is needed in several areas of GNH. The most critical areas are psychological well-being, employees do not trust each other or their managers enough, and management as a whole. This lack of trust raises several problems, including higher administrative costs, more cumbersome action, and can even lead to the disintegration of the organisation.

In examining further issues related to technostress, we aimed to investigate how each of the technostress parameters interact with each other, how they affect trust in technology and trust between employees in the organisation, and whether they affect satisfaction and work-life balance.

Results

The results reflect the faster pace of work dictated by new technologies, the need for complex thinking and the need for an integrated vision. As a result, the boundaries between work and private life are blurred, and competition between workers is intensifying, leading to tension and an unhealthy workplace climate. The consequences of technostress are manifested in job dissatisfaction and turnover, increasing backlogs and working against teamwork. The constant pressure to perform has a detrimental effect on knowledge transfer within the organisation and increases the risk of losing one's job.

Figure 4. below shows that the more extra energy someone invests in learning technology, the more it will affect their personal life. The possibility of losing one's job triggers one to put more effort into learning new technologies. And the fear of losing a job can hurt our private lives. A very strong significant relationship was demonstrated between the sacrifices we have to make in our private lives to maintain, improve and renew our technological skills. Also, a relatively strong significant relationship can be seen that those who are truly happy at work are those who feel satisfied with their job more often.

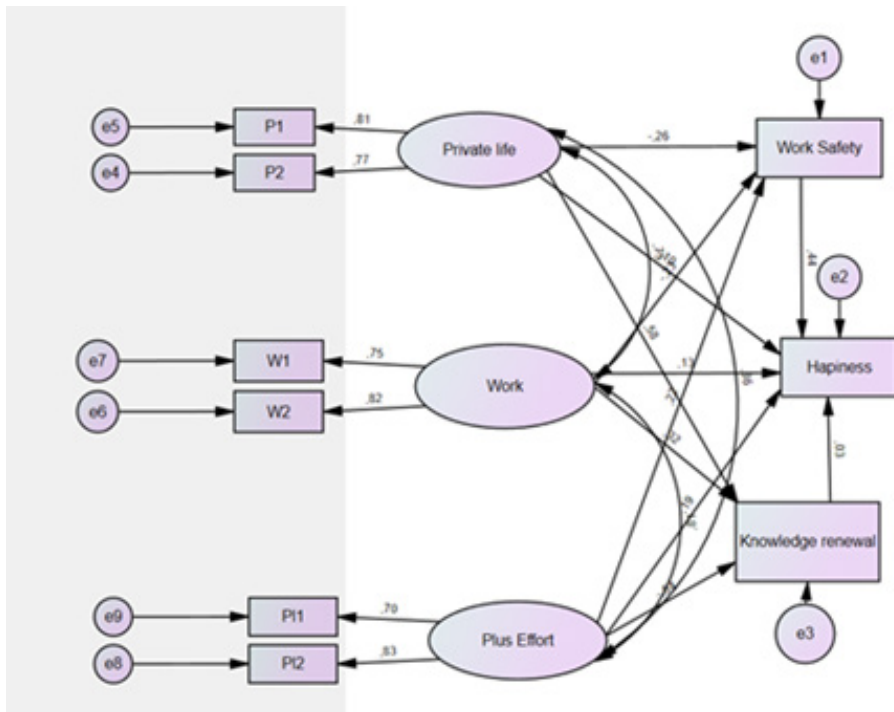


Figure 4 The impact of stress factors on job security, job-induced happiness, and continuous renewal of technological knowledge
Source: own editing

The results of the research show that technostress has an impact on work-life balance, trust in the workplace and the need for continuous renewal of knowledge related to the functioning of the knowledge management system.

The results show that individual and organisational satisfaction and happiness are related to both trust and the technostress factors that influence it. Although in this phase of the research, an additional element of the theoretical model was proven, in the next phase we sought to prove this relationship through further research.

Phase 4 The impact of trust (personal and impersonal) on organisational functioning

This step aimed to further test and validate the elements of the theoretical model validated in the previous phases, by exploring the factors that influence the level of trust in the organisation.

Brief theoretical introduction

Research into the existence or absence of trust goes back many years. Until recently, organisational trust has been treated mainly as an interpersonal phenomenon, consisting of lateral trust, referring to the relationships between employees, and vertical trust, referring to the relationships between employees and their immediate superiors, top management or the organisation as a whole. There has been a growing interest in the impersonal element of organisational trust, which we call institutional trust. Impersonal trust refers to trust in impersonal organisational factors such as vision and strategy, senior management, management team goals and capabilities, technological and commercial competence, fair processes and structures, technology and reputation, etc.. In this phase of research, the relationship of trust to organisational functioning has been examined from several perspectives. In addition to trust in top management and strategy, the impact of trust in technology on organisational competitiveness was examined.

Method and sample

Additional questionnaires were used in this phase of the research. One of them, which specifically sought to explore the impact of personal and impersonal trust, was designed by Vanhala (2019). Their tested and validated questionnaire was one of the focuses. The other questionnaire we designed sought to assess the economic impact of trust. The third focus aimed to investigate the impact of technostress on trust, as mentioned above, by adding factors to Vanhala’s original questionnaire to measure technostress (Tarafdar, et al., 2019).

Again, after filtering from the Orbis database, we received responses from 1572 respondents in Hungary and 660 in Slovakia. For the first focus analysis, we chose PLS-SEM path model logic for the analysis, and then PLS-MGA solution was offered to compare two nations.

The analysis was based on the following research model (see Figure 5).

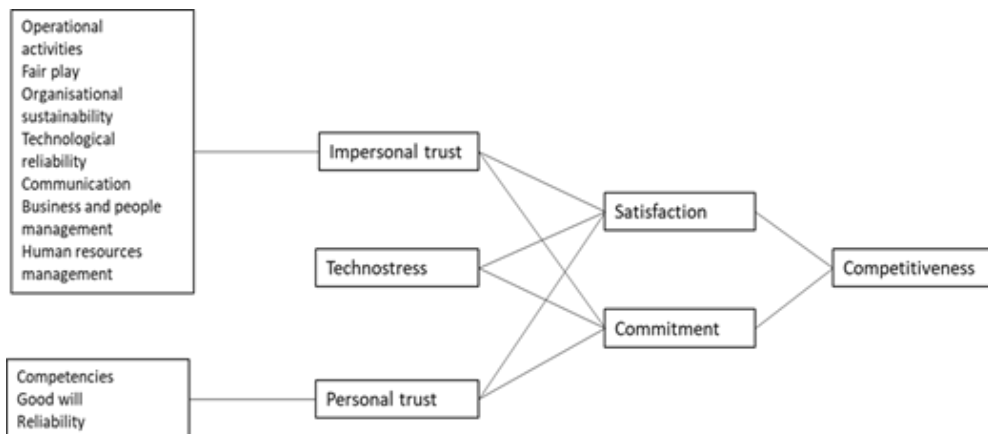


Figure 5 Research model of the relationship between trust and competitiveness

Source: own editing

Results

The results show significant relationships between impersonal trust and organizational commitment, impersonal trust and job satisfaction, and impersonal trust and competitiveness. The total effect of impersonal trust is larger on job satisfaction than personal trust and the total effect of impersonal trust is larger on competitiveness than personal trust. Technostress shows a significant relationship with organizational commitment, job satisfaction and competitiveness. For organisations in Hungary and Slovakia, the relationships between these factors do not show significant differences. This indicates that the influence of technostress on the success of organisational functioning can be demonstrated, while at the same time, it influences employee trust through impersonal and personal relationships. These results are in line with those of the previous phase.

The second aspect focused on the economic impact of trust, which aimed to show the impact of managerial thinking and decisions. A related model is shown in Figure 6.

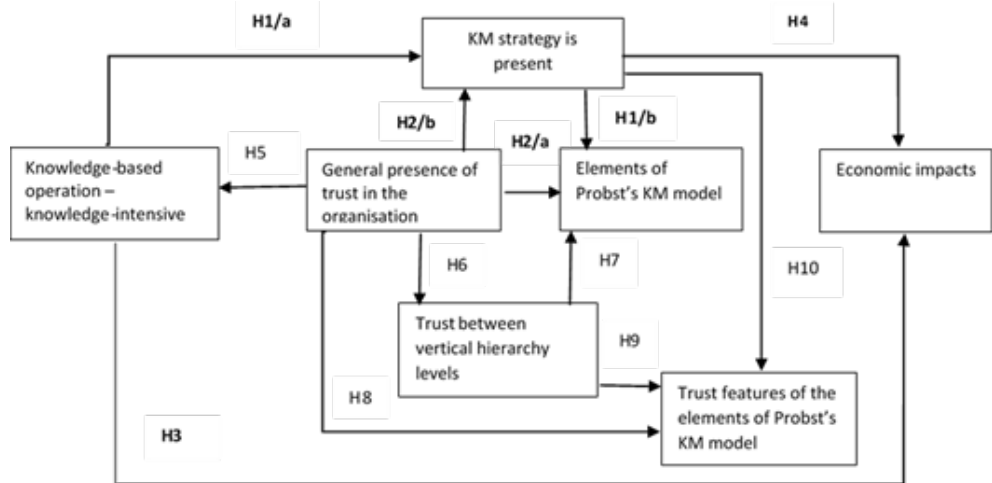


Figure 6 Knowledge-oriented organisational thinking and trust

Source: own editing

The second model focused on the relationship system of managerial thinking and decision-making. The results show that organisations that prefer knowledge-based operations already have a fundamental expectation of incorporating knowledge management system operations into their strategy. It is not yet the case that trust is treated as an important criterion that is a prerequisite for a knowledge-sharing culture, as a prerequisite for knowledge sustainability. Managers do not feel the economic consequences of this.

In the third step, we also compared the relationship between trust and the effects of technostress examined in the previous phase.

Figure 7 below shows the relationship between technostress work-related trust and trust among co-workers. A strong correlation can be found between the stressors, their stimulating effect on each other is not questionable. For example, technological overload and threat have a significant impact on trust, namely trust generated by artificial intelligence, and distrust between co-workers.

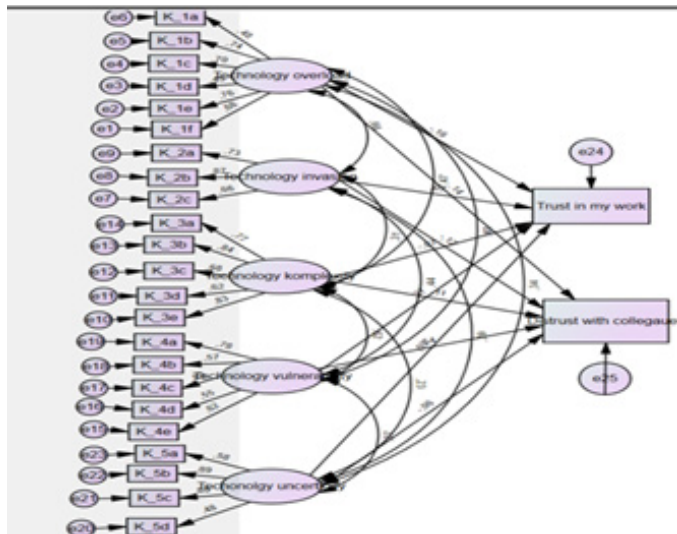


Figure 7 Technostress and personal, impersonal trust
 Source: own editing

Overall, a broad examination of trust has shown that both personal and impersonal trust (especially the feelings conveyed towards managerial decisions and technology) are important determinants of both organisational culture and technological involvement. Thus, a further element of our theoretical model has been confirmed.

Phase 5 Management features to ensure that the elements of the model operate in a systemic way

In this step, we wanted to demonstrate that, building on previous findings that have sought to support the need for a culture based on trust, we need leadership actions, decisions and behaviours that can shape culture, follow principles of ethical behaviour and ensure long-term successful, sustainable organisational performance.

Brief theoretical introduction

In the long term, the successful functioning of an organisation requires a leader and/or management that is aware of the concept of sustainable development and is able to interpret it in a complex way in

decision-making (Al Muhairi et al, 2019). Sustainability has become a critical management task for organisational success. Strategies are defined and outcomes are achieved that meet the triple bottom line requirements of social, environmental and financial performance (Avery – Bergsteiner, 2011a; 2011b). This triple bottom line covers the requirements of environmentally sound management (ESM), expected behaviour and values (EBV) and conscious thinking (CBM).

In their book “Sustainable Leadership”, Avery and Bergsteiner (2011c) compare two extreme examples of leadership to the mechanisms of animal colonies in nature, which illustrate the results of leadership thinking and behaviour. The most extreme form of locust-like philosophy, business behaviour and decision-making mechanism is hard, ruthless, asocial and profit-driven leadership. The opposite thinking and management philosophy is that of a community of bees (“honeybee”), sophisticated, interest-group oriented, social and divisive. It focuses on the long term and achieves results responsibly. They strive to protect the planet, care for local communities and protect the organisation’s image and brand through ethical behaviour. Honeybee’s approach is holistic, favouring a value-based approach to stakeholder engagement. Their thinking model is shown in Figure 8.



Figure 8 The sustainable leadership pyramid
 Source: Avery - Bergsteiner, 2011

The basic elements corresponding to the numbering shown at the bottom of the pyramid include.

Basic elements

1. Appropriate driving style
2. Attracting and retaining talent
3. Continuous improvement
4. Internal succession planning

5. Respect, diversity and inclusion
6. Ethics and virtues
7. Good governance
8. Long-term thinking
9. Considered organisational change
10. Independence from external disturbances
11. Environmental responsibility
12. Social responsibility
13. Broad focus of involvement
14. Strong shared vision and objective

A prerequisite for the deployment and operation of knowledge management systems is the provision of up-to-date knowledge and its incorporation into everyday practice (Raymond-Yakoubian et al, 2017; Eberherr, 2018). The triple requirements for the operation of a knowledge management system (TMR) (people, process, technology).

Building on the elements of the knowledge management system, the steps of the knowledge management process ensure the smooth acquisition, flow, use and retention of knowledge, which, once assessed, confirms the strategy's delivery or indicates gaps.

The technical background is a fundamental requirement for the sustainability of knowledge, but on the other hand, it is the most critical condition. It can be affected by technical, human, software and artificial intelligence (AI) generated problems.

Sustainable knowledge is inevitably intertwined with knowledge management, which is based on meeting the requirements of a learning organisation culture (LEOC) in terms of organisational embeddedness and functionality. The principles of learning organisations are summarised in five points by Senge (2014), which he categorises into three core competences. These are Aspiration (AS), Dialogue (PB) and Complexity Management (CM). Aspiration includes two core principles (out of the five), these are Personal Vision (formerly called Personal Direction) and Shared Vision. Dialogue also includes two principles, thought patterns and group learning. Complexity management can be identified with systems thinking.

An appropriate leadership style, broad stakeholder focus, open-mindedness, "permissive" behaviour, long-term planning, foresight and transparency greatly facilitate knowledge sharing and/or knowledge creation based on learning organisation functioning for sustainability (Farooq, 2018). We sought to validate the validity of Avery and Bergsteiner's (2011) model presented above through our primary research. This phase of the research represents a further step towards validating our theoretical model.

Method and sample

The research was qualitative, using structured interviews. The interviewees were selected from the SME sector in three countries in Central and Eastern Europe (Hungary, Poland and Slovakia). The reason for choosing the three nations was that there have been several studies on Western European and Asian countries, but no research on Central and Eastern European countries could be found. Interview subjects were selected by random sampling. Based on the results of the screening, the SME managers

(senior managers, HR managers) were contacted by phone and/or email. A total of 36 Hungarian (24 manufacturers and 12 service providers), 32 Polish (22 manufacturers and 10 service providers) and 30 Slovakian (19 manufacturers and 11 service providers) interviews were conducted with managers willing to be interviewed between September 2022 and December 2023. During the structured interview, open and semi-open questions were asked. The preparation of the respondents was facilitated by the short topic briefing and questions sent in advance, so there were no surprises. The interview questions focused on the elements of the sustainable management pyramid described above. The interviews lasted between 50 and 70 minutes; the interviews were audio-recorded and transcripts of the audio-recordings were made for later systematic analysis.

The primary data were obtained from the structured management interviews. The analysis was carried out using Voyan Tools text analytics software, which is specifically designed to analyse this type of qualitative data. This software operates in a web-based text analysis, reading and visualisation environment.

The research questions, assumptions, question groups in the questionnaire and codes developed during the analysis are consistent. In the analysis, we focused primarily on the areas that were priorities for proving the correlations of our model. In this way, the focus areas can be grouped into three broad categories. In the first step, we looked for the practical application of the criteria formulated in the context of management style. In the second step, we sought to identify the links between long-term planning, strategy development and vision setting. In the third step, we sought to assess the extent to which the qualifying characteristics of organisational culture, namely trust, teamwork and knowledge sharing, were in place.

Results

Expectations of sustainability leadership are poorly understood and the respondents have the characteristics of a traditional democratic leadership style. Characteristics of long-term thinking are scarcely present, but at the same time there is a lack of vision among SME managers. The above analysis confirms this finding, since even when plans are drawn up, they include both short- and long-term vision. The term vision was mentioned only a few times as a result of the questions. Slovak leaders are closest to long-term thinking, while Hungarians are the least. These results are supported by significant relationships.

Sustainability leadership requires a cultural context where trust is built, knowledge is shared and teamwork is a typical working style. Looking at these organisational characteristics, it can be seen that leaders in the nations surveyed consider it important to build and maintain trust in the organisation. However, their perceptions and thinking differ somewhat. Hungarians see it as a separate requirement, Poles see it as most necessary for knowledge sharing, while Slovaks associate it with teamwork.

Summarising the expectations of trust, leaders stressed its importance, but all nations see it as incomplete and difficult to achieve. Another cultural characteristic is the phenomenon of knowledge sharing/retention. For all three nations, knowledge sharing was mentioned several times, but for Slovaks and Hungarians, the phenomenon of knowledge retention was also mentioned. The leaders of all three nations understand and feel the importance of knowledge sharing and are trying to implement it, but as the results on trust confirm, the lack of trusting relationships that underpin knowledge sharing is a barrier. Thus, in all cases, this area needs further building and strengthening.

Teamwork is perhaps the most talked about cultural expectation in the literature. Hungarians are undoubtedly at the bottom of the list in this respect, and Slovaks have the most positive opinions. Unconditional teamwork was not confirmed by any of the nations. Summarising the research results, it can be said that there is still much to be done to meet the basic requirements of sustainability management for SME managers. Although the results reveal many gaps, the results of this phase of the research have confirmed the validity of another element of the theoretical model, the link between the elements (as represented in the pyramid model) in the answers to the questions raised. In practice, the last step is needed to prove the need for sustainable knowledge.

Phase 6 Sustainable knowledge for the future

The final phase of the research aimed to bring together the elements of our theoretical model to demonstrate that they are necessary for the long-term sustainability of knowledge, a key criterion for the survival of our world today.

Brief theoretical introduction

The key to economic development is knowledge, which enables organisations to operate on renewable energy sources, which finds ways to use other natural resources more efficiently (Hallinger – Suriyankietkaew, 2018). Since knowledge indisputably belongs to humans, it is safe to say that human capital is indispensable. A prerequisite for the establishment and functioning of knowledge management systems is the provision of up-to-date knowledge and its integration into everyday practice. The triple requirements (people, process, technology) for the functioning of a knowledge management system (TMR) have already been presented in the research of the previous phase. The other necessary elements that define the conditions for the existence of sustainable knowledge have also been presented earlier, as they have also been identified as requirements for sustainable management.

The pyramid of sustainable management presented in the previous phase is the closest to the concept of sustainable knowledge. This means that the basic concept of sustainable management is based on the characteristics of the learning organisation and requires the steps of the knowledge management process. Among the steps of the knowledge management process, the acquisition of knowledge (attracting the right staff/talents) and the continuous improvement of the acquired knowledge can be considered as a basic element for sustainable knowledge. The integration of the knowledge management process into organisational operations also requires the implementation of further steps in the process, and knowledge sharing and retention can be considered as a higher level requirement for sustainability. From the point of view of sustainability, the key elements are knowledge development/implementation (innovation), knowledge application and measurement (quality), knowledge sharing and knowledge retention (employee commitment). To ensure the sustainability of knowledge through sustainable organisational operation and sustainable management, it is necessary to formulate a strategy that can translate the above expectations into implementation measures under the conditions of everyday expected behaviour and conduct. This requires the building and continuous maintenance of a learning organisation culture.

Method and sample

To test the logic, a multi-step test was carried out. The methodology was free expression of opinion, Delphi method, in-depth interviews. For the analysis, text analysis software (Atlas.ti, Voyant.tools) and SPSS software were used.

As a first step, to test the presented correlations, a pilot study was launched with 21 participants (PhD students in knowledge management). The Delphi method was applied in two phases. In the first phase, experts from academia, consultancy and business were recruited internationally from 6 continents. In a second phase, national and Swedish experts and non-experts were asked to form similar opinions. In the first phase, 106 respondents from the international community (Europe - 44.8%, Asia - 21.9%, North America - 13.5%, South America - 10.4%, Africa - 5.2%, Australia - 4.2%) were consulted and 126 responses were received in the second Delphi round. In the first round of the home/Sweden survey, questionnaires were returned on a 100/70 response basis, with 400 responses returned. During the in-depth interviews, we asked domestic (12) and Slovak (8) SME managers for their views.

Analysis

In all cases, the responses were used to search for characteristics of sustainable knowledge using text analysis software. Based on the results of the analysis, questionnaires were developed and sent back to the respondents to confirm their opinions. The returned questionnaires were analysed using SPSS software, which allowed us to formulate a definition of sustainable knowledge and further analysis results were obtained. Finally, structured in-depth interviews were used to obtain further evidence to test our hypothesis.

Results

The first phase of Delphi:

The elements of the research model were based on the relationships between the elements of the theoretical model presented earlier. After the first round of expert opinions were received, a 6-point Likert scale questionnaire was developed based on the results of the text analysis, covering 23 statements - 4 categories.

- Knowledge sustainability goals and values
- The role of organisational culture
- The link between knowledge management and knowledge sustainability
- The link between technological background and knowledge sustainability

Table 5 shows the main characteristics of the responses received, evaluated using SPSS.

Category	Description
Knowledge sustainability goals and values	<ul style="list-style-type: none"> • Organizational purpose of knowledge sustainability • Sustainability of knowledge as an organisational competitive advantage • Helping to achieve organisational goals • Integrated into organisational activities • A vital factor in the 21st century – 5.22 • Making better decisions
The role of organisational culture	<ul style="list-style-type: none"> • Commitment-based organisational culture • Collaboration and shared values between organisational members and management • Principles of sustainability leadership • Adequate and continuous training of employees • Raising ethical issues – 5.00
The relationship between knowledge management and knowledge sustainability	<ul style="list-style-type: none"> • Integration of elements of the knowledge management process – 5.06 • Continuous, unconditional knowledge sharing between organisational members • Knowledge development/knowledge renewal • The role of organisational memory • Alignment of knowledge management with organisational objectives
The relationship between technological background and knowledge sustainability	<ul style="list-style-type: none"> • The important role of the information technology background • Reliance of organisational members on technology – 5.02 • Adequate level of technological background • The role of artificial intelligence • Informatics as the most important role • Technology knowledge and skills of organisational members

Table 5 The necessary conditions for sustainable knowledge
 Source: own editing

The second phase of Delphi

100 Hungarians and 70 Swedes answered the first round of questions. Knowledge management expert, (university lecturer/consultant with knowledge management background) 30/42%, company expert 30/29%, non-expert in knowledge management 40/29%.

Again, another round was carried out, building on the results of the text analysis, and a new questionnaire was sent back to the respondents of the first round, and then the round was extended, with 400 responses being received. The statements in the questionnaire were worded in slightly different terms, but sought to explore similar categories as the first phase.

Based on the results of the two phases, the filtering of the most important words and phrases helped to make visible the terms that could form the basis of a definition of sustainable knowledge. Based on the above, our definition of knowledge sustainability:

Definition

Knowledge sustainability is a vital organisational strategy to make better decisions for ethical and sustainable organisational operations by preserving the value and usefulness of knowledge (tacit and explicit) in the organisation over the long term. It contributes to gaining and maintaining a competitive advantage by continuously updating existing and new knowledge, embedded in organisational activities. At the heart of knowledge sustainability is human capital, the prerequisites for its provision within an organisation:

- An organisational culture based on trust (personal and impersonal), where members and management of the organisation work together on an ongoing basis while adhering to the principles of sustainable management.
- Integrating the elements of the knowledge management process into organisational processes, ensuring a continuous, evolving, knowledge-sharing cycle of knowledge.
- Ensuring a high level of availability of the technological background supporting the knowledge management process, maintaining the stress-free operation of technology, ensuring digital and workplace wellbeing.
- Sustainability leadership practices.

Results

Based on the responses to the questionnaires, further statistical analyses were carried out which confirmed that

- An organisational culture based on trust is a prerequisite for knowledge sustainability
- Organizational knowledge sustainability is based on the pre-conditions (ethics, trust) and steps (knowledge acquisition/sharing, knowledge retention, knowledge development) of a knowledge management system.
- Aligning knowledge management with organisational objectives is essential for the long-term sustainability of knowledge.
- The most critical step for knowledge sustainability is knowledge sharing.
- The information technology readiness of the organisation plays an important role in making knowledge sustainable within the organisation.
- The motives for organisational knowledge sustainability are influenced by the characteristics of national culture.
- Experts and outsiders at the theoretical and practical levels of knowledge management have similar views on organisational knowledge sustainability.

To summarise very briefly the results of the management interviews (in which, in addition to sustainable knowledge, the respondents also summarised the relationship between sustainable leadership and learning organisation characteristics), sustainable knowledge, learning organisations and sustainable leadership are closely linked and mutually reinforcing. The creation and application of sustainable knowledge enables learning organisations to lead and operate sustainably, while sustainable leadership helps these institutions translate sustainable knowledge into practical action and results. In this way, sustainable knowledge and leadership can bring long-term benefits not only to companies and organisations but also to society and the environment. Summarising the results of all research phases, we consider the interconnectedness of the theoretical research model to be proven.

Practical application of research results

All research phases have produced lessons learned and results that influence management decisions. The logic of GNH highlights the importance of balanced development. With its holistic approach, it can show the critical organisational areas for improvement that need to be prioritised for management decisions. These critical steps, in addition to ensuring employee satisfaction and well-being, also draw attention to sustainability aspects. Linked to this, the implications of the use of emerging technology and the need to manage technostress are articulated. It is not enough to take advantage of the opportunities offered by technology; management must also take account of human tolerance. The importance of cultural parameters that influence the long-term success of organisations is demonstrated through the vital importance of attention to personal and impersonal trust. Demonstrating the importance of trust, and attention to economic impacts is an essential task for managers. Sustainability, as an everyday issue in the functioning of organisations, calls for the acquisition of the mandatory competencies of sustainable leadership, the incorporation of which into managerial practice is a pledge to ensure sustainable knowledge. It is clear that there is plenty for managers to do, but it is worthwhile to do it by designing well-thought-out actions, aligned with strategy, and with a conscious change management toolkit.

Acknowledgements

The research is supported by the Research Centre at Faculty of Business and Economics (No PE-GTK-GSKK A095000000-4) of University of Pannonia (Veszprém, Hungary).

Thanks to all the research partners, colleagues, corporate experts and students who helped us in our work.

References

- Al Muhairi, M., Haitham, N. (2019): Sustainable Financial Management, Available from SSRN: <https://ssrn.com/abstract=3472417>
- Avery, G.C., Bergsteiner, H. (2011a): Sustainable leadership practices for enhancing business resilience and performance, *Strategy and Leadership*, Vol. 39. Issue 3. 5-15.
- Avery, G.C., Bergsteiner, H. (2011b): *Diagnosing Leadership in Global Organisations: Theories, Tools and Cases*, Tilde Publishing, Prahran, Australia
- Avery, G.C., Bergsteiner, H. (2011c): *Sustainable Leadership, Honeybee and Locust Approaches*, Routledge New York
- Csikszentmihalyi, M. (2000): *The contribution of ow to positive psychology, in Laws of life symposia series The science of optimism and hope: Research essays in honour of Martin E. P. Seligman*, Templeton Foundation Press, pp. 387-395.
- Farooq, R. (2018): A conceptual model of knowledge sharing, *International Journal of Innovation Science* Vol. 10. Issue 2. 238-260.

Gjorevska, N. (2021): Workplace spirituality and social enterprise - a review and research agenda. *Budapest Management Review*, Vol. 52. Issue 5, 2-13.

Graham, M.C., Priddy, L., Graham, S. (2014): *Facts of Life: Ten issues of contentment*. Outskirts Press

Hallinger, P., Suriyankietkaew, S. (2018): Science Mapping of the Knowledge Base on Sustainable Leadership, 1990-2018. *Sustainability*, Vol. 10, 4846.

Irwin, T. (2019): *Aristotle's Nicomachean Ethics*. Hackett Publishing

King, W.R. (2009). Knowledge Management and Organizational Learning, *Annals of Information Systems*, Vol. 4,

Kopp M., Pikó B. (2006): *Psychological, sociological and cultural dimensions of health-related quality of life*, Semmelweis Kiadó, Budapest

Kovács, G., Ócsai, A. (2015): *The Spirit of Non-violence and Peace in Business, Business, Ethics and Peace (Contributions to Conflict Management, Peace Economics and Development*, 24, Emerald Group Publishing Limited, Bingley, 231-245.

Nordenfelt, L.Y. (1995): *On the nature of health: an action-theoretic approach*, Springer Science & Business Media.

Ócsai, A. (2018): The ecological awareness of enterprises, *Vezetéstudomány*, Vol. 49. Issue 9, 0133-0179

Payutto, P.A. (1994): *Buddhist Economics: A Middle Way for the Market Place*, Buddhadhamma Foundation, USA.

Raymond-Yakoubianpayutto, J. – Raymond-Yakoubian, B. – Moncrieff, C. (2017): The incorporation of traditional knowledge into Alaska federal fisheries management, *Marine Policy*, Vol. 78. 132-142,

Schumacher, E. F. (1973): *Small is beautiful: Economics as if People Mattered*. Blond & Briggs, London.

Senge, P. M. (2014): *The fifth discipline fieldbook: strategies and tools for building a learning organization*. Crown Business.

Tarafdar, M., Maier, C., Laumer, S., Weitzel, T. (2019): Explaining the link between technostress and technology addiction for social networking sites: a study of distraction as a coping behavior. *Information System Journal*, Vol. 30 Issue 1. 1-44. 253

Van Den Bergh, J., Antal, M. (2014): Evaluating Alternatives to GDP as Measures of Social Welfare and Progress. WwfEurope Working Paper No. 56, WIFO Studies, WIFO, number 47188, December, <http://hdl.handle.net/10419/125713>

Vanhala, M. (2019): Trust as an organizational knowledge sharing enabler - validation of the impersonal trust scale. *VINE Journal of Information and Knowledge Management Systems*, Vol. 50. Issue 2. 349-368.

Warburton, C.E. S. (2022): Why are they so Happy When Others are so Unhappy? The Theology and Ethics of Economic Development, *Applied Econometrics and International Development*, Vol. 22. Issue 1. 5-18.

Zangmo, T., Wangdi, K., Phuntsho, J. (2017): *Proposed GNH of Business*, Centre for Bhutan Studies & GNH.

Zangmo, T., Wangdi, K., Phuntsho, J. (2018): *GNH Certification*, Centre for Bhutan Studies & GNH.

Zsolnai L. (2011): *Ethical Principles and Economic Transformation - A Buddhist Approach*, Springer, Dordrecht, Heidelberg, London, New York: 133-153.
<https://solhungary.hu>

The composition of the original research community

Project leader: Prof. dr habil Andrea Bencsik

Project members:

- Prof. Dr. habil Zsolt Kosztyán
- Dr. habil Beáta Patóné Szűcs
- Mrs Neumann Dr. Ildikó Virág
- Dr Tibor Csizmadia
- Dr. habil Szilárd Berke

After the first year, all but the project leader left and new members joined:

- Dr. Dávid Hargitai
- Dr. Erzsébet Jármái
- Dr. Zsuzsanna Nagy
- Michalec Gabriela
- Vivien Vágner
- more PhD students

Publications on this topic based on the work of the research team

Journal articles

Bencsik, A. (2024) Challenges of a Digitising World in the Light of an International Survey, *International and Multidisciplinary Journal of Social Sciences (RIMCIS) (D1/Q1)*

Michalec G., Hargitai D., Bencsik A. (2024). Organizational trust as a success factor, *Journal of Business Sectors (2989-3445): 2/1*. pp 61-67.

Bencsik, A., Belas, J. (2024). Characteristics of Sustainable Leadership in International Comparison, *Economics and Sociology; (Q2)* (Accepted, under publication)

Bencsik, A., Tóth, Zs., Jármái, E. (2024). Indicators of organizational happiness - based on the "GNH of Business" logic, *Management Science (A)* (Accepted, under publication)

Vágner, V., Bencsik, A. (2024). Key players in organizational knowledge sustainability: the big language models. *Reality: Social Science Journal*, (Accepted, under publication)

Vágner, V., Bencsik, A. (2024). The impact of culture on knowledge sharing in Hungary and Sweden. *Management Science*, (Accepted, under publication)

Bencsik, A., Hargitai, D. (2023). Sector Specific Analysis Of Organisational Happiness and Wellbeing Based on 'GNH of Business' Logic, *Journal of Positive Psychology and Wellbeing 7:3* pp. 152-168.

- Bencsik, A. (2023). Organizational happiness based on ‘GNH of Business’ in a non-Buddhist environment, *Current Psychology* 2023 pp. 1-19. (Q1)
- Bencsik, A., Pangsy-Kania, S. (2023). Sustainable Leadership Practices Based on the Logic of the Honeybee Pyramid-Comparison of Hungarian and Polish SMEs, *Sustainability* 15:17 p. 13103 (Q1)
- Hargitai, D., Bencsik, A. (2023) The Role of Leadership in Digital Learning Organizations *Emerging Science Journal* 7 pp. 111-124.
- Bencsik, A. (2022). Background on the Sustainability of Knowledge, *Sustainability* 14:15 p. 9698, (Q1)
- Bencsik, A., Juhasz, T. (2023) The soft criteria of competitiveness: a symbiosis of trust and knowledge, *Cogent Business & Management* 10:1 Paper: 2176976 (Q2)
- Kosztyán, Zs. T., Csizmadia, T., Pató Sz. B., Berke, Sz., Neumanné, V. I., Bencsik, A. (2023). Measuring organizational happiness in higher education - a data-driven approach, *Cogent Education* 10:1 Paper: 2190382, (Q2)
- Bencsik, A., Juhasz, T. (2023) Impact of technostress on work-life balance, *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments* 19:1 pp. 41-61. , (Q2)
- Bencsik, A., Juhász, T. (2023). The impact of technostress on organizational functioning, *Problems and Perspectives in Management* 21:1 pp. 230-241. (Q2)
- Vágner, V. (2023). Organisational knowledge sustainability, or the impact of knowledge management on sustainability. *Reality: Social Science Journal*, 66 (10), 58-70.
- Bencsik, A. (2022). Measuring organisational well-being and happiness based on GNH logic, *Economics & Sociology* 15:3 pp. 268-285.
- Bencsik, A., Pató Szűcs B., Berke, Sz., Neumanné, V. I. (2022). 59-75.
- Bencsik, A. & Csinger, B. (2021). Innovations in Human Resources Management of Higher Education Institutions: Technostress Factors, *Marketing and Management of Innovations*, 4. 55-67. WoS

Book chapter

- Bencsik, A. (2024). The future of TM in Bencsik: *Knowledge Management in Theory and Practice* Akadémiai Kiadó
- Bencsik, A. (2024). The importance of trust in organizational functioning in Bencsik: *Knowledge Management in Theory and Practice*, Akadémiai Kiadó
- Bencsik, A. (2023). The sustainability and conditions of organizational knowledge, In: Noszkay, Erzsébet (ed.) *Knowledge management on the border of the next two decades*, Budapest, Akadémiai Kiadó
- Bencsik, A. (2022). Artificial Intelligence in the Middle East European Countries, In: Munoz, J. M., Maurya, A. (eds.) *International Perspectives on Artificial Intelligence*, London, Anthem Press pp. 52-62.

Conference presentation - publication

- Bencsik, A. (2024). Characteristics of sustainability leadership in comparison of three nations, 4rd Ferenc Farkas International Scientific Conference: ‘Inspiring Change: Visions for the Future’, Pécs, 6-7 June 2024.

Bencsik, A. (2024). Characteristics of Sustainable Leadership in International Comparison, 9th International Scientific Conference: Economics, Management, Finance and Social Attributes of Economic Systems (EMFSA), Portoroz, 5-8 July 2024.

Bencsik, A. (2024). International comparison of the sustainability of knowledge, 25th European Conference of Knowledge Management, (ECKM) Veszprém, 4-6 September 2024.

Vágner V., Bencsik, A. (2024). Organisational Knowledge Sustainability for a Sustainable Future, 25th European Conference of Knowledge Management, (ECKM) Veszprém, 4-6 September 2024.

Bencsik, A, G. Kocsis, D. (2024). Employee Well-Being in Higher Education - 'GNH of Business' in Hungarian, The IAFOR International Conference on Education in Hawaii (IICE2024), Hawaii Convention Center. January 3- 7, 2024.

Bencsik, A. (2024). Technostress as a risk factor in the workplace, Innovative HR Solutions Programme Series, (HSZOSZ, Milton Friedman University) Budapest, 25 January 2024.

Bencsik, A. (2023). Well-Being in Hungarian Higher Education Based on the 'GNH of Business' Logic, In: Luis, Gómez Chova; Chelo, González Martínez; Joanna, Lees ICERI2023 Proceedings 16th International Conference of Education, Research and Innovation, Sevilla, International Academy of Technology, Education and Development (IATED) pp. 208-219.

Bencsik, A., Berke, Sz. (2023). sustainable leadership in practice in Hungary, In: Rich, M. (ed.) Proceedings of the 19th European Conference on Management Leadership and Governance London, United Kingdom, Academic Conferences International (ACI) (2023) 598 p. pp. 9-19.

Bencsik, A. (2023). Digital wellbeing and JOMO in the context of knowledge management, "Knowledge Management in New Ways - in the Context of AI and Upgrading", MTA Conference 2023.

Bencsik, A. (2023). Technostress and wellbeing, XXX National Quality Conference 30th Anniversary Celebration "What Always Remains Constant: Time and Change" Quality Awareness - Change Management - Effectiveness, Balatonalmádi, 21-22 September 2023.

Bencsik, A., Hargitai, D. (2023). Sector Specific Analysis of Organisational Happiness and Wellbeing Based on 'GNH of Business' Logic, 15TH Global Conference on Business & Social Sciences, Novotel Bangkok Platinum Pratunam, Thailand, 14-15 Sep 2023.

Bencsik, A., Busanszki, V. & Simon, E. (2023). GNH and Artificial Intelligence for Sustainable Development, Proceedings International Conference on Business, Economics & Management for Sustainable Future Vol.1 No.1, July 18th, 2023,

Bencsik, A., Busanszki, V. & Simon, A. (2023) Case Study: Gross National Happiness as a certification framework for sustainable development in the Slovak business context, XX IBANESS Congress Series on Economics, Business and Management - Ohrid

Bencsik, A., Borosová, Z. (2023). The challenge of cultural dimensions in sustainable leadership. Komarno, Slovakia, XV SJE International Scientific Conference 2023, 13-14 September, Slovakia

Bencsik, A. (2023). Artificial Intelligence and Knowledge Management Versus Digital Well-Being and JOMO, The Impact of Socio-Economic Turbulence on Consulting, 11th International Consulting Conference

Andrea Bencsik, Bence Csinger (2023). Knowledge Management and Technology in the Light of Knowledge Sustainability, XV SJE International Scientific Conference 2023, 13-14 September, Komarno, Slovakia

Bencsik, A. (2022) Measuring organisational well-being and happiness based on GNH logic, 7th International Scientific Conference, July, 7 -10, 2022, Pula

Bencsik, A. (2022). Sustainable Management Based on Sustainable Knowledge, In: Matos, F; Rosa, Á (eds.) Proceedings of the 18th European Conference on Management Leadership and Governance, ECMLG 2022. 10 - 11 November 2022, Lisbon, Portugal, Sonning Common, United Kingdom, Academic Conferences International pp. 34-44.

Bencsik, A., Csinger, B. (2022). Knowledge sustainability in the life of organizations, Cukurova 8th International Scientific Researches Conference April 15-17, 2022.

Vágner, V., Bencsik, A. (2022). Knowledge sustainability, In: Kardaşlar, A., Kidiryüz, M. (eds.) Proceedings of International EUROASIA Congress on Scientific Researches and Recent Trends-IX. Antalya, Iksad Publications pp. 515-525.

Vágner, V., Bencsik, A. (2022). GNH of Business: happiness, staisfaction, well-being, In: Dimitar, M., Nikoloski, I., Yilmaz, R. (eds.) Proceedings of XVII International Balkan and Near Eastern Social Sciences Congress Series on Economics, Business and Management, Plovdiv, March 12-13, University of Agribusiness and Rural Development, University "St. Kliment Ohridski" Faculty of Economics, International Balkan and Near Eastern Social Sciences pp. 246-257.

Bencsik, A., Vörös, Cs. (2022). Effects of technostress on students and teachers, In: Aylin, G.B., Serhat, M. Ö.(eds.) World Youth Studies Conference-II. Proceedings book, Ankara, IKSAD Global Publishing House pp. 258-274.

Vágner, V., Bencsik, A. (2022). Organisational Knowledge Sustainability, 23rd European Conference on Knowledge Management, 1-2 September 2022, Naples, Italy, Proceedings of the European Conference on Knowledge Management 23: 2 pp. 1368-1374.

Bencsik, A., Tóth, Zs., Jármai, E. (2022). GNH, a tool for measuring organizational happiness based on domestic examples, Lecture, Retention, employee experience, wellbeing in practice, Online conference 26.05.2022,

Bencsik A., Csinger B. (2022). Knowledge Management in the Light of Knowledge Sustainability, In: Langhamrová, J., Vrabcová, J. (eds.) RELIK Conference Proceedings: Reproduction of Human Capital - mutual links and connections. 10-11 November, Prague, University of Economics and Business pp. 32-42

Bencsik A., Simon Csuhaajova E. (2022) GDP VS. GNH (Gross National Happiness), In: Kazankaya, A. M., Ates, A. (eds.) 2nd Ahi Evran International Conference on Scientific Research: Full Texts book: vol. 2. Kırşehir, Kırşehir Ahi Evran University pp. 552-559.

Bencsik, A. & Mezei, A. (2022). Trust among employees of higher education institutions, RELIK Scientific Conference, Prague, 2022. 11. 10-11.

Michalec, G., Bencsik, A. (2022). Impersonal Trust as a Facilitator of Organizational Success, EURASIA International Congress on Scientific Researches and Recent Trends, 18-20 February 2022, Antalya, Turkey

Michalec, G., Daoud, C. (2022). Measuring Organizational Trust In Knowledge-based Organizations, XVII International Balkan and Near Eastern Congress Series on Economics, Business and Management-Plovdiv March 12-13, 2022.

Michalec, G., Bencsik, A. (2022). The success factor for SMEs: organizational trust, ISPEC 9th International Conference on Agriculture, Animal Sciences and Rural Development March 19-20.

Michalec, G., Bencsik, A. (2022). The Success Factor for SMSs: Organizational Trust, in: International Siirt Conference On Scientific Research, March 21-23, 2022.

A. Bencsik (2022). The Road to Knowledge Sustainability, III Farkas Ferenc International Scientific Conference "Management Revolutions", Pécs, 3-4 June 2022.

Vágner, V., Bencsik, A. (2022). Organisational knowledge sustainability for the long-term survival In: 8th International Mardin Artuklu Scientific Reseraches Conference, 466-472.

Michalec, G., Bencsik, A. (2022). Úspech neosobných dôverných vzťahov, In: 530-543.

Michalecová, G. (2021). Dôvera V Jednej Logistickej Spoločnosti Na Slovensku (Trust in the Logistics Company Based in Slovakia), International Scientific Conference Relik 2021.

Bencsik, A., Diósi, D. (2021) GDP or GNH (Gross National Happiness), In: Irade, H., Amanzholova, A. (eds.) Conference Proceedings Abstract Book 2nd International Hazar Scientific Researches Conference, Baku, Hazar University pp. 314-314.

Bencsik A., Csinger B. (2021). The Effects of Technostress on Higher Education from the Perspective of University Students and Lecturers - Comparative Analysis by Age Groups, In: Langhamrová, J. (ed.) Reproduction of Human Capital - Mutual Links and Connections Conference Proceedings of the 14th International Scientific Conference RELIK, Prague, University of Economics in Prague pp. 51-62.

Bencsik, A., Csinger, B. (2021). Theoretical examination of the role of corporate communication during pandemic, 69th International Scientific Conference on Economic and Social Development - "Sustainability and Post Covid World" Dubai, 2021. 06. 03.

Balogh, É., Michalec, G. (2020). Value judgements of a Slovakian company on organisational trust in terms of the economic impact of COVID-19 In: Korcsmáros, E. (ed.) 12th International Conference of J. Selye University. Economics Section. Conference Proceedings, Komárno, J. Selye University pp. 49-56.

Submitted articles (under review)

Bencsik, A., Tóth, Zs., Jármai, E. (2024). Indicators of organisational happiness - based on the "GNH of Business" logic, *Technology in Society* (Q1)

Bencsik, A. (2024). The Knowledge Sustainability Model, *Environmental and Sustainability Indicators* (Q1)

Bencsik, A. Michalec G., Hargitai D. (2024). The Direct and Indirect Impact of Impersonal Trust on Organizational Competitiveness, *Entrepreneurial Business and Economics Review* (Q1)

About author

Andrea Bencsik MSc Industrial Engineer of Chemistry (1984) Pannon University, Veszprem, Hungary, doctor univ. (1986) Pannon University, Veszprem, Hungary, CSc on Economics (1992) Hungarian Academic of Sciences, Budapest, Hungary, PhD on Organization and Economics Science (2002) Pannon University, Veszprem, Hungary, habilitation (2008) Szechenyi Istvan University Győr Hungary, university professor (2011). She is a professor at the University of Pannonia, Veszprem, Hungary and at the Univerzita J. Selyeho in Komarno, Slovakia. Her research interests include knowledge management, technostress, GNH and sustainable leadership and knowledge. She is doing research in the fields of knowledge- change- human resource management and teaching these disciplines at the same time. She is the author of several scientific publications (more than 670) as well as a member of some international scientific committees. She is a member of editorial boards and a reviewer of some scientific journals.



Contact: bencsik.andrea@gtk.uni-pannon.hu

DIRK-JAN F. KAMANN

UNCERTAINTY AND DECISION TAKING IN BUYER-SUPPLIER RELATIONS

To discuss, model, measure and show the different aspects that play a role in decision making and taking in buyer-supplier relations when facing uncertainty.

A mix of various methodologies was applied, depending of the aspects studied. This varied from a broad literature review, evaluated in a Mini-Delphi style workshop, to interviews, analysed with Atlas.ti.

Three different results will be presented: (1) an accumulative three-layered general model showing (i) the assumed *decision flow* of the decision maker's process under uncertainty; (ii) the assumed *behavioural aspects* affecting this decision flow; (iii) manifest variables and latent constructs related to the decision flow; (2) how relations are managed facing accumulated supply chain disturbances showing differences between (i) response time (ii) firm size and (iii) human response attitudes; (3) the role of network embeddedness and leadership style.

The proposed general model is designed to be used for surveys and gamification experiments, with relevant operationalised variables made explicit. The two other examples of studies are reflecting the uncertainty of the Covid-19 period, as such a rather unique opportunity to study the effects.

Introduction

A vast body of literature exists on decision making and uncertainty (Edwards, 1954). Because of this, this contribution will first of all selectively summarise this body of knowledge, with less interest in the algorithms used in the process of making and taking a decision and what 'uncertainty' may do to such an algorithm. The model discussed and the elements making it up is designed so it can be used for surveys, interviews and gamification experiments, with relevant operationalised variables made explicit (Kamann, 2023). It is available under the Creative Commons Attribution License, as are the other two examples described (Kamann – Tatai, 2023; Kamann – Gyurácz-Németh, 2023).

The General Model of Decision Taking

Making a decision

In this General Model, '*making*' a decision is viewed as the process of deliberation, weighting, waiting, recalling, searching, digesting all kinds of relevant and seemingly-not-so-relevant external stimuli, internal experiences and memories and events that lead to a final step: the actual decision *taken*.

Literature shows an increased interest in the interaction between *normative*, *descriptive* and *prescriptive theories* of decision making (Riabacke, 2006; Bell et al., 1988; Keeny, 1992). "The context affects the form of decision analysis and the way decisions are made"; "No decision takes place *in*

vacuo: there is always a context” (French et al., 2000; p.2). It was found (Bakker – Kamann, 2007) among managers dealing with buyer-supplier relations, that their decisions, based on their accumulated perception of what to do in a certain situation was *context driven* and based on passed networks participated in, the world view or socially negotiated order (Eden, 1992) of the companies of the past and present. A world view, reflected in the nature and role of company protocols, procedures and rules, and decided upon by the most powerful functions in the organization: the negotiated social order or hierarchy. These managers were found to have been conditioned (Bourdieu, 1972) into using a set of human embodied recipes, routines and values.

The author has read with interest and has great respect for colleagues describing and modelling the decision processes in relation to neural networks (Voltz et al., 2005; Hsu et al. 2005; Rao, 2010), using Markov decision modelling (Alagoz et al., 2010), Monte-Carlo multi-criteria decision models (Madani – Lund, 2011), or other sophisticated modelling techniques (Loewestein – Prelect, 1991), including the ones used in economic consumer’s choice models (Hey – Maffioletti, 2010). Similarly, while it is interesting to read that there are different types of memory (Del Missier et al., 2013), this could be considered to be similar to a description of the decision maker’s internal algorithm and neural processes. *Interesting, but outside of the scope of this study.*

This contribution will just take the algorithm used by the decision maker in his process of making a decision *for granted*, and the actual *observable* decision will be taken as a starting point. The focus will be on the nature of a shift in behaviour as a result of (increased) uncertainty and to try relating this to some *observable personal* characteristics like age, gender, level of Emotional Intelligence including adaptability, education, work experience, emotional and adaptability intelligence, cultural identity as expressed by nationality and contextual characteristics expressed by framing a particular contextual situation (Lipshitz et al., 1997).

Methodology

A broad literature review was used to generate relevant aspects, to be discussed during a two day workshop with 10 selected international experts applying a Mini-Delphi set-up (Pan et al., 1996). The outcome was reflected in a hypothetical model, ready for further empirical testing.

The existing body of knowledge

Defining uncertainty

Uncertainty is defined in this study as “... the psychological state in which a decision maker lacks knowledge about what outcome will follow from what choice”. Busemeyer (1985, p.538) describes three classes of situations: “decisions made under conditions of certainty, risk, or uncertainty (...). Under *risk*, each action produces a set of possible outcomes, and the probability of each outcome is *known*”. Actions under conditions of *uncertainty* also produce a set of possible outcomes, but the probability of each outcome is *unknown*. Three types of causes for uncertainty can be distinguished (Lipshitz – Strauss, 1997, p.149): (1) inadequate understanding; (2) incomplete information and (3) undifferentiated alternatives. It may be an *externally* attributed uncertainty (Kahneman – Tversky, 1982), based on (a) frequencies or (b) propensities, or an *internally* attributed uncertainty, and based on (a) arguments or (b) introspective

confidence, equal to 'knowledge'. To make it even more complex, Ülkümen et al. (2016, p.1282) write: *Pure epistemic* (knowable) uncertainty is "uncertainty as entailing missing information or expertise concerning an event that is, in principle. It is represented in terms of a single case that is (or will be) true or false and is naturally measured by confidence in one's knowledge or in one's model of the causal system that determines an outcome". In contrast, they distinguish pure *aleatory* (random) uncertainty as "entailing an assessment of stochastic behaviour that may be associated with a particular subjective probability but is otherwise unpredictable. Busemeyer (1985, p.561) unites some of these distinctions by stating that "... decision making under uncertainty involves learning and memory processes when the outcome probabilities are learned through experience". The question is if those learned probability outcomes are viewed or perceived to be the result of a unique situation or can be considered as typical for that class of situations.

Finally, Hansson (1996, p.369) distinguishes four *components* of uncertainty: (1) the identity of the options is not well determined (uncertainty of demarcation) ; (2) the consequences of at least some options are unknown (uncertainty of consequences); (3) it is not clear whether information obtained from others, such as experts, can be relied on (uncertainty of reliance); and (4) the values relevant for the decision are not determined with sufficient precision (uncertainty of values).

Uncertainty, trust and temporal embeddedness

Some authors (e.g. Hansson, 1996) raise the question if suppliers can reduce buyers' so-called Decision Making Uncertainty by building mutually trusting relationships. Trust is 'perceived reliability' and 'integrity of an exchange partner'; it can be viewed in terms of competence, consistency, and benevolence (Gao et al., 2005). This relates to uncertainty in the perceived capabilities of the supplier, in line with the business marketing literature (Morgan – Hunt, 1994).

One might say that buyers' trust in suppliers is established when buyers believe in the suppliers' willingness "to keep their promises and their ability to deliver competent and need-satisfying performance". "Dependence is defined as the extent to which there is no equivalent or there are no better alternatives available in the market" (Hansson, 1996, p.386; cf. Ford, 2002).

Instead of 'trust' the concept of 'temporal embeddedness' (Emerson, 1962; Heide –John, 1988) can be used: the presence of a shadow of the past feeding memories about proper and/or inadequate behaviour, and the shadow of the future, assumingly reducing opportunistic behaviour (Axelrod, 1984). This study operationalises this concept by using the length of the past, present and future contract term with the other party. Therefore, 'one-off' deals will be compared with a deal incorporating a series of consecutive projects over a certain time span.

Making sense of a situation

This study starts with asking „*what actually happens when a decision maker has to take a decision*”, apart from the brain activities in a technical sense (Voltz et al., 2005; Hsu et al., 2005 Rao, 2010). Obviously, the decision maker has to recognize the various relevant aspects that may play a role in making that decision. A sense-maker in a situation with many suppliers to choose from and relatively no risk or uncertainty faces different external stimuli, routines from the past, experiences, expectations and uncertainties from a sense-maker facing a new development project with a unique strategic supplier (Kraljic, 1983). To use the terms used by Mintzberg et al. (1976, p. 253): there are two activities:

recognition and diagnosis. “Diagnosis involves decisions about which type of information to collect in order to begin the process of problem solving”. In other words: *he or she has to make sense of the situation*. In such a situation, experience helps, usually. “Experience is the consequence of activity. The manager literally wades into the swarm of “events” that surround him and actively tries to unrandomize them and impose some order. The manager acts physically in the environment, attends to some of it, ignores most of it, talks to other people about what they see and are doing” Weick (1979, p.148).

There are seven properties of sensemaking (Weick, 1995,p.17): (1) grounded in identity construction; (2) retrospective; (3) enactive of sensible environments; (4) social; (5) ongoing; (6) focused on and by extracted cues; (7) driven by plausibility rather than accuracy. It is a process, characterized by *successive stages of enactment, selection and retention*. What may seem relevant in one situation – e.g. a ‘straight rebuy’ - may not seem relevant in another – e.g. a ‘modified rebuy’ or a ‘new task’ (Robinson et al. 1967; Webster – Wind, 1972).

Conditioning habitus

Managers active in buyer-supplier relations receive training and gain experience – accumulating routines – over the years, building up a cognitive map of structured knowledge. This resembles the conditioning or socialisation process described by Pierre Bourdieu (1972), where individuals are conditioned into accumulated human embodied routines, values and ways to act – the *modus operandus* - by their habitus. This way, practices and decisions of individual decision makers can be influenced, determined or simply transferred through education, training or even through professional norms applying to certain situations (Bourdieu, 1977).

The habitus in fact is the external mould that shapes thinking and behaviour, given of course genetic aspects: the nurture versus nature discussion. It is the accumulated conditioning of past experiences of people, determining their cognitive map (Boodie et al., 2016); of cause/effect chains and their world view: how to do things and which concepts, theories or protocols to apply in familiar situations but also in new, hitherto unknown situations. “Mindscapes operate a lot like maps. They shape our perceptions and we see what we expect to see. Mindscapes also have a stealth quality to them. Unnoticed, they frame the way we think and then provide us with a rationale for legitimizing out thoughts and actions” (Sergiovanni, 2005, p.40). This phenomenon has been studied in the procurement situation by showing the impact of training, networks one participates and the ‘world view’ of organisations one is and was part of (Bakker – Kamann, 2007).

The process of verification and deliberation time

A sensemaker, confronted with a particular situation, will go through the stages, described by Weick (1995). However, all kind of forces, features and fatalities may hinder this process, or speed it up. It means that the so-called deliberation time varies: “(...) the deliberation process involves an accumulation of information about the consequences of a decision” (Busemeyer – Townsend, 1993, p.455). ‘It is a time-consuming and effortful cognitive process that involves an extensive amount of information seeking, weighing of consequences, and conflict resolution’ (ibid., p.432). Over time, information may affect initially perceived uncertainty: “the influence on decisions of the way in which uncertainty is resolved through time represents an interesting area of investigation” (Epstein, 1980, p.269). The feeling of uncertainty of persons doing an information search has been studied by Pugh (2017). He found three

factors: (1) *Disorientation*, described (Pugh, p.161) as “confusion, a sense of being lost or overwhelmed by the scale of the task at hand and a desire for outside help”. Two other factors Pugh found were *Prospect*, described as “seem to reflect a kind of groundedness: that users can look ahead to future search sessions, understand where material of interest is located and felt they had made forward progress and *Preparedness* referring “to preparation, planning and trust”. A sensemaker who perceives a situation as familiar – hence without perceived uncertainty about the outcome – will use less time to decide, with less checks and rounds of information gathering, compared to a situation that is perceived as unknown or new. The question is whether those additional rounds of information and references gathering can be expressed in monetary terms, or will they result in a particular calculated risk percentage. Hence, replacing uncertainty with ‘risk’, or ‘chance’, or the ‘odds’, being the probability of occurrence of a known potential event, or not occurring of that event. Under complete uncertainty, the decision maker knows neither the complete set of possible events which may take place, nor their exact impact, nor their probability of occurring.

The role of commitment in denying gaps

Another aspect that may affect the verification process is described as the *anchoring process* (Tversky – Kahneman, 1974). As Schwenk describes (1984, p.116), it is a process where up-to-date information that would require the adjustment of initial estimates and perceptions is not fully used, and “the adjustments are typically insufficient. Final estimates are biased toward the initial values”. Related to this is the concept of increased commitment. “Researchers have found that once an individual commits significant resources to an investment project, he will tend to allocate more to the project if he receives feedback indicating that the project is failing than if he receives feedback indicating that it is succeeding” (Schwenk, 1984, p.117). So, instead of giving up the project since it is not paying off, decision maker’s personal feeling of responsibility induces decision makers to stick to it (cf. Staw, 1981).

Reasoning by analogy

‘Misdefining a situation’ relates to an oversimplified inappropriate revision of the decision, referring to an analogy (Schwenk, 1984, p.115)

Prior hypothesis bias

Finally, it may occur that a decision maker simply ignores or does not perceive gaps. This often happens in situations defined as (a) insensitivity to predictability, (b) insensitivity to sample size, (c) illusion of validity. This all leads to increased inaccuracy in the prediction of consequences of alternatives (ibid. p.115).

Emotional and Adaptability Intelligence

It would be interesting to see if a high score on any of the major aspects of Emotional Intelligence (*EI*) (Petrides, 2009; Kamann – Kővári, 2021) plays a role in the nature of the decision or the process of decision taking and whether or not it has any relevance for the nature of the context – for instance dealing with leverage suppliers or strategic suppliers (Kraljic, 1983) – and the deliberation time and nature of additional info asked for, as we will see in one of our examples in section 2 (Kamann – Tatai, (2023)). The same applies for Adaptability Intelligence - usually seen as one of the EI components - as for instance

proposed by Natalie Fratto (2019): do we see any difference between people with a high score and a low score? Adaptability is considered as “a personal quality that is important in handling ambiguity, dealing with uncertainty and stress, and in working outside traditional temporal and geographic boundaries” (O’Connell et al. 2008, p.249). As to the explicit relationship between Emotional Intelligence and Adaptability, Petrides (2009, p.90) found that using his TEIQue set of questions, “The best represented facets were “happiness,” “social awareness,” and “emotion regulation”, while the least well represented facets were “self-motivation,” “adaptability, (*sic!*) and “impulsivity”. The former three can be thought of as most characteristic of trait EI, and the latter three as least characteristic, albeit still part of its sampling domain”.

Different approaches with an explicit focus to measure adaptability were found. Karaevli – Hall (2006, p.360) state that adaptability and its related concepts flexibility and versatility are “elusive concepts that have not been well defined in the literature, and therefore, difficult to measure, predict and teach effectively” continuing with “However, even though it may be elusive, adaptability is a key quality that enables a person to manage the process of change and development..”, which basically is what Darwin already noticed. As Savickas (2005, p.51) states, “Adaptability involves (...) solving problems that are usually unfamiliar, often ill-defined, and always complex.” Moving towards actual measurement, we find that adaptability is the result of *individual characteristics* (age, race, gender), *human capital factors* (employability, occupational status, education, tenure, contractor experience) and *work environment* (work demand, managerial support, personal control, communication) (O’Connell et al. p.249). Some of these aspects are easy to measure as manifest variables, others more complicated and need at least a type of factor analysis to create latent concepts. Some of them fit in with recommendations of stress researchers (Van Yperen – Hagedoorn, 2003) focusing on work demand, managerial support, and personal control, including *Intrinsic motivation*.

Other authors (Pulakos et al. 2000) developed the Job Adaptability Inventory (JAI) scale, containing 132 questions for eight dimensions. Yet another tool - the I-ADAPT measure - focuses on adaptability as a *personality-trait* which describes individual’s ability to adapt to organizational changes (Ployhart – Bliese, 2006). This differs from the JAI scales which measure adaptive performance as *behaviour*. I-ADAPT also uses eight dimensions: crisis adaptability, stress adaptability, creative adaptability, uncertain adaptability, learning adaptability, interpersonal adaptability, cultural adaptability, and physical adaptability. One could combine some of these with the manifest variables proposed by O’Connell et al. (2008) like age, gender, nationality, occupational status, education, and tenure.

Balancing *internal* and *external* aspects, Thornley – Raven (2020) measure adaptability across three core dimensions: Ability (your adaptability skills), *Character* (the innate aspects of Self that determine the ways in which you may approach adapting), and *Environment* (how your environment can help or hinder your adaption). Together with sub-dimensions, such as Grit, Resilience, Mindset, and Learning Drive (...).

Finally, Karaevli – Hall (2006, p.362) write that “Adaptability requires an individual to be capable of making internal changes (self-awareness), and being resilient, positive, confident, and flexible in making those personal changes”.

Hence, in conclusion, together with some of the items used for EI by Petrides (2009), it seems a good idea to capture human traits assumingly playing a decisive role in decisions under uncertainty, like *Adaptability* (such as flexibility and willingness to adapt to new conditions), *Self-Motivation* (the

drive, intrinsic motivation and endurance in the face of adversity) and, next to an apparent need for self-awareness just noted, also *Social Awareness* (the ability to network and social skills).

Single decision taker versus team decisions

This study has its focus on single person decision making, and not so much on group decisions. Team decisions may well be different and have advantages of mixing skills and experience, attitudes and information processing (Lejarraga – Müller-Trede, 2017). The single decision maker assumingly will involve other persons in the decision by asking for references, sharing experiences perceived and believed to be relevant, but – at the end - will still make the decision.

Learning curve effects

One of the questions in taking decisions under uncertainty is, whether experience counts. This would suggest that experienced decision takers know better how to deal with uncertainty. Do they know better how to classify what is ‘really’ uncertain, unpredictable in terms of risk probability and separate the aspects that have a risk probability? This in line with ‘sense making’ processes earlier. In the literature, the issue of a possible learning curve is discussed with the following research question (Schilling et al., 2003, p.39) “Is the learning rate maximized through specialization? Or does variation, related or unrelated, enhance the learning process?” and could specialisation lead to a locked-in-mental-map, blind for changes?

Synthesis: towards a conceptual model

Definitions and descriptions

To describe, or model the process of decision making, the definitions above were used and combined with a number of behavioural approaches, such as field theory, cultural materialism, sense-making, ‘naturalistic decision-making’, isomorphic institutionalism, concepts from business marketing, procurement concepts and combinations and applications of these theories.

The Model

The decision maker has to make sense of external stimuli with a conditioned structured knowledge based cognitive map based on past experiences that causes him or her to look only for certain signals, considered and perceived to be ‘relevant’, with a – likely – ‘biased’ interpretation, while ignoring or eliminating other signals; “You see what you believe” (Weick, 1995). As stated, this study does not try to measure or represent the cognitive map directly, but will focus on the *result of any action*, given the latent concepts of personality, cognitive map and the way perceived information is selected, perceived and used for any decision and action.

Because of this, the conceptual model proposed will be a ‘layered model’: figure 1a for just the *decision flow*, figure 1b including the *behavioural* aspects assumed to play a role and figure 1c including the *observable – manifest – variables* to be used and measured in empirical research. ‘Personality’ in fact is a latent variable per se that will be operationalised to some extend using manifest variables or tests. Hence:

- (1) the *actual decision flow* of any decision maker:
 - a. the verification process incorporating enactment, selection and retention
 - b. the decision makers *experience*, his/her *memory* – cognitive map – the as *facts* perceived observations and the *company protocols*
 - c. the decision resulting from
 - i. either decide to see it as a *standard repeat task or straight rebuy* leading towards a standard action; or
 - ii. alternatively, a *delay* leading
 1. either to a situation where possible gaps are simply ignored and the *standard* action is taken or even resources are *added* or
 2. the decision maker decides to assess uncertainty by a search for information considered and perceived as relevant, or perceives the uncertainty as a combination of risks with known probabilities and makes a *risk analysis*.
 - d. the outcome of the info search and/or risk analysis is either
 - i. a decision it should be viewed as a new task,
 - ii. a modified rebuy or
 - iii. the project is abandoned.

(2) the hidden or latent internal *personal behavioural* characteristics (in light grey) that in particular may play a role when the decision maker deviates from a more ‘rational’ decision process:

- a. Elements that may play a role in the initial verification trajectory (Lipshitz – Strauss, 1997, p.149):
 - i. an inadequate understanding of the situation
 - ii. incomplete information
 - iii. undifferentiated alternatives.
- b. Aspects of uncertainty that may occur (Hansson, 1996, p. p.369):
 - i. uncertainty of demarcation
 - ii. uncertainty of consequences
 - iii. uncertainty of reliance
 - iv. uncertainty of values
- c. Elements of the ‘anchoring process’ (Tversky – Kahneman, 1974; Schwenk, 1984):
 - i. Increased commitment
 - ii. Reasoning by analogy
 - iii. Prior hypothesis bias
 - iv. Increased commitment
- d. Personal characteristics that may lead to improper interpretation of information (Lipshitz – Strauss, 1997, p.149)
 - i. Insensitivity to predictability
 - ii. Insensitivity to sample size
 - iii. Illusion of validity

- e. Part of the decision maker's personality that we will not measure;
- f. Aspects of the search process (Pugh, 2017, p. 161)
 - i. Disorientation
 - ii. Prospect
 - iii. Preparedness

(3) The hidden or latent external behavioural characteristics (also in gray) that in particular may play a role: the Socially Negotiated Order or World View of the organisation where the decision maker works or has worked for many years;

(4) The *observable characteristics* (dark grey shaded) assumed to play a role in the verification process (Petrides, 2009; O'Connell et al., 2008, p. 249; Ployhart – Bliese, 2006):

- a. *Personal data*:
 - i. Organisational history of the decision maker including type of business;
 - ii. Functional past – Marketing, R&D, Finance, Production, Procurement, Logistics, other function;
 - iii. Educational history, in particular diplomas issued by professional organisations;
 - iv. Nationality;
 - v. Family situation; children, number of brothers and sisters;
- b. *Age*, assumed to impact in particular experience and memory;
- c. Part of the *Personality* characteristics that we will try to capture using 11-point survey questionnaire items; in particular some aspects of Emotional Intelligence including Adaptability Intelligence and Adaptability Intelligence *per se.*;
- d. *Temporal embeddedness*, measured as prior knowledge and experience with suppliers and future length of present contract and proposed contract;
- e. *Deliberation time*, measured as the time a decision maker uses to make a decision in the experiment (Kamann – Tatai, 2023). This will be the topic of the next section of this contribution.

The 3-layered Model

The presented model consists of three layers. Each layer will be presented separately:

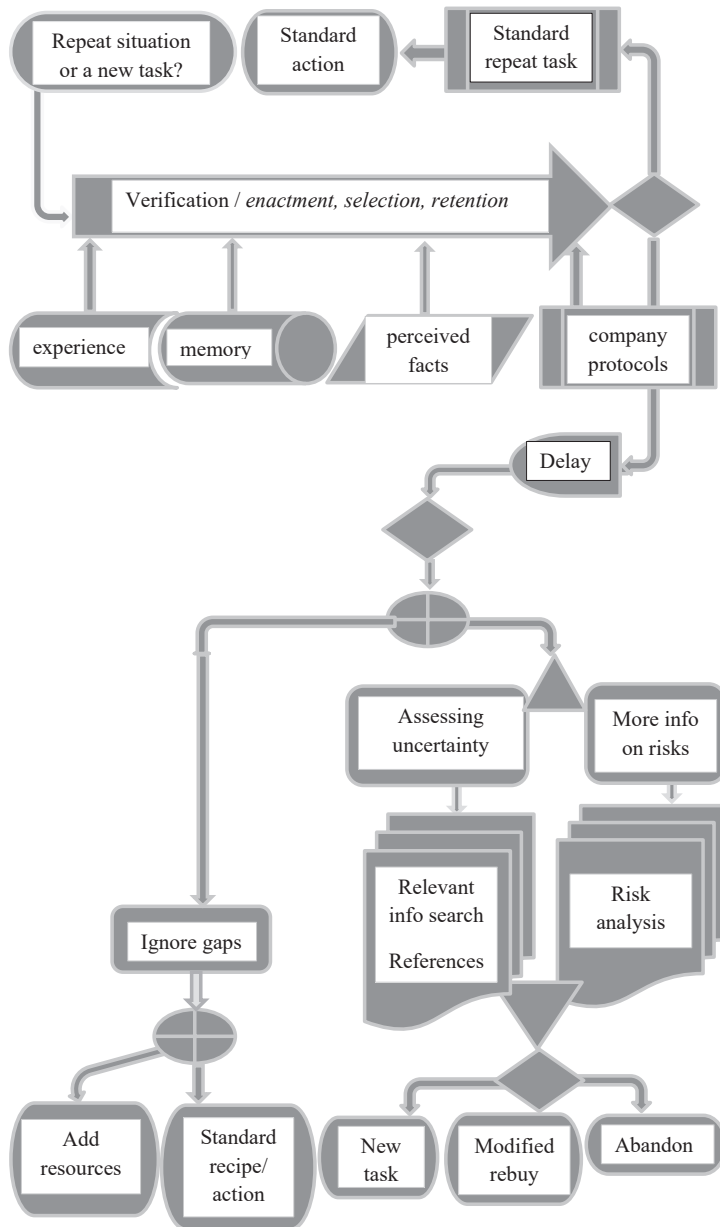


Figure 1a Decision flow of the decision maker under uncertainty

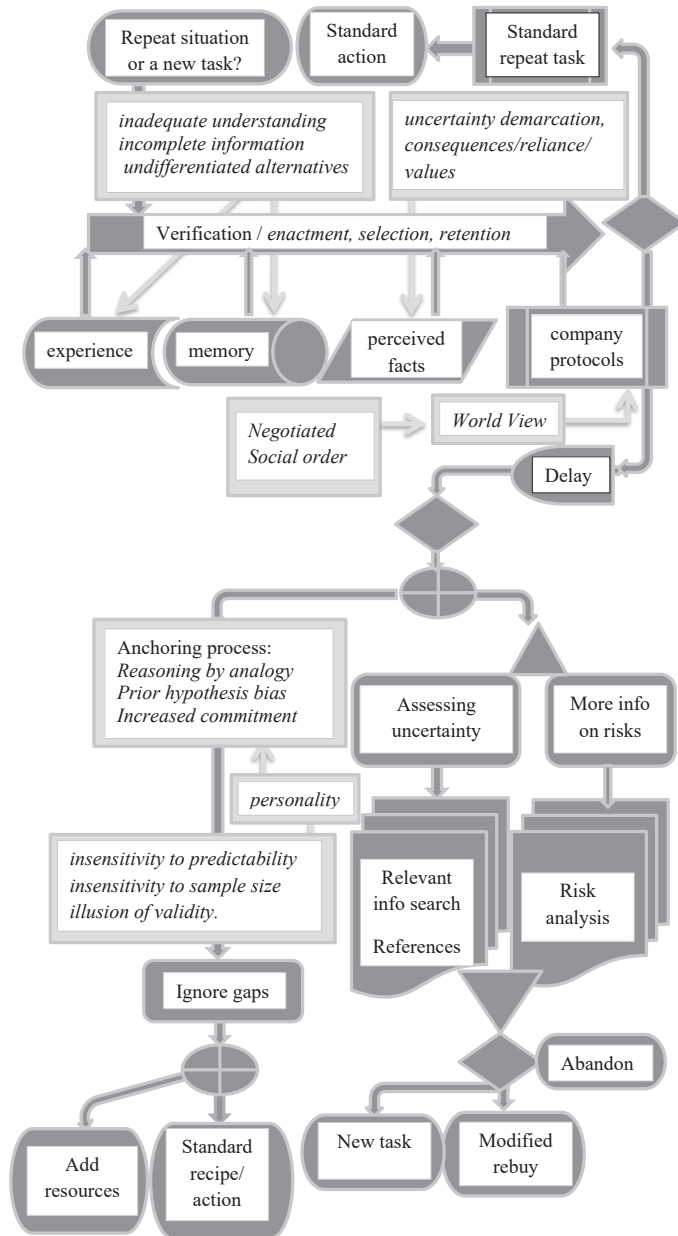


Figure 1b Assumed behavioural aspects (square boxes in light grey) affecting the flow of the decision maker's process under uncertainty

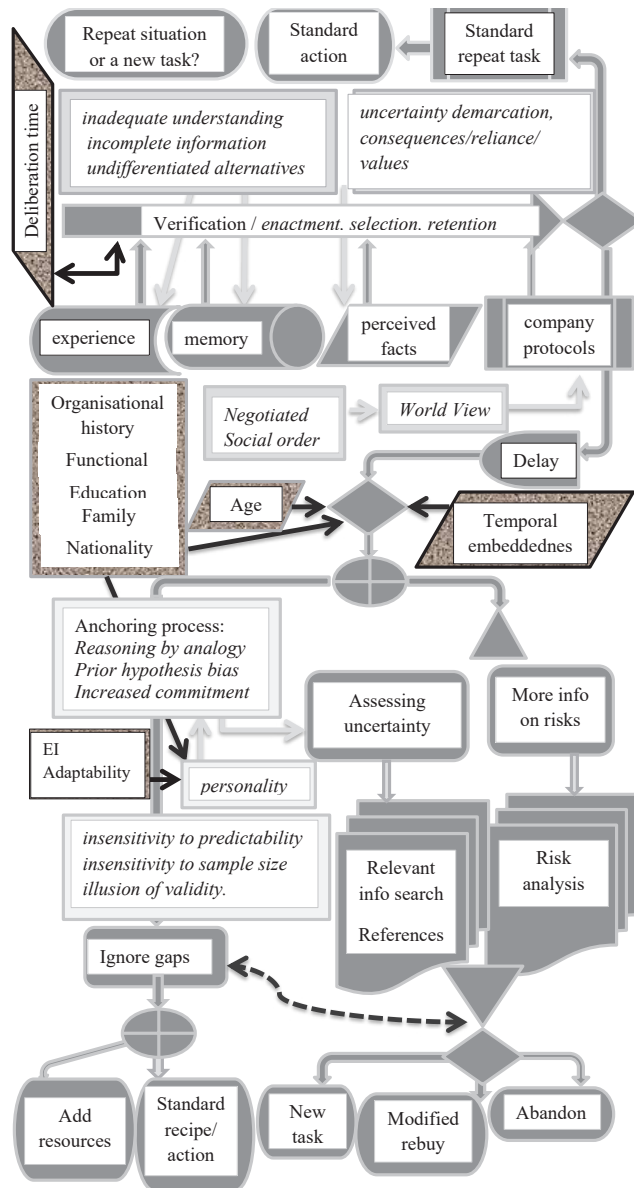


Figure 1c Manifest variables (in black) and their relation to the flow of the decision maker's process under uncertainty

Source: Kamann, 2023, pp. 19-21

Discussion

The results of the study were discussed, evaluated and commented on during a two day workshop. In this MiniDelphi set-up (Pan et al. 1996), selected international experts participated, which resulted in the construction of a preliminary tentative model in the style of a linear structural equations model (figure 2.). While the model is meant to be relevant for buyer-supplier decisions, it could well be applicable to other types of relations.

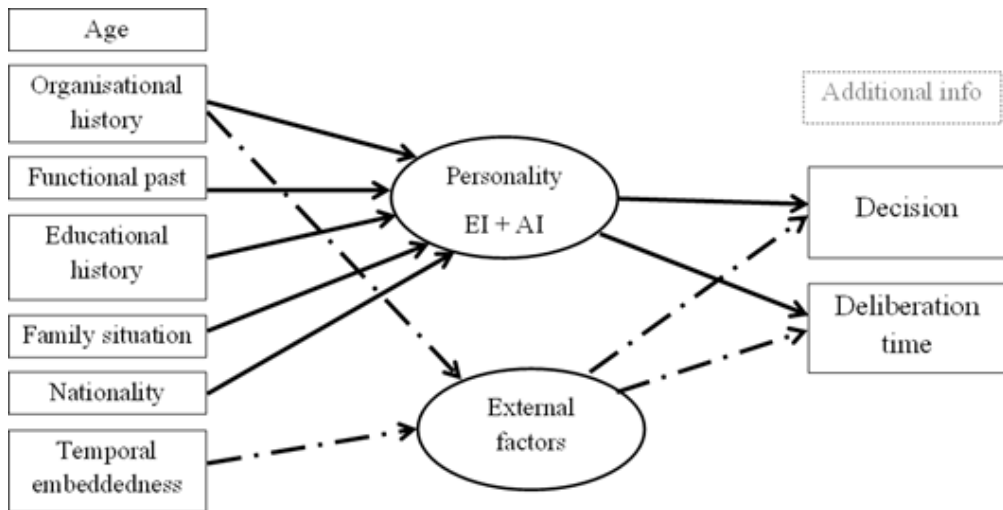


Figure 2 A tentative model of decision making under uncertainty
 Source: Kamann, 2023, p. 22.

Conclusions about this General Model

It was possible to derive relevant process steps and aspects from literature. This resulted in a three-layered model showing (1) the assumed *decision flow* of the decision maker’s process under uncertainty; (2) the assumed *behavioural aspects* affecting this decision flow; (3) *manifest* variables and latent constructs related to the decision flow. A MiniDelphi session refined the findings and enabled the formulation of a tentative model, designed for further empirical testing.

Facing accumulated supply chain disturbances

Background

The COVID pandemic, climate change effects, the Ukrainian war together with network ripple effects (Li – Zobel, 2020) such as fires, explosions and strikes increased the uncertainty for companies about getting the right inputs at the right time. Increased lead times and unavailability of certain inputs played havoc on many supply chain networks (Butt, 2021). Managers had to develop new ways of dealing with these new and unprecedented uncertainties in their struggle for resilience (Ramanathan, 2022). In their contacts with buyers and suppliers, significant differences between human attitudes occurred (Kamann – Gyurácz-Németh, 2023). The question being if these attitudes encountered were incidental or systematic? Furthermore, the case study (Kamann – Tatai, 2023) showed that *some* companies took a very long time to respond to a request about changes in the specifications or delivery date. How come? Maybe, related to firm size, negotiation power or the complexity of the firm concerned? How to deal with them? What did it mean for the way the company operates and employees should be trained?

When taking a helicopter view of the supply system, we should realise that supply uncertainty for one company may well be the result of the problems a supplier of that company has because of demand issues, a fire, strikes or environmental impacts or even process issues; problems where the effect spreads across the supply network: the ripple effect (Li – Zobel, 2020). Also, volatile customer demand may lead to supply problems when suppliers are unable – or unwilling – to follow or absorb that volatility. In our case study, we do find these situations. Hence, to single out unique single risk sources may result in nice lists of risk sources, but overlooks the interrelationships and often multiple interdependences between all those risk sources creating uncertainty because the probability of each possible outcome is unknown.

Methodology: mixed methods

A mixed method methodology was applied. The lead times of inputs from the four major suppliers of raw material and total throughput time came from the SAP system of the company, as did the real decision times required by 100 selected buyers, representing 80 percent of the turnover. A Mini-Delphi method (Gallego – Bueno, 2014; Strasser, 2017; Pan et al., 1996) was applied when developing a scale of human attitudes. Four general managers of similar companies as the focal one were interviewed to discuss the attitudes they met. Results were discussed again and were used to analyse the 100 contacts selected. All correspondence and discussions between the sales managers and the customers were analysed and discussed with managers if required. As such, this can be viewed as a type of action research, since results were immediately implemented and used in the company.

The 100 Buyers were divided into four size categories in terms of employees and annual turnover: SME1 (<10 employees; <2m Euro turnover); SME2 (<50 employees; <10m Euro turnover), SME3 (<250 employees; <50m Euro turnover). The MULTI typically has one global head office and maintains facilities and assets in numerous countries other than its home country. It typically is a well-known company with large operation bases and a large revenue.

Case description

The focal company is a Hungarian company. Its most important supplies of high quality inputs are for 25 percent from one Hungarian and 75 percent from three large European multinational suppliers. The product focused on contributes up to 79 percent of the turnover. The more than 400 customers come from warehouse logistics, transportation, automotive, electronics component manufactures, plastic industry, construction manufacturers, and food manufactures.

The disturbances it faced

Ripple effects: (1) one of the major suppliers announced a force majeure due to the explosion and subsequent fire that occurred at the plant of one of their main chemical suppliers, subsequently followed by increased prices and lower volumes. (2) Further cost ‘explosions’ followed such as for pallets, hard woods, energy and oil. (3) Another major supplier changed the delivery methods so the company had to divert volume in a shift towards another supplier. (4) A major strike in Finland affected another major supplier for 5 months. It caused an enormous gap in the paper industries all over Europe.

Unprecedented external disturbances: The Covid pandemic and the Ukraine war can be considered as two major external disturbances having a stagnating impact on global business. It led to lack of resources, logistical problems, rocketing energy prices and increased anxiety about the future. The visible effects of the climate crisis only added to this feeling and meant an intensified search for the appropriate answer.

On the *buyer’s side*: because of some bankruptcies and customers switching to other suppliers, the number of customers went with less than 3 percent down, from 441 in 2019 to 429 in 2022. The company did not find new customers to replace the ones gone. Its aim was most of all to serve customers who are in a business relationship for a long time, not to get short term contracts.

Results

Lead times

A detailed analysis showed first of all the impact on the *upstream* lead time of its four main first tier suppliers of raw material – expressed in working days spent for (1) procurement, (2) confirmation of orders and (3) arrival at the focal production plant. This total sourcing process took 6 working days in the past but went up to at least 30 days and a large share of ‘unknown’ for the second and third part. Analysis of the total *downstream* process of (1) order confirmation to buyer, (2) producing the required labels, (3) delivery time reveals that this used to be 5 days, but also went up to at least 30 working days with all three aspects entering the ‘unknown’.

Decision time

The time buyers took to decide on requests for adjustments required to accommodate changes induced by upstream issues and problems was measured for 100 contacts: 15 SME1, 24 SME2, 14 SME3 and 47 Multinationals. Figure 3 gives the percentage frequency distribution of the time required for each of the three SME size categories and the Multinationals. It shows a rapid decision making by the

smallest SME1 category (modal score of 4 days), a bi-modal distribution for the next size SME2 (either 4 days or 16 days), SME3 with 13 days and the Multinationals ranging from 7 to 40 days, with a peak at 15. One of the assumed causes for the large range of scores by the multinationals is the complexity in decision procedures, intensified when decisions are following multi-national routes. Another assumption explaining the short decision time of the small SMEs versus the long decision time used by multinationals is the difference between entrepreneur led small SMEs and manager led multinationals (Kamann et al., 2004). Differences in time required for consultation, deliberation, consideration and counsel translate in total longer decision time.

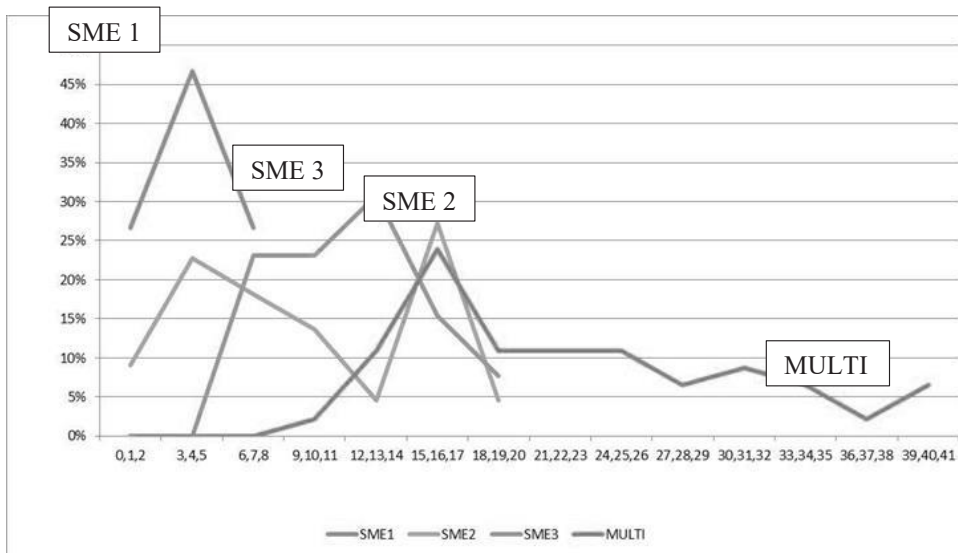


Figure 3 Percentage distribution of decision time of buyers for 4 size categories
Source: Kamann – Tatai, 2023, p. 60.

Attitudes encountered

The result of the Mini Delphi exercise was the following initial list of attitudes encountered: (1) being positive motivated, (2) being helpful, (3) risk minimisation, (4) revenue optimisation, (5) group decisions, (6) teamwork, (7) support each other and information sharing. In addition, all the conversations between the sales department of the focal company and the customers of the company were read. After discussing these, the following list of nine attitudinal characteristics was applied when analysing the 100 contacts for the four size categories used: (1) cooperative, (2) selfish, (3) exploitative, (4) demanding, (5) tolerant, (6) inspiring, (7) brutal, (8) ignorant and (9) helpless. These nine attitudes were clustered along a polar scale with on the two poles ‘total denial’ and ‘total flexibility’, as shown in figure 4.

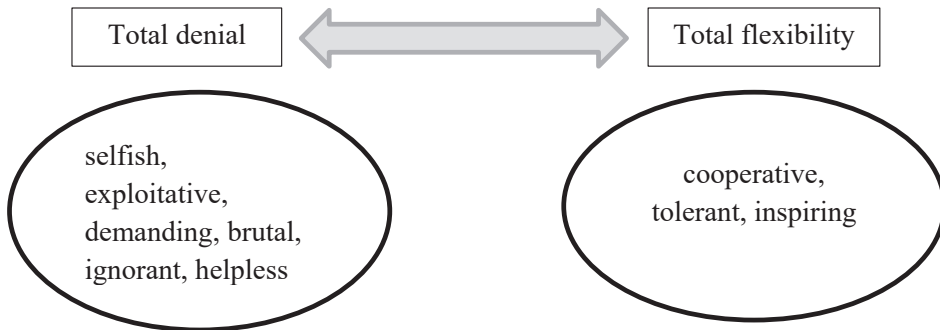


Figure 4 ‘Total denial’ versus ‘Total flexibility’ in human attitudes encountered from buyers
 Source: Kamann – Tatai, 2023, p. 60.

Table 1 gives the scores on the components of the 9 types of attitudes scale of the 100 contacts by firm size category.

	exploitative	brutal	selfish	demanding	helpless	ignorant	tolerant	cooperative	inspiring
SME 1		53%	13%	7%		27%			
SME 2		9%	17%	22%		26%	13%		13%
SME 3		7%			7%		43%	43%	
MULTI	21%	8%	13%	6%	4%	15%	9%	11%	13%

Table 1 Attitude scores when asked for adjustment; by size category buyers
 Source: Kamann – Tatai, 2023, p. 60.

The first column – only scored by Multinationals – has a surprisingly high score of 21 percent for exploitative attitudes. Is it, because Multinationals think they can do whatever they want? They have the power, they can be arrogant? Fortunately, it is not true for all the Multinational enterprises, because they can also be cooperative, inspiring and tolerant.

Compared to entrepreneurial led small companies, the multinationals with their bargaining power would be assumingly less understanding and more brutal; the opposite is true. The smallest SMEs are the most brutal in their response. They simply deny flexibility. The largest SMEs were the most positive. Hence, the assumption that market power almost automatically translates into more brutal and less cooperative behaviour is not supported. At the same time, some of these multinationals turned out to be less flexible, not because of a human attitude, but simply because of certain protocols that for instance did not allow more than a single price adjustment per year. They sometimes are caught in their complexity in decision making, created by themselves, which may be a serious handicap in times of uncertainty were rapid decision making is an advantage (cf. Kamann – Gyurácz-Németh, 2023).

Practical implications

Faced with the variety of attitudes, ranging from total denial to total flexibility, employee training was proposed. Employees would and should be trained to be at least aware of the nature of people's attitude they deal with in external communication. Well trained employees may be more effective and lead to less conflicts with partners within the supply network.

Conclusions of this study

Unprecedented events led to sharp increases in lead time and unpredictable shortcomings in volumes contracted and delivery times. These shortcomings were transferred downstream. Buyers responded on requests to adjust volumes and deliveries in quite different ways. Small companies showed negative attitudes; for 80 percent of the smallest category of buyers described as brutal and ignorant. While multinationals took a long time to decide, assumingly caused by more complex decision procedures, their attitudes were more diverse and included many supportive attitudes, albeit that 'exploitative' was the largest category of attitudes with 21 percent of the analysed interactions with multinationals. Related to this is the observation that managers respond in a different way from entrepreneurs/owners.

The role of network embeddedness and leadership style

Idiosyncrasy versus isomorphism

Hotels were observed to adopt different policies as response to the Covid-19 pandemic: some simply closed down their business altogether when facing declining demand (Kamann – Gyurácz-Németh, 2023). Others tried to shift to other customer types. Some stopped all deliveries and postponed payments to their suppliers, others just reduced the volume. Some dismissed all temporary workers, sent administrative staff home to telework, or asked workers to do maintenance jobs or renovations. Others kept their workers since they felt loyal to them or were afraid they would not come back after all would be over. Given the large variety in hotels in terms of location, market segment, ownership, size, life cycle, outsourced management, nationality, multi-site versus single site and degree of local embeddedness we are not surprised to find 'idiosyncrasy' the way more detailed options were filled in. For, what makes people decide for a particular option? As mentioned before, people make decisions based on their cognitive map (Eden, 1988) – the structured experiences from the past. Their world view has been conditioned by the training, education and networks they passed through and still are part of (Bakker and Kamann, 2007). It had an impact on *their* personality and leadership style and the perceived best evaluation of possibilities given the nature of *their* local contacts, their organisation and the business and social networks *they* operate in. Hence: their network embeddedness in both social and economic space (Uzzi, 1997; Gnyawali – Madhavan, 2001). A network where they exchange information, align and learn strategies, but also the degree top management agrees or is in conflict vis-à-vis options found feasible (Medina et al., 2019). All, given similar *external* conditions, measures, regulations and events they all face, expectedly leading to some form of isomorphism (DiMaggio and Powell, 1983).

Research question

The Research Question in this example study was: what do hotels *share* in the way they tackle the Covid-19 pandemic, fitting isomorphism and what makes hotels *different* in the way they deal with the pandemic, creating the observed idiosyncrasy?

Kamann – Gyurácz-Németh (2023) show in detail what *decision makers* found important: the key drivers, topics, themes, underlying dimensions and processes that played a role in *their* decision making; the *headache files* that absorbed their energy. How are feelings of *hope* and *relief* increased, offsetting feelings of *anxiety*?

Theoretical framework used

Out of the many theories available (cf. Cambra-Fierro et al., 2022) Social Capital theory (Nahapiet – Ghoshal, 1998; Lin et al., 2001; Cooke, 2007) and Institutional Isomorphism (DiMaggio and Powell, 1983) were selected as basic theoretical framework. Isomorphism fits with classical industrial organization and organization ecology. The observed idiosyncratic behaviour fits with organization studies and organizational psychology streams with a more voluntaristic perspective, arguing that managers are the principal decision makers of the firm and, consequently, their actions and perceptions are the fundamental cause of organizational failure (Hambrick – Mason, 1984). However, while managers may be the principal decision makers, they did not grow up in isolation; they are the result of social conditioning by the networks they passed through (Bakker – Kamann, 2007). This is confirmed by Visentin’s (et al., 2021, p 3) study: “Hotel managers’ sensemaking (during Covid-19) is positively affected by the structural, the cognitive, and the relational dimensions of their social capital”.

Cases: Type of hotels

The sample used consisted of members of the Hungarian Hotel and Restaurant Association, fulfilling one or more of 17 specific characteristics: (1) International hotel chain member; (2) Hungarian hotel chain member; (3) Hotel in the capital Budapest; (4) Spa hotel; (5) Medical hotel; (6) City/business hotel; (7) Resort hotel; (8) Hotel in the Balaton Region; (9) 5-star hotel; (10) 4-star hotel; (11) 3-star hotel; (12) Seasonal hotel; (13) All-year open hotel; (14) Hotel targeting older clients (15); Hotel targeting younger clients; (16) Hotel targeting families; (17) Adult-focused hotel.

It was possible to identify a sample of 11 hotels representing all criteria. To control for the external environment because of the country specific Government measures, only branches of chains that operated in Hungary were selected; hotels of the same chains abroad were excluded. The interviewees were either Procurement-, General- or Operations Manager.

Research flow and information processing

Four waves of interviews with 11 senior hotel managers resulted in a data set of 47 transcripts as basis for analysis. The first interviews in the first wave – taking place between 22 May and 27 July 2020 - were split-up into two separate parts: a story telling part and a separate semi-structured one. The second wave of interviews took place between 1st and 15th September 2020; they started with a single story telling inducing question; the remaining part was a semi-structured interview with some individualised

case specific questions at the end.

The third wave of interviews was between 15th and 27th October 2020 and was semi-structured. Some questions were case specific and focused on testing and corroborating the results so far. One specific question used the Analytical Hierarchy Process to ask about which aspects had caused most nightmares or headaches over the past six months.

The final fourth wave took place in February 2021 and focused on the mental health of the managers and the role of network embeddedness in survival. Unfortunately, only three interviewees were available, given a major closure of the hotel business in that period, either because it was ordered by the Government, or by choice for more seasonal hotels. These interviews were taken as unstructured interviews based on creating a narrative about the actual situation at that time.

All interviews were in Hungarian and transcribed using Alrite software resulting in 47 text files to analyse using Atlas.ti. The 47 text files were translated into English using Google Translate (De Vries et al., 2018). Two Hungarian coders and one English language coder interpreted the text files.

Headache files

Interviewees were asked where they put most of their energy, attention, despair, thoughts and prayers. Table 1 reflects the result with significant differences between the hotel managers in their ranking. The differences could not be explained by size, gender, being part of a chain, location or function of the interviewee or the characteristics of the hotel.

		<i>11 cases using the Analytical Hierarchy Process</i>										
Overall ranking:	<i>All</i>	A	B	C	D	E	F	G	H	J	K	L
Operations	77	100	70	100	26	85	70	85	70	85	70	85
Employment	69	70	100	56	70	41	41	41	100	100	85	56
Sales	66	41	85	70	85	70	85	100	85	56	26	26
Finance	65	26	56	85	100	70	56	70	26	70	85	70
Suppliers	42	70	41	26	41	41	11	41	11	41	41	100
Relation with owner	38	70	11	41	56	56	100	11	41	11	11	11
Availability products	31	11	26	11	11	26	26	39	56	26	70	41

Dark grey: biggest headache for that case; Light grey: least headache for that case; Grey for cases: part of a chain

Table 2 Headache files absorbing most of the energy during the pandemic – end of October 2020

Source: Kamann – Gyurácz-Németh, 2023, p. 24.

Discussion

In spite of the heterogeneity in characteristics, hotels responded in a very uniform way, when taking into account (1) the topics raised for discussion; (2) the themes applied; (3) processes implemented and (4) the underlying dimensions playing a role. Given the fact that they were facing the same external Government measures and the dramatic drop in tourism demand and business travel, this similar behaviour could be labelled *coercive isomorphism* (DiMaggio – Powell, 1983, p. 150).

In spite of these similarities, ample differences were observed in the details and it was not possible to find a clear single *observable* determinant for this. It could be observed that three of the four chain members and the two hotels under external management scored high in mentioning ‘control’, which may be understandable, since they have to carry out orders coming from elsewhere. But why they *differ* in actual employment policies, marketing and supplier relations is not clear. We can only assume it is the leadership style of the owner that demands, stimulates or approves certain policies to be implemented. Differences in cognitive maps and personal characteristics that make one owner decide to be ‘ruthless’, another to ‘crack the saving pig’ and yet another to state that you cannot fire people that ‘helped to build up the company in the past years’. Here, the conditioning *habitus* and the embodied *modus operandi*, values, recipes and attitude is the likely source for making the difference between the actual measures taken.

Another owner related determinant could be the internal and external *network relations*. One interviewee mentioned strong local ties to have common action points. Another interviewee mentioned strong connections with local sport clubs that booked rooms during training seasons, yet another one mentioned a link to festival organisations while internal network links proved to be of importance in the type of measures taken in case of chain members. Hence, the details of actual policies to implement flexibility differed between types of *local network embeddedness*. This is confirmed by Visentin’s (et. al., 2021, p. 7) observation “...hoteliers have nevertheless relied on their network of relationships to sense the crisis and find their own ways to adapt”.

It was observed that innovative solutions were created in close cooperation with the local network. Hence, depending on the degree of involvement and the nature of the local network embeddedness given the degree of freedom to decide. Part of these mutual sensemaking results can be seen as mimetic isomorphism, fitting the statement by DiMaggio – Powell (1983, p. 151) that ‘Uncertainty is also a powerful force that encourages imitation’. It can also be viewed as ‘the professional thing to do’: as *normative* isomorphism (DiMaggio – Powell, 1983, p. 150). Decision makers have to balance between the various ideas and solutions delivered through isomorphism and what their experience and mental map tells them to do. As Lombardi (et al., 2021, p. 1) observe: “resilient leadership and improvisation are deeply interconnected” which is more difficult when managers have to follow centralised and foreign decision making.

Hence, absentee ownership can be viewed as a handicap in finding adequate solutions fitting local circumstances, since there is no strong local network embeddedness in this case. We observe in a particular case that employees feel alienated from the town and what happens there. This reduces the efficacy in dealing with employment and marketing solutions, coinciding with a perceived lack of demonstrated solidarity from the owner, mentioned as draw back by the interviewees. The anxiety we observe in that hotel related to the existing job insecurity is similar to what Bajrami (et al., 2021, p, 5) find.

In sharp contrast, a smaller, independent hotel, with a stimulating, committed owner and very well embedded in the local networks nicely followed the stages described by Pires Ribero – Barbosa-Povoia (2018) in showing innovative behaviour in market orientation, transcending the pre-crisis configuration of activities and showing great optimism to survive and do well. Showing the ability to create a new Business Model, being a “unique configuration of its value proposition (...) value creation (...) and value capture...” (Breier et al., 2021, p.1).

The lack of local network embeddedness of any hotel also means that the ‘external architecture and networks’, as described by John Kay (1995, p.80) is biased towards non-local networks. This may offer security in financial terms, but fails to solve local issues in the perception of the local employees. We also observe that local network embeddedness may have a positive and negative impact; ‘overreliance on traditional trustworthy relationships might even diminish the ability to sense the crisis objectively’ (Visentin et al, 2021, p. 7). Hence, the particular entrepreneurial spirit – or lack of it – in a business network may stimulate or hamper innovative changes (Kamann, 1994).

The role of local network embeddedness fits in with the work of the Groupe de Recherche Européenne sur les Milieux Innovateurs (Camagni, 1991). They distinguish *production space* (reflecting the production logic, logistics and the division of labour and the availability of human embodied knowledge), *market space* (market segment, competition), *territorial space* (the geographic space visualised by e.g. Google Maps) and *personal space or support space* (a: privileged relations related to production factors, b: strategic relations with partners, marketing agents or customers; privileged information exchange, cooperation, partnerships, alliances; c: strategic relations with territorial actors). Applied to the pandemic situation, one could say that the score or type of participation in each spatial dimension determines the views, visions, policies - the mental map - and possibilities of the decision makers and owners. Absentee ownership can be considered as handicap, since no ‘bonding’ has occurred in the past that is required for solidarity in carrying out solutions that demand a sacrifice from all participants.

Altogether, we may say that the different policies applied by hotels are the result of differences in the mental map and leadership style of top decision makers and owners, *given* different configurations of network relations, different scores, roles and positions in the various ‘spaces’ they participate in. Observing both leadership style and these configurations *and* scores should enable explanations about the particular policies: balancing unique properties within the context of various types of isomorphism.

The relations between ownership characteristics, network embeddedness and their role in filling in the details of the actual policies are shown in figure 5. It also includes impacts on the mental health of organisational participants.

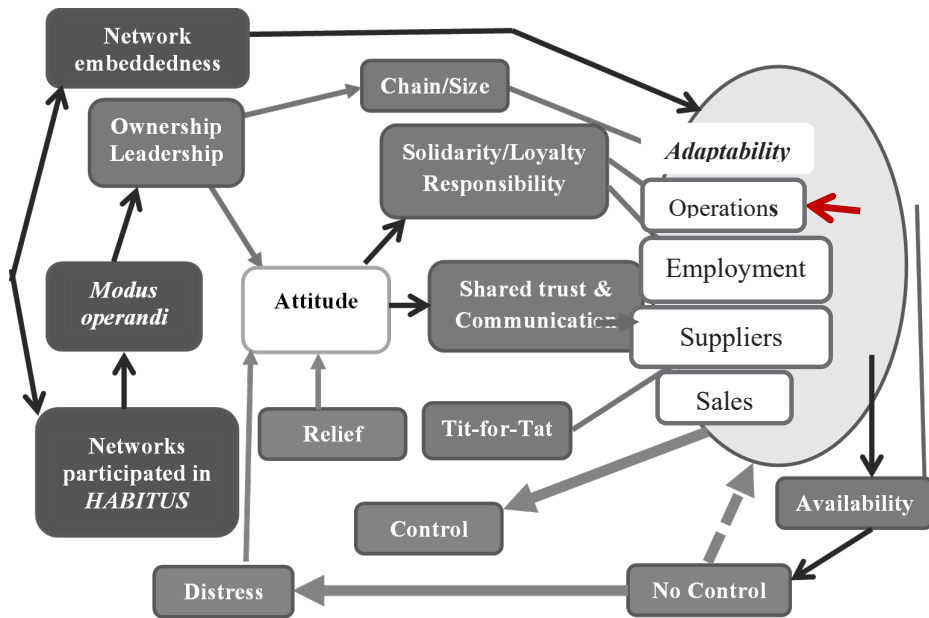


Figure 5 Network embeddedness and leadership shaping crisis responses
 Source: Kamann – Gyurácz-Németh, 2023, p. 25.

Conclusions

This contribution shows a general model of decision making under uncertainty and two examples of empirical studies into a real life situation where uncertainty played an important role: overcoming the uncertainty problems caused by Covid-19 in both production companies and in the tourist industry. Each of these three examples shows a model where the network embeddedness with its conditioning but also enabling aspects play a role. Another factor is the nature of the individual leadership style. This all next to general external forces and their isomorphic aspects.

Acknowledgements

The research is supported by the Research Centre at Faculty of Business and Economics (No PE-GTK-GSKK A095000000-) of University of Pannonia (Veszprém, Hungary).

References

- Alagoz, O., Hsu, H., Schaefer, A.J., Roberts, M.S. (2010): Markov Decision Processes: A Tool for Sequential Decision Making under Uncertainty, *Medical Decision Making*, 30 (4):474-483.
- Axelrod, R. (2001): *The Evolution of Cooperation*, New York: Basic Books 1984.
- Bajrami, D.D., Terzic, A., Petrovic, M.D., Radovanovic, M., Tretiakova, T.N. – Hadoud, A. (2021): Will we have the same employees in hospitality after all? The impact of COVID-19 on employees' work attitudes and turnover intentions, *International Journal of Hospitality Management*, 94: doi.org/10.1016/j.ijhm.2020.102754
- Bakker, E.F., Kamann, D.J.F. (2007): Perception and social factors as influencing supply management: a research agenda, *Journal of Purchasing and Supply Management*, 13 (4): 304-316.
- Bell, D., Raiffa, H., Tversky, A. (eds.) (1988): Decision making – Descriptive, normative and prescriptive interactions, Cambridge University Press, Cambridge.
- Boodie, M., Kamann, D.J.F., Vyrastekova, J. (2016): Professional norms as incentives: experiments with purchasing professionals and students, *Paper*, presented at the 25th IPSE Conference in Dortmund, March.
- Bourdieu P. (1972): *Trois études d'ethnologie kabyle*, Librairie Droz, Travaux de Sciences Sociales, Geneva.
- Bourdieu, P. (1977): *Outline of a Theory of Practice*, Cambridge University Press, Cambridge.
- Breier, M., Kallmuenzer, A., Clauss, T., Gast, J., Kraus, S., Tiberius, V. (2021): The role of business model innovation in the hospitality industry during the COVID-19 crisis, *International Journal of Hospitality Management*, 92: doi.org/10.1016/j.ijhm.2020.102723
- Busemeyer, J.R. (1985): Decision Making Under Uncertainty: A Comparison of Simple Scalability, Fixed-Sample, and Sequential-Sampling Models, *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 11 (3):538-564.
- Busemeyer, J.R., Townsend, J.T. (1993): Decision Field Theory: A dynamic-Cognitive Approach to Decision Making in an Uncertain Environment, *Psychological Review*, 100 (3):432-459.
- Butt, A.S. (2021): Strategies to mitigate the impact of COVID-19 on supply chain disruptions: a multiple case analysis of buyers and distributors, *The International Journal of Logistics Management*, Vol. ahead-of-print No. ahead-of-print <https://doi.org/10.1108/IJLM-11-2020-0455>
- Camagni, R. (1991)(ed.), *Innovation networks*, Belhaven Press: London.
- Cambra-Fierro, J., Gao, L., Melero-Polo, I., Patricio, L. (2022), Theories, constructs, and methodologies to study COVID-19 in the service industries, *The Service Industries Journal*, 42:7-8, 551-582, DOI: 10.1080/02642069.2022.2060209
- Cooke, P. (2007): Social Capital, Embeddedness, and Market Interactions: An Analysis of Firm Performance in UK Regions, in Van Staveren, I., Knorringa, P. (eds), *Beyond Social Capital, a critical approach*, Routledge, 85-112.
- Del Missier, F., Mäntylä, T., Hansson, P., Bruine de Bruin, W., Parker A.M., Nilsson, L-G. (2013): The Multifold Relationship Between Memory and Decision Making: An Individual Differences Study, *Journal of Experimental Psychology: Learning, Memory and Cognition*, 39 (5):1344-1364.

De Vries, E., Schoonvelde, M., Schumacher, G. (2018): No longer lost in translation: Evidence that Google Translate works for comparative bag-of-words text applications. *Political Analysis*, 26 (4): 417-430.

DiMaggio, P.J., Powell, W.W. (1983): The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields, *American Sociological Review*, 48:147-160.

Eden, C. (1988): Cognitive mapping, *European Journal of Operational Research*, 36 (1): 1–13.

Eden C. (1992): Strategy formulation as a social process, *Journal of Management Studies*, 29 (6): 799-812.

Eden, C. (2004): Analyzing cognitive maps to help structure issues or problems, *European Journal of Operational Research*, 159 (3):673-686.

Edwards, W. (1954), The theory of decision making, *Psychological Bulletin*, 51 (4): 380-417.

Emerson, R.M. (1962): Power-dependence relations, *American Sociological Review*, 27:31-41.

Epstein, L.G. (1980): Decision Making and the Temporal Resolution of Uncertainty, *International Economic Review*, 21:269-283.

Ford D. (ed.)(2002): *The business marketing course: managing in complex networks*, Wiley.

Fratto N. (2019) Adaptability Intelligence, ted.com/talks/natalie fratto 3 ways to measure your adaptability #t-27408

French, S., Rios Insua, D. (2000): *Statistical decision theory*, Oxford University Press, Oxford.

Gallego, D., Bueno, S.(2014): Exploring the application of the Delphi method as a forecasting tool in Information Systems and Technologies research, *Technology Analysis & Strategic Management*, 26 (9), 987–999.

Gao, T., Sirgy, M.J., Bird, M.M. (2005): Reducing buyer decision-making uncertainty in organizational purchasing: can supplier trust, commitment, and dependency help? *Journal of Business Research*, 58:397-405.

Gnyawali, D.R., Madhavan, R. (2001): Cooperative Networks and Competitive Dynamics: A Structural Embeddedness Perspective, *Academy of Management Review*, 26 (3): 431-445. DOI:10.2307/259186

Hambrick, D., Mason, P. (1984): Upper echelons: the organization as a reflection of top managers. *Academy of Management Review*, 9, 193–206

Hansson, S.O. (1996): Decision Making Under Great Uncertainty, *Philosophy of the Social Sciences*, 26 (3):369-386.

Heide, J.B., John, G. (1988): The role of dependence balancing in safeguarding transaction-specific assets in conventional channels, *Journal of Marketing*, 18:39-50.

Hey, J.D., Maffioletti, A. (2010): The descriptive and predictive adequacy of decision making under uncertainty/ambiguity, *Journal of Risk and Uncertainty*, 41:81-111.

Hsu, M., Bhat, M., Tranet, D., Camerer, C.F. (2005): Neural Systems responding to Degrees of Uncertainty in Human Decision-Making. *Science*, 310 (5754):1680-1683.

Kahneman, D., Tversky, A. (1979): Prospect Theory: an analysis of decision under risk, *Econometrica*, 47:263-291.

Kahneman, D., Tversky, A. (1982): Variants of uncertainty, *Cognition*, 11:143-157.

Kamann, D.J.F. (1994): Entrepreneurial Culture in Business Networks, in P. Nijkamp (ed.), *Europe on the move*, Avebury, Aldershot, 36-64.

- Kamann, D.J.F., Van der Vaart, T., De Vries, J. (2004), Joint purchasing: theory and practice, *Paper*, presented at the IPSERA Annual Meeting, Catania, Sicily, 3-7 April.
- Kamann, D.J.F., Kővári, E.M. (2021): Emotional Intelligence in Procurement Management, *International Journal of Procurement Management*, 14 (2):243-263.
- Kamann, D.J.F. (2023): Modelling Uncertainty Effects in Decision Taking in Buyer-Supplier Relations, *Journal of Economics, Management and Trade*, 29, (7):11-25.
- Kamann, D.J.F., Tatai, Á. (2023): How to Manage Relations Facing Accumulated Supply Chain Disturbances: Pandemic, War and Ripple Effects, *Journal of Economics, Management and Trade*, 2023;29(2):55-56.
- Kamann, D.J.F., Gyurácz-Németh, P. (2023): Network Embeddedness and Leadership Style: Determinants of Crisis Response Behaviour, *Journal of Economics, Management and Trade*, 29, (4):13-27.
- Karaevli, A., Hall, D.T. (2006): How career variety promotes the adaptability of managers: A theoretical model, *Journal of Vocational Behavior*, 69:359–373.
- Kay, J. (1995): *Foundations of Corporate Success*, Oxford University Press, Oxford.
- Keeny, R.L. (1992), On the foundations of prescriptive decision analysis, in W. Edwards (ed.), *Utility theories: Measurement and applications*, Kluwer Academic Publishers, Boston.
- Kraljic, P. (1983): Purchasing must become supply management, *Harvard Business Review*, 61 (5): 109–117.
- Lejarraga, T., Müller-Trede, J. (2017): When Experience Meets Description: How Dyads Integrate Experiential and Descriptive Information in Risky Decisions, *Management Science*, 63(6):1953-1971.
- Li, Y., Zobel, C.W. (2020): Exploring supply chain network resilience in the presence of the ripple effect, *International Journal of Production Economics*, 228.doi.org/10.1016/j.ijpe.2020.107693
- Lin, N., Cook, K., Burt, R.S. (eds.) (2001): *Social Capital: theory and research*, Routledge, New York.
- Lipshitz, R., Strauss, O. (1997): Coping with Uncertainty: a Naturalistic Decision-Making Analysis, *Organizational Behavior and Human Decision Processes*, 69 (2):149-163.
- Loewenstein, G., Prelect, D. (1991): Decision Making Over Time and Under Uncertainty: A Common Approach, *Management Science*, 37(7):770-786.
- Lombardi, S., Pina e Cunha, M., Giustiniano, L. (2021): Improvising resilience: The unfolding of resilient leadership in COVID-19 times, *International Journal of Hospitality Management*, 95: doi.org/10.1016/j.ijhm.2021. 102904
- Madani, K., Lund, J.R. (2011): A Monte-Carlo game theoretic approach for Multi-Criteria Decision Making under uncertainty, 34:607-616.
- Medina, M.N., Ramachandran, I., Daspit, J.J. (2019): Collaboration or clash? Mapping the effects of top management team conflict on firm absorptive capacity, *International Journal of Innovation Management*, 23,(3), 29 pages.
- Mintzberg, H., Raisinghani, D., Theoret, A. (1976): The structure of unstructured decision processes, *Administrative Science Quarterly*, 21:246-275.
- Morgan, R.M., Hunt, S.D. (1994): The Commitment-Trust Theory of Relationship Marketing, *Journal of Marketing*, 58:20-38.

- Nahapiet, J., Ghoshal, S. (1998): Social capital, intellectual capital, and the organizational advantage, *Academy of Management Review*, 23: 242-266.
- O'Connell, D., McNeely, E., Hall, D.T.(2008): Unpacking Personal Adaptability at Work, *Journal of Leadership and Organizational Studies*, 14(3):248-259.
- Pan, S.Q., Vega, M., Vella, A.J., Archer, B.H., Parlett, G.R. (1996): A mini-Delphi approach: An improvement on single round techniques, *Progress in Hospitality Research*, (1):27-39.
- Petrides, K.V. (2009): Psychometric properties of the Trait Emotional Intelligence Questionnaire, In Stough, C., Saklofske, D.H., Parker, J.D. (Eds.), *Advances in the assessment of emotional intelligence*, Springer, Boston MA, 85-101.
- Pires Ribeiro, J., Barbosa-Povoa, A. (2018), Supply Chain Resilience: Definitions and quantitative modelling approaches – A literature review, *Computers & Industrial Engineering*, 115: 109-122.
- Ployhart, R.E., Bliese, P.D. (2006): Individual Adaptability (I-ADAPT) Theory, in Burke, P.D. – Shawn, C., Pierce, L.G., Salas, E. (Eds), *Understanding adaptability*, Elsevier, Amsterdam, 3-39.
- Power, C., Cairns, P., Denisova, A., Papaioannou, T., Gultoma, R. (2019): Lost at the Edge of Uncertainty: Measuring Player Uncertainty in Digital Games, *International Journal of Human-Computer Interaction*, 35 (12): 1033-1045.
- Pugh, J.J. (2017): Information journeys in digital archives, *EngD thesis*, University of York, Computer Sciences.
- Pulakos, E.D., Arad, S. (2000): Donovan, M.A. – Plamondon, K.E. (2000): Adaptability in the workplace: Development of a taxonomy of adaptive performance, *Journal of Applied Psychology*, 85:612–624.
- Ramanathan, U., Aluko, O., Ramanathan, R. (2022): Supply chain resilience and business responses to disruptions of the COVID-19 pandemic, *Benchmarking: An International Journal*, 29 (7): 2275-2290. <https://doi.org/10.1108/BIJ-01-2021-0023>
- Rao, R.P.N. (2010): Decision making under uncertainty: a neural model based on partially observable Markov decision processes, *Frontiers in Computational Neuroscience*, 4 (146):1-18.
- Riabacke, A. (2006): Managerial decision making under risk and uncertainty, *IAENG International Journal of Computer Science*, 32 (4):12.
- Robinson, P., Faris, C., Wind, Y. (1967): *Industrial buying and creative marketing*, Allyn and Bacon Inc., Boston (MA).
- Savickas, M.L. (2005): The theory and practice of career construction, in Brown, S.D. – Lent, R.W. (Eds.), *Career development and counseling: Putting theory and research to work*, Wiley, Hoboken, NJ: 42–70.
- Schilling, M.A., Vidal, P., Ployhart, R.E., Marangoni A. (2003): Learning by doing something else: variation, relatedness, and the learning curve, *Management Science*, 49(1):39-56.
- Schwenk, C.R. (1984): Cognitive Simplification Processes in Strategic Decision-Making, *Strategic Management Journal*, 5:111-128.
- Sergiovanni, J.T. (2005): *Strengthening the heartbeat*, Jossey-Bass, San Francisco.
- Staw, B.M. (1981): The escalation of commitment to a course of action, *Academy of Management Review*, 6:577-587.
- Strasser A, (2017): Delphi Method Variants in Information Systems Research: Taxonomy Development and Application, *The Electronic Journal of Business Research Methods*, 15 (2),120-133.

Thornley, R., Raven, M. (2020): AQ Assesment, <https://aqai.io/aq-assessment/> Retrieved 20 February.

Tversky, A., Kahneman, D. (1974): Judgment under Uncertainty: Heuristics and Biases, *Science*, New Series, 185 (4157):1124-1131.

Ülkümen, G., Fox G.R., Malle, B.F. (2016): Two Dimensions of Subjective Uncertainty: Clues From Natural Language, *Journal of Experimental Psychology: General*, 145 (10):1280-1297.

Uzzi, B. (1997): Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness. *Administrative Science Quarterly*, 42 (1), 35-67.

Van Yperen, N.W., Hagedoorn, M. (2003): Do high job demands increase intrinsic motivation or fatigue or both? The role of job control and job social support, *Academy of Management Journal*, 46(3):339–348.

Visentin, M., Reis, R.S., Cappiello, G., Casoli, D. (2021): Sensing the virus. How social capital enhances hoteliers' ability to cope with COVID-19, *International Journal of Hospitality Management*, 94: doi.org/10.1016/j.ijhm.2020.102820

Voltz, K.G., Chubotz, R.I., von Cramon, D.Y. (2005): Variants of uncertainty in decision-making and their neural correlates, *Brain Research Bulletin*, 67:403-412.

Webster, F.E. Jr., Wind, Y.A. (1972): General Model for Understanding Organizational Buying Behavior, *Journal of Marketing*, 36:12-19.

Weick, K.(1979): *Social Psychology of Organizing*, McGraw Hill, New York.

Weick, K.E. (1995): *Sensemaking in Organizations*, Foundations of Organizational Science series, Sage Publishers, Thousand Oaks.

The composition of the original research community

- Project leader: Prof. Dirk-Jan F. Kamann
- Project members:
 - Prof. Zoltán Kovács
 - Prof. Sander de Leeuw
 - Dr. Kővári Edit
 - Dr. Jana Vyrastekova
 - Dr. Petra Gyurácz Németh
 - Dr. Max Boodie
- PhD students:
 - Katalin Varga Toldi
 - Mandana Gharehdaghi
 - Alishan Karimov

Publications on this topic based on the work of the research team

Dirk-Jan F. Kamann (2023), Modelling Uncertainty Effects in Decision Taking in Buyer- Supplier Relations, *Journal of Economics, Management and Trade*, 29 (7):11-25

Dirk-Jan F. Kamann, and Petra Gyurász-Németh,(2023), Network Embeddedness and Leadership Style: Determinants of Crisis Response Behaviour, *Journal of Economics, Management and Trade*, 29 (4):13-27

Dirk-Jan F. Kamann and Ágnes Tatai, (2023), How to Manage Relations Facing Accumulated Supply Chain Disturbances: Pandemic, War and Ripple Effects, *Journal of Economics, Management and Trade*, 29 (2): 55-65;

Mandana Gharehdaghi and Dirk-Jan F. (2023), Behavioural and Organisational Factors Determining Blockchain Adoption, *Current Journal of Applied Science and Technology*, 42 (7): 24-41

Alishan Karimov, Petra Gyuracz-Németh and Dirk-Jan F. Kamann (2023), Economic impact of hotels and similar establishments in Veszprém District, *REGION: THE JOURNAL OF ERSA*, 10 (1): 133-145

About author

Dutch born **Dirk-Jan F. Kamann** (1946) is Emeritus Professor of the Faculty of Economics and Business of the University of Groningen, the Netherlands and presently Research Professor at the Supply Chain Management department of the Faculty of Business and Economics of Pannon University, Veszprém, Hungary. He is a former President of IPSERA, the International Purchasing Education and Research Association. Before being active in Purchasing, he was a member of the Regional Science International Organising Committee and Secretary of the Dutch Regional Science Association. He worked 4 years in the Irish Republic on regional development with An Foras Forbartha, and was teaching at the IAE Université Pierre Mendès-France de Grenoble and at Nyenrode Business School, the Netherlands. He received a *cum laude* degree in Economics at Groningen University where he also obtained his PhD. He wrote a number of books on topics like Industrial Organisation, Culture and Strategy, Technology and Social Structure and has 96 publications listed by Scholar Google.



Contact: dirk-jan.kamann@gtk.uni-pannon.hu

ZOLTÁN ANDRÁS DÁNIEL – TAMÁS MOLNÁR – DOROTTYA EDINA KOZMA THE FIRST CHALLENGES OF THE 21TH CENTURY FOR MICRO, SMALL AND MEDIUM ENTERPRISES IN HUNGARY FROM THE EU ACCESSION TO CLIMATE CHANGE

The competitiveness of different territorial units and its measurement came to the fore in the last decades of the 20th century. The most important components of a region's competitiveness are economic growth, the development of infrastructure and human resources, a strong ability to attract capital, a high level of research and development, the growing role of SMEs, the intensity of job creation, the availability of human and physical resources to develop dominant industries, and a steady increase in knowledge and innovation capacity. The research examined the territorial competitiveness from 3 different perspectives: 1. territorial, regional and municipal competitiveness studies, local economic development differences; 2. analysis of enterprises. 3. circular economy.

One focus of the research was to see how, in addition to the similarities arising from the national SME strategy, differences can be found at regional and county level. The research focused on the spatial aspects of SME development, taking into account the spatial characteristics of the main economic indicators specific to the sector, such as the value added generated by micro, small and medium-sized enterprises, their role in local employment, and the related quantitative and qualitative spatial characteristics of the workforce. The main aim of our research was to show the links between regional competitiveness and the competitiveness of SMEs and how these links can be transformed into positive synergies, as well as the similarities and differences between the development of the SME sector at county and regional level. Our last aim was to create a composite circular economy indicator which shows a ranking of the Member States of the EU.

Introduction

The years following the regime change in Hungary's SME sector were all about adjusting to the market economy. Businesses have had to familiarise themselves with the concepts of the market economy, get used to the bureaucracy of operating, and cope with increasingly stringent expectations in an increasingly competitive environment. The second decade of the 21st century has brought new challenges for businesses, with a significant increase in competition and the emergence of resources as an opportunity with EU accession in 2004. The decade was one of healing the 'wounds' of the financial crisis and learning lessons for those businesses that managed to stay afloat. The beginning of the next decade, the second, was about recovering from the crisis and then about making efficient use of the abundant resources available in a relatively business-friendly environment. The beginning of the third decade is about mitigating the effects of climate change and responding adequately to the global health

crisis. In the following, we will look beyond the characteristics of the domestic SME sector to the impact of the crises, the challenges facing businesses and the individual and government responses to these challenges.

SME Sector

The concept of micro, small and medium-sized enterprises can typically be defined taking into account the local specificities of each country. For this reason it is not possible to describe them with a uniform definition worldwide. Three characteristics, number of employees, turnover and balance sheet total, can be used to categorise enterprises (Györi, 2014).

Small and medium-sized enterprises (SMEs) play a crucial role in the economy of Europe and Hungary. SMEs are defined as enterprises with fewer than 250 employees, a turnover of less than €50 million and a balance sheet total of less than €43 million. SMEs can be further categorised as micro (up to 9 employees), small (10-49 employees) and medium-sized (50-249 employees). SMEs are typically owned and operated by entrepreneurs and play a significant role in creating jobs and stimulating economic growth. They are often flexible and agile, able to respond quickly to changing market conditions and customer needs. But SMEs also face specific challenges such as limited access to pumpkins, market barriers and regulatory burdens. SMEs are a vital source of employment and economic growth in Europe and Hungary. According to the European Commission, SMEs account for 99% of businesses in the European Union (EU) and provide two out of three private sector jobs. In Hungary, SMEs account for more than 99% of all enterprises and more than 60% of total employment. SMEs also contribute significantly to innovation and entrepreneurship. They are often the source of new ideas and technologies that drive economic growth and competitiveness. In addition, SMEs often collaborate with larger firms, universities and research institutions to develop new products and services (Mulhern 1995; Storey, 2016; Szerb & Ulbert, 2009).

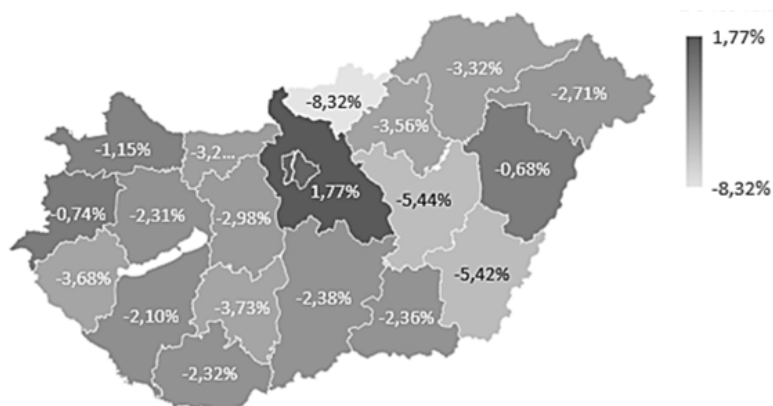
Despite their important role in the economy, SMEs face a number of challenges that can hinder their growth and development. Access to finance is often a major challenge for SMEs, especially in the early stages of their development. Many SMEs struggle to access credit or investment from traditional sources such as banks and venture capitalists. Market barriers can also be a challenge for SMEs, especially in a globally competitive environment. SMEs may face high entry barriers or limited access to international markets, making it difficult for them to compete with larger firms. In addition, SMEs often lack the resources to invest in marketing and advertising, which limits their ability to reach potential customers. Regulatory burdens can also be a significant challenge for SMEs.

Compliance with regulations can be costly and time-consuming, especially for smaller firms. In addition, SMEs may not have the resources to hire legal or regulatory experts, making it difficult to navigate a complex regulatory framework. The European Union has recognised the importance of SMEs and has taken steps to support their growth and development. The EU has implemented a number of initiatives to improve access to finance, reduce regulatory burdens and promote entrepreneurship and innovation. One of the most significant initiatives is the Small Business Act (SBA), which aims to create a more favourable business environment for SMEs in Europe. The SBA includes a number of measures such as improving access to finance, simplifying regulation and promoting entrepreneurship and innovation (Prassana et al., 2019; Gamage et al., 2020).

SMEs in Hungary play a key role in helping lagging regions to catch up. They can provide an alternative for different social strata (women, minorities, young people) as employers, but primarily as managers of their own businesses (Futó, 2000). The sector is also a key player in the European Union, as the number of enterprises in the EU reached 21,564,380 in 2014, of which SMEs account for 99.8%, i.e. 21,521,080. Of the nearly 140 million employees, around 90 million are employed by SMEs. For these reasons, the development of micro, small and medium-sized enterprises is one of the EU's priorities. We believe that these objectives can be further strengthened, as a strong SME sector is needed in all EU Member States.

Financial crisis

The global financial crisis that started in 2008 also caused significant problems for micro and medium-sized enterprises in Hungary. In line with the global market trends, the main problem was the drop in demand due to the lack of money, which led to a significant drop in turnover of enterprises in the sector, causing payment problems and affecting their liquidity and solvency. Financial market developments were characterised by a contraction of credit sources, while the repayment of large foreign currency loans increased day by day. The shortage of resources made it difficult for businesses to exit the credit trap. Negative developments in the national economy have led to a decline in the number of businesses, as a result of bankruptcies and liquidation procedures. As shown in the graph below, the largest change was in the number of small and medium-sized enterprises, with a smaller decrease in the number of micro-enterprises. It can be seen that the crisis affected different categories of enterprises to different degrees in different geographical areas. Micro and small enterprises disappeared most in Nógrád county, while medium-sized enterprises disappeared in Somogy and Baranya. Overall, the SME sector in the county as a whole shrank mainly in the counties that were already economically more difficult, while the number of enterprises increased in the central region (Figure 1).



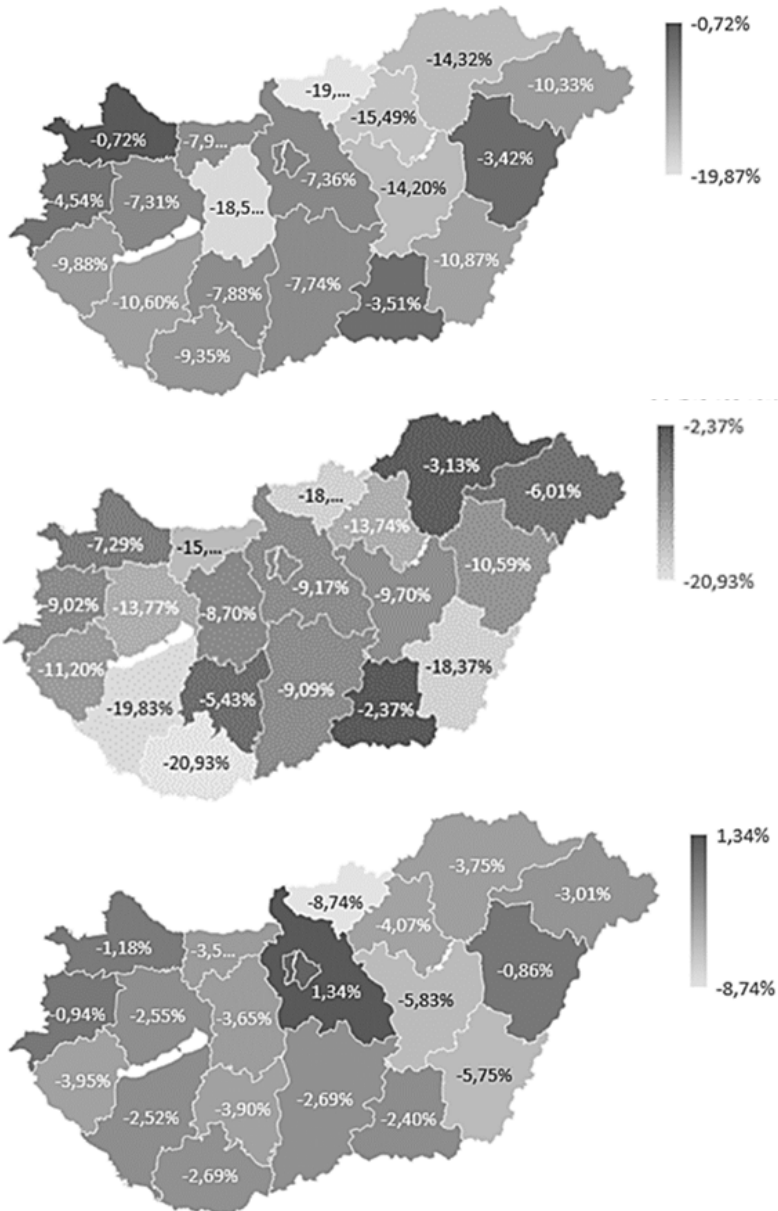


Figure 1 Change in the number of enterprises by size category and total in the wake of the 2008 crises
 Source: own editing

Between 2007 and 2011, global unemployment rose by 27 million to 200 million. This is less than the ILO had expected in 2009 (the worst-case scenario at the time was 230 million unemployed). The lower-than-expected increase in unemployment is due to government policies, both through automatic stabilisers and extra spending programmes to protect employment. The unemployment rate is the ratio of the number of unemployed to the total number of employed and unemployed (the economically active population). It reached 5.5 per cent globally before the crisis (2007), rising to 6.2 per cent in 2009 and around 6 per cent in 2011 (Artner, 2012).

Immediately after the change of regime, regional differences in unemployment and labour market employment rates can be traced back to the different industrial structures, educational standards and infrastructure that developed during the socialist period. To a lesser extent, there are also differences in ethnic structure, changing culture and different levels of urbanisation.

Spatial disparities in employment and unemployment increased in the years following the change of regime, and this trend has not changed since the turn of the millennium: the country remains highly polarised. A relatively well-developed region of Central and Western Transdanubia has emerged, and a low-employment region with a rigid employment structure in Southern Transdanubia, the Lowlands and Northern Hungary. Regional disparities were also reflected in regional differences in employment rates, which ranged from 46.9% to 63%.

The average number of registered unemployed in 2008 was around 442,000, representing 6% of the population aged 15-64. These figures continued to deteriorate - with perhaps a temporary improvement in autumn 2010 - until February 2011, when nearly 682 thousand people were unemployed, representing an unemployment rate of more than 13% (Dabasi & Halász, 2011).

The impact of the crisis on the labour market has been felt to varying degrees and intensities across the regions. Initially, the most developed rural areas, including commuter resource areas, suffered the most in the area of export-oriented (industrial) enterprises. Later, however, the general effects (currency crisis, credit crunch, fall in domestic demand) led to an increase in unemployment becoming a general phenomenon, and a more backward, initially less favourable labour market situation even in regions with initially poorer employment conditions. Geographical location and settlement structure did little to differentiate changes. Overall, there was a slight easing of the spatial distribution of labour market segmentation up to the trough of the crisis, which can be captured spatially. Only one of the more developed regions of the country improved its situation, while the capital - and the metropolitan agglomeration - and the rest of the country did not disappear at all. Moreover, inequalities have probably only temporarily decreased (Lőcsei, 2010). Despite the EU accession, labour market problems continued to intensify. By 2008, regional disparities had widened and inequalities had increased, in line with the regime change (Lipták, 2013; Lipták, 2014).

Hungary - unlike, for example, the productivity-boosting Estonians - has chosen a completely different strategy. Hungary has paid particular attention to the risks of macroeconomic imbalances. The post-2010 economic strategy focused on restoring macroeconomic balance and increasing employment. The availability of an independent monetary policy played a key role in rebalancing, providing cheap funds for investment by lowering interest rates and contributing to the weakening of the forint exchange rate, thereby increasing the cost competitiveness of exports and improving the balance of payments (Györffy, 2021). Employment was boosted by reforms of the tax system and social support, as well as labour market deregulation, which also contributed to fiscal adjustment. Following the crisis, employment

in Hungary increased significantly as the economy grew. The employment rate has climbed from a low of 48% in 2011-2013 to over 60% in 2019. This has led to labour shortages in many sectors and regions. The reasons for labour shortages are a lack of skilled labour, labour mobility and related wage differentials across Europe, and rapid technological progress (Antalik et al., 2020).

Health crisis

In December 2019, a previously unknown disease struck Wuhan, a Chinese metropolis of more than 11 million people. With flu-like symptoms but more serious complications, the disease soon became an epidemic. Symptoms included high fever, fatigue, dry cough, muscle aches and respiratory difficulties. Many people were put on ventilators and survival rates among those treated were around 50%. In response, the Chinese leadership created the largest quarantine zone in history, affecting 57 million people (WHO, 2020). Despite the closures, the virus appeared outside China in early 2020 and is estimated to have started spreading in countries most affected by migration networks (Kincses-Tóth, 2020). In Hungary, the first case was reported in early March and the H-UNCOVER survey in late spring showed a 0.68% transmission rate (Merkely et al., 2020).

Countries have successively announced emergency measures to prevent the spread of the virus, which poses a global risk (Wardman & Lofstedt, 2020), in order to prevent the health networks from becoming overloaded (Demertzis et al., 2020). Countries have sought to cooperate to prevent the spread. This has meant multi-directional cooperation, always considering the economic and social impacts (Tóth-Hudácskó, 2020). Despite this cooperation, in many cases the epidemiological measures have diverged according to the decisions of each state, and the level of measures has also diverged in many cases. In almost all cases, the reason for the closures - although this meant a setback for the economy - was to prevent a more serious health situation from developing. Models have shown that non-health interventions (i.e. various restrictive measures) have led to a reduction in infections and deaths (Flaxman et al, 2020), with the exception of Sweden, where there was no centralised closure (Soltesz et al., 2020), but no sharp increase in deaths. The extent to which societal attitudes of individual responsibility can help control the epidemic at local and national level was shown (Nygren-Olofsson, 2020; Petridou, 2020).

Countries involved in control worldwide have had to consider the trade-offs that will slow the spread of the epidemic but not threaten the economy (Chen et al, 2020). Cooperation between countries was also needed to jointly fund research programmes that would bring us closer to cures and vaccines (Szjártó, 2020). It is estimated that around €1,500 billion will be needed to mitigate the crisis and address the damage caused by the epidemic (Balázs, 2020).

The negative effects of the pandemic, in addition to the strain on the health system due to forced government measures, have mainly affected tourism, but also the automotive industry, raw material extraction, and the clothing and textile industries have felt the constraints (Nicolaa et al., 2020). In tourism, the closures have meant restrictions on the ability to visit destinations in many cases (Ahmad et al., 2020), but fears have also played a role in the downturn (Chemli et al., 2020). The impact on tourism has been felt worldwide, with data from the popular accommodation provider airbnb showing that almost all major cities have experienced significant downturns (Boros et al., 2020). There is a significant correlation between the decline in mobility and the slowdown in industrial production, i.e. the more severe the public health restrictions, the more pronounced the decline in industrial production (Czeczeli et al., 2020).

Neutral effects can be observed in the technology, communications and media sectors. The impact in the transport sector was also neutral, as although the possibility to transport goods across borders and transit corridors was maintained to ensure continuity of supply, carriers were at risk of spreading the virus (Hajdú-Rác, 2020). However, there are clear positive effects in the digital advertising market (webshops, webinars), courier companies, pharmaceuticals, chemicals and personal protection (masks, gloves, protective equipment) (Fernandes, 2020; Cicala, 2020). There will also be a noticeable and expected positive impact of the virus situation on the uptake and use of teleworking (Lennert, 2020) and, subject to certain constraints, financial services could also grow (Kovács, 2020). Companies producing medicines and other vitamins and nutritional supplements could also close with a profit, and this upturn could continue on the back of news on vaccines. Moderna's share price has risen nearly eightfold, and Biontech could boast similar results.

Globalisation, which has mainly taken place within the framework of market coordination, has been replaced in recent months by deglobalisation, with new regulations, restrictions, closed economies and national economic development measures and programmes to deal with the crisis. From a labour market perspective, one of the key questions surrounding the first wave of the viral crisis is how long these steps and processes will last and whether the world will return to business as usual once the crisis is over. There are many arguments for and against deglobalisation and/or reglobalisation, but we believe that the crisis of recent months will not pass without a trace and that the future is likely to be a mix of deglobalisation and reglobalisation (Zádori et al., 2020).

According to KSH (2020) labour market data, labour market indicators in Hungary have been showing an improving trend in recent years, with economic activity and employment increasing steadily since 2011. The number of employed persons in the last quarter of 2019 was 4 520 000, with an employment rate of 70%. This represents an increase of 15 percentage points over 10 years. In 2019, the number of people in public employment decreased, while the number of people in the primary labour market increased. More people worked abroad than in the previous year.

In total, nearly 100 employers announced collective redundancies between April 2020 and the end of July 2020, affecting more than 7,000 workers due to the coronavirus outbreak (Tóth et al., 2021). A 99% drop in the number of guest nights and a 97% drop in revenues were reported in April 2020. The decline is clearly explained by the epidemic situation (Daniel, 2021).

In addition to the tragedies and damage caused, the Covid-19 virus is also about learning and adapting. More specifically, it should be about. It is the responsibility of scientists and researchers to explore the available data, analyse it, draw lessons and provide predictions and advice to decision-makers. This of course requires finding the right questions, data collection and analysis options and methods (Balogh et al., 2020).

The labour market has tried to adapt to the circumstances, and this can be seen in the speed of the move to the home office. Telecommuting has been partially retained even after the closures, and there is a willingness on the part of employees to do so (Lipták, 2020). The extent to which this is achieved depends to a large extent on how the organisation's diminishing organisational culture (Balogh et al., 2012) is reflected in the supply side of the labour market. Unlike in the past, the current crisis was caused by an external factor, an epidemic (pandemic). While the direct impact of the November 2020 restrictions was mainly felt in the tourism, hospitality, hotel and event management sectors, the indirect effects are more widespread. The uncertain financial situation of businesses and households could have a

restraining effect on employment, investment and consumption decisions. Overall, shorter working hours introduced by businesses (Balleer et al., 2016), public wage compensation and tax incentives may help to retain workers, but significant improvements are only expected once the epidemic has passed (Csehne Papp, 2021).

Climate change

Climate change is the most important global challenge of our time. Combating climate change and mitigating its effects is a shared responsibility, and individuals, institutions and, of course, businesses must play their part. The challenges of climate change will test people and economies. The fight against climate change is a struggle for individuals and societies, and the interconnection at both the micro and macro levels is an important link. The SME sector is one of the cornerstones, involving a large number of businesses with a prominent presence in the economies.

Climate change is a global phenomenon that poses significant threats to the environment, economies and societies (Richardson et al., 2011). Rising global temperatures, extreme weather events, sea-level rise and other climate impacts have far-reaching consequences for businesses and economies worldwide (Misra, 2014). Businesses and economies face significant challenges in managing and adapting to the impacts of climate change, including physical, financial and regulatory risks. One of the most significant challenges that climate change poses to economies and businesses is the physical risks from extreme weather events and sea-level rise. These physical risks can affect supply chains and the production and distribution of goods and services, leading to significant economic losses (Gasper et al., 2011).

Severe weather events such as hurricanes, floods and droughts can disrupt supply chains by damaging critical infrastructure such as roads, ports and airports. This disruption can lead to delays, higher transport costs and reduced productivity, which can impact business operations and profitability (Wilhelm & Willard, 2013; Wright & Nyberg, 2017). In addition, sea-level rise poses a significant physical risk to coastal cities and regions where many businesses and economies are concentrated. The risk of increased flooding and storm surges can cause significant damage to buildings and infrastructure, leading to substantial economic losses. The costs of restoring and rebuilding infrastructure following extreme weather events can be significant, putting pressure on public budgets and affecting economic growth (Mimura, 2013; Kvadijk et al, 2010).

In addition to physical risks, climate change also poses financial risks for economies and businesses. These risks stem from the economic impacts of climate change and regulatory responses to reduce greenhouse gas emissions. For example, the transition to a low-carbon economy is likely to lead to displaced assets and reduced demand for fossil fuels (Monasterolo, 2020; Chenet, 2021; Battison et al., 2021). Companies whose business depends on fossil fuels could face significant financial losses as the value of their assets declines and demand for their products falls. In addition, climate change risks may also affect the financial sector, leading to credit risk, market risk and operational risk. For example, the increase in frequency and severity of extreme weather events could lead to higher insurance claims, which could affect the financial stability of insurers and reinsurers. The transition to a low-carbon economy could also affect the value of investments, leading to significant losses for investors exposed to high-carbon assets (Semeniuk et al., 2021; Ionescu, 2021).

The SME sector faces many challenges in addressing the impacts of climate change. Climate change poses significant risks to the operations of SMEs, including disruption to supply chains, damage to physical assets and increased operating costs. In this essay, we examine some of the challenges that SMEs face in addressing climate change and discuss possible solutions. SMEs often have limited financial and human resources to address the challenges of climate change. Many SMEs lack the capital to invest in the infrastructure and technology needed to reduce their carbon footprint. They may also lack the expertise or knowledge to develop and implement effective sustainability strategies. Governments and other stakeholders can support SMEs with financial incentives, technical assistance and training programmes to help them develop and implement sustainability strategies. This may include grants, tax incentives or low interest loans to support investments in renewable energy, energy efficient technologies and sustainable production processes. In addition, training programmes and workshops can help SMEs to develop the knowledge and expertise needed to adopt sustainable business practices (Bharati & Patra, 2022).

Many SMEs do not have access to reliable information on climate change and its potential impact on their operations. This can make it difficult for SMEs to develop effective strategies to mitigate the risks from climate change. Governments and other stakeholders can support SMEs by providing access to reliable and up-to-date information on climate change and its potential impacts on their operations. This could include online resources, webinars and workshops aimed at educating SMEs about the risks and opportunities associated with climate change. SMEs can face regulatory uncertainty and complexity in complying with environmental regulations. In some cases, SMEs do not have the resources or expertise to navigate the complex regulatory framework. Governments can support SMEs by simplifying regulations and providing guidance on compliance. This could include streamlining environmental regulations, providing clear guidance on reporting requirements, and technical assistance to help SMEs comply with regulations (Pyka & Pyka, 2021).

Many SMEs do not see the financial benefits of adopting sustainable business practices. In some cases, the costs of implementing sustainability measures may be higher than the potential financial benefits. Governments and other stakeholders can support SMEs by providing market incentives for sustainable business practices. This could include tax incentives for businesses that adopt sustainable practices, support for renewable energy production and support for sustainable supply chain initiatives. Access to green finance is often a significant challenge for SMEs. Many SMEs do not have the collateral or credit history data needed for loans for sustainable investments. Governments and other stakeholders can support SMEs by creating financing mechanisms specifically targeted at green investment. These could include government loan guarantees, microfinance schemes and green bonds (Patra, 2022).

Green SMEs are businesses that recognise the importance of sustainable business practices and take proactive steps to reduce their environmental impact. They prioritise environmental sustainability alongside economic growth, recognising that the two can go hand in hand. Environmentally conscious SMEs bring a range of benefits, including cost savings, enhanced brand reputation and reduced regulatory risks. Adopting sustainable business practices can lead to significant cost savings for SMEs. For example, the introduction of energy efficient technologies such as LED lighting or smart thermostats can reduce energy consumption and utility bills. Likewise, investing in renewable energy such as solar panels or wind turbines can lead to long-term cost savings on energy bills. Consumers are increasingly concerned about environmental sustainability and are more likely to support businesses that prioritise sustainable

practices. Being an environmentally conscious SME can help attract and retain customers who value sustainability. In addition, green SMEs can benefit from positive media attention and word-of-mouth referrals from satisfied customers.

Environmental standards are getting stricter and non-compliance can result in fines, legal sanctions and reputational damage. By adopting sustainable business practices, SMEs can reduce their regulatory risk and demonstrate their commitment to environmental sustainability. Environmentally responsible SMEs can provide a competitive advantage over other businesses in the same industry. By putting sustainability first, businesses can differentiate themselves from competitors and attract customers who care about sustainability. In addition, environmentally conscious SMEs are more likely to win contracts with larger companies that set sustainability targets and require their suppliers to meet certain environmental standards (Krawczyk, 2021).

Some examples of sustainable business practices that environmentally conscious SMEs can adopt (Istenes, 2022):

- Introduction of energy efficient technologies
- Reducing waste through recycling and waste reduction programmes
- Reducing water consumption through efficient plumbing and irrigation systems.
- Investing in renewable energy, such as solar panels or wind turbines.
- use of environmentally friendly materials and products
- Implementing sustainable supply chain practices, such as sourcing materials from sustainable sources or working with suppliers who are sustainability-minded.
- Offer environmentally friendly products or services.

In the light of the above, we have examined whether firms in critical sectors were better off before the current crisis than before. For this analysis, we compared the average liquidity ratio of the SME sector in 2019 compared to 2007 (Figure 2).

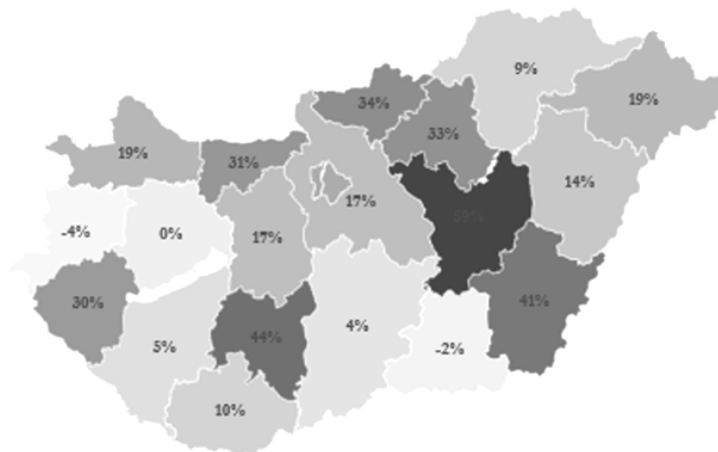


Figure 2 Number of cases of COVID-19 – globally and in Hungary

Source: www.teir.hu

We found that the average liquidity ratio increased from 1.29 in 2007 to 1.52 in 2019. This, in addition to being an increase of 18%, is above the 1.3 considered a threshold in the literature. At the county level, the average liquidity ratio increased for a significant number of counties overall, in many cases by more than 30%, with only two counties showing a decrease.

Social cooperatives

In many countries, social cooperatives can be seen as the main actors of the social economy. The creation of social cooperatives contributes most to tackling inequalities and improving the labour market in areas with high unemployment rates (Kis, et al., 2016). The objective of our research was to examine the last 10 years of social cooperatives, i.e. the performance indicators of cooperatives since the changes in 2012.

Cooperatives operate effectively in all sectors of the economy and society, providing social, social, cultural, health, educational and other services in addition to the acquisition of wealth. (Bak & Réti, 2013). By the end of the 20th century, types of cooperatives with a social purpose, such as worker cooperatives and social cooperatives, were widespread in Europe (Virág, 2017).

A social cooperative is thus a business model that aims to create value for the community and help solve social, economic and environmental problems (Costa et al., 2012). Social cooperatives are democratic organisations that are created and managed by their members. Their basic principle is that members participate equally in decision-making and profit sharing (Bronisz et al., 2019).

Social cooperatives play an important role among social enterprises and are increasingly popular in addressing social problems such as unemployment, poverty and inequality (Lipták & Horváth, 2018). Social cooperatives provide economic stability and community support to their members, while also contributing to the benefit of the wider society (Altman, 2009).

In Hungary, the legislation regulating the form of social cooperatives was first published in 2006: ‘open membership, an organisation with legal personality operating according to the principles of variable capital, whose general objective is to promote the satisfaction of the economic, social (cultural, educational, social, health) needs of its members; to create working conditions for its unemployed or socially disadvantaged members, to improve the social situation of its members’. (Bak, 2010). In 2012, this law was amended, in which the unemployed were no longer included in the definition of the objectives, but the provision of employment for disadvantaged people was retained, and there was also a change in that local authorities could become members in addition to natural persons (Finta & Póla, 2020). In the amendment implemented in 2013, employment cooperatives were added to the social cooperatives, and the regulation of personal participation and participation based on membership was also highlighted (Csoba, 2017).

The focus of the 2016 amendment to the law is that social cooperatives must have at least one local or national government member in addition to natural persons, in order to prevent abuse. Also, the employment of members has been tightened up, so that members of the cooperative may not work for another employer as members.

In the framework of the 2019 amendment to the law, the so-called start-up social cooperatives were established, “the establishment and operation of which must be carried out by a municipality that is a public employer under the legislation on public employment, and the founders must include a person who is in a public employment relationship with the municipality.” (Finta & Póla, 2020).

It was assumed that legislative changes and subsidies would have a positive impact on the number of businesses and, through them, on the labour market effects generated by businesses. 80 social enterprises in 2012 have grown by leaps and bounds thanks to the emergence of needs, legislative changes and subsidies. Growth continued unabated until 2018, when the number of enterprises peaked at 1106. After that, there was a decline due to market consolidation, first at a slower pace and then a larger decline between 2020 and 2021. The latter can also be explained by the difficult economic situation caused by the coronavirus epidemic. The territorial distribution of the 80 social cooperatives was very diverse, with at least one social cooperative in each of our territorial units. Most of them (8 enterprises) were located in the county of Hajdú-Bihar, but the three counties in the north-eastern corner of the country were home to 22 enterprises.

The social cooperatives surveyed employed the most people in Csongrád county, while the least number of employees was found in Heves county. Following the baseline data for 2012, we examined how the indicators of importance and the territoriality of social cooperatives have evolved over the 10 years since the baseline year.

The number of businesses has increased from 80 to 934, which is significant. The most significant increase was in Borsod County, which is very positive, as the aim of social cooperatives in Hungary is primarily to provide work for people in disadvantaged areas through the cooperative system. The positive statistics are also confirmed by the significant ($p < 0.01$), moderately strong negative ($\rho = 0.461$) relationship between the change in the number of social cooperatives and unemployment rates.

As the number of social cooperatives has changed, the number of people employed has also increased significantly. While in 2012, only 198 people were employed in social cooperatives, this number multiplied by 2021, when 2,535 people were employed in the organisations surveyed. The average number of people employed has risen from 2.47 to 2.71, again a significant improvement. This is particularly true in view of the fact that the figure for enterprises with 1 to 249 employees was only 2.59 in 2021. The change in the number of employees was clearly caused by the increase in the number of enterprises, the relationship is significant ($p < 0.01$) and very strong ($\rho = 0.874$), so it can be said that the increase in the number of social cooperatives had a positive effect on the number of employees.

Circular economy

The circular economy, as opposed to the linear economy, sees the economy as a sustainable economic system. In this system, economic growth is decoupled from resource use by reducing the use of natural resources and recycling them. Quantifying progress and performance in a circular economy, which is an integral part of sustainable development, is difficult because the transition to this model varies widely across the EU Member States. Research on indicators to measure the level of application of circular economy strategies is still in a relative infancy stage, which means that despite efforts, not all countries use the same indicators to measure them (Elia et al., 2017). Despite the development of a myriad of indicators, there is inconsistency in their purpose, scope and potential application.

A global trend is leading the international community to explore possible pathways for the transition from a linear to a circular economy. Research on the circular economy shows that, although the concept and its application are increasingly being explored/explored, as illustrated by a number of case studies, the tools and criteria for measuring it are still not well defined (Haas et al., 2015). Taking into account indicators specific to the European Union, the aim of the research team members was to compile a new ranking that would show the aggregate scores and rankings of the 28 Member States.

The CE (Circular Economy) concept was born in 1960. Typically, it varies depending on social, political, geographical, territorial and cultural contexts (Korhonen et al., 2018). In the early 1990s, Pearce & Turner (1990) were the first to use the term to describe an economic model based on the first two laws of thermodynamics. The concept and its emergence and use in the Hungarian literature is now beginning to really take off. In their study, Pomázi & Szabó (2018) highlight the circular economy of János Szépvölgyi, based on natural science and illustrated through the example of chemicals. The Ellen MacArthur Foundation describes the circular economy as an industrial system with restorative and regenerative intentions and design (The Ellen MacArthur Foundation, 2013). In sum, the circular economy can be described as a sustainable development strategy (Pearce & Turner, 1990) where all materials are recycled, all energy is derived from renewable sources, all activities are undertaken to support and regenerate human health, and resources are used to create value (Zhu & Qiu, 2007). CE is often radical, transformative and essential to achieving sustainable development (EMF, 2019).

The circular economy, as a definition and concept, has come to the fore in the last 5-6 years, and is characterised by the fact that it combines several theoretical and practical solutions simultaneously (Tóthné Szita et al., 2017). Its roots are based on the general concept of sustainable development, which is linked to strong and weak sustainability models (Washington, 2015). In the case of strong sustainability, natural and artificial capital cannot be substituted for each other, while in the case of weak sustainability, substitution is feasible. The model is systems thinking, which is inherently very open, thus supporting the economic, social and environmental dimensions of sustainable development, with which it is closely synergistic (Szabó, 2019).

Companies, researchers, academics and other users have used various formulations and proposals to measure the circularity of services and products (Corona et al., 2019). In their study, Kirchherr et al. (2018) examined 114 circular economy concepts, typically a combination of three activities - recycling, reuse, reduction (Ngan et al., 2019). Although there are many CE definitions, the essence of most of them is to describe value-conservation processes. The common feature of all these concepts is that in all cases, the circular economy is seen as a system where materials and resources are involved in processes for as long as possible, are maximised and maintained at their highest use value and level.

According to some authors, such as Winans et al. (2017), the circular economy not only consists of the 3Rs (reuse, reduce, recycle), but also includes three more (redesign, remanufacture, recover) and, in addition, zero emissions, resource efficiency and LCA, i.e. life cycle analysis. Finally, Potting et al. (2017) extended the 6R to 9R by adding waste, refurbish and reuse. Horváth (2019) formulates the primary goal of the circular economy as the need to enforce the functioning of natural ecosystems in economic systems, which requires the use of resources consumed by economic activities in a closed economy. A further objective is to reduce resource use by slowing, narrowing and closing resource loops (Wang et al., 2018).

Circular economy and the EU

As in the public consciousness, EU strategies, policies and objectives are increasingly focusing on the circular economy model. On 2 December 2015, the European Commission launched an action plan to achieve the transition to a circular economy, called the Circular Economy Action Plan (CEAP) (Tóthné Szita et al., 2017). This Action Plan is an integral part of the Seventh Environmental Action Programme (2014-2020) (Amanaditis, 2019; Pomázi & Szabó, 2018). By extending the economic value chain of products and services, the CE Programme can create a sustainable economic system that benefits industry, the environment and citizens (Corona et al., 2019). Its focus is on high-level EU action and the development of a low-carbon, competitive, sustainable and resource-efficient economy (Szabó, 2019). Its main objective is to make the EU more productive without using fewer resources and thus freeing up potential (Amanaditis, 2019). It also aims to create new jobs, improve global competitiveness and promote sustainable economic growth (Momete, 2020).

The European Commission recognises that CE requires systemic change and a more holistic approach, taking into account the myriad of linkages between sectors, within and across value chains (Pla-Julián & Guveara, 2019). The ‘package’ includes 54 measures with a circular policy, focusing on different interpretations of business activities and waste management principles (European Commission, 2019). It also includes four legislative proposals on waste, landfills, packaging and end-of-life vehicles and batteries (Amanaditis, 2019). Due to its complexity, there is rarely a policy area that is not covered by the Action Plan. By 2030, the European Union has identified the following key elements: 70% of packaging waste; 60% of municipal waste and a reduction of waste going to landfills (Szabó, 2019). Economic actors play an important role in new business models that decouple resource use from economic growth to ultimately ensure the competitiveness of the region (European Commission, 2015).

The efforts of Member States to shift their social and economic activities towards ‘circularity’ have fostered changes in business models and labour markets, creating new business models and new opportunities for resource reduction, recycling and reuse (Marino & Pariso, 2020). The biggest gains according to the three dimensions of sustainable development can be summarised as follows. In the economic dimension, lower waste treatment costs, creation of new economic activities and employment, reduction of depreciation and reduction of pollution costs are expected. In the environmental pillar, lower levels of raw material use, resource efficiency and lower emissions are expected. In the third, social dimension, there will be increased cooperation in community processes, conscious consumer attitudes and increased social capital (Nemes, 2018).

By adopting the Circular Economy Monitoring Framework, the European Commission has provided a tool to monitor the transition, performance, trends and actions taken with regard to EU legislation. Measuring circularity is at the heart of a number of questions recently raised by researchers: how to measure the progress of the transition towards CE (Saidani et al., 2019)? Consistently, without an evaluation framework, CE initiatives cannot be sustained. In this research, the authors sought to answer the question of whether a ‘measure’ of the circular economy could be provided by a complex indicator using this methodology, namely the scale-integrating transformation. This was based on a database of 28 EU Member States on the circular economy. The research was severely limited by the fact that only for the year 2018 the full set of thematic indicators is available. However, the results of the research show that a single value can be used to assess and analyse the EU Member States’ progress towards a circular economy much more easily, with cautious conclusions of course.

The results of the research will help to rank the 28 EU Member States in terms of their performance in the circular economy, and will also help to identify how well each Member State has performed in this area. The authors have sought to develop a methodology that facilitates a complex interpretation of the indicators collected by Eurostat. The circular economy indicator ranks the 28 EU Member States. The extent to which progress towards a circular economy has been made at EU level varies widely (Table 1).

Countries	Value	CCEI ₂₀₁₈
Germany	0,68	1
United Kingdom	0,60	2
Netherlands	0,54	3
Italy	0,51	4
France	0,47	5
Belgium	0,44	6
Spain	0,44	7
Denmark	0,44	8
Austria	0,43	9
Luxembourg	0,41	10
Poland	0,39	11
Ireland	0,39	12
Slovenia	0,37	13
Czech Republic	0,37	14
Lithuania	0,36	15
Sweden	0,36	16
Portugal	0,34	17
Finland	0,31	18
Hungary	0,31	19
Croatia	0,29	20
Romania	0,28	21
Latvia	0,27	22
Bulgaria	0,26	23
Greece	0,26	24
Slovakia	0,24	25
Cyprus	0,24	26
Estonia	0,20	27
Malta	0,19	28

Table 1 Country ranking based on the CCEI2018

Source: own editing

Germany tops the rankings, largely due to the fact that it was the first country to join the drive to create a resource-efficient Europe under the Europe 2020 framework strategy. As a prelude, Germany adopted its first Resource Efficiency Programme (ProgRess I) in February 2012, based on the premise that reducing environmental pressures and damage could lead to improvements in resource efficiency, not least by creating new jobs and ensuring long-term employment, which would strengthen the competitiveness of the German economy (BMU, 2012). At the same time, the law on the circular economy was adopted. As a successor to this programme, ProgRess II was adopted in 2016, which aims to protect the environment and safeguard competitiveness and economic prosperity. The improved version now also covers a wider range of natural resources, such as water resources, air, soil and, last but not least, sustainable management. According to a 2017 European Commission study, the country is among the best performing Member States in terms of waste management, with a very high recycling rate (European Commission, 2017).

The second-ranked UK government published a report on resource management in 2015, highlighting the indirect and direct economic benefits and environmental benefits of a waste and resource management plan (UK Government, 2011). A specific framework for a circular economy was released for voluntary use in May 2017, the first in the country's history (British Standards Institution, 2017). However, the real step forward was the Resource and Waste Strategy, launched in 2018. Its commitments set a target to double resource productivity in 25 years and eliminate plastic waste completely by 2050 (HM Government, 2018).

The importance of a circular economy has been recognised in the case of the frontrunner Malta. The idea of a circular economy is particularly relevant for Malta, given its geographical location, its high dependence on imports and its lack of natural resources. Adopting the principles of the circular economy concept would have an immediate positive impact on the environment, while benefiting Malta's long-term economic prospects. However, the country is still on the threshold of a circular economy. Malta's natural resource productivity has declined and increased domestic material consumption is outstripping economic growth. Waste management remains an important issue in key sectors such as construction. The island nation aims to protect biodiversity and create new opportunities for its citizens through sustainable investment.

In the case of Hungary, the history of the circular economy is relatively new, as the Circular Economy Platform was established in November 2018 to accelerate the transition to the circular economy model. In the country, the circular economy is most commonly identified with selective waste collection, which is only one of the key areas of the model. One of the key factors that would encourage domestic companies to make the transition is that cost reductions can be achieved, as reducing our water, raw material and energy needs will lead to resource efficiency and financial savings. Of course, it should also be remembered that to achieve all this, we need to change consumption patterns and actively involve the public.

We have said that there is no strategy for a circular economy at the state level in Hungary, but the promotion of the circular economy is mentioned as an important aspect in several pieces of legislation, mainly related to waste management. For example, the 2018 data under review are not yet affected by the February 2021 amendment to the Waste Management Act. Hungary is ranked 19th in each of the composite indicators under review. With a few exceptions (e.g. private investment linked to circular economy sectors, jobs and gross value added), the ranking also reflects the ranking in the indicators, but

for the indicator presented here it is more in the middle. In general, it can be concluded that our country is rather in the back-middle of the ranking and of the order of indicators.

Looking at the other EU countries, Finland, the Netherlands and France have been very active in the transition to a circular economy model. Finland was the first to introduce a roadmap towards a circular economy in 2016, implemented in cooperation with all relevant ministries, business and other key stakeholders (Berg et al., 2018).

Summary

In our study, we have presented the main characteristics of the domestic SME sector, the effects of two crises and climate change, and the governmental and individual responses to them. We have shown the impact of social cooperatives in our country and the positive returns of their operation on the labour market. Finally, we showed where domestic enterprises stand on the path towards a circular economy.

Acknowledgement

The research is supported by the Research Centre at Faculty of Business and Economics (No PE-GTK-GSKK A095000000-6) of University of Pannonia (Veszprém, Hungary).

Publications of the research team

Tobak, J., Nábrádi, A. (2020): The TONA model: A New Methodology for assessing the development and maturity life cycles of family enterprises. *Journal of Innovation & Knowledge*, 5(4), 236-243. <https://doi.org/10.1016/j.jik.2019.12.003>

Kozma, D. E., Molnárné Barna, K., Molnár, T. (2021): Rangsoroljunk vagy nem? – A körforgásos gazdaság mérési lehetőségei és azok összehasonlítása az EU tagországokban. *Vezetéstudomány*, 52(8-9), 63-77. <https://doi.org/10.14267/VEZTUD.2021.09.05>

Dániel, Z. A., Molnárné Barna, K., Molnár, T. (2021): Koronavírus a V4 országokban – társadalmi, gazdasági hatások, regionális összefüggések, kormányzati beavatkozások. *Területi Statisztika*, 61(5), 555-576. <https://doi.org/10.15196/TS610501>

Molnárné Barna, K., Molnár, T., Koczor-Keul, M. (2021): The situation of agricultural sector in Hungary – trends and territorial aspects. *Applied Studies in Agribusiness and Commerce - Abstract*, 15(3-4), 57-64. <https://doi.org/10.19041/APSTRACT/2021/3-4/7>

Molnár, T., Fehér, H., Molnárné Barna, K. (2021): Regionális versenyképességi vizsgálatok a hazai NUTS-3 régiókban. In: Agg, Z. Zongor, G. (eds.): *COMITATUS 30 év/könyv. Visszaemlékezések, esszék, tanulmányok, gondolatok, interjú.* Veszprém, Comitatus Könyvek. 168-175.

Molnárné Barna, K., Molnár, T., Kozma, D. E. (2021): Development of population expenditures during multi-day domestic trips in tourist regions, with special regard to the coronavirus pandemic. In: Pop, G., Bíró, B. E., Csata, A. ... Telegdy, B. (eds.): *Challenges in the Carpathian Basin: Global challenges – Local answers. Interdependencies or Slobalisation?* Cluj-Napoca, Risoprint. 1097-1110.

Dániel, Z. A. (2021): Pre-crisis financial reserves for SMEs operating in vulnerable sectors. In: Pop, G., Bíró, B. E. Csata, A., ... Telegdy, B. (eds.): *Challenges in the Carpathian Basin: Global challenges – Local answers. Interdependencies or Slobalisation?* Cluj-Napoca, Risoprint. 236-247.

Dániel, Z. A., Koczor-Keul, M. (2021): Changes in the local business tax in the settlements of Hungary. In: Pop, G., Bíró, B. E., Csata, A. ... Telegdy, B. (eds.): *Challenges in the Carpathian Basin: Global challenges – Local answers. Interdependencies or Slobalisation?* Cluj-Napoca, Risoprint. 1049-1059.

Dániel, Z. A., Tobak, J., Molnár, T. (2021): Regional aspects of supporting entrepreneurship in Hungary. In: Pop, G., Bíró, B. E., Csata, A., ... Telegdy, B. (eds.): *Challenges in the Carpathian Basin: Global challenges – Local answers. Interdependencies or Slobalisation?* Cluj-Napoca, Risoprint. 1060-1071.

Kozma, D. E., Molnár, T., Molnárné Barna, K. (2022): The indicator-based measurement of the circular economy in the countries of the European Union. *Tér és Társadalom*, 36(2), 49-69. <https://doi.org/10.17649/TET.36.2.3374>

Fekete-Berzsenyi, H., Molnár, T., Molnárné Barna, K. (2022): Körforgásos gazdaság a vállalkozások életében – Mérhető-e a paradigmaváltás a vállalkozások működésében? *COMITATUS: Önkormányzati Szemle*, 32(240), 110-119.

Molnár, T., Dániel, Z. A. (2022): Válságok a hazai munkaerőpiacon – regionális aspektusból. *Észak-Magyarországi Stratégiai Füzetek*, 19(1), 48-57.

Dániel, Z. A. (2022): Labour market effects and changes among enterprises in free enterprise zones in Hungary. *Deturope*, 14(3), 65-83.

Dániel, Z. A., Molnár, T., Porkoláb, P. F. (2023): The Role of Social Cooperatives in Hungary Over the Past Ten Years – From a Regional Labour Market Perspective. *Economic and Regional Studies*, 16(2), 223-240. <https://doi.org/10.2478/ers-2023-0015>

Porkoláb, P. F., Dániel, Z. A. (2023): Recultivated brownfields – (More) positive demographics. In: Nagy, B., Fejér-Király, O., György, O., ... Péter, E-K. (eds.): *Challenges in the Carpathian Basin*. Cluj-Napoca, Risoprint. 351-364.

Molnár, T., Dániel, Z. A., Kozma, D. E. (2024): Trends in the Czech and Hungarian labour markets from a regional perspective especially in the light of the two recent crises. *Regional Statistics* (under release).

References

- Ahmad, A., Jamaludin, A., Zuraimi, N. S. M., Valeri, M. (2020): Visit intention and destination image in post-Covid-19 crisis recovery. *Current Issues in Tourism*, 24(2), 2392-2397. <https://doi.org/10.1080/13683500.2020.1842342>
- Altman, M. (2009). History and Theory of Cooperatives. In: Anheier, H. – Toepler, S. (eds.): *International Encyclopedia of Civil Society*. Berlin, Springer.
- Amanatidis, G. (2019): *Erőforrás-hatékonyság és a körforgásos gazdaság*. https://www.europarl.europa.eu/ftu/pdf/hu/FTU_2.5.6.pdf
- Antalik, I., Csapó, I., Karácsony, P., Kovács, Á., Poór, J. (2020): A magyarországi munkaerőpiac átalakulásának okai egy hazai empirikus kutatás tükrében, *Opus et educatio*, 7(27), 390-401. <https://doi.org/10.3311/ope.407>
- Artner, A. (2012): Globális munkaerő-piaci és profittendenciák, In: Farkas, P. Meisel, S. Novák, T. (eds.): *A változó világgazdaság - útkeresések, tapasztalatok és kilátások: 1.kötet: Globális kérdések*. Budapest, Világgazdasági Kutatásokért Alapítvány, MTA KRTK Világgazdasági Intézet, 140-156.
- Bak, K., Réti, M. (2013): A szövetkezetek szociál/foglalkoztatáspolitikában betöltött szerepéről, a nemzetközi és a magyar szövetkezeti jogalkotás irányairól. *Agrár- és Környezetjog*, 23-38.
- Bak, K. (2010): A szociális gazdaság intézményesített megoldásai, különös tekintettel a szociális szövetkezetekre. *Jogi Tanulmányok*, 3, 31-44.
- Balleer, A., Gehrke, B., Lechthaler, W., Merkl, C. (2016): Does short-time work save jobs? A business cycle analysis. *European Economic Review*, 84, 99-122.
- Balogh, G., Király, Zs., Kópházi, A., Kun, A. I., Poór, J. (2020): A magyarországi országos KoronaHR kutatási projekt céljai, módszerei és első tapasztalatai, *Új munkaügyi szemle*, 4, 2-7.
- Bartha, A., Czibik, Á., Makó, Á., Tóth, I. J. (2009): *A gazdasági válság vállalati szemmel*. *Műhelytanulmányok*, 44. MKIK GVI. Budapest, Kopint-Tárki Zrt.
- Battistion, S., Dafermos, Y., Monasterolo, I. (2021): Climate risks and financial stability. *Journal of Financial Stability*, 54, 1-6. <https://doi.org/10.1016/j.jfs.2021.100867>
- Bharati, D., Patra, G. (2022): The Challenges For SMEs In Green Finance Initiatives Adoption. *Journal of Positive School Psychology*, 6(2), 313-325.
- BMU (2012): *German Resource Efficiency Programme (ProgResS). Programme for the Sustainable Use and Conservation of Natural Resources*. Berlin, Bundesministerium für Umwelt, Naturschutz und Nukleare Sicherheit.
- Boros, L., Dudás, G., Kovalcsik, T. (2020): The effects of COVID-19 on Airbnb. *Hungarian Geographical Bulletin*, 4(69), 363-381- <https://doi.org/10.15201/hungeobull.69.4.3>.
- British Standards Institution (2017): *SDS/1/10/0 BS 8001 Framework for Implementing the Principles of the Circular Economy in Organizations*. <https://www.bsigroup.com/en-GB/standards/benefits-of-usingstandards/becoming-more-sustainable-withstandards/Circular-Economy/>
- Bronisz, U., Jakubowski A., Miszczuk, M., Miszczuk, A. (2019): Social Economy Entities as a Practical Instrument to Enhance Social Inclusion in Poland, In: Fylling, I. Baciu, E. Breimo, J. (eds.): *EU Social Inclusion Policies in Post-Socialist Countries. Top-Down and Bottom-Up Perspectives on Implementation*. London, Routledge. <https://doi.org/10.4324/9780429434549-9>

- Bruszt, L., Vedres, B. (2010): *Local Development Agency from Without. Working Paper. Budapest.* <http://www.personal.ceu.hu/staff/BalazsVedres/papers/bruszt.vedres.developmental.agency.pdf>
- Chemli, S., Toanoglou, M., Valeri, M. (2020): The impact of Covid-19 media coverage on tourist's awareness for future travelling. *Current Issues in Tourism*, 25, 179-186. <https://doi.org/10.1080/13683500.2020.1846502>
- Chen, S., Igan, D., Pierri, N., Presbitero, A. (2020): Tracking the Economic Impact. *IMF Working Papers*, 125.
- Chenet, H. (2021): *Climate change and financial risk*. New York, Springer International Publishing. 393-419.
- Costa, E., Andea, M., Carini, C., Carpita, M. (2012): Exploring the efficiency of Italian social cooperatives by descriptive and principal component analysis. *Service Business*, 6, 117-136. <https://doi.org/10.1007/s11628-011-0131-9>
- Corona, B., Shen, L., Reike, D., Carreón, J. R., Worrel, E. (2019): Towards sustainable development through the circular economy – A review and critical assessment on current circularity metrics. *Resources, Conservation & Recycling*, 151, 1-15. <https://doi.org/10.1016/j.resconrec.2019.104498>
- Czakó, Á. (2006): *Pénzügyi kultúra Magyarországon. A kis- és közepes vállalkozások pénzügyi kultúrájának vizsgálata*. Kézirat. Budapest, Budapesti Corvinus Egyetem Szociológia és Társadalompolitikai Intézet.
- Czakó, Á. (2011): Vállalkozások, pénzügyek, innováció. In: Czakó, Á., Husz, I., Szántó, Z. (eds.): *Meddig nyújtózkodjunk? A magyar háztartások és vállalkozások pénzügyi kultúrájának változása a válság időszakában*. Gazdaság-szociológiai műhelytanulmányok, 131-142.
- Czakó, Á., Sík, E. (1994): Hálózati tőke a posztkommunista Magyarországon. *Mozgó Világ*, 20(6), 17-25.
- Czeczeli, V., Kolozsi, P., Kutasi, G., Marton, Á. (2020): Gazdasági kitettség és válságállóság exogén sokk esetén: A Covid-19-járvány rövid távú gazdasági hatása az EU-ban. *Pénzügyi Szemle*, 3, 323-349.
- Csehné Papp, I. (2021): A válság különböző kontextusai, *Új munkaiügyi szemle*, 1, 24-30.
- Csizmadia, Z. (2008): Együttműködés és újjáépítőképesség. Az innováció regionális rendszerének kapcsolathálózati alapjai. *Szociológiai Szemle*, 18(2), 22-56.
- Csoba, J. (2017): *A szociális földprogram társadalmi és munkaerőpiaci integrációs szerepe a vidéki Magyarországon*. Debrecen, Debreceni Egyetemi Kiadó.
- Dabasi-Halász, Zs. (2011): A gazdasági válság hatása 2008-2011 között a munkaerőpiac területi különbségeire hazánkban, *Észak-magyarországi Stratégiai Füzetek*, 8(2), 57-70.
- Dániel, Z. A. (2021): Pre-crisis financial reserves for smes operating in vulnerable sectors, In: Pop, G. (eds.): *Global Challenges - Local Answers. Interdependencies or Slobalisation?* Miercurea Ciuc, Sapientia Hungarian University of Transylvania. 236-247.
- Demertzis, M., Sapir, A., Tagliapietra, S., Wolff, G. (2020): An effective economic response to the coronavirus in Europe. *Policy Contribution*, 6, 1-10.
- Elia, V., Gnoni, M. G., Tornese, F. (2017): Measuring circular economy strategies through index methods: A critical analysis. *Journal of Cleaner Production*, 142, 2741-2751. <http://dx.doi.org/10.1016/j.jclepro.2016.10.196>
- EMF (2019): *Circular Economy: School of Thought*. <https://www.ellenmacarthurfoundation.org/circular-economy/concept/schools-of-thought>

European Commission. (2015): *Closing the Loop – an EU Action Plan for the Circular Economy. Communication COM (2015) 614/2*. Brussels, European Commission.

European Commission (2017): *The EU Environmental Implementation Review Country Report – Germany (SWD (2017) 44 final)*. Brussels, European Commission.

European Commission (2019): *Report From the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Implementation of the Circular Economy Action Plan*. Brussels, European Commission.

Fernandes, N. (2020): Economic effects of coronavirus outbreak (COVID-19) on the world economy. *IESE Business School Working Paper*, WP-1240-E, 1-32.

Finta, I., Póla, P. (2020): Szociális szövetkezetek periférikus térségekben – a sikeres működés feltételei és akadályai. *Tér és Társadalom*, 34(3), 142-169. <https://doi.org/10.17649/TET.34.3.3283>

Flaxman, S., Mishra, S., Gandy, A., Unwin, H-J., Mellan, T. Coupland, H. Bhatt, S. (2020): Estimating the effects of non-pharmaceutical interventions on COVID-19 in Europe. *Nature*, 584, 257-261. <https://doi.org/10.1038/s41586-020-2405-7>

Gábor, R. I., Galasi P. (1981): *A „második” gazdaság*. Budapest, Közgazdasági és Jogi Könyvkiadó.

Gamage Naradda, S. K., Ekanayake, E. M. S., Abeyrathne, G. A. K. N. J., Prasanna, R. P. I. R., Jayasundara, J. M. S. B., Rajapakshe, P. S. K. (2020): A review of global challenges and survival strategies of small and medium enterprises (SMEs). *Economies*, 8(4), 79. <https://doi.org/10.3390/economies8040079>

Gasper, R., Blohm, A., Ruth, M. (2011): Social and economic impacts of climate change on the urban environment. *Current Opinion in Environmental Sustainability*, 3(3), 150-157. <https://doi.org/10.1016/j.cosust.2010.12.009>

Györfly, D. (2021): Felzárkózási pályák Kelet-Közép-Európában két válság között. *Közgazdasági Szemle*, 68(1), 47–75. <http://dx.doi.org/10.18414/KSZ.2021.1.47>

Györi, Á. (2014): *Kis- és közepes vállalkozások együttműködési aktivitása. Egy közép-dunántúli kistérségben működő kis- és közepes vállalkozások kapcsolatrendszerének helyzetfeltárása*. (Doctoral dissertation, Budapest Corvinus Egyetem). http://phd.lib.uni-corvinus.hu/819/1/Gyori_Agnes.pdf

Haas, W., Krausmann, F., Wiedenhofer, D., Heinz, M. (2015): How circular is the global economy?: An Assessment of Material Flows, Waste Production, and Recycling in the European Union and the World in 2005. *Journal of Industrial Ecology*, 19(5), 765-777. <https://doi.org/10.1111/jiec.12244>

Hajdú, Z., Rácz, S. (2020): Államhatár-politikák az Európai Unióban és Magyarországon a globális koronavírus-válság kezdeti időszakában. *Tér és Társadalom*, 34(2), 202-210. <https://doi.org/10.17649/TET.34.2.3260>

HM Government (2018): *Our Waste, Our Resources: A Strategy for England*. London, DEFRA

Horváth, B. (2019): *Körforgásos gazdasági modellek és hatékonyságuk mérése*. (Doctoral dissertation, Gödöllő, Szent István Egyetem) https://szie.hu/sites/default/files/horvath_balint_ertekezes.pdf

Inzelt, A. (2011): Innováció és nemzetköziesedés a kicsik világában. *Egy e-felvétel eredményei. Külgazdaság*, 55(9–10), 122–154.

Inzelt, A. SZERB, L. (2003): Az innovációs aktivitás vizsgálata ökonometriai módszerekkel. *Közgazdasági Szemle*, 50(11), 1002–1021.

Ionescu, L. (2021): Transitioning to a low-carbon economy: Green financial behavior, climate change mitigation, and environmental energy sustainability. *Geopolitics, History and International Relations*, 13(1), 86-96. <https://doi.org/10.22381/GHIR13120218>.

Istenes, K. A. (2022): ZÖLD CONTROLLING – A fenntartható kontrolling a körforgásos gazdaságra való átállásban. Budapest, Budapesti Gazdasági Egyetem, 17-40.

Kabai, G., Németh, N., Farkas, M. (2010): *Versenyképesség haloptikával – Helyi gazdaságfejlesztési problémák fejlődő városokban*. TM 57. sz. műhelytanulmány. Budapest, BCE Vállalatgazdaságtani Intézet Versenyképesség Kutató Központ.

Kincses, Á., Tóth, G. (2020): How coronavirus spread in Europe over time: national probabilities based on migration networks. *Regional Statistics*, 10(2), 228–231. <https://doi.org/10.15196/RS100210>

Kirchherr, J., Reike, D., Hekkert, M. (2017): Conceptualizing the circular economy: an analysis of 114 definitions. *Resources, Conservation & Recycling*, 127, 221-232. <https://doi.org/10.1016/j.resconrec.2017.09.005>

Kis, K., Kovács, H., Szatmári, G., Tóth, M. (2016): A szociális szövetkezetek szerepe a vidékfejlesztésben - Esettanulmány: A Bergendőc Szociális Szövetkezet működésének és eredményeinek értékelése. *Jelenkori társadalmi és gazdasági folyamatok*, 11(1-2), 9-34.

Korhonen, J. Honkasalo, A. Seppälä, J. (2018): Circular Economy: the concept and its limitations. *Ecological Economics*, 143, 37-46. <https://doi.org/10.1016/j.ecolecon.2017.06.041>

Kovács, S. (2020): Az alapvető pénzügyi szolgáltatások online térbe helyezésének korlátai. *Tér és Társadalom*, 34(2), 195-201. <https://doi.org/10.17649/TET.34.2.3264>

Krawczyk, P. (2021): Non-financial reporting—standardization options for SME sector. *Journal of Risk and Financial Management*, 14(9), 417. <https://doi.org/10.3390/jrfm14090417>

Kwadijk, C. J., Haasnoot, M., Mulder, J., Hoogvliet, M. Jeuken, A., van der Krogt, R., van Oostrom, N. G. C., Schelfhout, H. A., van Velzen, E. H., van Waveren, H., de Wit, M. J. M. (2010): Using adaptation tipping points to prepare for climate change and sea level rise: a case study in the Netherlands. *Wiley interdisciplinary reviews: climate change*, 1(5), 729-740. <https://doi.org/10.1002/wcc.64>

Lennert, J. (2020): A távmunka széleskörű elterjedésének lehetséges hatása a magyarországi vándormozgalmi mintázatokra. *Tér és Társadalom*, 34(2), 178-182. <https://doi.org/10.17649/TET.34.2.3269>

Lentner, Cs. (1996): Ki fizeti (meg) a privatizációt? *Gazdaság és Társadalom*, 3–4, 36–51.

Lipták, K (2020): Maradj otthon, dolgozz otthon! – A koronavírus-járvány hatása a távmunkára Észak-Magyarországon, *Területi Statisztika*, 61(2), 153–169. <https://doi.org/10.15196/TS610202>

Lipták, K. (2013): A magyarországi kistérségek munkaerő-piaci alakulását magyarázó tényezők vizsgálata *Journal of Central European Green Innovation*, 1(1), 83–96.

Lipták, K. (2014): Változó munkaerőpiac? Munkaerő-piaci előrejelzés Észak-Magyarországon, *Területi statisztika*, 54(3), 220-236

Lipták, K., Horváth, K. (2018): Társadalmi innovációk szerepe a foglalkoztatáspolitikában és a vidékfejlesztésben. *Észak-magyarországi Stratégiai Füzetek*, 15(3), 55-68.

Lőcsei, H. (2010): *A gazdasági világválság hatása a munkanélküliség területi egyenlőtlenségeire*. Munkaerőpiaci Tükör 2010. Budapest, MTA Közgazdaságtudományi Intézet OFA.

Marino, A., Pariso, P. (2020): Comparing European countries' performances in the transition towards the Circular Economy. *Science of the Total Environment*, 729, 1-12. <https://doi.org/10.1016/j.scitotenv.2020.138142>

Merkely, B., Fülöp, G., Kosztin, A., Vokó, Z. (2020): A Covid-19-járvány Magyarországon és a H-UNCOVER vizsgálat. In: Kolosi, T. Szelényi, I.Tóth, I. (eds.): *Társadalmi Riport*. Budapest.

Mimura, N. (2013): Sea-level rise caused by climate change and its implications for society. *Proceedings of the Japan Academy*, 89(7), 281-301. <https://doi.org/10.2183/pjab.89.281>

Misra, A. K. (2014): Climate change and challenges of water and food security. *International Journal of Sustainable Built Environment*, 3(1), 153-165. <https://doi.org/10.1016/j.ijse.2014.04.006>

Momete, D. C. (2020): A unified framework for assessing the readiness of European Union economies to migrate to a circular modelling. *Science of the Total Environment*, 718, 1-9. <https://doi.org/10.1016/j.scitotenv.2020.137375>

Monasterolo, I. (2020): Climate change and the financial system. *Annual Review of Resource Economics*, 12, 299-320.

Mulhern, A. (1995): The SME sector in Europe: A broad perspective *Journal of small business management*, 33(3), 83

Nemes, Zs. (2018): *Körkörös gazdasági modell, ipari parkok és ipari ökoszisztémák. Székesfehérvár esettanulmánya*. http://unipub.lib.uni-corvinus.hu/4104/1/Korkoros_EFOP_NZs.pdf

Ngan, S. L., How, B. S., Teng, S. Y., Promentilla, M. A. B., Yatim, P., Choy Er, A., Lam, H. L. (2019): Priorization of sustainability indicators for promoting the circular economy: The case of developing countries. *Renewable and Sustainable Energy Reviews*, 111, 314-331. <https://doi.org/10.1016/j.rser.2019.05.001>

Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., Agha, R. (2020): The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International Journal of Surgery*, 78, 185-193. <https://doi.org/10.1016/j.ijisu.2020.04.018>

Nygren, K., Olofsson, A. (2020): Managing the Covid-19 pandemic through individual responsibility: the consequences of a world risk society and enhanced ethopolitics. *Journal of Risk Research*, 23(7-8), 1031-1035. <https://doi.org/10.1080/13669877.2020.1756382>

Pla-Julián, I., Guevara, S. (2019): Is circular economy the key to transitioning towards sustainable development? *Challenges from the perspective of care ethics*. *Futures*, 105, 67-77. <https://doi.org/10.1016/j.futures.2018.09.001>

Patra, D. (2022): The Challenges For SMEs In Green Finance Initiatives Adoption. *Journal of Positive School Psychology*, 6(25), 313-325.

Pearce, D. W., Turner, R. K. (1990): *Economics of Natural Resources and the Environment*. Baltimore MD, John Hopkins University Press.

Petridou, E. (2020): Politics and administration in times of crisis: Explaining the Swedish response to the COVID-19 crisis. *European Policy Analysis*, 6, 147-158. <https://doi.org/10.1002/epa2.1095>

Pomázi, I., Szabó, E. (2018): A körforgásos gazdaságra való áttérés folyamatának egyes jellemzői a visegrádi országokban. *Külgügyi Szemle*, 17(4), 80-102.

Potting, J., Hekkert, M., Worrell, E., Hanemaaijer, A. (2017): *Circular Economy: Measuring Innovation in the Product Chain – Policy Report*. Hague, PBL Netherlands Environment Assessment Agency.

Prasanna, R. P. I. R., Jayasundara, J. M. S. B., Gamage, S. K. N., Ekanayake, E. M. S., Rajapakshe, P. S. K., Abeyrathne, G. A. K. N. J. (2019): Sustainability of SMEs in the competition: a systemic review on technological challenges and SME performance. *Journal of Open Innovation: Technology, Market, and Complexity*, 5(4), 100. <https://doi.org/10.3390/joitmc5040100>

Pyka, I., Pyka, J. (2021): Corporate green investment imperative and risk of a credit crunch in Poland. *Zeszyty Naukowe. Organizacja i Zarządzanie/Politechnika Śląska*. <https://doi.org/10.29119/1641-3466.2021.154.17>

Richardson, K., Steffen, W., Liverman, D. (2011): *Climate change: Global risks, challenges and decisions*. Cambridge, Cambridge University Press.

Saidani, M., Yannou, B., Leroy, Y., Cluzel, F., Kendall, A. (2019): A taxonomy of circular economy indicators. *Journal of Cleaner Production*, 207, 542-559. <https://doi.org/10.1016/j.jclepro.2018.10.014>

Semieniuk, G., Campiglio, E., Mercure, J. F., Volz, U., Edwards, N. R. (2021): Low-carbon transition risks for finance. *Wiley Interdisciplinary Reviews: Climate Change*, 12(1), e678. <https://doi.org/10.1002/wcc.678>

Soltesz, K., Gustafsson, F., Timpka, T., Jaldén, J., Jidling, C., Heimerson, A., Bernhardsson, B. (2020): The effect of interventions on COVID-19. *Nature*, 588, 26-28. <https://doi.org/10.1038/s41586-020-3025-y>

Storey, D. J. (2016): *Understanding the small business sector*. London, Routledge.

Szabó, A. (2019): Körforgásos gazdaság. https://www.parlament.hu/documents/10181/1828247/Infokorkep_Fenntarthato_fejlodes_mezogazdasag.pdf/968bce46-84fe-4ba0-f93a-79225064c7de

Szerb, L. (2010): *Vállalkozások, vállalkozási elméletek, vállalkozások mérése és a Globális Vállalkozói és Fejlesztési Index*. (Doctoral dissertation, Pécs, Pécsi Tudományegyetem). http://real-d.mtak.hu/378/4/dc_61_10_doktori_mu.pdf

Szerb, L., Petheő, A. (2014): A „Globális Vállalkozói Monitor” kutatás adatfelvételei. *Statistikai Szemle*, 92(1), 5-32.

Szerb, L., Ulbert, J. (2009): The examination of the competitiveness in the Hungarian SME sector: A firm level analysis, *Acta Polytechnica Hungarica*, 6(3), 105-123.

Szijártó, N. (2020): Az Európai Unió gazdasága és a koronavírus (COVID-19): *Az Európai Bizottság útkeresése. Közgazdaság- és Regionális Tudományi Kutatóközpont Világgazdasági Intézet*. Kihívások, 236.

The Ellen MacArthur Foundation (2013): *Towards a Circular Economy: Economic and Business Rationale for Accelerated Transition*. Cowes, The Ellen MacArthur Foundation.

Tóth, I., Hudácskó, S. (2020): A koronavírus-járvány társadalmi hatásai a közvélemény-kutatások tükrében. In: Kolosi, T., Szelényi, I., Tóth, I. (eds.): *Társadalmi Riport*. Budapest.

Tóthné Szita, K. S., Gubik, A., Bartha, Z. (2017): A körforgásos gazdaságban rejlő lehetőségek a KKV-k számára. In: Györkő, D., Kleschné Csapi, V., Bedő, Zs. (eds.): *ICUBERD Book of Papers*, 560-572.

UK Government (2011): *Enabling the Transition to a Green Economy: Government and Business Working Together*. http://www.ukgbc.org/sites/default/files/Enabling_the_transition_to_a_Green_Economy_Main_D.pdf

Virág, Á. (2017): *Az Észak-alföldi régió szociális szövetkezeteinek működési sajátosságai*. Párbeszéd -szociális munka folyóirat.

- Wang, P., Kara, S., Hauschild M. Z. (2018): Role of manufacturing towards achieving circular economy: the steel case. *CIRP Annals*, 67, 21-24. <https://doi.org/10.1016/j.cirp.2018.04.049>
- Wardman, J., Lofstedt, R. (2020): COVID-19: confronting a new world risk. *Journal of Risk Research*, 23(7-8), 833-837. <https://doi.org/10.1080/13669877.2020.1842988>
- Washington, H. (2015): *Demystifying Sustainability: Towards Real Solutions*. London, Routledge.
- WHO (2020): *Coronavirus disease (COVID-19)*. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-coronaviruses#:~:text=symptoms>
- Wilhelm, K., Willard, B. (2013): *Return on sustainability: how business can increase profitability and address climate change in an uncertain economy*. New Jersey, FT Press.
- Winans, K., Kendall, A., Deng, H. (2017): The history and current applications of the circular economy concept. *Renewable and Sustainable Energy Reviews*, 68(1), 825-833. <https://doi.org/10.1016/j.rser.2016.09.123>
- Wright, C., Nyberg, D. (2017): An inconvenient truth: How organizations translate climate change into business as usual. *Academy of management journal*, 60(5), 1633-1661. <https://doi.org/10.5465/amj.2015.0718>
- Zádori, I., Nemeskéri, Z., Szabó, S. (2020): Deglobalizáció vagy reglobalizáció? Munkaerőpiac a vírus előtt, alatt és után. Vitaindító tanulmány. *Új Munkügyi Szemle*, 1(3), 2-13.
- Zhu, D. J., Qiu, S. F. (2007): Analytical tool for urban circular economy planning and its preliminary application: a case of Shanghai. *City Planning Review*, 31(3), 64-69.

About authors

Zoltán András Dániel is an associate professor at the Department of Business Economics, Faculty of Business and Economics, University of Pannonia, since 2008. He graduated as Economist, specialized in Marketing and Management – diploma issued by the University of Pannonia. His PhD research focused on the impact of Hungarian SME's added value, and their convergence of non-repayable funds. He teaches Entrepreneurship, Business Economics, Accounting and Business Management. He is a member of the Hungarian Regional Science Association and the Regional Science Association International.

contact: daniel.zoltan@gtk.uni-pannon.hu



Tamás Molnár (1964) habilitated professor, head of the Institute of Economics at the University of Pannonia, Faculty of Economics. In 1990 he obtained a degree in Agricultural Engineering (Keszthely, KATE), in 1993 a degree in Economics (Pécs, JPTE), in 1999 a degree in European Union Expertise (Gödöllő - Angers, GATE - ESA d' Angers). He obtained his PhD in Economics in 2001 and his habilitated doctorate in Economics and Management in 2006. He has extensive experience in higher education, teaching mainly in the disciplines of statistics, accounting and business economics. His research interests include the study of competitiveness at the municipal level and the identification of the factors that

shape development. He was the leader of an OTKA research project in this field and a recipient of a János Bolyai research grant from the Hungarian Academy of Sciences. He has been a member of the editorial board of several journals (e.g. Terregeti Statisztika) and an officer of several scientific societies, including the Hungarian Regional Science Society of Central Transdanubia and the Hungarian Economic Society of Veszprém County.

contact: molnar.tamas@gtk.uni-pannon.hu



Dorottya Edina Kozma has been a member of the Department of Accounting and Finance at the University of Pannonia since 2020. In 2014, she obtained a bachelor's degree in Applied Economics, and in 2016, she obtained a Master's degree in International Economics and Business Administration. She completed her PhD in 2021, focusing her research on sustainable development. She has extensive experience in higher education, mainly in Accounting, Managerial Accounting, Customs and Transportation, and Accounting and Taxation in Digital Environments. Her main research interests include sustainable development, circular economy, climate change. She is a member of the Hungarian Regional Science Association and the Regional Science Association International.

contact: kozma.dorottya.edina@gtk.uni-pannon.hu



YOUNG RESEARCHERS' SECTION

KATALIN VARGA-TOLDI – ZOLTÁN VERES

SERVICE QUALITY DIMENSIONS OF THE MANAGEMENT CONSULTING MARKET

Management consulting is a professional service of which objective is to help the organization solve its own problems by making it aware of organizational processes, of their likely consequences, and of intervention techniques for stimulating change. Despite the fact that consulting is one of the most important and biggest sector in the market of professional services, few empirically grounded research data is available for measuring the service quality of management consulting service. The aim of this paper is to advance an empirically grounded approach to the study of utility and service quality preferences of management consulting projects, especially the service quality attributes and dimensions of management consulting service. The dimension structure of quality evaluation of management consulting projects is hierarchical and there is a significant difference between the importance of quality dimensions. The four dimensions' index distribution significantly differ from the other and their importance also significantly shows variance. The most important dimension of successful consulting service is expertise, which is followed by relations and performance. The least important dimension is involvement. There is a significant difference how consultants and clients regard the importance of each dimension. Research results shows that consultants evaluate the importance of involvement dimension less than clients and there is a significant difference between the importance of sub-dimensions of relationship dimension.

Background and purpose

Based on empirical qualitative data from 22 in-depth interviews a conceptual model of perceived quality dimensions (ERIP model) of management consulting services were developed (Varga-Toldi – Veres, 2020). Purpose of this paper is to provide an empirically grounded approach to validate the ERIP management consulting service quality model, examine the clients' underlying quality preferences and define pivotal, core and peripheral quality attributes.

Method

The research is an empirical quantitative data collection from 167 surveys performed in the Hungarian service sector. Participants were selected from different hierarchical levels and the research sample represented both of clients and consultants. Client sample participants were decision makers or project leads with significant experience in working with consultants on project assignments, the consultant sample was obtained by selecting professionals from different consulting firms with a significant project experience. Research data were examined with non-parametric analysis (Wilcoxon signed rank, two sample median test), and principal component and factor analysis.

Theoretical background

Characteristics of management consulting project

In business markets instead of concrete and tangible solutions customers are more likely to seek solutions for their business problems, especially in consulting industry which is a professional service activity by occupation (Nádor, 2007a). Management consulting is a professional service of which objective is “to help the organization solve its own problems by making it aware of organizational processes, of their likely consequences, and of intervention techniques for stimulating change” (Kubr, 1996, p. 70). However, management consulting is a resolution for a not yet born and basically “only on paper existing” idea provided by a group of experts with assumed competences (Nádor, 2007b).

Consumed consulting service may significantly impact the success and reputation of the client organization, thus consulting is a high relationship complexity service, where trust and ethical norms has a fundamental importance (Hakansson – Ford, 2002). Management consulting projects are typically complex and difficult assignments and address specific challenges across structural and organizational boundaries. Consequently, it is extremely problematic to determine whether the client problem was solved appropriately and whether the quality of the consulting service met the expectations of the client. These circumstance increases the uncertainty in the buyer’s decision and makes it difficult to evaluate service quality (Cronin – Taylor, 1992; Bennett et al., 2005; Ford, 2002; Haverila et al., 2011).

The nature of consulting interventions is unique and unrepeatable, executed in a complex business environment. Consequently, the capability of customers to form rational decisions when choosing a consulting partner is limited and due to incomplete information (Veres, 2009) their quality preferences are unstable and often change through the project lifecycle. This phenomenon has a significant impact on perceived service quality and earned value. Finally, in management consulting interactions the customers usually do not have the technical or scientific know-how to confidently evaluate the quality of consulting projects, consequently many assignments are never fully evaluated (Kubr, 2002; Smith, 2002; Haverila et al., 2011).

Quality dimensions of consulting services

Judging the quality of consulting service prior to the delivery (*ex-ante*), and the sufficiency of the service after it has been delivered (*ex-post*) is very problematic (Bennett and Smith, 2004) moreover, due to the high number of credence qualities of consulting service, performance cannot be evaluated even after the consumption of the service (Gallouj, 1996; Zeithaml – Bitner, 2001).

There is a wide range of literature that bears on the topic of client-consultant relationship and attempts to define the main dimensions of successful relationships from the clients’ and consultants’ point of view and to identify the main factors that contribute to a successful consulting service (Gable, 1996a and 1996b; McLachlin, 1999 and 2000; Fullerton – West, 1999; Stumpf – Longman, 2000; Smith, 2002; Appelbaum – Steed 2005; Haverila et al., 2011; Ehrhardt – Nippa, 2005; Engwall – Kipping, 2013; Fullerton – West, 1996; Nikolova – Devinney, 2009; Pellegrinelli, 2002; Richter – Niewiem, 2009). However, in academia few empirical works can be found on evaluation process and quality dimensions of management consulting services. Most research paper approaches the research problem from

a relationship perspective, few study examines the service quality aspects of the consulting services and attempts developing a conceptional service quality model. The reason of this phenomenon roots in the circumstances of consulting projects. Authors (Gallouj, 1996; Zeithaml – Bitner, 2001; Wright – Kitay, 2002) highlight that management consulting project are non-tangible and difficult to measure, there are too many changes at the same time, and these changes has typically long-term and difficult to isolate impacts on the buyer organization. Moreover, there are several service attributes which cannot be evaluated even after the consumption of the service.

O'Driscoll and Eubanks (1993) studied organizational development (OD) assignments and outlined three indicators of effectiveness: (1) organizational outcomes, (2) organizational processes and (3) characteristics of the consultation itself.

Gable (1996a) studied 85 information technology projects and developed a multidimensional model for measuring client success when engaging an external consultant. He identified three main areas of assessment which through engagement success can be measured: (1) the consultants' recommendations (usage/acceptance level), (2) client learning - level of change, (3) consultant performance (actual versus estimated resource requirements).

Fullerton and West (1996) studied the clients' and consultants' perceptions of the consulting projects and identified the main dimensions in discriminating between unsuccessful and successful relationships. They found that the most frequently elicited dimensions that clients regard important are as follows: (1) the consultant is aware of the practicalities and viewed as an expert, (2) the consultant has a challenging attitude, (3) the consultant provides tailor-made solutions, (4) the consultant spends some time getting to know the politics and functioning of the client's part of the organization, (5) the consultant is viewed as giving value for money, (6) the consultant and the client set clear aims and objectives for the project, and (7) clients have control within the relationship.

Smith (2002) studied contributions of consultants to organizational change projects by asking clients' employees about how consultants' need to improve their service to the client organization to provide better quality. Smith found nine different categories of needs for improvement: (1) need for involving consultants in implementation phase, (2) need for adequate input for implementation from consultants, (3) need for listening and taking inputs of stakeholders, (4) need for effective project management, (5) need for helping employees to deal with change, (6) need for effective guidance for senior management, (7) need for being ethical and committed to the needs of stakeholders, (8) need for contributing breakthrough ideas, and (9) need for providing tangible value and concrete impact. Failure in any of these areas would cause inappropriate outcome and negative perception of the consulting project which then affect the post-purchase evaluation of the assignment.

McLachlin (1999) intended a universal approach and defines six factors that are necessary, but not sufficient for a successful consulting engagement in general: (1) consultant integrity: always putting the client's best interests first; (2) client readiness and involvement: clients are involved and are ready to change; (3) clear agreement: contract between parties concerning requirements and expectations; (4) client control: client using clear and limited assignments; (5) consultant competence: knowing one's limits and acting in accordance with one's capabilities; (6) Fit: good fit between client and consultant along a number of dimensions, including models of consultancy, client expectations, consultant capabilities, and consultant type.

Several authors emphasize that the key factor of successful consulting projects is how the selected consulting team is able to professionally deliver the service customized to the needs of the client organization (Skjølsvik et al., 2017). The most important aspects within this delivery process are how clients gain, transform, and apply the required knowledge (e.g., Engwall – Kipping, 2013; Richter – Niewiem, 2009). On the contrary, some authors have a more critical perspective and stress that it is the consultant who is the controlling party in the relationship and the focus is on the creation of impressions of value (e.g., Alvesson, 1993; Bouwmeester – Stiekema, 2015; Clark, 1995; Clark – Salaman, 1998a and 1998b; Nikolova – Devinney, 2009; Starbuck, 1992), and there are symbolic interaction systems where consultants create an expert image in the eyes of their clients (Nikolova et al., 2009). This phenomenon influences the quality assessment of the consulting interventions and brings less formal subjective quality elements to the evaluation process (Hennig-Thurau et al., 2002).

Summarizing the literature in this field we observe that most of the papers in this field mainly focus on relationship quality and little is explained about the dimensions of service quality and existing process of quality measurement. Moreover, only few concepts are empirically tested, consequently, research findings cannot necessarily be transferred and extrapolated to other consulting interactions.

Research problem and research questions

The aim of the dissertation is to advance an empirically grounded approach to the study of quality dimensions of management consulting services by identifying the clients' underlying quality preferences.

Based on the preliminary exploration of academic literature two main research problems were defined as follows (1) service attributes of management consulting service are hidden, quality preferences and quality expectations of clients may vary; (2) in academia there are few empirically based studies on the success factors of interventions and there is still no generally accepted quality evaluation model of management consulting services.

Based on the research problems research questions are defined as follows:

Q1: Do clients regard the importance of success dimensions of consulting assignments differently?

Q2 In consulting service quality evaluation which relationship quality components regard clients the most important?

Q3 Is there any difference in the quality perception of individuals in different level of organizational hierarchy?

In this research management consulting is considered as a professional service, and study consultants as external professionals employed by consulting firms and delegated to clients' organization. Data was collected by quantitative research and survey were carried out in the form of structured questionnaire. Questionnaire was designed based on the previous related scientific papers and interview manuscripts of previous qualitative research. Final version of the questionnaire was tested by experts and were aligned with the developed conceptual model of service quality. In accordance with the character of the research topic, the survey was carried out with CAWI method and to create a greater feeling of intimacy for participants and due to the sensitivity of the topic questionnaire were conducted anonymously. Participants were selected from different hierarchical levels and the research sample represented both of clients and consultants. Client sample participants were decision makers or project leads with significant

experience in working with consultants on project assignments, the consultant sample was obtained by selecting professionals from different consulting firms with a significant project experience.

Quality parameters of the conceptual model were transformed into attitude statements and four-level preference hierarchy structure were defined (see in Table 1).

Attitude statement (51)
Attribute (39)
Sub-Dimension (16)
Main dimension (4)

Table 1 Quantitative conceptual model
 Source: own editing

In total 51 attitude statement were used to be able to measure importance of quality dimensions of the model (Table 2)

Main dimensions	Number of attitude statements
Expertise	8
Relation	16
Involvement	8
Performance	19

Table 2 Structure of main dimensions and attitude statements
 Source: own editing

1-5 Likert scale were used to collect respondents' attitudes and opinions. Research data were examined with non-parametric analysis (Wilcoxon signed rank, two sample median test), and principal component and factor analysis. Likert scale reliability were tested by Cronbach alpha method. The final sample consisted of 167 individuals of whom 40% were consultants and 60% represented buyer organizations. The distribution of predefined hierarchy levels was proportional, career levels were equally presented in the research sample. Participants were selected from different service industry, however financial sector represents 40% of the sample which phenomenon is acceptable since "financial sector historically has been by far the largest market for consulting firms, accounting for one-third of their revenue in total" (Czerniawska – Toppin, 2005, p. 23).

Research results

There is a significant difference in the importance of quality dimensions of the conceptual model. The four dimensions' index distribution significantly differ from the other and their importance also significantly shows variance (Table 3). The most important dimension of successful consulting service is expertise, which is followed by relations and performance. The least important dimension is involvement.

Dimensions (ERIP)	Mean	Median
Expertise	3,90	3,88
Relations	3,76	3,75
Involvement	3,58	3,63
Performance	3,70	3,68

Table 3 Index distribution of dimensions

Source: own editing

There is a significant difference how consultants and clients regard the importance of each dimension. Research results show (Table 4) that consultants view the importance of involvement dimension less than clients (at significance level of 10%).

Dimensions (ERIP)	Consultant/Client				Significant difference?	Significant difference?
	Client		Consultant		$\alpha = 5\%$	$\alpha = 10\%$
	Mean	Median	Mean	Median		
Expertise	3,93	4,00	3,85	3,88	No	No
Relations	3,75	3,75	3,77	3,81	No	No
Involvement	3,60	3,75	3,54	3,50	No	Yes
Performance	3,70	3,68	3,70	3,74	No	No

Table 4 Index distribution of dimensions of consultants and clients

Source: own editing

Attitude statements can be grouped based on their importance into three category which classification provides a practical and managerial perspective for interpretation of results (See Table 5). Based on PCP service quality model theory (Philip – Hazlett, 1992) there are pivotal service attributes which are crucial and a must have factors of management consulting service quality perception (14 preferences). Core service attributes are important, however not critical, participants regard these requirements moderately

important (23 preferences). Finally, there are some peripheral attributes which are less important preferences in quality perceptions of consulting services, however customers are delighted if consultants may provide these (14 preferences) during their service.

Importance (mean)	PCP quality model service attribute group	Number of attitude statements
4,00 <	Pivotal	14
3,50 – 4,00	Core	23
3,50 >	Peripheral	14

Table 5 PCP classification of management consulting service quality attributes

Source: own editing

The pivotal quality preferences are efficient resource utilization, meeting ethical norms, commitment to organizational goals, subject-expert consulting team, strategic fit between client and consultants, assertive communication, transparent and on-time delivery process, active knowledge sharing.

Research results indicates that there is a significant difference between the importance of sub-dimensions of relationship dimension (Table 6). The most important sub-dimension is commitment, followed by ethical norms and assertiveness (at significance level of 10%).

Sub-dimensions of RELATIONS dimension	Mean	Median	Significant difference? $\alpha = 5\%$	Significant difference? $\alpha = 10\%$
Commitment	4,23	4,50	Yes	Yes
Ethical norms	3,83	4,00	No	Yes
Assertiveness	3,76	3,75	Yes	Yes
Management support	3,64	3,67	Yes	Yes
Empathy	3,42	3,33	Yes	Yes

Table 6 Importance of relationship dimension components (sub-dimensions)

Source: own editing

Based on relationship quality academic works it has been assumed that interpretation of relationship quality between consultants and clients can be subjective, and participants view importance of sub-dimensions differently.

Research has not found any significant difference between consultants and clients based on the importance of dimensions. Small variance can be found between mid and top leaders yet nor at significance level of 5% nor 10% this gap cannot be statistically proved. However, in case of two attitude statements there were a significant difference by position level in organizational hierarchy. Higher tiers

of management hierarchy tend to be more sensitive to the competence and expertise of consultants, yet little or less emphasis may be placed on specific project deliverables. These findings accord with results of explorative qualitative research.

The final model was tested by principal axis factors technique and run by varimax-rotation. KMO-test and Bartlett-test brought acceptable results to execute factor-analysis (Table 7).

Kaiser-Meyer-Olkin-test		0,871
Bartlett-test	Chi-square test	734,013
	Degrees of freedom	120
	Significance	0,000

Table 7 Results of KMO and Bartlett-test

Source: own editing

Factor analysis brought controversial results since the four quality dimensions which emerged and defined based on previous qualitative research cannot be separated unequivocally, their components do not fit separately to distinct factors (Table 8). Low factor scores indicates that variables from the original data is controversially related to a specific factor, it is not obvious which variables are most influenced by which factor.

* <0,25 factor score are hidden	Factor			
	1	2	3	4
E_Team structure				0,520
E_Competence		0,540		
E_Strategic fit	0,344	0,588	0,261	
R_Empathy	0,340			0,386
R_Assertivity	0,277		0,447	0,401
R_Commitment		0,282	0,274	
R_Management support	0,557			
R_Ethical norms		0,434	0,549	
I_Efficient resource-allocation		0,331	0,497	
I_Changemanagement	0,762			
I_Organizational learning	0,549	0,256	0,301	
P_Productivity			0,668	
P_Quick delivery	0,381	0,450		
P_Additional benefits	0,256	0,308		0,272
P_Internal buy-in	0,524			0,340
P_Availability	0,260	0,331	0,287	0,432

Table 8 Factor weights after varimax rotation

Source: own editing

Conclusions

By carrying out structured quantitative survey conceptual service quality model of management consulting services was tested. Research results show that there is a significant difference in the importance of success dimensions (conceptual model). The four dimensions' index distribution significantly differ from the other and their importance also significantly shows variance. The most important dimension of successful consulting service is expertise, which is followed by relations and performance. The least important dimension is involvement. Research results indicates that there is a significant difference between the importance of sub-dimensions of relationship dimension. The most important sub-dimension is commitment, followed by ethical norms and assertiveness. Pivotal, core and peripheral quality attributes were defined. The pivotal quality preferences are efficient resource utilization, meeting ethical norms, commitment to organizational goals, subject-expert consulting team, strategic fit between client and consultants, assertive communication, transparent and on-time delivery process, active knowledge sharing.

Research limitations and further research directions

This study can be regarded as fieldwork which indicates opinions of 167 professionals. These circumstances limit the generalizability of interpretation. The fact that surveyed experts have broad industry experience and extensive business practice with consultants from various field advance the reliability of the results. Based on the research the proposed consulting service quality model can be generalized as it fits and is in line with the previous b2b service quality and relationship quality models. For further and deeper analysis of proposed conceptual model data collection can be extended to a more heterogenous, comprehensive sample with wider industry scope. These methodological refinements allow to re-execute factor or cluster analysis of dimensions of ERIP model. Gap between consultants and clients in point of perceived quality dimensions may hold great and interesting research results in future.

Managerial implications

The value of the paper is the empirically grounded approach to validate consulting market specific conceptual quality model which work academically fills a void in consulting and service marketing literature. Research findings can support of buying organizations in managing their activities for improving service quality and setting clear behavioural and professional objectives to their consultants. Furthermore, findings assist sales executives in finetuning their pre-sales techniques by considering client quality preferences through tender and offer phases.

References

- Alvesson, M. (1993): Organizations as Rhetoric: Knowledge-Intensive Firms and the Struggle with Ambiguity. *Journal of Management Studies*, 30, 997-1015.
- Appelbaum, S. H., Steed, A. J. (2005): The critical success factors in the client consulting relationship. *Journal of Management Development*, 24(1), 68-93.
- Bennett, R. J., Charmine, E. J. H., McColl-Kennedy, J. R. (2005): Experience as a moderator of involvement and satisfaction on brand loyalty in a business-to-business setting. *Industrial Marketing Management*, 34(1), 97-107.
- Bennett, R. J., Smith, C. (2004): The selection and control of management consultants by small business clients. *International Small Business Journal*, 22(5), 435-62.
- Bouwmeester, O., Stiekema, J. (2015): "The paradoxical image of consultant expertise: a rhetorical deconstruction". *Management Decision*, 53(10), 2433 – 2456.
- Clark, T., Salaman, G. (1998a): Telling tales: management gurus' narratives and the construction of managerial identity. *Journal of Management Studies*, 35(2), 137-61.
- Clark, T. (1995): Managing Consultants - consultancy as the management of impressions. *The University of Michigan: Open University Press*
- Clark, T., Salaman, G. (1998b): Creating the 'right' impression: Towards a dramaturgy of management consultancy. *Service Industries Journal*, 18(1), 18-38.
- Cronin J. J. Jr., Taylor S. A. (1992): Measuring Service Quality: A Reexamination and Extension. *Journal of Marketing*, 56(3), 55-68.
- Czerniawska, F., Toppin, G. (2005): Business Consulting: The Economist's guide to how it works and how to make it work. *Economist Books*, London
- Ehrhardt, A., Nippa, M. (2005): Far better than nothing at all: Towards a contingency-based evaluation of management consulting services. *Freiberg Working Papers*, 9
- Engwall, L., Kipping, M. (2013): Management Consulting: Dynamics, Debates, and Directions. *International Journal of Strategic Communication*, 7(2), 84-98.
- Ford, D. (2002): Understanding Business Marketing and Purchasing: An Interaction Approach. 3rd ed. Cengage Learning EMEA.
- Fullerton, J., West, M. A. (1996): Consultant and Client -Working Together? *Journal of Managerial Psychology*, 11(6), 40-49.
- Gable, G. G. (1996a): Client Success When Engaging External Consultants. *Management Science*, 42(8), 1175-1198.
- Gable, G. G. (1996b): A multidimensional Model of Client Success When Engaging External Consultants. *Management Science*, 46(8), 1175-1198.
- Gallouj, C. (1997): Asymmetry of information and the service relationship: selection and evaluation of the service provider. *International Journal of Service Industry Management*, 8(1), 42-64.
- Hakansson, H., Ford, D. (2002): How should companies interact in business networks? *Journal of Business Research*, 55, 133-139.
- Haverila, M., Bateman, E. R., Naumann, E. R. (2011): The drivers of customer satisfaction in strategic consulting engagements: A global study. *Management Decision*, 49(8), 1354-1370.

Hennig-Thurau, T., Gwinner, K. P., Gremler, D. D. (2002): Understanding Relationship Marketing Outcomes: An Integration of Relational Benefits and Relationship Quality. *Journal of Service Research*, 4(3), 230-247.

Kubr, M. (ed). (1996): Management consulting. A guide to the profession. 3rd ed. International Labour Office, Geneva

Kubr, M. ed. (2002): Management consulting. A guide to the profession. 4th ed. International Labour Office, Geneva

McLachlin, R. D. (2000): Service quality in consulting: What is engagement success? *Managing Service Quality*, 10(3), 141-150.

McLachlin, R. D. (1999): Factors for consulting engagement success. *Management Decision*, 37(5), 394-404.

Nádor, É. (2007b): A professzionális tanácsadás vezetési és marketing kérdései. *Vezetés és tanácsadás*, 41(4-5), 131-140.

Nádor, É. (2007a): Az üzleti tanácsadás marketingje. Akadémiai Kiadó

Nikolova N., Reihlen, M., Schlapfner, J. (2009): Client – consultant interaction: Capturing social practices of professional service production. *Scandinavian Journal of Management*, 25(3), 289-298.

Nikolova, N., Devinney, T. (2012): The nature of client–consultant interaction: A critical review. In: M. Kipping, T. Clark (eds.): The Oxford handbook of management consulting, *Oxford University Press*, 389-409., Oxford, UK

O'Driscoll, M. P., Eubanks, J. L. (1993): Behavioral competencies, goal setting, and OD practitioner effectiveness. *Group & Organization Management*, 18(3), 308–327.

Pellegrinelli, S. (2002): Managing the interplay and tensions of consulting interventions: The consultant-client relationship as mediation and reconciliation. *Journal of Management Development*. 21(5), 343-365.

Richter, A., Niewiem, S. (2009): Knowledge transfer across permeable boundaries: An empirical study of clients' decisions to involve management consultants. *Scandinavian Journal of Management*, 25(3), 275–288.

Skjølsvik, T., Perner, F., Löwendahl B. R. (2017): *Strategic management of professional service*

Smith, M. E. (2002): What client employees say about consultants. *Leadership & Organization Development Journal*, 23(2), 93-103.

Starbuck, W. H. (1992): Learning by Knowledge-Intensive Firms. *Journal of Management Studies*, 29(6), 713-740.

Stumpf, S. A., Longman, R. A. (2000): The ultimate consultant: building long-term, exceptional value client relationship. *Career Development International*, 5(3), 124-34.

Varga-Toldi, K., Veres, Z. (2021): ERIP: service quality model of management consulting projects. *Journal of Business & Industrial Marketing*, 36(7), 1090-1102.

Veres, Z. (2009): Competence-based risk perception in the project business. *Journal of Business & Industrial Marketing*, 24(3/4), 237-244.

Wright, C., Kitay, J. (2002): „But does it work?“ Perceptions of the impact of management consulting. *Strategic Change*, 11, 271-278.

Zeithaml, V. A., Bitner, M. J. (2000): Services Marketing: Integrating Customer Focus Across the Firm. 2nd ed. Irwin McGraw-Hill, New York

About authors

Varga-Toldi Katalin, segment & customer management leader with 15 years of diverse experience and strong track record in driving business growth strategies and creating differentiated client handling solutions for financial services. Experienced in high-performing business development & segment teams, skilled at management consulting with a profile of executing integrated retail strategy programs and managing organizational transformations and projects. A creative, out-of-the-box thinker with passion for leading change with growth mindset and creating a nurturing culture of innovation. Dedicated, resourceful and goal-driven professional university lecturer with a solid commitment to the social and academic growth of students in the field of service and b2b marketing. Committed to professional ethics, standards of practice and the care and education of young generation.

Contact: toldi.katalin@gmail.com



Zoltán Veres, Professor of Marketing at the University of Pannonia, Veszprém, Hungary, Head of Research Centre of the Faculty of Business and Economics. He obtained his PhD in economics, at the Hungarian Academy of Sciences, and his habilitation degree at University of Szeged, Faculty of Economics and Business Administration. Among others he taught at the College for Foreign Trades; at the Ecole Supérieure de Commerce d'Angers and between 2004 and 2009 he was Head of Institute of Business Studies at the University of Szeged. In 2011 he was appointed professor of marketing at the Budapest Business School (BBS), Hungary, and between 2010 and 2014 he was also Head of Research Centre at BBS. Since 2014 he is editor-in-chief of the Pannon Management Review. Zoltán Veres has had consultancy practice and conducted numerous research projects on services marketing and project marketing. In 2001 and 2002 he was Head of Service Research Department at the multinational GfK Market Research Agency. He is a member of the research group of the European Network for Project Marketing and Systems Selling (Lyon); Advisory Board member of Academy of World Business, Marketing and Management Development, Perth (Australia); member of Comité Científico del Academia Europea de Dirección y Economía de la Empresa (Spain). He has more than 350 scientific publications, including the books of Introduction to Market Research, Foundations of Services Marketing and Nonbusiness Marketing. He has been editor of series to Academy Publishing House (Wolters Kluwer Group), Budapest.

Contact: veres.zoltan@gtk.uni-pannon.hu



