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Basic Methodological Considerations on the Digitalisation as Research Topic Choice and Justification on the Research Topic and Rule of Thumbs for a Scientific Title, Keywords and Abstract-Writing, Supported by a Collection of Student Materials

There can be research themes that may seem to be odd or alien for the first sight, hence they can discourage potential authors from further work. For many of our students in 2018, in the Institute of World Economy, that was digitalisation. However, as a research topic it appears at three levels: micro, mezzo and macro, and tends to become a grand theory by being a current transformational process that has expanded on all levels and dimensions that construct our reality; so it cannot be disregarded. Therefore, the aim of the study was to conceptualise a 4+1-step technique that help to make a choice on the research topic under or not a given theme and to justify that choice with the attributes of a good topic; then to explain the rule of thumbs for giving a scientific title and keywords, and writing an abstract. Finally, as examples it presented a collection of student materials from the Research Methods course of the Institute.

1. The Digitalisation as Research Topic

The first important step in academic writing, or in any kind of writing, is to choose a (research) topic. Although both cases, when the main theme is given and when it is not, have their own advantages and disadvantages, when authors face a seemingly odd or alien subject, they may find it enforced and difficult to cope with, which could lead to further blocks in creation or to a complete lack of inspiration. Therefore, the current study introduces known ways for generating research ideas and choosing research problems, based on what it conceptualises a 4+1-step technique that help to make the right choice on the research topic, and clarifies the attributes of a good topic to provide a justification for that choice. Upon that, it explains the rule of thumbs for giving a scientific title and keywords, and for writing an abstract. And finally, it presents a collection of student materials with their titles, keywords and abstracts as examples from the Research Methods course of the Institute of World Economy. All these basic but essential methodological considerations are gathered around the main theme of digitalisation.

Digitalisation can be regarded as an actual and important research topic for the present special issue of Köz-gazdaság at three levels: micro (institutional), mezzo (country or national), macro (supranational, international or global). At a micro level, *digitalisation* was highlighted last year as *a technical revolution*

in the new phase of globalisation that had determinative impacts on the society, economy and geopolitics by Mihály Simai and Péter Gál (2018),[2] which was supported by Tibor Palánkai and István Magas – as well as by the entire staff - at an informal meeting of the Institute of World Economy. With precedents in recognising global changes and trends, as well as paradigm shifts,[3] with their systematic view on the question, the authors outlined Hungary's chances, opportunities and duties for the innovative development in their working document, and chose the digitalisation as a priority research topic for our institute.

Similarly, so at a micro level last year, the Corvinus University of Budapest (2018) set the theme of "Society and Technology"[4] for the programme series titled as "Celebration of Hungarian Science at the 70 years old Közgáz",[5] which was organised around the impact of digital transformation on the society and economy. Herein, the digitalisation was approached by several aspects from (design) communication, media and marketing through organisational behaviour, mobility, tourism, taxation to industry, business (economics) and management. The round tables and conferences discussed the possible social, economic and communication-related impacts of digitalisation, particularly on generations and on intergenerational communication; the available digital tools, techniques and platforms to make the environment and the society more viable; the opportunities for using digital technologies in business training; the digitalisation of transport, the digital solutions for user experience and how mobility could be integrated into digital marketing communications for tourist destinations. At several points of the celebration, the digitalisation was regarded as a *21st century process that challenged our world, where the digital technologies were shaping and transforming the different human structures*, including e.g. planning and presenting design, mobility and tourism experience. The event raised the attention to that it was necessary to clarify the environment of digital technologies: "Many say that there is technology and there is society, so us. While there is no technology without us; society is technology. All technology is nothing else than design, the result of a design contact." Furthermore, in this year, our university decided to participate in the Subject Area Excellence Programme 2019[6] with an application titled as "Industrial and Business Innovation Potential in the Process of Digitalisation"[7] (Corvinus University of Budapest, 2019) that moves researchers in the entire school and beyond.

This application leads us to the mezzo level, where the National Research, Development and Innovation Office - NRDI (2019a) in Hungary established the aforementioned programme with the aim of adapting the research conditions to the socio-economic challenges, of strengthening the focus of research and innovation and of increasing the scientific productivity in the country. It lists four challenges such as safe society and environment, industry and digitalisation, health, culture and family, and provides 14.600 million forints for 26 universities and state-owned research institutes. However, that is not the only programme and platform that the NRDI Office supports and deals with in relation

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[2] Original title in Hungarian: A Kibontakozó technikai forradalom társadalmi, gazdasági és geopolitikai következményei a globalizáció új szakaszában. Magyarország innovatív fejlődésének esélyei, lehetőségei és feladatai.
[3] For example the strategies of transnational corporations were being taught first by these scholars of the Institute (then Department) of World Economy from 1987 in Europe, and only the University of Bocconi in Milan had similar research and course at the time. See more on the past 70 years of the institute in: Institute of World Economy (2019).
[4] Original title in Hungarian: „Társadalom és Technológia".
[5] Original title in Hungarian: „Magyar Tudomány Ünnepe a 70 éves Közgázon".
[6] Original title in Hungarian: „Tématerületi Kiválósági Program 2019".
[7] Original title in Hungarian: „Ipari és üzleti innovációs potenciálok a digitalizáció folyamatában".

to digitalisation. For example, on its own or in cooperation with other governmental and non-governmental organisations: it deals with the link between the digitalisation, the Industry 4.0 and the food industry (NRDI, 2019b), with the strategy of small- and medium-sized companies and their challenges for digitalisation and robotisation (NRDI, 2019c), it provides other applications for research and development (NRDI, 2019d), it supports the SMART conference (NRDI, 2019e), etc. These reflect that the digitalisation, both as a research topic and as an on-going transformation process, is significant and remarkable in the eye of the Hungarian government. These events and programmes regard and treat the digitalisation somewhat differently: SMART regard the digitalisation, besides the artificial intelligence and the automation, as a *technology leap*, and focuses on its impact on the individual; the SMEs strategy regard the digitalisation as a *possibility to increase market competitiveness,* so besides the Economic Development and Innovation Operational Programme[8], it created the Digital Welfare Credit Programme[9] with an additional framework of 7.5 billion forints, where both aims to support technology change; the Food industry regards Industry 4.0 and the digitalisation as *tools that have a great impact on modernisation and improvement in competitiveness,* and highlight that other EU member states, such as Germany, Great Britain, Spain, Belgium, the Netherlands, etc. also encourage initiatives and programs to promote the use of Industry 4.0 and digitalisation in the food processing sector with substantial government support, however, most of them are still in an initial, organisational phase and the number of tangible, practical solutions is still limited.

Hence, the digitalisation is not a one-country project and does not stop at mezzo level. That is also confirmed by the European Commission's (EC) documents (2018a-d), particularly the ones concerning the Multiannual Financial Framework 2021-2027, that highlighted the digital economy and innovation among its *key crossing priorities,* and it assigned the first heading in its budgetary plan as I. Single market, innovation and digital (Research & Innovation, European Strategic Investments, Single Market, Space). It targeted and found it necessary to increase the "Framework Programme by 50% to EUR 120 billion" that (among others) would "support progress on priorities such as "digital, energy, climate and health" (EC, 2018b). It emphasised that the digitalisation-related issues are a "key priority for the Union" such as: "Unlocking online opportunities and completing the Digital Single Market" (EC, 2018b); "(…) supporting strategic projects in frontline areas such as artificial intelligence, supercomputers, cybersecurity or industrial digitisation, and investing in digital skills" (EC, 2018c). Not surprising that the Commission also supports the research activity related to the theme of digitalisation. Its Horizon 2020 Programme is "the biggest EU Research and Innovation programme ever with nearly 80 billion euro of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract" (EC, 2014a). Besides providing funding, the programme deals with the linkages between the digitalisation and the agri-food sector (EC, 2016a-b), or the cultural content (EC, 2014b), or the urbanisation in Africa (EC 2016c) through organising workshops and work programmes, or summits like the Readie Research Summit: What drives Europe's Digital Economy (EC, 2016d) and conferences like the Industrial Technologies Conference (EC, 2016e). The reason for this spotlight on digitalisation in the EU is that *"the digital transformation of EU business and society presents enormous growth potential for Europe",* while the today businesses in

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[8] Original title in Hungarian: „Gazdaságfejlesztési és Innovációs Operatív Program".
[9] Original title in Hungarian: „Digitális jólét hitelprogram".

the EU "are not taking full advantage" of that potential, and "the state of digitisation of industry varies across sectors" and "there are also large disparities between large companies and SMEs" (EC, 2019). European industry finds opportunities in "the Internet of Things, big data, advanced manufacturing, robotics, 3D printing, blockchain technologies and artificial intelligence" (EC, 2019). According to EC, the *"digital transformation is characterised by a fusion of advanced technologies and the integration of physical and digital systems, the predominance of innovative business models and new processes, and the creation of smart products and services"* (EC, 2019).

Although, these are little snippets where digitalisation has appeared lately relevantly to research opportunities and has been found as important, it is striking that it makes the different levels intertwined and unalienable. This confirms its systemic character, and explains why it cannot have a universally adopted definition and why its interpretation varies through the three levels and the research areas that fill it with meaning: it was regarded as e.g. a process and a transformation that challenges our world, a technology leap and a technical revolution, a possibility and a tool to increase competitiveness and modernisation, a key crossing priority and a growth potential. Based on the interpretations of the three levels, it can be summarised as it follows: *The digitalisation is a transformation process started in our era of globalisation, in the 21st century with advanced technologies and innovation, and is presented by physical and digital systems, platforms, tools and equipment. It has expanded on all levels and dimensions that construct our reality with a serious impact on them from the individual to the systemic level, from society and politics to business and economy. Therefore, it is a key priority for many countries, including the EU and its member states, that provides opportunities to exploit and challenges to overcome.*

2. Choice and Justification on the Research Topic

2.1 Techniques for Making a Choice on the Research Topic

For making the right choice on the exact research topic, a multiple step technique is going to be conceptualised below, based on the following methods.

- For generating research topic ideas, Saunders, Lewis and Thornhill (2016) differentiate the rational and creative thinking and the integration of ideas. The first one refers to checking the past project titles and the existing literature, to doing a preliminary search and inquiry and to scanning the media. The second one refers to brainstorming, to depicting relevance trees and to using the Delphi technique. The third one refers to the optimate combination of rational and creative thinking.
- For choosing a research problem, the University of Southern California (2019a) have developed three ways: when the author is given the topic to write about, when the author is provided a list of possible topics to choose from and when the professor leaves it up to the author to choose a topic.

Herein, the aim of the technique is to arrive from an infinite universe of ideas to a single, exact, enough-specific-to-be-called-as-scientific research topic, that can be well-justified by the author and well-verified by the peers. Furthermore, as it was formerly mentioned, there can be a difference in doing research when the theme is given and when it is not. In line with these, 4+1 steps are established (Figure 2.1.1): (+1) spot ideas for the authors who are not given a theme (1) launch a thread (when the theme is given or decided); (2) search consciously, (3) delimitate the scopes; (4) justify and verify.
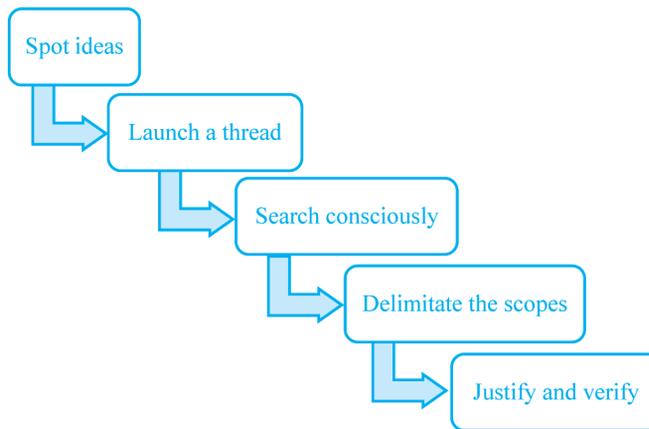
Figure 2.1.1 The 4+1-step technique

Step +1: *Spot ideas:* the authors should drop up broader or narrower topics randomly in a great amount to finally decide on one-three themes that are the most likeable for them. These can and should include less sense-making ideas as well that even though do not lead but contribute to the ultimate theme. In case there is co-authoring, the common set of the two most likeable themes could be found with compromise.

Step 1: *Launch a thread:* the authors should give statements or raise questions that come to their mind upon reading or hearing about the theme, one after the other. For example, if the given theme is digitalisation: What is digitalisation? Does it represent an important process for Hungary or the European Union? Where does digitalisation appear in political decision-making? Is digitalisation supported by or in the MFF 2021-2017?

Step 2: *Search consciously*: based on these ideas, authors should start the search electronically (online databases) and manually (libraries). And the more they go deeper in the thread, the more advanced options they should set. That can be supported by the references of the initially found sources as they help to move forward, to narrow or broaden the topic, or to drift away to passages that are more or less fitting for own research purposes. By continuing the example, herein authors first should search for the digitalisation itself, then for governmental portals and documents from the European Commission, drifted particularly to its budgetary plans to see whether the digitalisation is present there and if yes, by what kind of weight.

Step 3: *Delimitate the scopes:* authors should depict their search findings in a relevance tree and cut the branches while they narrow the topic by taking the attributes of a good research topic (Chapter 2.2) under consideration. By continuing the example, the tree in Figure 2.1.2 shows the areas covered by Chapter 1 in a structured and logical manner. It is visible that the search did not go enough deep in the social or economic dimensions, and although it also could, a tree may ultimately reflect the interest of the person who carried out the search, which is an important factor in doing research. By checking such attributes like the actuality, significance and relevance of the topic, the choice would probably move from Hungary's to the EU's branch until specific topics like the role of digitalisation among the key crossing priorities in the EC's plan for MFF 2021-2027 or the weight of I. Single market, innovation and digital in the EC's plan for MFF 2021-2027 compared to other headings.
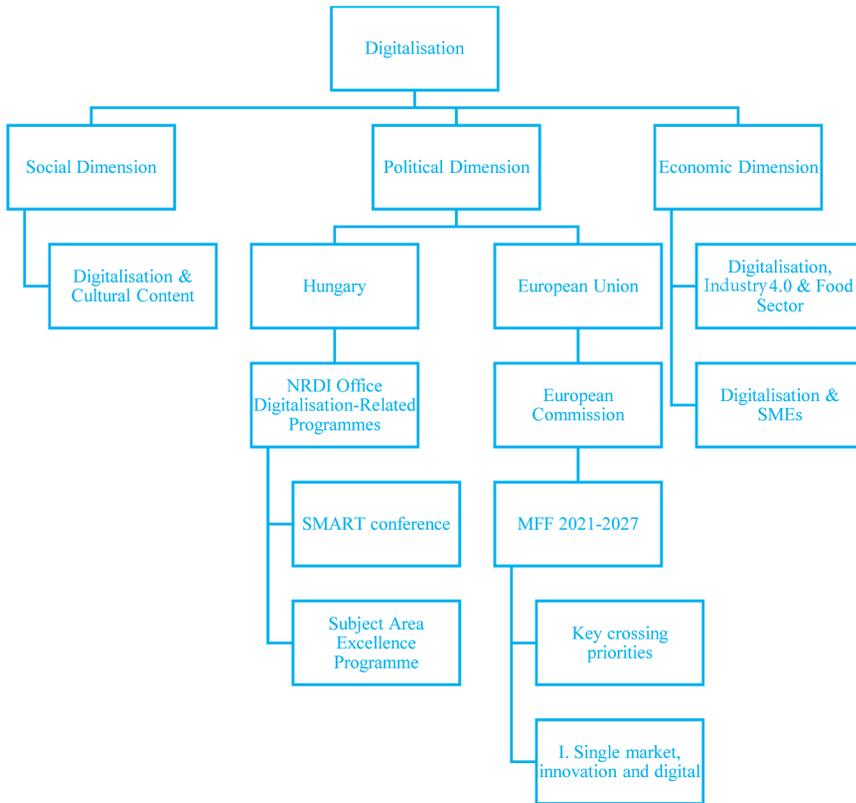
Figure 2.1.2 Relevance tree

Step 4: *Justify and verify:* authors should provide a written justification based on the attributes of a good research topic to their main and two alternative research topic choices. These should be handed over to the peers randomly for a review which can be double- or single-blinded. The peers should judge objectively the justifications and should or should not verify the authors' main choice. In case the main choice is not verified, they should suggest one of the alternative choices and help to further shape or justify them.

2.2 Justification or Attributes of a Good Research Topic

As it was above mentioned, a good research topic has attributes that should be embedded into the making-a-choice process at delimitating the scopes and at providing a justification. The proper justification is the researchers' trump card that makes their choice unquestionable. Therefore, it should take a concise and explicit standpoint in the followings (Almadi, 2018a; Saunders et al., 2016):

- *Significance*: that refers to the weight of the topic, its importance from an academic and/or a practitioner view. Therefore, it can cover the number or weight of research areas/disciplines including theoretical and methodological aspects, physical places geographically and non-

geographically speaking, the kinds of territorial structures and powers, organisations, units and groups, the kinds of existence, its dimensions and subjects, and the dynamisms among them in which the topic is present and has or may have a definite impact.

- *Actuality*: that refers to the currency of the topic. It tells where it is present today or why it has to be dealt with now.
- *Relevance*: that refers to the positioning of the topic in its user context, so where it should be submitted. If there is no clear and justifiable link between the topic and the target organisation or event, the final paper will be likely to be refused.
- *Own interests and skills:* the choice on a likeable topic and the reflection of the authors' interest was mentioned in the 4+1-step technique as an important factor. The reason for that is this feeling of liking something may generate more motivation to start and more commitment to accomplish basically anything, including a research. Even if the authors meet obstacles in the process, being interested in the topic will (make them) find the way to overcome those.
- *Theory development:* all scientific papers aim and contribute to theory development. Therefore, the chosen topic should have a link to an existing theory on which it can be grounded (deduction) or to which it can be jointed (induction), and provide new insights to our knowledge on it. Theory development has three levels: substitute, middle-range and grand theories. Grand theories, such as the digitalisation is expected to become, influence our way of thinking in a remarkable way (e.g. Newton's theory of gravity, Darwin's theory of evolution, Einstein's theory of relativity), hence the "greater" a theory is , the more capacity it has to change the way we think of the world, while the "smaller" a theory is, the more increasing restrictions it has in terms of its general applicability (e.g. middle range theory is human motivations, and substitute theory is managerial motivations or romantic motivations, etc.). While it is also true that small(er) theory developments in distinct research areas may add up to one "grand" theory.
- *Feasibility*: that refers to both, the theoretical and empirical feasibility of the research that is planned to do on the topic, hence if there are existing theories to link it to, if there are accessible data collection and analysis methods by which it can be exploited, if there are enough available financial and non-financial sources, time, place, contacts and permits that are necessary to carry it out.
- *Value-added:* finally, the authors should be honest with themselves in admitting and stating the theoretical, methodological or contextual value-added(s) of their research. To do that, they should be clear on the delimitation process and set up reasonable boundaries for their research.

3 Rule of Thumbs for a Scientific Title, Keywords and Abstract-Writing

The first impressions of research are given by its title, keywords and abstract. Therefore, the rule of thumbs for these are collected and conceptualised below.

According to Hartley (2005), the title is not only the thing that is usually read first but what is read the most on a paper. Hartley says that the title defines the entire study, that I find as the first best case, but when it does not, in the second best case, it can be supported by a subtitle.

The main rule is to have a specific title that delimitates the scopes of the research. Nevertheless, if the author is inclined to set a title that raises the readers' attention by asking a brief question (Digitalisation: Will Robots Overtake Our Place at Work?) or using creative expressions or catchy phrases (e.g. DigitAddicts at Higher Education) or embedding the person of author into the topic (I, the Robot or a Personal Journey in Digitalisation); then the subtitle is there to set up the borders. Hence, *a good (sub)tile reflects objectivity and specificity*, it names the *exact topic* under investigation (i.e. digital economy, digitalisation, robotisation, etc.) and refers to the *type of research* (theoretical or empirical). In line with that, it tells about the *method* (e.g. historical review, participant observation, meta-analysis) that gave a special character to the research and led to the value-added.[10] The method should be further specified with contextual details (e.g. 550 years of sources, in the NRDI Office of Hungary between 2014-2019, on 1203 number of studies). It may further highlight the *research problem or niche* that was covered, the main *value-added* or its versatility, or the *significance* and *actuality* or the topic.

Although I believe that an optimal title - sub-title pair gives an overview on all of these, Hartley (2005) warns about the length of the paper: neither a too short nor a too long title should be set. To find the optimal length and content, I suggest to (1) write down each information (word, expression, phrase) that corresponds to the above points, (2) and then prioritise them: the ones with top priority should construct the title (in a sense-making grammatical way and style), the ones with somewhat less priority should construct the sub-title, and the ones with least or zero priority should be abandoned. Nevertheless, it has to be noted that a title given prior to accomplishing the research is a working title, that has to be revised at each main phase of the research and be finalised upon ending it.

Anstey (2014), Eva (2013), Kerkut (1983) and Sword (2012) provide further, complementary advices after what a good title can be recognised:

- Accurate indication of the topic and its scopes;
- Avoidance of redundancy and useless expressions or phrases;
- Rare use of abbreviations or acronyms (unless they are commonly known) or citations and quotes (unless they are closely related to the research or its outcomes);
- Creation of positive impression and stimulation of readers' interest;
- Identification of key variables (dependent, independent) and their relationship;
- Projection of expected structure of the paper.

Upon finalisation, even the abandoned information can be "recycled" by placing them among the keywords. The *keywords* have similar attributes than the ones making up the title, except that in no cases they use catchy, creative or subjective phrases, and they do not aim to engage the readers' attention. Rather their aim is to specify, structure and classify the topic(s) that the paper dealt with by listing words, expression and phrases from the *up-to-date nomenclature* of the area of research so that they can be easily searched for and identified among other researches. It should not be forgotten that these help to navigate through the maze of topics in the different online databases and libraries. The required number of keywords varies by journals but generally 3-7

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[10] It has to be remembered that even a conceptual paper should be based on an existing or developed method. (The author)

keywords are accepted. Similarly to keywords, JEL Codes aslo facilitate the classification of the papers. The latter one was specifically developed for papers in the Journal of Economic Literature (American Economic Association), however, the use of JEL Codes has spread among several journals in the field of business and economics.

The abstract provides an overview on each major aspects of the paper in 300-350 words in general, however, that can vary by journals as well (Almadi, 2018b). It is written in past tense (except at research proposals or unfinished researches) without using abbreviations or acronyms (unless they are commonly known), citations or quotes, figures or tables or references to them. Besides that, the University of Southern California (2019b) warns that an abstract should not give a lengthy background or deep contextual information, use redundant or repetitive phrases, confusing jargons or terms, ellipticals or incomplete sentences. Based on that, the university defines four types of abstracts: critical, descriptive, informative and highlight. Nevertheless, regardless its type, a common rule of thumb could be to contain the followings in a logical order (Almadi, 2018b):

- *Significance and actuality* of the topic;
- *Research objective and the research problem(s) or niches* covered;
- *Research design and methods:* the main assumption (hypothesis or proposition) of the research, data collection methods (primary i.e. observation, questionnaire, interview, experiment, or secondary i.e. sources) and context (time, place, participants), sampling method and sample size, considerations for internal and external validity and reliability or ethics, type of data and the corresponding analysis methods (qualitative or quantitative);
- *Results*: major findings or trends, main interpretations and conclusions or links to theory.
- *Value-added:* theoretical, methodological or contextual contributions of the research and its applicability for academicians or practitioners.

Similarly to the title and keywords just in a more complex view, the abstract helps the readers to decide whether a paper could be interesting for their purposes or not. Staiger (1966) and Swales and Feak (2009) suggest the authors to take a step back from their written abstract and try to judge it as outsiders, as readers who found it in their search engine. In line with their suggestion, authors could ask the following checkpoints from themselves: does it tell enough about the entire research? Can it be understood clearly and interpreted easily? Is it enough objective, concise and scientific? Does it follow the rule of thumb and the complementary warnings?

However, it also should be understood that an abstract is different from an executive summary in its depth and, as a consequence, in its length as well. While they both aim to give an overview on the entire study and to highlight the key points in it, the executive summary shows beyond the dry and limited (in their number) expressions. According to Bailey (1997), it is a "separate, stand-alone document of sufficient detail and clarity to ensure that the reader can completely understand the contents of the main research study", and it "can be anywhere from 1-10 pages".

4 A Collection of Student Materials

The following student researches, that serve as examples for the former gainable knowledge, have been prepared in the Institute of World Economy under the given theme of "Digitalisation" and with the requirement of engaging in primary data collection. For making a choice on the

exact research topic, the students were asked to use the above presented 4+1-step technique in class. And in approximately ten weeks, they had to accomplish their research and then, upon reviews, to defend it in front of a jury of experts. Although only a small collection of the materials can be presented here, most of the materials from the course could stand a student competition or conference. And for that, I would like to thank the hard work and dedication of all students in the course of Research Methods (2018 fall). We are very proud of their scientific contribution and their professionalism and humanity by which they carried out and defended their research. Furthermore, I would like to give a special thank to the young researchers below for participating in the publication process, namely to Diána Ács, Borbála Fenyvessy, Eszter Kozma, Alexandra Kriska, Andrea Lőrincz, Zsófia Eszter Szabó, Krisztina Szelle, Petra Szűcs and Fruzsina Varga. Congratulations for your work!

ÁCS Diána: *The impact of internet on drug trade - The comparison of the offline and the online market through the example of Hungary*

Abstract: The illicit drug trade grows constantly, it becomes an increasingly serious problem, however, in the past few years, a new type of drug market has appeared, which forms a part of the dark internet, the dark web. This crypto market consists of such special webpages that can be accessed by the TOR browser. The new system has changed several aspects of the traditional drug trade and impacted for example the price, the quality and the question of security as well. By the help of the international literature, upon introducing the supply and demand for drugs, the research aimed to demonstrate the exact European tendencies. To this end, I prepared a questionnaire for the young people in Hungary (n=675) and applied Spearman correlation on the collected data. I examined the domestic attitudes of drug use, the distribution of types and regularity, the knowledge and the use of dark web, moreover, the perspectives on the drugs; then I analysed how much the results deviated from the European perceptions. Although at a European level the online trade gathers ground, during the evaluation of the questionnaire I found that despite the awareness of the existing dark web, its use was not widespread, hence most people still preferred the traditional purchase. Upon the assessments, it could be further stated that the sample size (with the level of confidence and margin of error) allowed the generalisation to the domestic views, however, it did not allow us to have a proper insight to the European or worldwide examination of attitudes.

Keywords: crypto markets, dark web, digitalisation, international drug trade, illicit drug trade, internet, Hungary

FENYVESSY Borbála & LŐRINCZ Andrea: *The Attitude of Hungarian Elementary School Students (Class 5th-8th) towards the Use of Digital Technologies in Education*

Abstract: The aim of the study was to examine the usage of electronic appliances among elementary school students (class 5th-8th) of Budapest and to analyse their attitude towards digital technologies appearing in public education. The research topic is current and relevant since digitalisation is a global phenomenon affecting every aspect of life, causing a generation gap between digital natives and digital immigrants that the educational system and the applied teaching met-

hods need to reflect on as well. The research was built on a mono-quantitative design where the primary data were generated by a questionnaire (n=96) and then analysed with an exploratory and explanatory purpose using descriptive and statistical methods. Having examined the variables of the study, it could be stated that there was no relationship between the scholastic record and the attitude towards the digital technologies used in the education. Students appreciated digital technologies realised in practice, for instance presentations as a visual aid during class. Furthermore, it turned out that they enjoy learning in a playful way - using electronic devices and online resources - much more than in a traditional way, only from textbooks. They use their smartphones the most often and the most willingly from all devices, not only for communication, but for searching for information as well. Another insight was that they do like completing tasks that require online research. Our research has contributed to substantive theory building. Although numerous studies can be found regarding the education and digitalisation, there have not been many researches on the attitude of students before.

KOZMA Eszter & VARGA Fruzsina: *Industry 4.0 and the Volkswagen-group - Analysis of the connection between innovation and stock prices*

Abstract: Industry 4.0 indicates both an opportunity and a challenge for companies, but the inherent innovations play key parts in the permanent development. The aim of this deductive research was to analyse the connection between innovation linked to Industry 4.0 and corporate performance. For our analyses we put focus on the stock market returns of the Volkswagen Group, including Volkswagen and Audi AG between the period of 2011 and 2018. We explored how the principles and challenges of Industry 4.0 were reflected in the Group's strategy. The significance of the subject was given by the fact that it concerned the transformation of one of Europe's leading corporations, and its actuality was due to the Volkswagen scandal and its implications. Previous studies identified a positive correlation between stock prices and innovation, however, the latter one's quantification seemed to be quite challenging. Nevertheless, stock prices are affected by several other factors besides innovation and the scandal in the examined period had severe effects, which had to be taken into consideration. The research applied a mixed methodology with exploratory design: descriptives and Pearson correlation on the secondary quantitative data and then template analysis on the semi-structured interviews (n=7). The quantitative part found a medium correlation between the stock returns of Audi and Volkswagen AG, which suggested that the two companies operated in a similar market environment. Based on the number of patents the company had submitted, we did not get any significant results regarding the relationship between innovation and stock market performance, which indicated the existence of other important factors behind the changes. Although the Group's R&D expenses decreased in the given period, the results of the qualitative part found that an accelerating pace of innovation could be observed since the scandal.

KRISKA Alexandra & SZABÓ Zsófia Eszter: *What's th-e-situation? Or the examination of the situation of e-books in Hungary in 2018*

Abstract: The research objective was to demonstrate the impacts of digitalisation on the world of printed books, and on the people's reading habits, and based on that, to see the kinds of expectations we could have for the e-books in the future. Our research was designed to be mono-quantitative that summarised, interpreted, collected and analysed data at one time. The literature was processed with an integrative methodology. And as an essential part of our design, for data collection we chose the questionnaire (n=202) and for analysis we chose frequencies and Spearman correlation. Our former choice was explained by that at the epistemological level, we wanted to draw conclusions from other approaches than just using the literature of this field of research, our latter choice was explained by the type of data we gained from the questionnaire. The results highlighted that, based on current trends, electronic books were not expected to replace their printed versions in the near future. However, due to the predetermined limitations of our research, we could not disclose the generalisability of our results to other areas than Hungary.

Keywords: consumer habits, digitalisation, electronic book/e-book, Hungary, printed books, value-added tax (VAT)

SZELLE Krisztina & SZŰCS Petra: *Emerging digital solutions in transport from the point of view of sustainability: The case of Budapest*

Abstract: The aim of our research was to investigate the situation of sharing-based public transport modes in Budapest. The topic is exceptionally actual, as these kinds of transport modes have just showed up in our capital, and their promotion is of high importance from sustainable point of view. Our research design was based on two phases of primary data collection: we mapped the citizens' attitude in the topic with 398 questionnaire answers, and we conducted semi-structured interviews with experts and service providers. The data were analysed descriptively and interpreted qualitatively, and we used template analysis to evaluate the interviews. The main conclusions of our paper were the followings: among citizens these transport modes were not widespread enough; and in the future improvements of the capital's transport, the Mobility as a Service concept could get an important role. The added value of our survey was that it was the first research in this exact topic referring to Budapest, hence it could serve as a basis for further exploratory research.

Keywords: Budapest, digitalisation, mobility, sharing economy, sustainability, transport

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