ASSESSING THE DYNAMIC RELATIONSHIP OF STOCK MARKET, INTERNATIONAL TRADE AND ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM WAVELET ANALYSIS

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Abstract

This paper aims to identify the nexus of stock market, trade and economic growth in Thailand. The study used approximately two decades of monthly data from 2000 to 2019. By applying the continuous wavelet transform (CWT) wavelet-based approach, the time-frequency and lead-lag relationships among the variables can be captured. Empirical findings reveal significant coherencies among the variables in the medium and long run with a positive association. Evidence reveals that the Thailand stock market plays a prominent and leading role in international trade. This study offers interesting findings about the lead-lag relationship between the stock market and economic growth, while the significant positive relationships among these two variables are validated. The theoretical implications have been justified, as these relationships are significant. The results obtained are vital for policymakers in framing effective macroeconomic policies regarding the Thailand stock market.

Key Words

Thailand stock market; wavelet coherence map; time-frequency analysis; trade; economic growth.

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INTRODUCTION

Great interest has arisen among economists regarding the linkage between the stock market and economic growth, despite disagreement regarding the degree to which the financial industry can foster economic growth. Traditionally, the questions revolve around whether or not the financial sector has adequate influence on economic changes. Moreover, in crisis, the degree to which the financial sector affects a country's economic growth has also been debated. Although the connections among the stock market and economic growth remain inconclusive, evidence suggests that the innovations and evolution of the stock market influence progress in global financial markets. The stock market has constituted an important channel through which to raise capital in the economy and trigger growth. In the meantime, potential risks to the economy still exist due to market crashes and volatility in stock market returns.

  Over the past five decades, the Thai government has focused on its stock market because it is considered a compelling alternative for diversification to stimulate economic growth. In 1962, a private group in a limited partnership established the Thai stock market; it was renamed the Bangkok Stock Exchange Co., Ltd. (BSE) the next year. Despite the well-intended base, its annual turnover was only THB160 million in 1968 and reached an all-time low of just THB26 million in 1972. Due to BSE's failure, proper facilities and procedures for securities trading were established under the Second National Economic and Social Development Plan (1967-1971). In 1972, the Thai government took further action by extending government control and regulation over finance and securities operations. In 1991, the BSE was re-named the Stock Exchange of Thailand (SET), and on 10 September 2014 it became the first Association of Southeast Asian Nations (ASEAN) member and Southeast Asian country to join the United Nations Sustainable Stock Exchange initiative.

  The SET had a total of 757 listed companies as of 2018Q2 (Stock Exchange of Thailand, 2019). In 2018, the SET index closed at 1,563.88 points, a decrease of 10.8% from the previous year. In addition, the market capitalisation of SET and the Market of Alternative Investment (MAI) decreased to USD500.3 billion, a decrease of 9.52% from 2017. The average trading value peaked in the second quarter of 2018 and continued to drop in the last quarter of 2018. This weak performance is due to trade war tensions between the United States (US) and China, the global crude oil price fluctuations and contractual monetary policies of major central banks.

  The international trade war tension indicates a dynamic relationship between international trade and the Thai stock exchange. Trade war tension affects investors' confidence level, and thus impacts stock market performance. Trinity Securities Executive Director Nuttachart Mekmasin pointed out that the trade war between the US and China is the most critical factor affecting sentiment across global stock markets (Bangkok Post, 2019). Due to trade war tension, the SET suffered a huge equity sell-off and tumbled by around 35 points on 26 August 2019. This indicates that the Thai stock market is sensitive to trade war tension between the leading countries in the

world. This critical issue inspired a closer look into the complex relationships between Thailand's trade and the stock market.

Additionally, the stock market became a vital source of funds for private firms after the Asian financial crisis in 1997 because emerging market equity is considered a compelling diversification alternative. A well-developed stock market is important to ensure the sustainable growth of the national econnomy. Numerous studies have emphasised the vital role of a steady and vibrant stock market in promoting economic growth (e.g. Comincioli & Wesleyan, 1996; Levine & Zervos, 1998). Therefore, this study is motivated to identify the relationships and lead variable associated with the stock market and economic growth in Thailand.

Most studies have focussed on the relationship and causality of stock volatility, stock returns and trading volume (Chen et al., 2001; Mahajan & Singh, 2009; Choi et al., 2012). However, few studies have examined the leading variable and time effect in the stock market. This study aims to do so using wavelet analysis, which few quantitative analyses have employed. Several compelling arguments motivate this research. First, little quantitative analysis has been performed using the wavelet approach in the Thai stock market. Second, the research to date has tended to focus on dynamic relationships and causality effects between the variables rather than investigating the lead and lag relationships between the variables in the stock market. By understanding the time-frequency relationship, industry players can plan better crisis management and improve the short-term capital flow, which in turn can improve policy-making decisions.

LITERATURE REVIEW

In the existing literature, the relationship among economic performance, trade and the stock market is extensively debated. Several researchers have identified an association between economic development and the stock market, including Bencivenga (1996), Demirguc-Kunt and Levine (1996), Puah and Jayaraman (2007), Deb and Mukherjee (2008), Ibrahim (2011), Puah et al. (2015), Ananwude and Osakwe (2017), Banerjee et al. (2017), Alawin et al. (2018) and Mishra and Pan (2018). Specifically, Nghia and Blokhina (2020) also emphasized the importance of stock market efficiency concept for investors and managers on Vietnamese securities market. Carp (2012) stated that a well-established stock market indicates that the significant evolution of the financial sector plays a vital role for sustainable economic development, transforming a country into an attractive economic destination for foreign investors. The empirical finding suggested that the investments stimulate higher economic growth, which indirectly creates optimistic externalities for the stock market. Similarly, Vithessonthi and Kumarasinghe (2016) found that the Indonesian stock market became more attractive to international investors after financial reforms and, thus, attained a higher degree of trade integration.

Deb and Mukherjee (2008) found that the stock market evolution might lead to economic development in India, detecting a causality relationship with

unidirectional properties from the stock market to real gross domestic product (RGDP). Fung (1995) and Choi et al. (2012) conducted similar research for the Korean stock market. They employed trade volume to proxy the information flow and considered it a lagged volume. Their empirical findings showed that a slight increase in trading volume leads to asymmetric volatility in the stock market. Therefore, they concluded that trading volume and stock volatility have a positive relationship and that the trading volume is a useful tool for forecasting Korean stock market price dynamics. On the other hand, Balasubramaniam et al. (2016) and Chin et al. (2020) established that trade integration can be promoted to boost the country's economic growth. International trade globalisation also plays an important role in stock market performance. In addition, Paramati et al. (2017) documented that trade intensity and the stock market have a positive relationship in the long run.

  Previous studies such as Laokulrach (2014), Samsi et al. (2019) and Hamzah et al. (2020) have focussed on the relationships between macroeconomic variables and stock market performance in Thailand. The macroeconomic variables consist of GDP, international trade, capital formation, financial crises, terrorism and other key variables. Laokulrach (2014) also suggested that economic growth is strongly influenced by the growth of the stock market and capital formation in Thailand, confirming a bi-directional relationship between economic growth and Thai stock market development. In term of crisis, Hung (2019) and Samsi et al. (2019) consistently provided evidence of the negative impact of crisis on the Thai stock market. Several approaches, including the autoregressive distributed lag model (ARDL) (Tursoy & Faisal, 2018; Bhattacharya et al., 2019; Hamzah et al., 2020), vector error correction model (VECM) (Wanaset, 2018; Samsi et al., 2019; Faduka, 2020), exponential, generalised, autoregressive, conditional heteroscedasticity (EGARCH) (Naik et al., 2018; Tiwari et al., 2019) and panel analysis (Salisu & Isah, 2017) have been employed to examine the relationships between the financial market and macroeconomic factors. Although various approaches have been employed in previous literature, research using wavelet analysis to investigate the Thai stock market is still scant. The more than five decades of trading activities in Thailand's economy presents an opportunity to examine the stock market in different perspectives. Specifically, the lead-lag relationship of these fundamental financial parameters should be examined through wavelet analysis. In general, this study fills this research gap by employing an innovative research methodology for the Thailand stock market.

DATA AND METHODOLOGY

This study employed monthly data from 2000M01 through 2019M06. A wavelet approach was used to identify the lead and lag relationship and time effect on the Thailand stock market using R programming software. The packages implemented in this study include a "biwavelet" package and a "waveslim" package using pseudocode written by Percival and Walden

(2000). Next, the dynamic rolling correlation of continuous wavelet transform can be obtained using the "zoo" package in R. Wavelet coherency has gained popularity in the financial and economic fields, as it deals with interactions between two different time series and their evolution over time and frequency domain, suggesting high-movement regions in time-frequency space. International trade (Trade), economic growth (RGDP) and the Stock Exchange of Thailand (SET) have been investigated in this study. All data are obtained from the CEIC database.

In this study, a wavelet analysis, an econometric tool that uses scale components, was employed to perform multi-resolution analysis (MRA). First, a descriptive analysis was used to reveal the characteristics of the stock market, trade and economic growth of Thailand. The procedure was followed by a rolling correlation analysis performed to understand the time-varying nature of the relationship. A wavelet-based approach was then used to capture the time-frequency-based behaviour of the relationship among the variables. The equation of the continuous wavelet transform (CWT) is expressed as follows:

$$W_x(\tau, u) = \int_{-\infty}^{\infty} x(t)\widetilde{\mathcal{X}}^*_{(\tau,u)}\ (t)dt; u \neq 0;\ \tau, u\ \in \mathbb{R}, \tag{1}$$

where $x(t)\widetilde{\mathcal{X}}^*_{(\tau,u)}$ is the complex conjugate of $\widetilde{\mathcal{X}}^*_{(\tau,u)}(t)$. The transformed output is identified by its scale and translation, which is represented by a matrix of coefficients of order |2×2|. (t) is transformed into a signal with respect to a translation parameter τ, the location indicator, and a scaling parameter u, the length indicator, where $\tau, u\ \in \mathbb{R}, \chi$; the mother wavelet, is denoted by:

$$x(t)\widetilde{\mathcal{X}}^*_{(\tau,u)} = \frac{1}{\sqrt{|u|}}\chi\left(\frac{t-\tau}{u}\right) \tag{2}$$

Based on applicability of the Morlet wavelet in the economics literature, it is well-defined as in Equation (3):

$$\chi^M(t) = \frac{1}{\pi^{0.25}}\exp(i\omega_0 t)\exp(-t^2/2) \tag{3}$$

The Monte Carlo technique for discovering statistical significance was used since the unknown situation for wavelet coherence in theoretical distribution always exists. Upon determining the statistical significance for the variables, the underlying theories can be applied toward the selection of potential variables (see Table 1).

Table 1: Descriptive statistics

	RGDP	TRADE	SET
Mean (x100)	0.278	0.300	0.645
Standard Deviation	0.086	0.093	0.304

Maximum	0.437	0.467	1.205
Minimum	0.133	0.130	0.177
Skewness	-0.160	-0.335	0.107
Kurtosis	1.817	1.810	1.676
Jarque-Bera	14.636	18.170	17.544
ADF	-7.486	-9.035	-14.970
PP	-3.868	-30.541	-14.981

ADF: Augmented Dickey-Fuller; PP: Phillips-Perron. At 5% significance level, the critical value for JB test is 5.99.
Source: Own survey.

The coherence of the wavelet is classified as a bivariate framework to observe the interaction between two time series and is expressed as in Equation (4):

$$W_{xy}(\tau, u) = W_x(\tau, u)W_y^*(\tau, u) \qquad (4)$$

The lead-lag phase relation within the examined time series is indicated by the arrow located in the wavelet coherence plots. When a difference in zero-phase is indicated, the two time series under examination tend to move together. In the meantime, time series in phases (anti-phase) represented by right (left) arrows express a positive (negative) correlation. Regarding the lead / lag relationships, the position of the leading variables is indicated by an arrow trend upwards or downwards by 90^0.

EMPIRICAL FINDINGS AND DISCUSSION

This study aims to examine the dynamic relationships in the stock market during a crisis and its vulnerability to macroeconomic imbalances and capital inflows. Before discussing the wavelet-based analysis interpretations, the time-varying correlations for both pairs of variables, Trade-SET and RGDP-SET, are demonstrated in Table 2. First, Figure 1 depicts the 36 months (3-year) rolling correlations analysis results. Based on the empirical results, similar characteristics of correlations were found in both pairs of the series. The rolling correlations faced a downturn trend during 2007-2008, corresponding to the global financial crisis. The global financial crisis caused a decline in corporate profits and an increase in business failures. Moreover, spending, production and manufacturing also faced adverse impacts, which might have led to stagnant economic growth. Thailand faced a military coup and its trade-reliant economy was hit by falling exports in 2014; similar rolling correlations results can be observed. This is followed by the descriptive statistics of the rolling correlations in Table 2. When comparing the descriptive statistics of both pairs, the average rolling correlations for the RGDP-SET (0.68) were slightly stronger than for the Trade-SET (0.55). Nonetheless, the standard deviations in the rolling correlations for both RGDP-SET (0.23) and Trade-SET (0.28) are similar. The values of 0.96 and -0.21 depict the maximum and minimum value of Trade-SET and 0.97 and -0.00 show it for RGDP-SET. Both Trade-SET and RGDP-SET show

negative skewness values of -0.71 and -0.97, indicating the left tail of distribution.

**Table 2:** Descriptive statistics of 36-month rolling correlation

Statistic	Trade-SET	RGDP-SET
Mean	0.545	0.678
Standard Deviation	0.277	0.231
Kurtosis	-0.367	0.087
Skewness	-0.708	-0.970
Minimum	-0.208	-0.000
Maximum	0.956	0.971
Confidence Level (95.0%)	0.039	0.032

Source: Own survey.

Figure 1 illustrates the wavelet coherence maps via a contour plot in a bivariate framework. The vertical scale is presented in months for ease of interpretation; the frequency is denoted as 4 to 64 months. Meanwhile, the horizontal scale denotes the timeline where the number of observations is located at the lower horizontal axis and the corresponding year is located at the upper horizontal axis. The colour bar on the right in the coherence maps signifies the power of the coherence coefficient. Red zones portray stronger evidence of co-movements as the coefficient is closer to 1. In contrast, blue zones signify weaker co-movements among the variables and the coefficient is closer to 0. In the meantime, the black contour in boldface defines the zones which are significant at the 5% level by setting the boundaries. The whitish area, also called the zone of influence, is statistically insignificant and located at the edge region.

Figure 1: Wavelet coherence maps
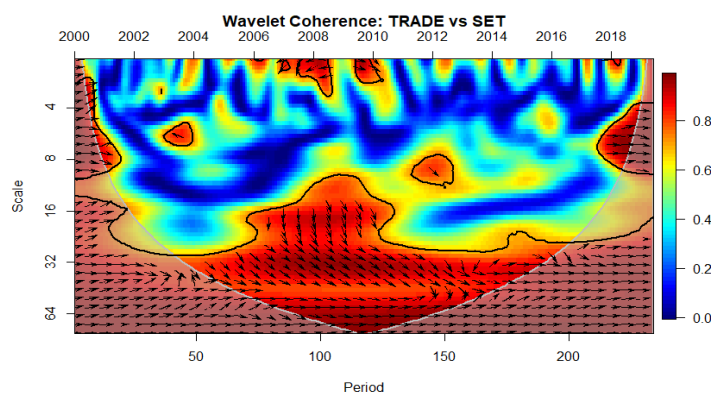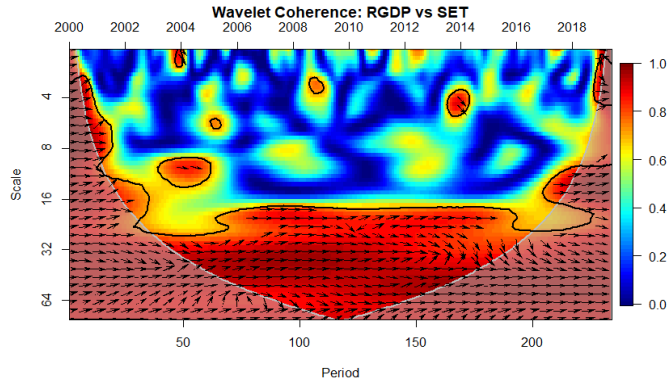
Source: Own survey.

Equal lengths of two white noise time series are proposed for a Monte Carlo simulation of 1,000 sets to identify the significant coherence zones. The lead/lag relationships are symbolised by the arrow in the wavelet coherence maps. A rightwards ($\rightarrow$) arrow expresses a positive relationship whereas a leftwards ($\leftarrow$) arrow expresses a negative relationship. As a result of the first variable leading to the second variable, the arrows are presented as upwards ($\uparrow$), upwards-right ($\nearrow$) and downwards-left ($\swarrow$). On the other hand, when the second variable leads to the first variable, the arrows are shown as downwards ($\downarrow$), downwards-right ($\searrow$) and upwards-left ($\nwarrow$) (Jiang et al., 2017; Das et al., 2018; Kumar et al., 2019).

Figure 1 demonstrates the wavelet coherence analysis for Trade-SET, followed by that for RGDP-SET. The empirical findings revealed the significant coherences that exist between the variables in the medium to long term, ranging mainly from 16 to 64 months, as demonstrated in both wavelet coherence maps in Figure 1. The results show that the economic implications of the variables mostly appear in the medium to long term. Both pairs of variables consist of in-phase positive relationships as the arrows are pointing rightwards ($\rightarrow$) in the long run. As shown in the results from the lead-lag analysis, the arrows pointing downwards ($\downarrow$) and downwards-right ($\searrow$) indicate that Thailand's stock market plays a leading role in trade. This finding is consistent with Choi et al. (2012), who reported that the volatility in the Korean stock market had a positive association with trading volume.

An interesting result arose for the wavelet coherence of RGDP-SET. In the first part of the sample period, economic growth led the Thai stock market in the medium timeframe, while Thailand's stock market led long-term economic growth. On the other hand, after 2010, Thailand's stock market led medium-term economic growth, while economic growth led the Thai stock market in the long run. These interesting findings support the theoretical connotation between economic growth and financial development. The stock exchange leading economic growth conforms with the "supply-leading" hypothesis (Adeyeye et al., 2015). Moreover, economic growth that stimulates the development of stock exchanges also conforms to the "demand-following" hypothesis. A decline in stock prices indicates poor business sentiment that triggers economic downturn (Kuek et al., 2020). The

persistent declination of the stock market is recognised as the harbinger of an economic slowdown. This also leads to a decrement in investment due to lower consumer confidence, which has an adverse impact on economic growth. Thus, the statistical findings provide sufficient evidence to validate the implications in the hypothesis.

CONCLUSIONS

The diverse scope of the Thailand stock market constituted the chief interest of this study. This study attempted to investigate whether the stock market in Thailand affects international trade and economic growth, or vice versa. The study was motivated by concern that the failure and collapse of major financial institutions in a country can result in adverse impacts on economic growth. The study also considered the fact that both practitioners and academicians have examined the determinants of stock returns and the cause of stock volatility from macroeconomic perspectives. The empirical findings unveil significant positive causal relationships among the Thailand stock market, international trade and economic growth. In addition, economic implications exist, especially in the medium and long run. Thailand's stock market plays a prominent role in trade and economic growth. When the performance of stock returns is optimistic, consumer confidence increases and the business outlook brightens, which leads to more investment. Therefore, additional stimuli should be applied in the Thailand stock market. Despite the trade war, Thailand could also benefit from those companies that want to relocate from China. Also, investment can be boosted via public spending. However, the generalisation of these findings may be somewhat limited, as the variables only include SET, trade and RGDP. Other possible macroeconomic determinants are not examined in the current study. Further study should be conducted to examine those determinants.

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ENTREPRENEURIAL CURIOSITY AMONG GENERATION Z: A MULTI-COUNTRY EMPIRICAL RESEARCH

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Abstract

This study focuses on entrepreneurial curiosity construct as a predecessor of entrepreneurial activity and ponders this construct among Generation Z in detail using a student sample (N=1068) from two distinct markets in Europe; Slovenia and Turkey. The study applies exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to further develop and validate a multifactor entrepreneurial curiosity construct that elaborates entrepreneurial activity and curiosity. Two face to face survey studies using a questionnaire form developed using relevant measures were applied and a total of 1150 surveys were obtained. After screening for low quality and incomplete surveys, data from 1068 forms were analysed on SPSS and AMOS to carry out EFA and CFA respectively. The results indicate a four-factor structure that are named as Entrepreneurial Spirit and Leadership, Learning and Personal Development Orientation, Materialistic Orientation, and Technical Curiosity. Moreover, comparisons between Slovenian and Turkish sample indicate significant differences in the four sub-dimensions of entrepreneurial curiosity.

Key Words

Entrepreneurship; entrepreneur; entrepreneurial curiosity; Z generation; comparative analysis.

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INTRODUCTION

Researchers are becoming more and more interested in understanding how young people impact entrepreneurship and who individuals that will become successful in the field of entrepreneurship are. This is not surprising since entrepreneurship is one of the most important sectors in the global economy. Entrepreneurship has been pointed out as a key contributor to sustained economic growth and development as it not only creates employment, but increases spending in markets, knowledge transfers, employment and innovation as well (Meyer and de Jongh, 2018). In line with that, there is public and political interest to promote entrepreneurship and to create entrepreneurial platforms to establish the best possible conditions to motivate potential entrepreneurs and to develop entrepreneurship.

How can we say who is an entrepreneur, who could become one and who cannot be entrepreneur in entire life? A very basic definition of the entrepreneur could be that he/she is the main actor in entrepreneurship responsible for a new venture creation (Fadzil et al., 2019). There is no well-structured definition of entrepreneurs versus non-entrepreneurs. For example, Brockhaus (1982) stressed there is some consistency in psychological characteristics of entrepreneurs as;

- Psychological characteristics where a causal link between high need for achievement and small business ownership is not found; an internal locus-of-control belief does not distinguish entrepreneurs, but may identify successful ones; propensity for risk-taking may not be related to either entrepreneurship decision or success; personal values (need for achievement, independence, and effective leadership) may effectively distinguish successful entrepreneurs from the general population.
- Effects of previous experience. Dissatisfaction with previous jobs (except pay) characterizes entrepreneurs; an unemployed person is more likely to start a business; and a large percentage of entrepreneurs had role models who were entrepreneurs.
- Personal characteristics associated with entrepreneurs.

Further, acting entrepreneurially is something that people choose or plan to do (Shaver and Scott 1991). An emerging stream of research concerns the powerful role effect plays in enhancing the success potential of would-be entrepreneurs (Cardon, 2008). Nevertheless, King and Levine (1993) assume some individuals in society intrinsically possess skills to be potentially capable entrepreneurs and further Frydman, Hessel and Rapaczynski (1998) suggest entrepreneurship is clearly in part a matter of human ability.

People all over the world find entrepreneurship not only as an alternative to a conventional job but rather as a first choice of professional life. Beside that many young people in the OECD and the EU [European Union] cannot find employment (Green, 2013). In contrast to that, there is a discrepancy in the market, since studies highlight the fact that entrepreneurial activity is lowest among young people under 25 (Harding and Bosma, 2006). Yet there are geographical and cultural differences among young generation's

perception towards entrepreneurship. Within this context, learning the dispositions of young generation and potential entrepreneurs from two countries is the main research objective in this paper. As Fošner and Jeraj (2018) argue, entrepreneurship and thinking about entrepreneurship among students is a very important and fascinating topic, which has both economic and social impact. In that manner, Seemiller and Grace (2017) argue generational research can provide institutions with valuable information to design effective policies, programs, and practices. In order to comprehend how young students from two different countries perceive entrepreneurially connected concepts such as entrepreneurial curiosity and its sub-dimensions, the empirical study was conducted. From this perspective it is wise to research and to understand how young people are affected by entrepreneurial curiosity which is an important component of entrepreneurial psychology.

The generation of young people at university today (as of 2020) is commonly named as Generation Z (Gen Z). Different authors define Generation Z in distinct ways, but the consensus is, Gen Z are young adults who were born between 1995 and 2012 (Fister-Gale, 2015). It is necessary to understand the thinking, the behaviour and needs of Gen Z if the society wants to integrate them successfully in the processes of education, work, entrepreneurship and others. According to Seemiller and Grace (2017) not everyone born in a generational period shares the same values or experiences, they do share a common context that shapes their worldview. This is very crucial since ages are usually not as important for integration to specific groups like other attributes as thinking, culture or values. Gen Z are a digitally savvy generation with heavy use of technology, which they see as an instrument for them (Van den Bergh and Behrer, 2016). The beginning and the end of certain generation's as depicted by Pew Research Center (2019) is provided on Figure 1.

Figure 1: The generations defined
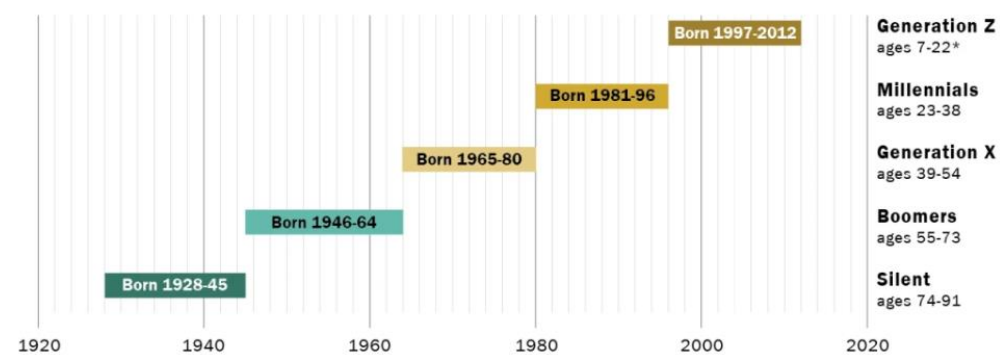
Source: Pew Research Centre, 2019.

Against this backdrop, this study aims to address the following research questions:

- What are the Gen Z's entrepreneurial characteristics?
- Are the entrepreneurial characteristics related to the cultural aspects of the specific country similar among all Gen Z members in two research countries?
- Are the entrepreneurial characteristics of Gen Z in two researched countries different and why?
- How members of Gen Z perceive entrepreneurship and what do they expect from potential life as an entrepreneur?
- Can entrepreneurial curiosity scale for students may be refined and become instrumental in understanding differences in entrepreneurship between cultures.

This article is structured as follows: the literature on entrepreneurship and entrepreneurial curiosity is reviewed in the first two Sections. The method is detailed and context is provided along with relevant statistics in Section 3, which is followed by the Results section where the analysis outcomes are displayed. Findings are discussed in detail in Section 5 (i.e. Discussion, Conclusion, and answers to Research Questions) along with relevant theoretical and practical implications. Finally, the main contributions of the study are highlighted in the Conclusions sub-section, which also presents the limitations of the study and offers future research avenues.

ENTREPRENEURIAL CURIOSITY

Curious people are more likely to gather more information in their lives (e.g. Renner, 2006). Since knowledge is constructed from many data and different information, it is reasonable to predict, that curious people can have knowledge that will empower them to be more successful, also in entrepreneurship (e.g. Acs and Varga, 2005). Curiosity can empower young people with the data and information that can help with right decisions when faced with entrepreneurial stimuluses from the society or the environment. When an individual has a novel business/product concept about a certain issue, he/she can start to create a vision of how this can be realized. In that manner, Kirzner (1982) argued that numerous scholars are undoubtedly correct in linking entrepreneurship with the courage and vision necessary to create the future in an uncertain world. Since through mobile devices such as smartphones, fast broadband Internet access at home, school or even on move, Generation Z students have had access to more information than any other generation at their age (Seemiller and Grace, 2017). Consequently, they had the unique opportunity to establish a curious and open mind-set that would allow them to be successful at many areas including entrepreneurship. In this context, entrepreneurial curiosity is a significant

concept and issue for entrepreneurs and the young generation who would like to become successful in different arias in the near future.

Entrepreneurial curiosity is a positive emotional/motivational system oriented toward investigation in the entrepreneurial framework to learn tasks related to entrepreneurship and incorporate new experiences in order to improve business (Jeraj, 2012; Jeraj and Antončič, 2013; Jeraj 2014a, Jeraj, 2014b). Literature review revealed that entrepreneurial curiosity was connected in different ways with certain determinants from the field of entrepreneurship as entrepreneurial self-efficacy (Jeraj and Marič, 2013), innovativeness (Peljko et al. 2016), openness and company's growth (Jeraj et al. 2015), and several others. Further Jeraj (2014b) operationalized Pre-entrepreneurial curiosity measure, which is a specific factor in the broader field of entrepreneurial curiosity. Pre-entrepreneurial curiosity factor is composed only of entrepreneurial curiosity items that focus to pre-business activities and are necessary to be done before a company is establish of before an entrepreneur starts with a new project.

Entrepreneurial curiosity measure was developed according to recommendations of Churchill (1979), Dawis (1987), DeVellis (2003), Gerbing and Anderson (1988), and Hinkin (1995). With the entrepreneurial curiosity measure, society can test individuals and encourage them to become active in entrepreneurship (Jeraj and Antončič, 2013). Since entrepreneurial curiosity measure was developed for individuals that already have some entrepreneurial experiences, authors of this paper decided to use another instrument for measuring entrepreneurial curiosity that was proposed by Jeraj et al. (2014) specifically for students with no or only few entrepreneurial experiences.

The entrepreneurial curiosity measure for students was developed with the same procedure as the measure for entrepreneurial curiosity (Jeraj and Antončič, 2013) and tested on a pilot sample. The items were generated by students and the aim was that items would be as diverse as possible (e.g. DeVellis, 2016). After that the items were revised by 5 experts from the field of entrepreneurship. The ones which did not express directly connection to entrepreneurial curiosity were eliminated. After that similar items were modified and combined to present distinct, yet entrepreneurial meaning. The items were integrated into a questionnaire with 5 point Likert (1975) scale from strongly agree to strongly disagree. In the next step the pilot study was conducted in the sample of 50 students. Further the statistical analysis was conducted using Cronbach Alpha coefficient to choose items appropriate for entrepreneurial curiosity scale for students and to eliminate ones, which had low correlations in the frame of the instrument.

Considering that this scale has eighteen items in total and have not been applied in a large scale before it can benefit from further testing and refinement. Moreover, elaborating the sub-dimensions of the entrepreneurial curiosity scale may lead to a scale that can offer deeper insights into this potentially multi-faceted construct.

METHOD

To attain the research aims, two separate survey studies were conducted in Slovenia and Turkey, the focal points of the study. Following these survey studies to measure the Gen Z's entrepreneurial dispositions, two factor analysis (an exploratory followed by a confirmatory) were carried out by dividing the sample into two. Detailed information on the two countries is provided in the 3.1 Context sub-section which is followed by a detailed discussion on measures, measurement instrument, sampling and data collection.

Context

Two countries, Slovenia and Turkey, with unique economies and cultures were selected to carry out the study. Turkey, a predominantly Muslim country where liberal and Westernized ways are integrated into the culture, is situated at the crossroads between Asia and Europe. Turkey is the 19th largest economy in the world. Slovenia situated in the Central Europe on the other hand, is similarly strategically located by is smaller in size mainly attributable to the significantly lower population and ranks 85th largest in the world according to 2019 GDP data (World Bank, 2020).

Both countries are present strongly on their domestic market as well as export to European Union, which is the main export target for both countries. Yet Slovenia has a significantly higher exports ratio to its GDP compared to Turkey, who relies more on the domestic market compared to Slovenia (Worldbank, 2020). According to the World Economic Forum Global Competitiveness Index 2015, Turkey and Slovenia rank very similarly at 55th and 56th places respectively. In terms of economic freedom Slovenia's the 52nd freest in the 2020 Index of Economic Freedom with a score of 67.8 (Heritage, 2020). Slovenia, with a very good infrastructure, well-educated workforce, and strategic location has one of Central Europe's higher per capita GDPs. Turkey's economic freedom score on the other hand is slightly lower at 64.4, making its economy the 71st freest in the world. The resilience of Turkey's economy is partly attributable to a dynamic and diversified private sector (Heritage, 2020).

For both countries entrepreneurship is a significant driver of economic growth and is required for improving the competitiveness of each country in the global markets. Yet they are considered to be in different economic development phases; Slovenia innovation driven, Turkey Efficiency-Driven (Martínez-Fierro et al., 2016). Other differences are evident in culture as well as entrepreneurial activities. Further economic and demographic data is presented in Table 1.

Table 1: Economic, demographic and entrepreneurial data about Slovenia and Turkey

	Slovenia	Turkey
(GDP) per capita figures on this page are derived from PPP WorldBank (2020)	40,344 (2020 estimates)	29,327 (2020 estimates)
Unemployment rate OECD (2020a)	4,45 (2019)	13,7 (2019)
Education Expenditure (%Bud.) Country Economy (2020)	11.75% (2016)	12.84% (2015)
Exports % GDP Country economy (2020)	83.49% (2019)	22.76% (2019)
Population Worldometer (2020)	2,078,957 (2020)	84,399,931 (2020)
Self-employment rates As a percentage of total employment OECD (2015)	18.6 (2014)	34.0 (2014)
Share of young people from 15 to 25 years Youth policies in EACEA (2017) and AA (2020)	11,3% (2017)	15.6% (2019)
Total early-stage Entrepreneurial Activity Rates among Adults 2018 GERA (2019)	6.4 (Rank 38/48)	14.2 (Rank 15/48)
Total early-stage Entrepreneurial Activity Rates among 18-24 Age Group 2018 (GERA, 2019)	3.1 (Rank 45/48)	14.3 (Rank 14/48)
Entrepreneurial Intentions (% of adult non-entrepreneurs) (GERA, 2019)	15.3% (Rank 28/48)	29.7% (Rank 14/48)

Source: As seen in table in different sectors.

To better understand the culture in each country and to get an overview of the drivers of each culture, the Hofstede's culture compass (The Hofstede Centre, 2020) developed upon research of Hofstede (2001) was used as seen in Figure 2.

Figure 2: Cultural Comparison
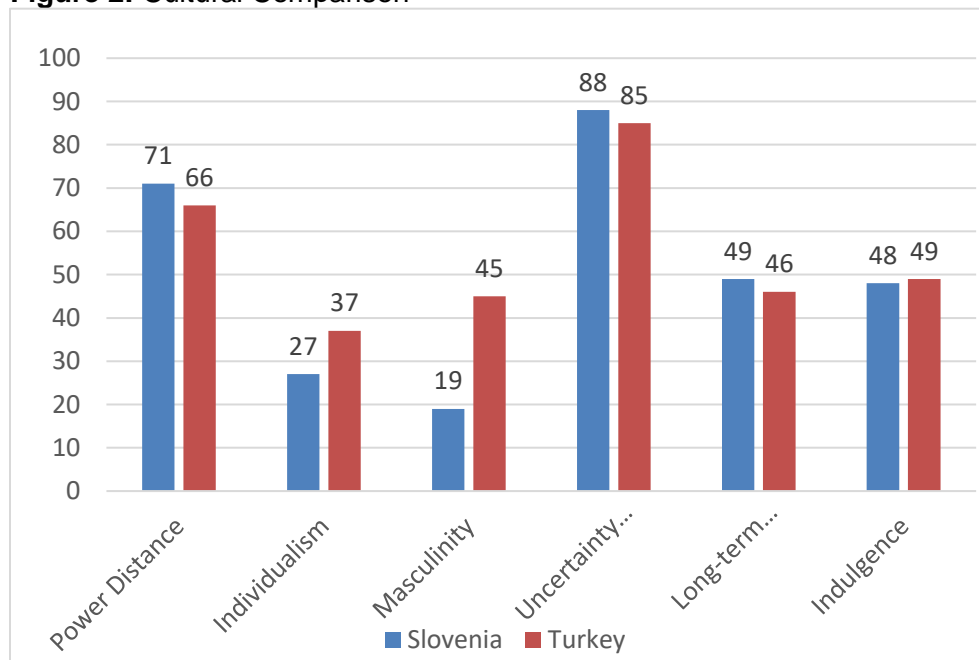
Source: The Hofstede Centre (2020).

Several aspects of Turkish and Slovenian culture are provided in Table 2 with regards to Hofstede's methodology to highlight the cultural aspects of each country (The Hofstede Centre, 2020). The cultural aspects may be instrumental in shaping the entrepreneurship landscape in each country.

Table 2: Cultural Dimensions of Slovenia and Turkey

Cultural Dimension	Slovenia	Turkey
Power Distance "the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally."	Score:71	Score: 66
	Both countries have similar high scores indicating that individuals accept a hierarchical order in which everybody has a place. Structure is dependent, hierarchical and superiors are often inaccessible. Power is centralized, subordinates/employees expect to be told what to do and rely on their bosses and on rules.	
Individualism "the degree of interdependence a society maintains among its members."	Score: 27 Slovenia is a collectivistic society that manifest in a long-term commitment to the member 'group' that individuals belong. This may be an extended family, or extended relationships. Loyalty is paramount, and over-rides most other societal rules and regulations. The society fosters strong relationships where everyone takes responsibility for fellow members of their group.	Score: 37 Turkey is a collectivistic society where people belong to in-groups (families, clans or organizations). Relationships has a moral base, which is prioritized over task fulfilment. Compared to Slovenia, Turkey is more individualist, indicating that people tend to think more for themselves and how they uniquely can be individually successful.
Masculinity Describes which of the following motivates people more: wanting to be the best (Masculine) or liking what you do (Feminine).	Score: 19 Slovenia is considered a fairly Feminine society. The focus is on "working in order to live". People value equality, solidarity and quality in their working lives. In work life, managers strive for consensus and conflicts are resolved by compromise and negotiation. Incentives such as free time and flexibility are favoured.	Score: 45 Turkey has an average score that is slightly on the feminine side. Conflicts are avoided in private and work life and consensus at the end is important. Leisure time, when the whole family and friends come together to enjoy life is important for Turks. Compared to Slovenia a higher score in this dimension indicates that the society in Turkey is more driven by competition, achievement and success.
Uncertainty Avoidance "the extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created	Score: 88	Score: 85
	Slovenia and Turkey both have very high uncertainty avoidance. There is an (emotional) need for rules and in order to minimize anxiety, people make use of a great deal of rituals. Codes of belief and behaviour are strict and intolerant of unorthodox behaviour and ideas. Individuals have an inner urge to work long and hard as time is considered as an important resource that equates with money. Precision and	

beliefs and institutions that try to avoid these"	punctuality are the norm, innovation may be resisted and security is an important element in individual motivation.	

Long-term Orientation Describes how every society has to maintain some links with its own past while dealing with the challenges of the present and future.	Score: 49	Score:46
	Both Turkey and Slovenia rank in the middle in terms of maintaining some links with its own past while dealing with the challenges of the present and future. No country wide preference for either maintaining time-honoured traditions/norms or to encourage efforts in modern education as a way to prepare for the future is evident.	
Indulgence "the extent to which people try to control their desires and impulses, based on the way they were raised"	Score: 48	Score:49
	Slovenia and Turkey both has intermediate scores of 48 and 49, thus no preference is indicated in the extent to which individuals try to control their desires and impulses.	

Source: The Hofstede Centre (2020).

Measures and Measurement Instrument

The measure of entrepreneurial curiosity for students in the study was adapted from existing literature on entrepreneurship by Jeraj and Antončič (2013) and conceptualized according to Jeraj et al. (2014) as already presented in section 2. The measure and the related items are provided in Appendix A.

Data Collection and Sampling

Two survey studies were carried out in Turkey and Slovenia and a total of 1150 questionnaires were collected in the years 2018 and 2019. Out of this total, 1068 were left after semi-filled and low quality (e.g. all answers coded in the same way) forms were excluded from the study. Demographic attributes of the sample attained have been provided in Table 3.

Table 3: Sample Demographics

	Slovenia		Turkey	
Gender	N	%	N	%
Total Sample	587	55%	481	45.0
Female	273	46.5%	309	63.6
Male	302	51.4%	172	35.8
Missing	12	-	3	-
Age				
18-19	73	12.7%	125	26.0
20-21	484	84.1%	226	47.0
22-25	18	3.1%	130	27.0

Missing	12	-	3	-

Source: Own survey.

In the current research there were 587 (55%) respondents from Slovenia and 481 (45%) from Turkey. In the Slovenian sample there were 273 female students (46.5%) corresponding of the total sample. Female respondents in Turkey on the other hand represented of 63.6% (309) students of the total sample. The highest number of students in the Slovenian sample were 20 to 21 year olds (84.1%). A similar situation was observed in Turkey where almost half of the respondents (47%) were in the same 20-21 age group.
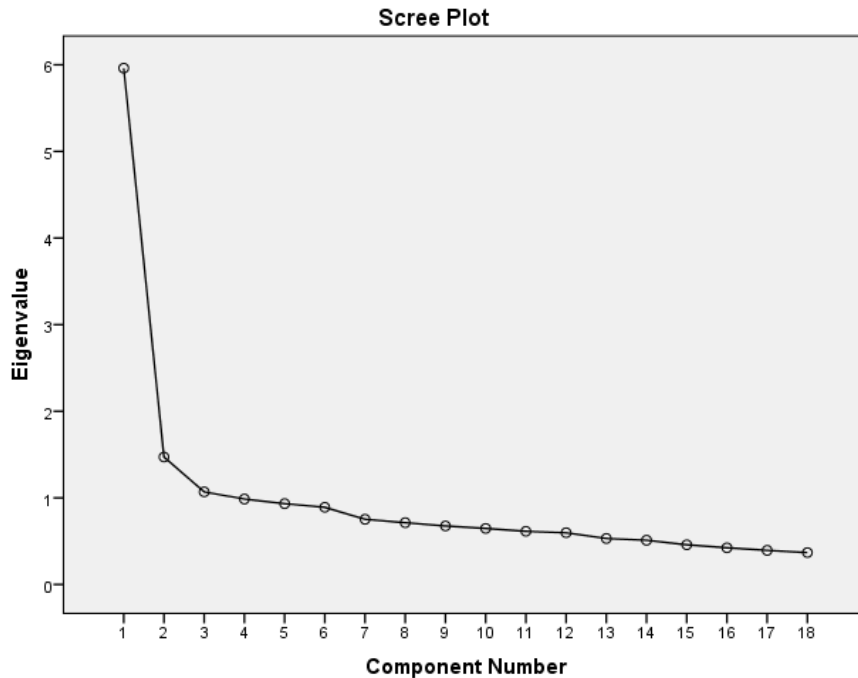
RESULTS

The results of the data analysis are detailed in this section. The descriptive statistics of the items are provided in Appendix B.

Exploratory Factor Analysis

As a first step, an exploratory factor analysis (EFA) was carried out. As a rule of thumb in EFA analysis, a sample size 4 times the total number of items is deemed satisfactory whereas 10 times the total number of items is preferred in CFA (Chawla and Sondhi, 2016; Hair et al., 2010). Consequently, the sample size is adequate to carry out the factor analysis and the data obtained from the total sample (N=1068) was divided into two as suggested by Churchill (1979). Following random number generation with uniform distribution in SPSS, Sample 1 (n=533) was used to explore the factor structure of the scale through an exploratory factor analysis (EFA). The remaining data, Sample 2, (n=535) was utilized to confirm the validity and the reliability of the initial factor analysis and for further refinement. The EFA analysis was carried out using SPSS 21.0 while CFA was carried out on AMOS software. There were no missing data in the data-set so no imputation method was applied.

KMO Sample Adequacy Test and Bartlett Sphericity tests applied in the beginning of the EFA value (KMO: 0.909) indicates that the sample size is sufficient. The result of the Bartlett test was χ^2 = 2779.9, df = 153, which is significant (p < .001) indicating that data obtained from the sample was suitable for factor analysis. EFA was carried out using principal components analysis and Varimax rotation. The choice of the number of factors in EFA was done by utilizing eigenvalues and the scree plot. There were four factors with eigenvalues over 1. Scree plot visualizes the eigenvalues of factors and highlights the potential elbow points as seen in Figure 3.

Figure 3: EFA Scree Plot

Source: Own survey.

After a first run of EFA, the results of which are provided in Table 4, the items with factor loadings below 0.4 were removed from the analysis one by one and the analysis was re-run each time an item was removed (Hair et al. 2010; Tabachnick and Fidel, 2007). Moreover, items with loadings over 0.32 to multiple factors were removed with the following conditions: (a) less than 0.10 difference between multiple loadings exist (b) the item in questions do not have high content validity (Hair et al. 2010; Tabachnick and Fidel, 2007).

Table 4: EFA Results First Run

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.794	32.191	32.191	5.794	32.191	32.191	3.558	19.769	19.769
2	1.457	8.097	40.288	1.457	8.097	40.288	2.131	11.841	31.610
3	1.086	6.033	46.321	1.086	6.033	46.321	2.098	11.655	43.265
4	1.024	5.687	52.008	1.024	5.687	52.008	1.574	8.743	52.008
5	.864	4.801	56.808	-	-	-	-	-	-

Source: Own survey.

As a final step of the EFA, loadings between 0.4 and 0.5 are considered for removal one by one to refine the scale and improve the cumulative variance extracted figures. As a result, only two items (ENTC13 and ENTC16) are excluded from further analysis. The results of the final run of EFA is provided in Table 5.

Table 5: EFA Results Final (Third) Run

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.997	31.234	31.234	4.997	31.234	31.234	3.431	21.444	21.444
2	1.455	9.093	40.328	1.455	9.093	40.328	1.940	12.125	33.569
3	1.155	7.219	47.547	1.155	7.219	47.547	1.826	11.410	44.979
4	1.046	6.540	54.086	1.046	6.540	54.086	1.457	9.107	54.086
5	.848	5.297	59.383	-	-	-	-	-	-

Source: Own survey.

   The four factors, which were obtained from the factor analysis, described the measurement model in the best way and explained 54.06 % of the total variance. First factor roughly explains 32%, second factor 9%, third factor 7% and lastly fourth factor 6% of the total variance. The cumulative variance explained value of 54% exceeds the minimum suggested variation of 50% (Hair et al., 2010; Tabachnick and Fidell, 2001). The factor loadings of the rotated solution along with item communalities are provided in Table 6.

Table 6. Rotated factor loadings of the final EFA

Item	Component				Communalities
	1	2	3	4	
EntC1	.692				.562
EntC2		.698			.542
EntC3		.468	.367		.468
EntC4	.565	.380			.459
EntC5		.635			.519
EntC6	.402	.445			.389
EntC7	.526		.363		.475
EntC8	.614				.511
EntC9			.796		.670
EntC10			.729		.592
EntC11				.803	.603
EntC12		.572	.392		.466
EntC14	.707				.615
EntC15	.710				.538
EntC17				.622	.599
EntC18	.661				.645

Source: Own survey.

Confirmatory Factor Analysis

The next step in the scale refinement process was to verify the four-dimensional structure resulting from the EFA. It is advised to conduct a CFA to confirm the proposed scale structure arrived via EFA (Costello and Osborne, 2005; Worthington and Whittaker, 2006). Consequently, the 16 items factor structure obtained in the EFA was applied to a measurement model in AMOS 21 and a confirmatory factor analysis (CFA) using the remaining sample (n=534) was carried out. Figure 4 shows the measurement model that was assessed and validated in terms of goodness of fit, internal reliability, convergent validity and discriminant validity of the factors using the CFA output.

Figure 4: Measurement Model
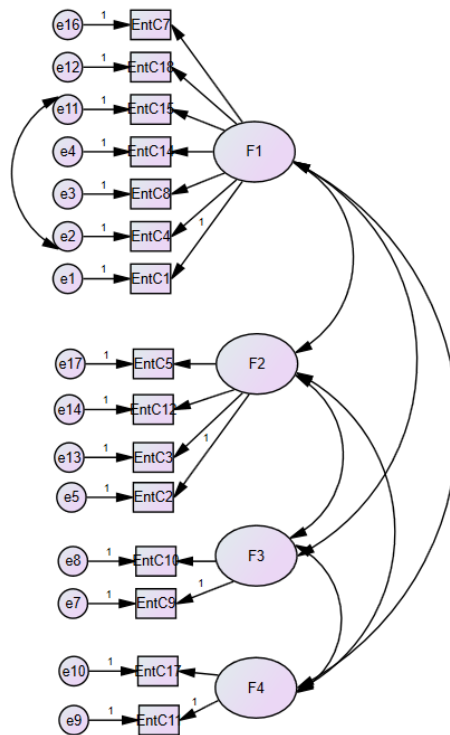
Source: Own survey.

After an initial run of CFA, items with loadings below 0.5 are considered for removal from the model one by one. The analysis was re-run after item removing step. The good goodness of fit criteria of the final model with 15 items (ENTC6 removed) provided in Table 7 indicates a good fit of the measurement model and the data.

Table 7. CFA Goodness of Fit Results

Measures	Values	Perfect Fit	Good fit
χ^2	182,334		
df	82		
p	0.001		
χ^2/df	2.223	χ^2/sd ≤ 3.00	3.00 < χ^2/sd ≤ 8.00
RMSEA	0.048	0 ≤ RMSEA ≤ .05	.05 < RMSEA ≤ .08
RMSEA (.90)	0.039-0.057		
SRMR	0.039	0 ≤ SRMR ≤ .05	.05 < SRMR ≤ .10
GFI	0.954	.95 ≤ GFI ≤ 1.00	.90 ≤ GFI < .95
AGFI	0.933	.90 ≤ AGFI ≤ 1.00	.85 ≤ AGFI < .90
CFI	0.948	.97 ≤ CFI ≤ 1.00	.95 ≤ CFI < .97

Source: Own survey.

Chi-square test emerged as significant which normally indicates a poor fit. Yet it is known that this test is sensitive to the sample size. Considering the sample used in the analysis exceeds 500, this is an expected outcome. Further criteria were assessed to provide more accurate insights into the goodness of fit. x^2/ df value of 2.223 that is below the 3 threshold indicates a very good fit. Similarly, RMSEA, SRMR, GFI and AGFI indicates very good fit. Considering all the goodness of fit indicators together, it can be concluded that the model data fit is at very good levels (Hooper, Coughlan and Mullen, 2008). The resulting items and the standardized factor loadings are provided in Table 8.

Table 8: CFA Factor loadings

Question #	Item	Factor	Std. Loading
EntC1	I explore new things to sell them.	F1	.637
EntC4	I constantly research new things.	F1	.620
EntC7	Highly ambitious projects are feasible.	F1	.548
EntC8	I find planning of the business aims interesting.	F1	.653
EntC14	I would describe myself as someone who actively seeks all possible information about different projects.	F1	.702
EntC15	When a group is in search of the leader, I have a feeling, I can be the one.	F1	.667
EntC18	I am extremely attracted to different innovative projects.	F1	.687
EntC2	If I am unsatisfied with certain things, I think about their improvements.	F2	.581
EntC3	I am proud of the results, based mainly on my work.	F2	.577
EntC5	I always learn something from my mistakes; therefore they don't present a negative connotation to me.	F2	.460
EntC12	Learning is a whole life process.	F2	.441
EntC9	I want to be independent in my life.	F3	.712
EntC10	I want to know how to earn money.	F3	.640
EntC11	I am thinking how to improve an application on a phone I don't like.	F4	.470
EntC17	I am interested in how different gadgets I use operate.	F4	.688

Source: Own survey.

Validity Analysis

The validity of the constructs in this study was checked with regards to construct (i.e. convergent and discriminant) validity. Convergent validity was assessed by the magnitude and significance of the factor loadings of each indicator on the relevant latent factor. As illustrated in Table 8, almost all the loadings are greater than 0.5 (Gerbing and Anderson, 1988; Bagozzi and Yi, 1998) indicating good convergent validity (Hair et al., 2010). Discriminant validity was evaluated by comparing the squared root of average variance extracted (AVE) value of each factor to its correlations with other factors (Fornell and Larcker, 1981). As illustrated in Table 9, the square roots of AVEs were greater than the correlations with other constructs, indicating that the discriminant conditions are met for each factor.

Table 9: Scale Validity

	Factor1	Factor2	Factor3	Factor4
Factor1	**0.697**			
Factor2	0.542	**0.689**		
Factor3	0.337	0.431	**0.844**	
Factor4	0.443	0.319	0.187	**0.799**

Note: Square-roots of AVE are provided on the diagonal; correlations are provided below the diagonal.
Source: Own survey.

DISCUSSION AND CONCLUSION

The four factors are contemplated using their relevant contributing items in this section. Moreover, differences in respondents' perceptions in the two countries for each factor are also discussed in this section. These discussions provide insights into the differing entrepreneurial nature of Generation Z living in two different cultures in Europe.

Table 10: Compare means independent samples test

Means	Turkey	Slovenia	Mean Difference	Sig. (2-tailed)	t	Std. Error Difference	95% Conf.Interval Lower	Upper
F1	0.392	-0.321	0.714	0.000	12.405	0.058	0.601	0.826
F2	0.135	-0.111	0.246	0.000	4.030	0.061	0.126	0.366
F3[a]	-0.118	0.096	-0.215	0.001	-3.468	0.062	-0.337	-0.093
F4	-0.065	0.053	-0.117	0.056	-1.912	0.061	-0.238	0.003

[a]. Scores for unequal variances are provided as the Levene's test for equality of variances was significant (15.990, $p<0.001$).
Source: Own survey.

Elaboration of Factors

Factor 1: Entrepreneurial Spirit and Leadership
The first sub-dimension of Entrepreneurial curiosity incorporates the highest number of items and is considered as the main factor with the highest amount of variance explained. More complex in nature that the remaining factors, this factor and related items mainly reflect the respondents' entrepreneurial spirit and leadership aspirations. Ability to take risk, an inherent characteristic of entrepreneurs (e.g. Xu and Ruef, 2004) is also considered under this factor. Ability to think about the details and carry out plans and assume the leader role are among the main elements that lead to success in business life, thus are among the relevant characteristics of

entrepreneurs. Therefore this factor is names as the entrepreneurial spirit and leadership.

Factor 2: Learning and Personal Development Orientation
Factor 2, the second sub-dimension of entrepreneurial curiosity mainly reflects the respondents' interest in learning new things and developing themselves. Four items such as `Learning is a lifelong process` contribute to make up this factor. The items also consider an individual's progress and feelings of accomplishment and success as he/she becomes more knowledgeable and better in solving problems. Curiosity is considered among the elements of success in the entrepreneurship literature (e.g. Jeraj and Antončič, 2013) and is an important motivation that drives people towards personal development (e.g. Markey and Loewenstein, 2014).

Factor 3: Materialistic Orientation
Factor 3 is named as materialistic orientation as the two items that constitute this factor are related to earning money and live independently (using the money earned). This drive for materialism is among those elements that motivates young entrepreneurs (e.g. Urban, 2009). Materialistic orientation is a significant motive for entrepreneurs considering the changing structure of income distribution in developed and developing economies where the Top 10% is mainly constituted of entrepreneurs and business owners and gets more share of the available wealth (OECD, 2020b).

Factor 4: Technical Curiosity
Factor 4 consists of two items (11 & 17) that are related to the interest and curiosity of an individual towards new technology products and services. It reflects the way an individual thinks on improving existing technologies and come up with new ones. We name this factor as technical curiosity. This is a significant factor that will most likely increase in importance in the digitally transforming business ecosystem where technology companies lead the entrepreneurial landscape.

Country Comparisons

   Materialistic Orientation and Technical Curiosity were found to be higher in Slovenian sample whereas Entrepreneurial Spirit and Leadership, and Learning and Personal Development Orientation were found to be higher in the Turkish sample. These differences may be attributed to various cultural and economic factors inherent to each country and are discussed in the following paragraphs.
   The higher entrepreneurial spirit may partly be attributed to the higher individualism of Turkish population compared to the Slovenian population (The Hofstede Centre, 2020). Moreover, the higher self-employment rate and unemployment rate (See Table 1) may have lead more young people towards thinking about launching their own ventures. The early-stage Entrepreneurial Activity (TEA) rate among adults also in 18-24 age group is

higher in Turkey compared to Slovenia (rank 15/49 vs. 45/49) as highlighted in the Global Entrepreneurship Monitor 2018-19 report by Global Entrepreneurship Research Association (2019). The same report also highlights that Turkish population consider entrepreneurship in a more positive way as a good career choice (Rank 5/47) compared to Slovenian population (Rank 17/47) and Turks have higher entrepreneurial intentions (29.7% vs. 15.3%). Beside that entrepreneurial culture is much more developed and in the roots of a Turkish nation, since entrepreneurship is legal in Slovenia only from 1990. Before the break-up of socialism there were no significant entrepreneurial activity nor courses on entrepreneurship and/or small business management available at the Slovenian universities (Rebernik and Močnik, 1997).

High factor scores in Learning and Personal Development Orientation within the Turkish sample may be related to several factors starting with the high unemployment rates in Turkey that motivate young people towards personal improvement and continuous learning to be able to stay competitive. Inherently, the competitive and growth mind-set is also promoted by higher masculinity (compared to Slovenia) in the Turkish culture (The Hofstede Central, 2020). Turkey is considered to have an 'Improvement-Driven Opportunity/Necessity' in entrepreneurial activity (Global Entrepreneurship Research Association, 2019). This motive promotes learning and trying to find ways to improve oneself as well as existing products and businesses. On the other hand, international research about entrepreneurial intentions among students (GUESSS) revealed that young Slovenians would like to become entrepreneurs and successors of family businesses but they are not prepared to work so hard for that aim as colleagues from other countries in the sample (Jeraj and Foštner, 2016).

In terms of materialistic orientation, Slovenian sample scored higher compared to the Turkish sample. It is evident that Slovenians aspire to be independent in their life by learning how to earn money. They see entrepreneurship as a means to become less dependent to others. This is an interesting finding that contrasts with the Hofstede Centrals' view that Turkey is a relatively less collectivist culture. This finding puts the spotlight on the changing values of younger generations such as Gen Z in Central Europe who want to be less collectivist and more autonomous. The higher Materialistic Orientation in Slovenia among Generation Z could be a consequence of political transformation of a regime from socialistic to capitalistic by the time of youth of their parents. Consumers weren't able to choose among many alternative brands or products in Slovenia before 1990 and people usually could choose only among a couple of alternatives. Since capitalistic economy is mainly grounded on continuous consumption (Ritzer and Jurgenson, 2010) parents of Generation Z members could teach their children that they have much more opportunities compared to what they themselves had when young, especially in the frame of materialistic terms. On the other hand, media and marketing are communicating a vast range of choices what could establish this discrepancy between previous and next generation in relation to materialism in Slovenia.

The higher technical curiosity of the Slovenian sample may have been triggered by the Central European location of Slovenia which is a neighbour of Austria and Italy. Another reason could be the fact that in Slovenia information technology access is more commonplace relative to Turkey. For instance, Slovenian population is 29.5% more likely to have internet access than in Turkey since approximately 58.3% of the population has internet access in Turkey whereas the same figure is 75.5% in Slovenia (My Life Elsewhere, 2020). A further reason could be the level of innovativeness which is connected to technological development. According to Country Economy (2020) Slovenia ranks 30th while Turkey ranks 50th in country innovation rankings for the year 2018. Moreover, the existing entrepreneurial landscape of each country differs and may get influenced or influence the technical curiosity of the younger population such as Gen Z. Indeed, in Slovenia a significantly higher share of entrepreneurial activity is in Information/Communications Technologies compared to Turkey (Global Entrepreneurship Research Association, 2019).

Conclusion

The current study provides insight into the entrepreneurship landscape among Gen Z in Europe by analysing evidence from two distinct markets, Slovenia and Turkey. Entrepreneurial curiosity measure for students that focuses on dispositions of potential entrepreneurs regarding pre-business activities and entrepreneurial mind-set have been used to elaborate entrepreneurship among this young generation.

Results of the current empirical study on more than 1,000 respondents display thought-provoking differences between Slovenian and Turkish Generation-Z members' perceptions of entrepreneurial curiosity and stress further opportunities that the two countries have in order to stimulate young people to be active in entrepreneurship.

Differing from the existing literature, this study employs pre-entrepreneurial curiosity construct and collects evidence from two European markets and combines it with credible secondary information. In this manner, this study provides insights into the understanding of how members of Gen Z perceive entrepreneurship and their expectations from a potential life as an entrepreneur.

One major implication of the current study is that the motives to become entrepreneurs are different in the two countries. The results can help policy makers (i.e. ministry of economy etc.) and education ecosystem to find those motives and specifically work with certain generation or even individuals.

The present study and the conclusions drawn from the analyses are limited in several ways. First of all, the perceptions were measured via a questionnaire, a self-reported instrument. Future research founded upon measurable behaviours and/or experimental methods will be of value to complement the findings of this study. Secondly, the sample was chosen using a non-random sampling method, which is unfortunately the case with most similar studies on large generational cohorts. Consequently, one future

research avenue is utilizing a sample that reflects overall target population in a better way, which may also provide the opportunity to carry out multi-group analysis to reveal potential differences with regards to demographics (e.g. gender, socio-economic status etc.).

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APPENDIX A: Research instrument

Code	Items	Source
EntC1	I explore new things to sell them.	Entrepreneurial Curiosity for students
EntC2	If I am unsatisfied with certain things, I think about their improvements.	
EntC3	I am proud of the results, based mainly on my work.	

EntC4	I constantly research new things.
EntC5	I always learn something from my mistakes; therefore they don't present a negative connotation to me.
EntC6	I think how can I satisfy the needs of people.
EntC7	Highly ambitious projects are feasible.
EntC8	I find planning of the business aims interesting.
EntC9	I want to be independent in my life.
EntC10	I want to know how to earn money.
EntC11	I am thinking how to improve an application on a phone I don't like.
EntC12	Learning is a whole life process.
EntC13	I am ready to take a risk when the result of my work is really important.
EntC14	I would describe myself as someone who actively seeks all possible information about different projects.
EntC15	When a group is in search of the leader, I have a feeling, I can be the one.
EntC16	I am prepared to work on projects that attract me without a break.
EntC17	I am interested in how different gadgets I use operate.
EntC18	I am extremely attracted to different innovative projects.

Appendix B: Descriptive Statistics of Constructs

	Total	N=1068	Turkey	N=481	Slovenia	N=587
Constructs	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
EntC1	3.61	1.070	4.09	.845	3.22	1.077
EntC2	4.20	.748	4.27	.724	4.15	.764
EntC3	4.35	.838	4.55	.743	4.19	.875
EntC4	3.54	.914	3.71	.884	3.40	.915
EntC5	3.82	.891	3.78	.899	3.84	.885
EntC6	3.63	.966	3.81	.923	3.48	.976
EntC7	3.78	.858	3.83	.893	3.73	.827
EntC8	3.77	.921	4.05	.896	3.55	.880
EntC9	4.49	.752	4.38	.805	4.58	.693
EntC10	4.45	.739	4.39	.751	4.51	.728
EntC11	3.08	1.211	2.96	1.192	3.28	1.218
EntC12	4.53	.793	4.59	.767	4.48	.810
EntC13	3.99	.836	4.10	.883	3.90	.785
EntC14	3.46	.974	3.76	.919	3.22	.950
EntC15	3.42	1.130	3.78	1.006	3.12	1.137
EntC16	3.89	.961	3.93	.942	3.86	.976
EntC17	3.85	1.003	3.79	1.042	3.90	.971
EntC18	3.82	.945	4.07	.901	3.61	.931

A FRAMEWORK OF HOW SPONSORING ESPORTS BENEFITS BRAND IMAGE

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Abstract

The purpose of this research was to identify the elements that facilitate or lead brands to acquire an improved brand image as a result of sponsoring esports. A conceptual framework was created and then improved by empirical data. This exploratory and quantitative research analysed 1,611 esports fans who were sampled through a non-probability purposive heterogeneous method. Empirical data was gathered through an online and closed-ended survey. Data showed that esports sponsorships provide seven main elements that benefit the sponsors' brand image. The field of esports sponsorships has been largely ignored by academia. Hence, this research provides the first step in better understanding the benefits of sponsoring esports and creates a foundation for future studies to base themselves on. Knowing the main brand image-related benefits of sponsoring esports will promote the confidence of brands that are still reluctant about entering this new market.

Key Words

Esports; sponsorship; brand image; marketing; branding.

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INTRODUCTION

Markets are plagued with so many similar brands that it is difficult for companies to find a main selling point (Belch & Belch, 2018). Here, it is common for brand image to be the only, or main, distinguishing element (Chaffey & Smith, 2013). According to Belch and Belch (2018), brands that build the best image will have the competitive edge and reap the most ROIs. In this regard, one of the best tools for building brand image is advertising (Belch & Belch, 2018), and from its various types, sponsorships are the most effective as they seem far less commercial (Bennett, 1999).

  Regarding where to sponsor, sports are considered to be amongst the best areas to improve brand image (Winnan, 2016), but the new phenomenon of esports has also proven to be very attractive (Bouaoui, 2016; Franke, 2015; Ströh, 2017), especially due to its large audience of 454 million fans (Newzoo, 2019) and a strong annual growth of 14% (Ströh, 2017). However, esports' accelerated growth means there is a high lack of knowledge about this industry, and even less is known about its sponsorships (Korpimies, 2017). As reported by Ströh (2017), the still prevalent negative public perception over videogames may lead brands to not sponsor esports to avoid being associated with its supposed negative aspects. But esports provide sponsors with several opportunities to improve their brand image. Unfortunately most brands are not aware of this (Ströh, 2017). Therefore, this research aimed at exploring and identifying which elements of esports benefit the sponsors' brand image. Particularly, which elements prevent the brand image from being negatively affected and which improve the brands' image. This objective is justified by the large gap of scientific research on the esports market (Chalmet, 2015; Kozachuk et al., 2016) and, especially, its sponsorships (Korpimies, 2017; Ströh, 2017). To achieve this goal, a literature review is first presented on the most discussed elements that benefit the esports sponsors' brand image and eight hypotheses are raised. A conceptual framework of these hypotheses is introduced at the end of the literature review and in the conclusion chapter an empirical framework is presented which improves on the conceptual one.

LITERATURE REVIEW

It is very difficult to persuade people into accepting advertisings (Belch & Belch, 2018). In this sense, sponsorships always bring forth the risk of the brand being perceived as too intrusive (Crompton, 1994). However, a research by Nielsen Esports (2017) found that esports fans have a high acceptance of sponsorships. Their study indicates that more than half (i.e. 55%) of esports fans accept the presence of sponsors in esports, while a significant group (i.e. 38%) has no opinion, and only a small percentage (i.e. 7%) does not like the presence of esports sponsors (Nielsen Esports, 2017). This high acceptance is because fans know that esports cannot survive without sponsors as the large majority of revenue comes from them (Ströh, 2017). Moreover, research has shown that between 58% (Nielsen Esports, 2017) and 95% of all esports sponsors are endemic brands and one of the reasons for this discrepancy is because non-

endemic brands are uncertain of how well fans will accept them as esports sponsors (Ströh, 2017). But, research has found that most fans also accept non-endemic sponsors in esports (AEVI, 2018; Lokhman et al., 2018). In fact, Ströh (2017) states that 70% of fans want even more non-endemic sponsors. This is attracting increasingly more non-endemic companies (Ströh, 2017), like PokerStars (Shabir, 2017), El Corte Inglés, Domino's (AEVI, 2018), Coca-Cola, Audi, Visa, and Gillette (Lokhman et al., 2018). Thus, we hypothesize the following:

H₁: Most esports fans enjoy the presence of endemic esports sponsors.
H₂: Most esports fans enjoy the presence of non-endemic esports sponsors.

Cause-related marketing is a form of ethical marketing that provides high visibility and attractiveness to brands (Eastman et al., 2019; Lee & Rim, 2017). According to Eastman et al. (2019), this marketing strategy has been gaining a lot of attention in the recent years. This is because millennials, and the new generation, are cause-driven individuals (Eastman et al., 2019). Hence, and as stated by Shabir (2017), since most esports fans belong to a young demographic, the infancy of the esports market, and its dependence on sponsors, makes it a cause for them. In this sense, sponsoring esports will show fans that the brand is supporting the industry they love and will lead to positive publicity (Shabir, 2017). Therefore,

H₃: Sponsors that support esports beyond the expected monetary exchange obtain an improved brand image.

Esports fans are very passionate (BI Intelligence & Elder, 2017; Nielsen Esports, 2017). They cheer, watch 5 to 10 hours of esports content per week (Ströh, 2017), follow pro-gaming news (Franke, 2015), wear their favourite team's attire, wave flags, etc. (Winnan, 2016). Tickets of important tournaments often sell out in less than an hour (Stivers, 2017) and 98% of esports-related messages on social platforms have a positive sentiment, a significant contrast to general social media texts (AEVI, 2018). Furthermore, Ströh (2017) indicates that roughly two-thirds of fans perceive esports as a vital hobby and that some even describe it as their passion. This is very attractive for sponsors (Ströh, 2017) as highly attached fans tend to perceive their favourite team's sponsors more positively (Tsiotsou & Alexandris, 2009). If a passionate audience perceives sponsors more positively, we expect the following:

H₄: Sponsors that show fans that they are also passionate about esports obtain an improved brand image.

As stated by Winnan (2016), pro-players are the celebrities of esports. Roughly 76% of fans have a favourite team and follow them on social networks (Winnan, 2016). Guys tremble and ask for autographs and girls throw themselves at them (Li, 2016), which means that famous pro-players are vital influencers (Ströh, 2017). This provides sponsors with the opportunity of

benefiting from the celebrity status of these players (Franke, 2015) at a relatively low cost (Ströh, 2017). Thus, we hypothesize the following:

H₅: The celebrity status of esports personalities improves the esports sponsors' brand image.

Esports excel at providing increased engagement opportunities (Seo & Jung, 2016). Brands can directly communicate with esports fans (AEVI, 2018) because they are very prone to interactivity (Lieberman & Esgate, 2002). According to Stein and Scholz (2016), the online essence of esports makes it possible for pro-players and fans to have direct and bilateral conversations in real-time, which allows the audience to connect with them at a much more intimate level than with any other sports personality. Moreover, pro-players are constantly online streaming their training sessions (Stein & Scholz, 2016) or creating content for their fan-base (Nielsen Esports, 2017), which means they are constantly interacting with the community (Stein & Scholz, 2016). This is a unique strength of esports (Ströh, 2017). The global interactivity has attracted numerous brands seeking to also connect with this community (Seo & Jung, 2016). Even the Olympic committee has stated that esports could be useful to engage the worldwide youth with the Olympic movement (Shabir, 2017). Therefore,

H₆: The high engagement of esports fans improves the esports sponsors' brand image.

Esports have a vivid energy (Stein & Scholz, 2016) and an enthusiastic public just like sports (Shabir, 2017). This has led esports to be associated with positive images and feelings (Jin, 2010) and has attracted several brands looking to capitalize on its positive atmosphere (Winnan, 2016). Moreover, although sponsor fit can influence the effects of brand image transfer (Lacey & Close, 2013), a study by Ströh (2017) found that most esports fans perceived the non-endemic main sponsor of the 2016 ESL Frühlingsmeisterschaft, Wüstenrot Bausparkasse AG, to be a more likable brand due to sponsoring esports. According to the author, this seems to indicate that sponsoring esports may lead to positive brand image transfer of both endemic and non-endemic brands. Therefore, we propose the following hypothesis:

H₇: Brands benefit from positive brand image transfer as a result of sponsoring esports.

People aged between 18 and 24-years-old are the most relevant demographic to build brand loyalty because they are initiating their lives as independent consumers (Wesley & Barczak, 2010). Interestingly, the large majority of esports fans are very close to this age group (Mooney, 2018; Nielsen Esports, 2017; Shabir, 2017; SuperData, 2015). Hence, if brand loyalty is cultivated, there is a very high probability that these individuals will continue using the brand for the rest of their lives (Wesley & Barczak, 2010). Loyalty can be built through sponsorships (Smith, 2004), especially if the brand sponsors something

that the consumer loves or is loyal to ([Quester & Farrelly, 1998](#)) and esports fans have shown to have strong positive feelings for competitive gaming ([Shabir, 2017](#); [Ströh, 2017](#); [Winnan, 2016](#)). For instance, SK Telecom, an esports sponsor, has stated that fans often seem to even want to thank the brand for sponsoring, showing relevant signs of love and loyalty for the sponsor ([Taylor, 2012](#)). Thus, we have the following hypothesis:

H8: Brands benefit from enhanced brand loyalty as a result of sponsoring esports.

The review analysed the literature's most widely mentioned elements that positively affect esports sponsors' brand image. In total, eight main elements were identified. Figure 1 presents a conceptual framework summarizing the findings of the literature review.

Figure 1: The benefits of esports sponsorships on the sponsor's brand image (conceptual framework)
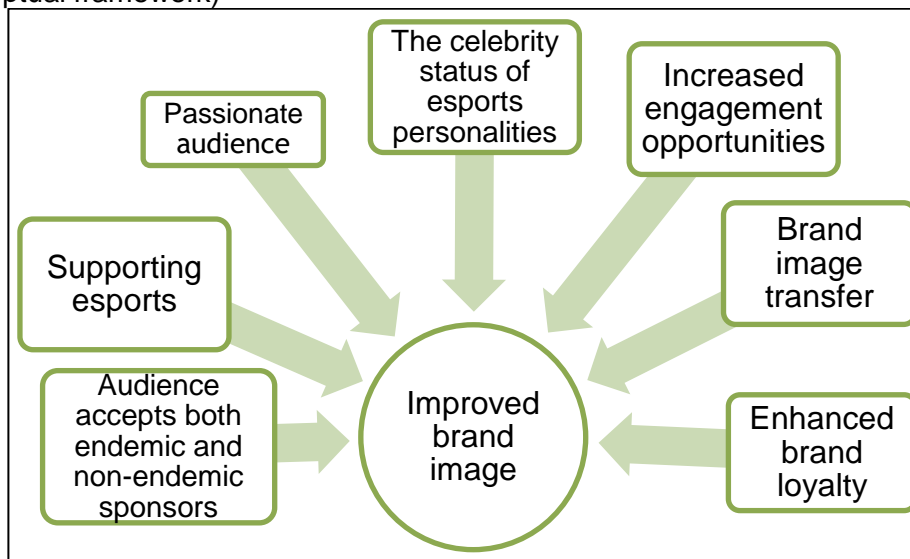
Source: Own survey.

METHODOLOGY

The great lack of scientific research on esports sponsorships and the fast pace at which this industry is evolving means that the conceptual framework may not be precise and up-to-date. Moreover, there is not enough data in the literature to include in the model a justification of why the aforementioned elements benefit the sponsors' image. Hence, more accurate and updated empirical data was gathered to enhance the quality, reliability, and detail of the conceptual framework. Particularly, special attention was given to identifying the intricacies that lead the aforementioned elements to benefit the sponsors' brand image. In order to create the empirical framework, this research's purpose was

exploratory and the approach was quantitative. The time horizon was cross-sectional and the study setting was non-contrived with the researchers taking an overt stance.

Population and sampling

The sample was composed of esports fans (N = 1,611) and the sampling method was non-probability purposive heterogeneous. Specifically, there was a deliberate attempt to select a varied group of esports fans. This was done to ensure that the sample covered the largest possible spectrum of fans from all esports video games. To achieve this, a database that included the 10 most-watched esports video games of each month of 2019 (from January to August) and the 100 esports games that have awarded the highest amount of prize money until now was created. The monthly top 10 list was based on data from Newzoo (2020) which, every month, exhibits a list of Twitch and YouTube's 10 most-watched video games in esports. Newzoo is a web platform that provides various esports-related statistics and is used by multiple researchers, like Chao (2017), Dubois and Gibbs (2018), Funk et al. (2018), etc. The list of the 100 esports titles that awarded the most prize money over the years was acquired from Esports Earnings (2020). This is a popular website for esports data and widely used by a large number of researchers, including Brickell (2017), Menasce (2019), Owens (2016), etc. Table 1 exposes the list that resulted from crossing the 10 most-watched esports games from January to August 2019 and the 100 esports titles that have awarded the most prize money. Requests to fill out the online survey were posted in esports-related forums whose main topic was focused on one or more of the games from Table 1. In addition to these, participation requests were also posted in forums focused on general esports, popular esports tournaments, and pro-players and teams.

Table 1: Most-watched and highest prize money awarded esports videogames

Doom 3	Point Blank
PLAYERUNKNOWN'S BATTLEGROUNDS Mobile	Super Smash Bros. Ultimate
Brawlhalla	FIFA 17
Blade & Soul	Age of Empires II: The Age of Kings
World in Conflict	ShootMania Storm
Gears of War	Teamfight Tactics
Battlefield 4	Project Gotham Racing 3
Counter-Strike	League of Legends
Call of Duty: World War II	Counter-Strike Online
CrossFire	Halo 2
Attack on Titan Tribute Game	WarCraft III
StarCraft: Brood War	Call of Duty: Infinite Warfare
Rocket League	Street Fighter V: Arcade Edition
Heroes of Newerth	Tekken 7
Halo 4	Quake III Arena
Shadowverse	Halo: Combat Evolved
Arena of Valor	Madden NFL 2013
World of WarCraft	Call of Duty: Advanced Warfare
Paladins	Magic: The Gathering Arena
Gears of War 4	Street Fighter V

NBA 2K18	Halo 3
H1Z1	Call of Duty: Modern Warfare 3
Halo 5: Guardians	Mortal Kombat X
Guild Wars 2	Pro Evolution Soccer 2017
SMITE	Quake Champions
Tom Clancy's Rainbow Six: Siege	Hearthstone
Super Smash Bros. Melee	Team Fortress 2
Apex Legends	Dota 2
FIFA 18	Call of Duty: Ghosts
Madden NFL 2017	Counter-Strike: Source
Call of Duty 4: Modern Warfare	FIFA Online 4
iRacing.com	Defense of the Ancients
FIFA 19	Turbo Racing League
Halo 2 Anniversary	Super Smash Bros. Brawl
Call of Duty: Black Ops III	FIFA Online 3
World of Tanks	Injustice 2
Ultra Street Fighter IV	Counter-Strike: Global Offensive
Realm Royale	PLAYERUNKNOWN'S BATTLEGROUNDS
Painkiller	Magic: The Gathering Online
Vainglory	Call of Duty: Black Ops
Forza Motorsport 7	Quake 4
Quake Live	Super Smash Bros. for Wii U
Dead or Alive 4	Old School Runescape
Call of Duty: Black Ops 4	Madden NFL 2018
rFactor 2	FIFA 13
KartRider	Overwatch
Clash Royale	Gwent
StarCraft II	Halo: Reach
Heroes of the Storm	Super Street Fighter IV Arcade Edition
Call of Duty: Black Ops 2	Fortnite

Source: Table based on Esports Earnings (2020) and Newzoo (2020).

Since this research is looking to identify what factors can lead esports sponsors to have an improved brand image, esports fans (i.e. the individual) were used as the unit of observation and esports sponsors (i.e. the organization) were used as the unit of analysis. The reason why esports fans were used as the unit of observation was because they are the ones whom the brand must please and the ones who will ultimately form the positive or negative mental perceptions of the brand and its sponsorship actions. Hence, knowing what factors are most likely to create positive perceptions of the sponsor on the fans' minds will be vital to improve the brand's image. As Kotler and Armstrong (2018) state, brands must study their consumers in order to understand their intricacies, their mentalities, their wants and wishes, and what elements can lead to an improved brand image. Table 2 presents the sample's demographics.

Table 2: Esports fans' demographics

Variable	n					
Attribute	Valid	No answer	Valid %	Mean	SD	Mode
Gender	1,588	23				
Female	116		7.3			
Male	1,472		92.7			
Age	1,533	78		24.2	6.5	18

Marital status	1,567	44	
Single	1,128		72
Cohabiting	254		16.2
Married	170		10.8
Divorced	14		.9
Widowed	1		.1
Education	1,571	40	
6th grade or less	3		.2
7th to 12th grade	551		35.1
Bachelor degree	702		44.7
Master degree	167		10.6
PhD	27		1.7
Post-doctorate	8		.5
Other	113		7.2
Employment status	1,582	29	
Student	711		44.9
Employed	714		45.1
Homemaker	14		.9
Unemployed	95		6
Retired	6		.4
Other	42		2.7
Region	1,592	19	
Africa	8		.5
Asia	80		5
Europe	576		36.2
North America	844		53
Oceania	45		2.8
South America	39		2.4
Ethnicity	1,549	62	
American Indian or Alaska Native	27		1.7
Asian	233		15
Black or African American	37		2.4
Hispanic, Latino or Spanish origin	115		7.4
Middle Eastern or North African	31		2
Native Hawaiian or other Pacific Islander	12		.8
White	1,220		78.8
Other	66		4.3

N = 1,611; SD = Standard deviation; Valid = number of esports fans that selected an option; Valid % = percentage of esports fans that selected an option. For ethnicity, participants were able to select more than one option.
Source: Own survey.

Data collection tool, application method, and data analysis procedure

The data was collected through a closed-ended online structured survey (the only open-ended question was regarding the participant's age). The questionnaire was created through Google Forms, an online survey platform recommended or used by multiple authors, including Cohen et al. (2018) and Luján (2017). The survey was applied through self-recruitment and self-administration. The requests for filling out the survey were placed on esports-related forums with a link that redirected fans to the online survey webpage. To
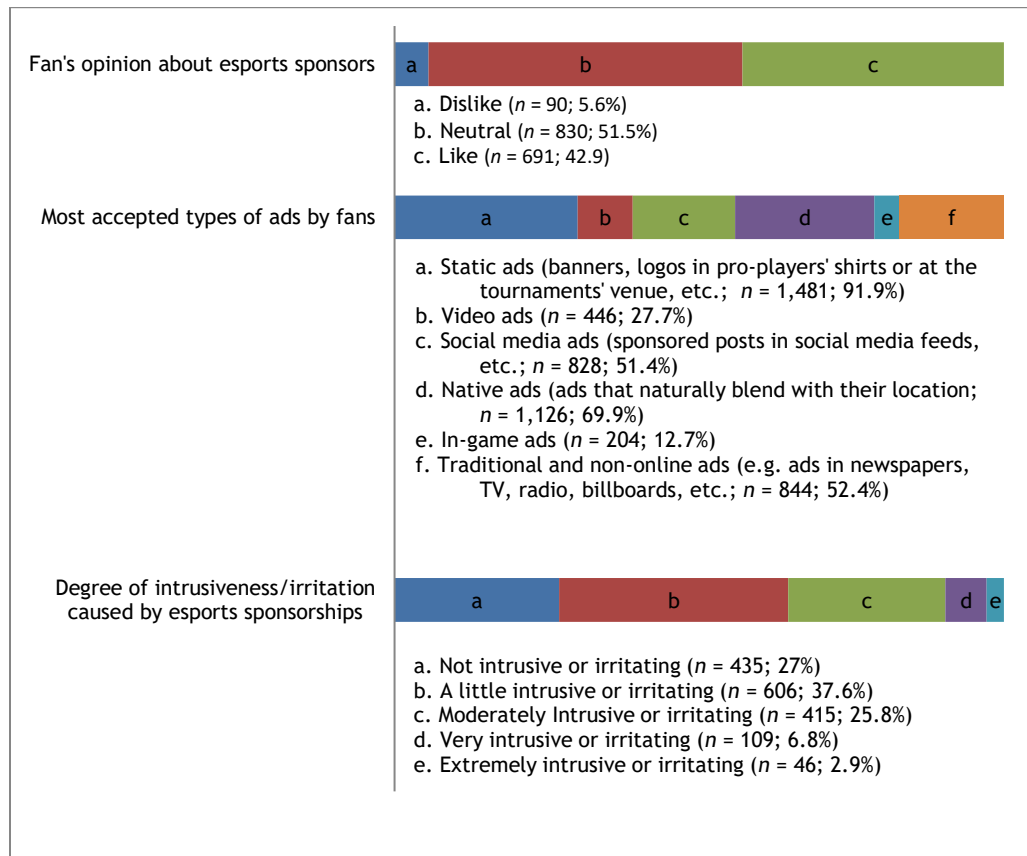
avoid non-esports fans from filling out the survey, the first item of the questionnaire was a filter question which asked if the participant regularly watched or participated in esports. Those who selected "No" were not able to complete the rest of the survey and were not included in the sample. Prior to starting the empirical data collection, the questionnaire was pretested on 62 individuals (i.e. 58 esports fans and 4 researchers). The pretest subjects were not included in the sample and their data were not included in the analysis. The data collection began on 17 September 2019 and ended on 7 October 2019 (i.e. 21 days). Participation requests were put on 252 sub-forums from the Reddit website and on 79 channels of the Discord website. According to Lee (2017), Reddit and Discord are the two most used social media networks by gaming fans. Only one request was posted by sub-forum or channel. Data were analysed through IBM SPSS Statistics 25.

RESULTS AND DISCUSSION

Audience accepts both endemic and non-endemic sponsors

The data confirmed H_1 and H_2 that most esports fans enjoy the presence of both endemic and non-endemic esports sponsors, respectively. As Figure 2 points out, the large majority of esports fans are not bothered by esports sponsorships. In fact, a very considerable percentage actually likes to see sponsors in this area. Only a very minor portion indicated they did not like to see sponsors in competitive gaming. This large acceptance of sponsorships is further cemented by the data in Figure 2 which shows that most fans (i.e. 64.6%; $n = 1,041/1,611$) considered these sponsorships to be only a little irritating or not irritating at all. Still, attention must be called to the fact that a significant percentage perceived them as moderately irritating. Furthermore, one-tenth of participants (i.e. 9.7%; $n = 155/1,611$) see these sponsorships as very or extremely irritating. Although this is not a large group, and there will always be some who dislike sponsorships, it is still important to ensure that this percentage is as low as possible to avoid the potential spreading of negative word of mouth.

Figure 2: Audience acceptance of esports sponsorships

Fan's opinion about esports sponsors

a. Dislike (*n* = 90; 5.6%)
b. Neutral (*n* = 830; 51.5%)
c. Like (*n* = 691; 42.9)

Most accepted types of ads by fans

a. Static ads (banners, logos in pro-players' shirts or at the tournaments' venue, etc.; *n* = 1,481; 91.9%)
b. Video ads (*n* = 446; 27.7%)
c. Social media ads (sponsored posts in social media feeds, etc.; *n* = 828; 51.4%)
d. Native ads (ads that naturally blend with their location; *n* = 1,126; 69.9%)
e. In-game ads (*n* = 204; 12.7%)
f. Traditional and non-online ads (e.g. ads in newspapers, TV, radio, billboards, etc.; *n* = 844; 52.4%)

Degree of intrusiveness/irritation caused by esports sponsorships

a. Not intrusive or irritating (*n* = 435; 27%)
b. A little intrusive or irritating (*n* = 606; 37.6%)
c. Moderately Intrusive or irritating (*n* = 415; 25.8%)
d. Very intrusive or irritating (*n* = 109; 6.8%)
e. Extremely intrusive or irritating (*n* = 46; 2.9%)

N = 1,611. For the item on most accepted types of ads, participants were able to select more than one option.
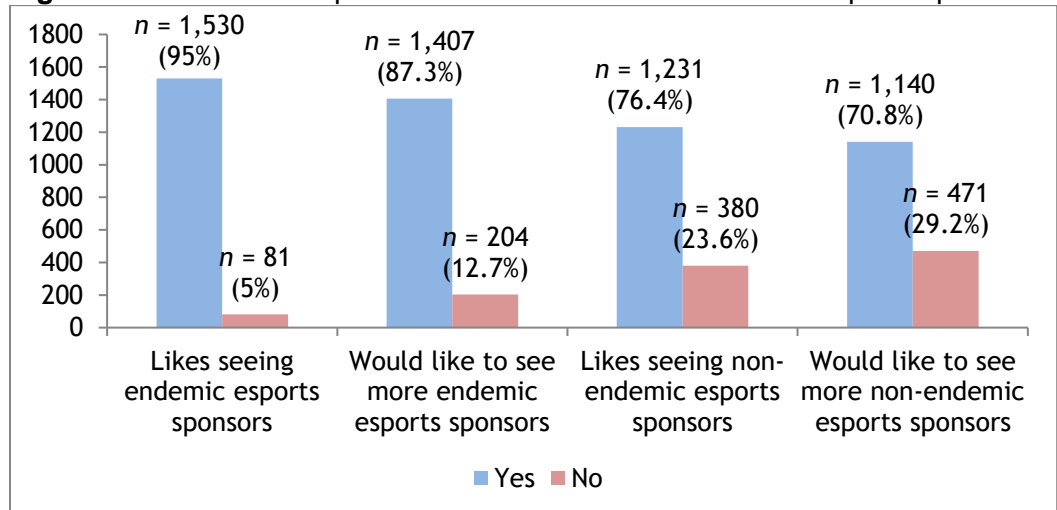*Source*: Own survey.

To help and guide esports sponsors on how to ensure that their sponsorships are widely accepted and not perceived as irritating or intrusive, the types of ads esports fans are more prone to accept were identified. Interestingly, video and in-game ads, which are the most dynamic types of ads from the list of possible answers, were the least accepted by fans. The dislike for in-game ads could be due to fans not wanting publicity inside the videogames they love, which could break their sense of immersion. The aversion towards video ads may be because they are more distracting than simple image or text-based ads. Another unexpected finding was that only half of the sample indicated to accept social media ads and that almost the same amount of people accepted traditional and non-online ads. Since we live in the age of social media, with traditional mass communication channels continuing to quickly lose popularity, it was very surprising to see social media ads have the same level of acceptance as traditional and non-online ads. Although esports fans are known not to make much use of traditional mass communication channels, the acceptance by half of the sample could be due to them wanting to see esports content (including esports-related ads) being featured in the more traditional and mainstream channels. This could also provide fans with a sense that esports, and gaming in general, are being more recognized and accepted by the masses. Lastly, static

and native ads were the most accepted. This could be due to them being among the least distracting types of ads as they tend to manifest themselves as simple images or text. Furthermore, they are not as intrusive as social media ads which fans may see when not searching for esports content.

According to Figure 3, almost every esports fan likes seeing endemic brands sponsoring esports, only a very minor percentage disagreed. Furthermore, the vast majority would like to see more endemic brands sponsoring esports. In the same vein, the bulk of fans like seeing non-endemic brands sponsoring esports, but approximately one quarter do not like seeing them. Moreover, most fans want more non-endemic brands to sponsor esports. Yet, a considerable percentage stated to not want more non-endemic brands sponsoring esports. Curiously, as can be seen in Figure 3, as the topic moves from liking and wanting more endemic sponsors to liking and wanting more non-endemic sponsors, the percentage of acceptance steadily decreases and higher resistance is met against non-endemic sponsors. Although the unacceptance percentage never reaches more than 30% in any of the topics, this is still a clear indication that endemic sponsors are favoured over non-endemic ones. In this sense, non-endemic brands must develop more captivating and interesting sponsorships to overcome the higher acceptance barriers that are presented to them. Even so, Figure 3 does show that, despite not being evenly matched, the large majority of esports fans accept both endemic and non-endemic sponsors.

Figure 3: Audience acceptance of endemic and non-endemic esports sponsors

N = 1,611.
Source: Own survey.

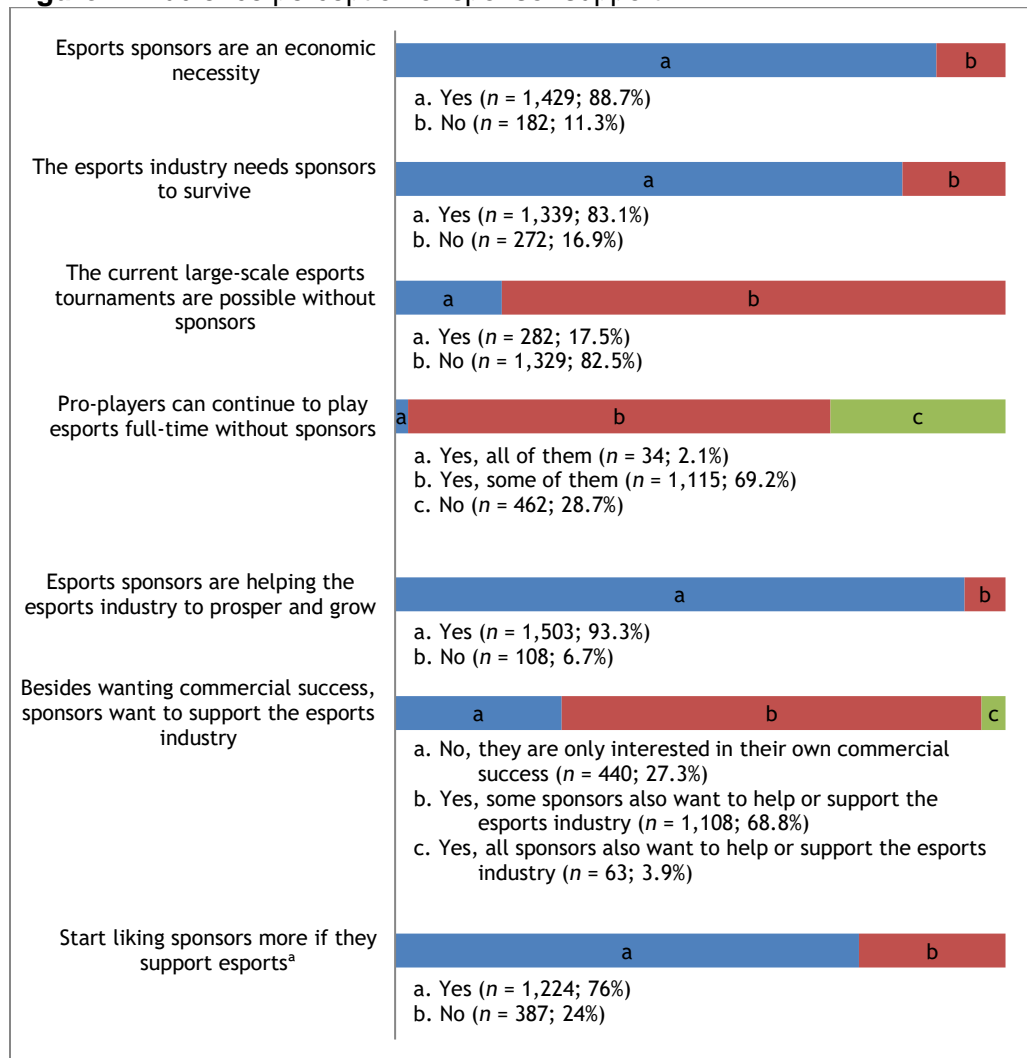## Supporting esports

The data confirmed H_3 that sponsors that support esports beyond the expected monetary exchange obtain an improved brand image. As Figure 4 indicates, esports fans are very aware that, by sponsoring esports, brands are greatly supporting the competitive gaming industry. The overwhelming share of fans understands that esports sponsors are an economic necessity, that the

esports market needs sponsors to survive, that sponsors are helping esports industry to prosper and grow, and that, if all brands stopped sponsoring esports, this market would not be able to continue organizing such large-scale tournaments. Moreover, roughly three-quarters of the sample believe that some or all sponsors, besides wanting commercial success, have an authentic desire to help and support the esports market. Still, a considerable minority stated that esports sponsors are only interested in their own commercial success. Lastly, an important aspect was that the large majority of fans indicated to start liking sponsors more when they go beyond the simple monetary offers in exchange of brand visibility and actually help and support esports (e.g. creating tournaments and activities, promoting esports, etc.). This last finding shows the importance of sponsors playing a more active and intimate role in esports, particularly by bringing relevant-added value to esports.

Figure 4: Audience perception of sponsor support

Esports sponsors are an economic necessity
a. Yes (*n* = 1,429; 88.7%)
b. No (*n* = 182; 11.3%)

The esports industry needs sponsors to survive
a. Yes (*n* = 1,339; 83.1%)
b. No (*n* = 272; 16.9%)

The current large-scale esports tournaments are possible without sponsors
a. Yes (*n* = 282; 17.5%)
b. No (*n* = 1,329; 82.5%)

Pro-players can continue to play esports full-time without sponsors
a. Yes, all of them (*n* = 34; 2.1%)
b. Yes, some of them (*n* = 1,115; 69.2%)
c. No (*n* = 462; 28.7%)

Esports sponsors are helping the esports industry to prosper and grow
a. Yes (*n* = 1,503; 93.3%)
b. No (*n* = 108; 6.7%)

Besides wanting commercial success, sponsors want to support the esports industry
a. No, they are only interested in their own commercial success (*n* = 440; 27.3%)
b. Yes, some sponsors also want to help or support the esports industry (*n* = 1,108; 68.8%)
c. Yes, all sponsors also want to help or support the esports industry (*n* = 63; 3.9%)

Start liking sponsors more if they support esports[a]
a. Yes (*n* = 1,224; 76%)
b. No (*n* = 387; 24%)

N = 1,611.

[a] E.g. creating tournaments and activities, and promoting esports). This does not include the basic monetary exchange.
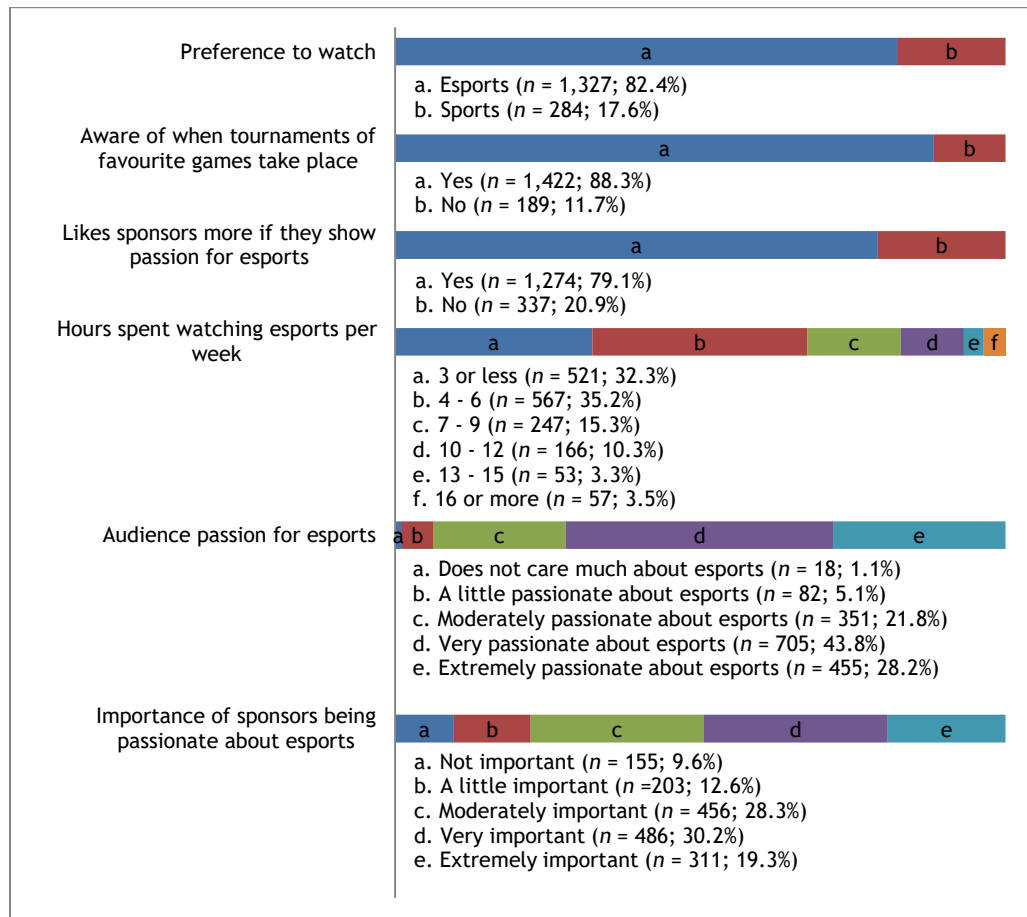*Source*: Own survey.

The only instance where the sample indicated that sponsor support could not be as important was regarding the pro-players. The vast majority of fans considered that some pro-players would be able to continue dedicating their entire lives to esports even without sponsors. This is probably because, as Li (2016) indicates, some pro-players and teams have reached such high levels of popularity that they even became brands themselves and some pro-players make enough money just through YouTube and Twitch. Still, a considerable percentage of fans stated that pro-players would not be able to focus just on esports without the monetary help from sponsors. The fact that esports fans are aware that sponsors are crucial elements for the sustainability and strength of the esports industry means that fans are more prone to appreciate their presence and perceive them, not as mere intrusive and commercially predatory brands, but as welcoming entities that are promoting and supporting the wellbeing of esports.

Passionate audience

The data confirmed H_4 that sponsors that show fans that they are also passionate about esports obtain an improved brand image. The results showed that esports fans are very passionate about competitive gaming. According to Figure 5, the vast majority of fans prefer to watch esports over sports. Although this may be expected at first sight since the sample is composed of esports fans, it must be kept in mind that general sports are much more known and have a much wider appeal than esports so it would be expected that more than 17.6% of the sample preferred general sports. Bearing in mind the long history and deep love for sports, the fact that such a large bulk of fans feel a stronger passion for esports is proof of just how engaged they are with this new market. Most fans also know when tournaments of their favourite games take place, which is an indication that this is not just something that they watch when they come across. Fans actually take notes of when matches take place and follow these happenings just like other avid sports fans.

Figure 5: Audience passion for esports

N = 1,611.
Source: Own survey.

The fans' passion for esports is also clearly shown in the number of hours they watch esports per week, and especially when compared to general sports' weekly viewership hours. Specifically, as Figure 5 shows, 32.4% (i.e. $n = 523/1,611$) of esports fans spend 7 or more hours per week watching esports. By comparison, and according to Statista (2019), only 15% of the U.S. population spend the same amount of time watching, reading, or listening to sports. This means that, when compared to sports, more than double the percentage of esports fans are heavy consumers of esports.

Regarding how passionate fans are about esports, and as indicated by Figure 5, the large majority of fans (i.e. 72%; $n = 1,160/1,611$) are very or extremely passionate. A considerable percentage has a medium level of passion. And only a very minor percentage (i.e. 6.2%; $n = 100/1,611$) is a little passionate or does not care much about esports. Similarly, in Figure 5, it is possible to see that most fans (i.e. 49.5%; $n = 797/1,611$) believe it is very or extremely important for sponsors to be passionate about esports. Still, a considerable percentage thinks that it is only moderately important for sponsors to be passionate and another considerable group (i.e. 22.2%; $n = 358/1,611$) believes this is just a little or not important. Interestingly, the similarities between Figures

5 and 6, make it very clear that the more passionate fans are about esports, the more they wish for sponsors to share that same level of passion. This is a strong indicator that esports brands must create sponsorships that connect with esports fans and show a high level of passion for competitive gaming. This finding is further proven by another data from Figure 5 which shows that the large majority of fans start liking sponsors more when they demonstrate that they are passionate about esports.

The celebrity status of esports personalities

The data confirmed H_5 that the celebrity status of esports personalities improves the esports sponsors' brand image. The results in Figure 6 show that the overwhelming majority of fans have a favourite pro-player or team, consider pro-players as esports celebrities, and believe that pro-players should be seen as celebrities on the same level as any other sports player. Still, and despite this, it is important to point out that a small majority of fans do not see pro-players as role models. This indicates that, although they recognize the high reputation of pro-players, they do not perceive them as inspirational figures. However, there is still a considerably high percentage of people who view pro-players as role-models. So it cannot be said that this is a general rule.

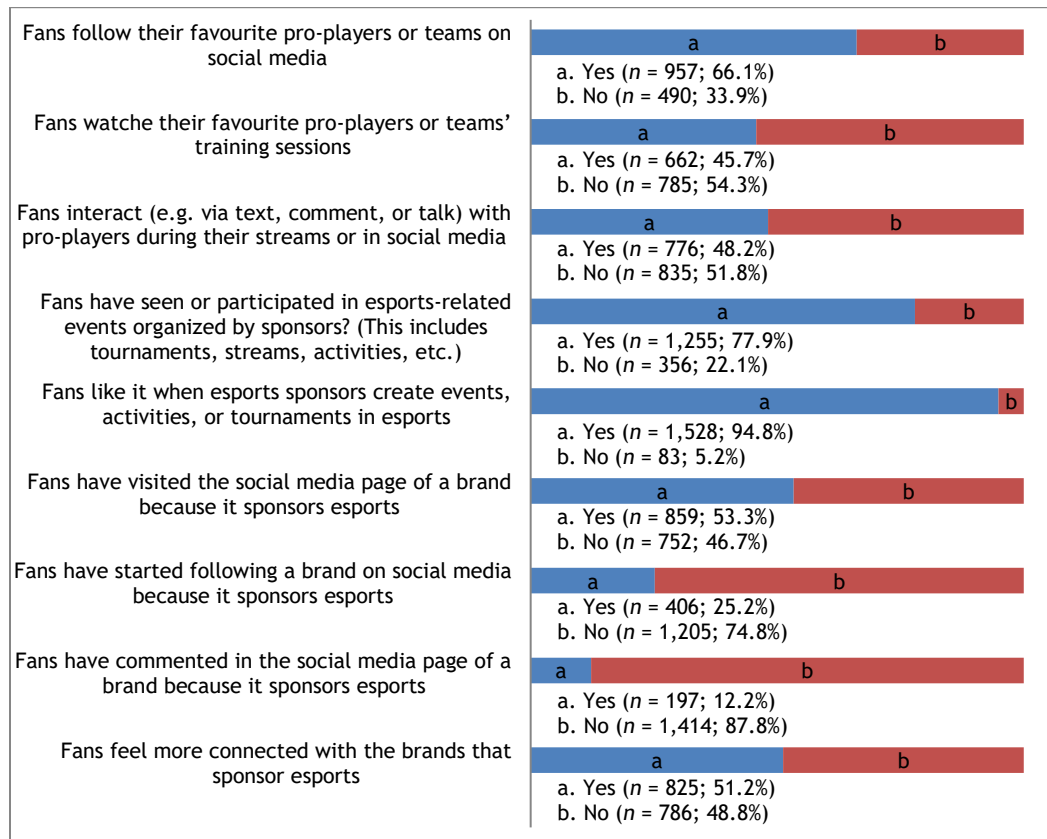**Figure 6:** Audience perception of celebrity pro-players
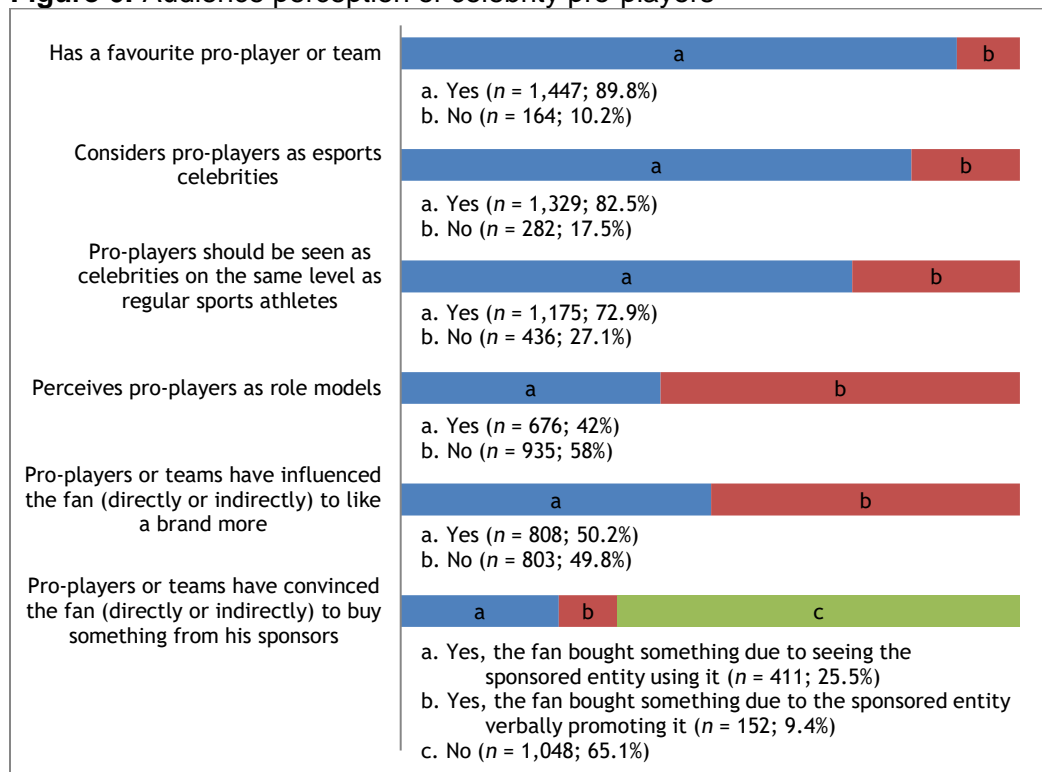
N = 1,611.
Source: Own survey.

A small majority of fans also admitted that a pro-player has influenced them (either directly or indirectly) to like a brand more. Although percentage-wise, this is not a significant majority, it is significant when seen from a marketers' point of view. If a pro-player is capable of influencing half of his millions of followers to like his sponsors more, then esports sponsorships is an extremely viable tool to improve brand image. In relation to influencing buying behaviours, although pro-players are not as effective in making people buy the sponsors' products as they are in enhancing the liking for a brand, they are still pivotal opinion leaders and product endorsers. As seen in Figure 6, although most fans have not been convinced (either directly or indirectly) by pro-players into buying something from their sponsors, a considerable percentage still indicated to have bought something because they saw a pro-player using it and a small group stated to have bought something because a pro-player verbally promoted it. The figures for both improving brand image and increasing product consumption are very significant for sponsors and serve as proof of the importance of the celebrity status of pro-players.

Increased engagement opportunities

The data confirmed H_6 that the high engagement of esports fans improves the esports sponsors' brand image. Esports provide sponsors with numerous opportunities to engage with the esports audience. As indicated by Figure 7, from the group who previously stated to have a favourite pro-player or team (i.e. 89.8%; n = 1,447/1,611), the majority follows their favourite pro-players and teams on social media. A very significant percentage also watches the pro-players' training sessions and interacts (e.g. by text or audio communication) with them during streams or in social media. This constant following, watching and interacting means that pro-players are ever-present entities of interest and serve as effective channels for sponsors to reach and engage with esports fans. As shown in Figure 8, from the group that interacts with pro-players, the most used online platform to conduct these interactions is Twitch by far. Other popular platforms include Reddit, YouTube, Twitter, and Discord. Platforms like Instagram, Facebook, and Mixer are not as popular.
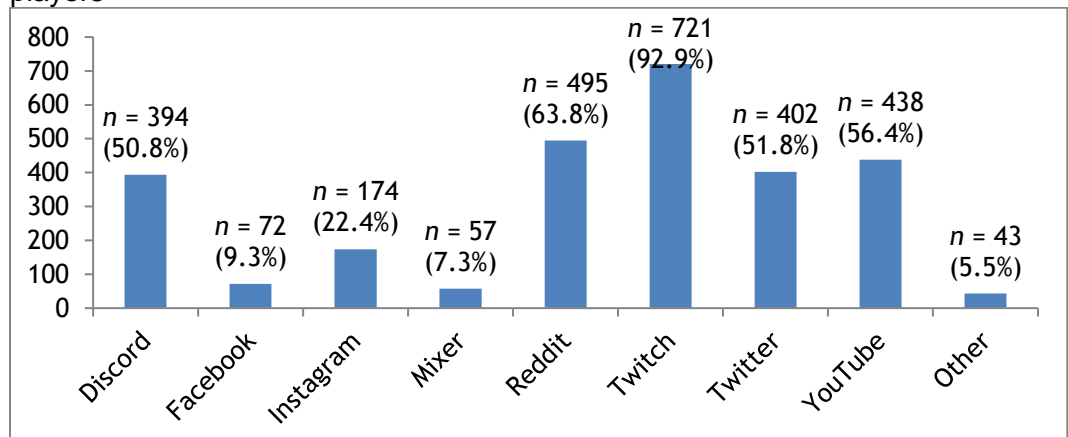
Figure 7. Opportunities for sponsors to engage with esports fans

Fans follow their favourite pro-players or teams on social media
a. Yes (*n* = 957; 66.1%)
b. No (*n* = 490; 33.9%)

Fans watch their favourite pro-players or teams' training sessions
a. Yes (*n* = 662; 45.7%)
b. No (*n* = 785; 54.3%)

Fans interact (e.g. via text, comment, or talk) with pro-players during their streams or in social media
a. Yes (*n* = 776; 48.2%)
b. No (*n* = 835; 51.8%)

Fans have seen or participated in esports-related events organized by sponsors? (This includes tournaments, streams, activities, etc.)
a. Yes (*n* = 1,255; 77.9%)
b. No (*n* = 356; 22.1%)

Fans like it when esports sponsors create events, activities, or tournaments in esports
a. Yes (*n* = 1,528; 94.8%)
b. No (*n* = 83; 5.2%)

Fans have visited the social media page of a brand because it sponsors esports
a. Yes (*n* = 859; 53.3%)
b. No (*n* = 752; 46.7%)

Fans have started following a brand on social media because it sponsors esports
a. Yes (*n* = 406; 25.2%)
b. No (*n* = 1,205; 74.8%)

Fans have commented in the social media page of a brand because it sponsors esports
a. Yes (*n* = 197; 12.2%)
b. No (*n* = 1,414; 87.8%)

Fans feel more connected with the brands that sponsor esports
a. Yes (*n* = 825; 51.2%)
b. No (*n* = 786; 48.8%)

N = 1,611.
Source: Own survey.

Figure 8: Most used platforms by the esports' audience to interact with pro-players

- Discord: *n* = 394 (50.8%)
- Facebook: *n* = 72 (9.3%)
- Instagram: *n* = 174 (22.4%)
- Mixer: *n* = 57 (7.3%)
- Reddit: *n* = 495 (63.8%)
- Twitch: *n* = 721 (92.9%)
- Twitter: *n* = 402 (51.8%)
- YouTube: *n* = 438 (56.4%)
- Other: *n* = 43 (5.5%)

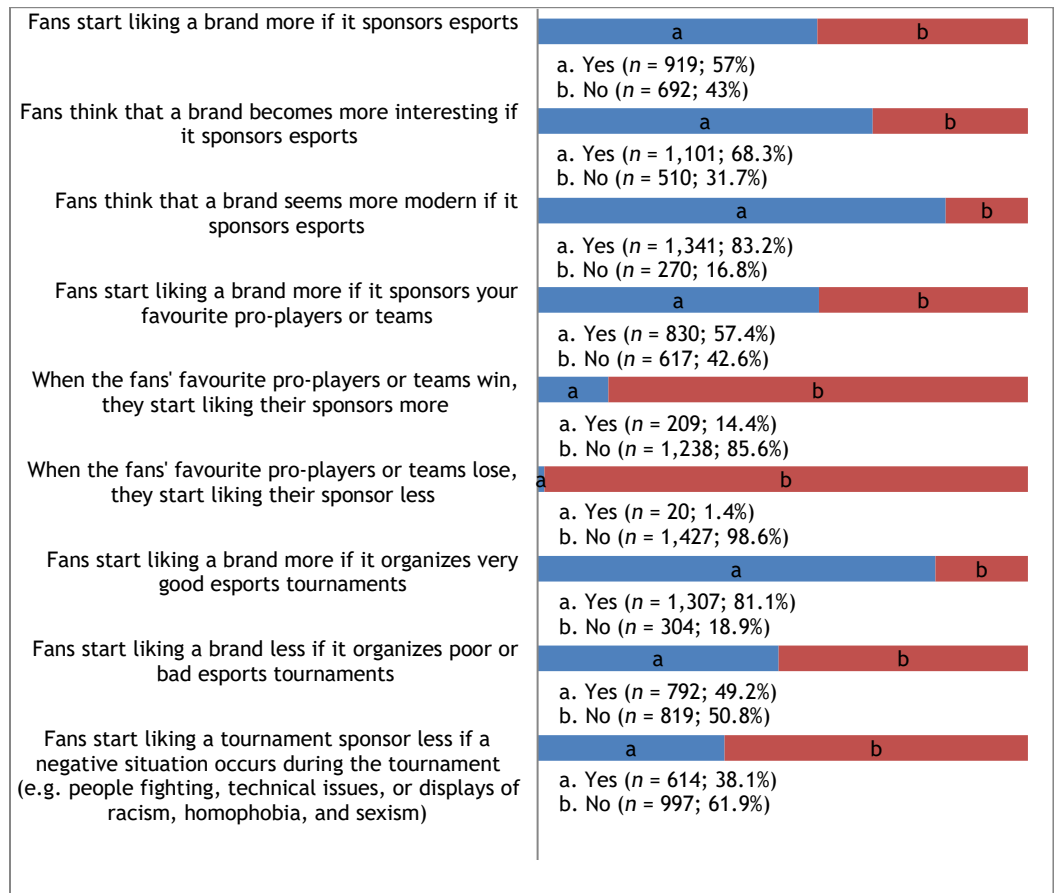N = 1,611. For this question, participants were able to select more than one option.
Source: Own survey.

The large majority of fans have seen or participated in events, streams, tournaments, or activities organized by esports sponsors and almost all of them like it when esports sponsors create these experiences. The fact that almost all fans showed positive feelings towards events organized by esports sponsors shows that this is another effective tool to engage with esports fans. Half of the sample also indicated to have visited the social media page of a brand because it sponsors esports. However, only one quarter started following a brand on social media because it sponsors esports and only one-tenth have commented on the social media page of a brand because it sponsors esports. Although these may seem like small figures, having half of esports fans visiting a sponsor's social media page, with one quarter following it and one-tenth commenting, will create a very significant boost in brand interest and will provide the opportunity for an improved brand image. Furthermore, half of the sample indicated to feel more connected with the brands that sponsor esports. This may be because the high consumption of esports makes the sponsors a constant presence in the fans' daily lives, which may also lead to an improved brand image.

Brand image transfer

The data confirmed H_7 that brands benefit from positive brand image transfer as a result of sponsoring esports. As indicated by Figure 9, esports sponsorships provide various opportunities for brand image transfer. Roughly half of the sample stated that they start liking a brand more if it sponsors esports. Most of them think a brand becomes more interesting if it sponsors esports and the large majority perceives a brand as more modern if it sponsors esports. From the previous group of fans who indicated to have a favourite pro-player or team (i.e. 89.8%; $n = 1,447/1,611$), half indicated to start liking a brand more if it sponsors their favourite pro-players or teams. Interestingly, the vast majority of fans stated that the act of their favourite pro-players or teams winning does not make them like their sponsors more and almost all fans stated that the act of their favourite pro-players or teams losing does not make them like their sponsors less either. In this sense, although the sponsor does not seem to benefit from positive brand image transfer when the sponsored party wins, this provides some assurance against the fears of potential negative brand image transfer when it loses.

**Figure 9.** Brand image transfer in esports sponsorships

Fans start liking a brand more if it sponsors esports	a	b

a. Yes (*n* = 919; 57%)
b. No (*n* = 692; 43%)

Fans think that a brand becomes more interesting if it sponsors esports	a	b

a. Yes (*n* = 1,101; 68.3%)
b. No (*n* = 510; 31.7%)

Fans think that a brand seems more modern if it sponsors esports	a	b

a. Yes (*n* = 1,341; 83.2%)
b. No (*n* = 270; 16.8%)

Fans start liking a brand more if it sponsors your favourite pro-players or teams	a	b

a. Yes (*n* = 830; 57.4%)
b. No (*n* = 617; 42.6%)

When the fans' favourite pro-players or teams win, they start liking their sponsors more	a	b

a. Yes (*n* = 209; 14.4%)
b. No (*n* = 1,238; 85.6%)

When the fans' favourite pro-players or teams lose, they start liking their sponsor less	a	b

a. Yes (*n* = 20; 1.4%)
b. No (*n* = 1,427; 98.6%)

Fans start liking a brand more if it organizes very good esports tournaments	a	b

a. Yes (*n* = 1,307; 81.1%)
b. No (*n* = 304; 18.9%)

Fans start liking a brand less if it organizes poor or bad esports tournaments	a	b

a. Yes (*n* = 792; 49.2%)
b. No (*n* = 819; 50.8%)

Fans start liking a tournament sponsor less if a negative situation occurs during the tournament (e.g. people fighting, technical issues, or displays of racism, homophobia, and sexism)	a	b

a. Yes (*n* = 614; 38.1%)
b. No (*n* = 997; 61.9%)

N = 1,611.
Source: Own survey.

The large majority of fans mentioned that they start liking a brand more if it organizes very good esports tournaments. However, half of the sample indicated that they would start liking less a brand that organized a bad esports tournament and a significant percentage stated that they would start liking a tournament sponsor less if a negative situation occurred during a tournament (e.g. fighting, technical issues, racism, homophobia, sexism, etc.). Although esports provide several opportunities for positive brand image transfer, and there seem to be low chances of negative brand image transfer from having the sponsored party losing, sponsors must be cautious about how they conduct their sponsorships. Particularly, how they organize esports tournaments that are in line with the fans' wants and values and how they shield themselves from possible negative occurrences or problems that may severely damage the brand.

Enhanced brand loyalty

The data did not support H_8 that brands benefit from enhanced brand loyalty as a result of sponsoring esports. The results in Figure 10 indicate that, unlike

what was found in the literature, esports sponsorships do not lead to a significant increase in brand loyalty. A considerable percentage of fans stated that they have talked with others about esports sponsors and most of these conversations were focused on positive aspects of the brands, only a very minor percentage had exclusively negative discussions about esports sponsors. A considerable percentage also mentioned to have started consuming more of the brands that sponsor competitive gaming. However, only a small percentage has advised others to use a brand because it sponsors esports. A considerable percentage also stated to be more loyal to a brand because it sponsors esports. But only a small percentage referred to have defended an esports sponsor from negative criticism. Despite some considerable percentages in favour of enhanced brand loyalty we do not think they are high enough to support the belief that the brands which sponsor esports have a high chance of benefiting from increased brand loyalty.

Figure 10: Brand loyalty in esports sponsorships
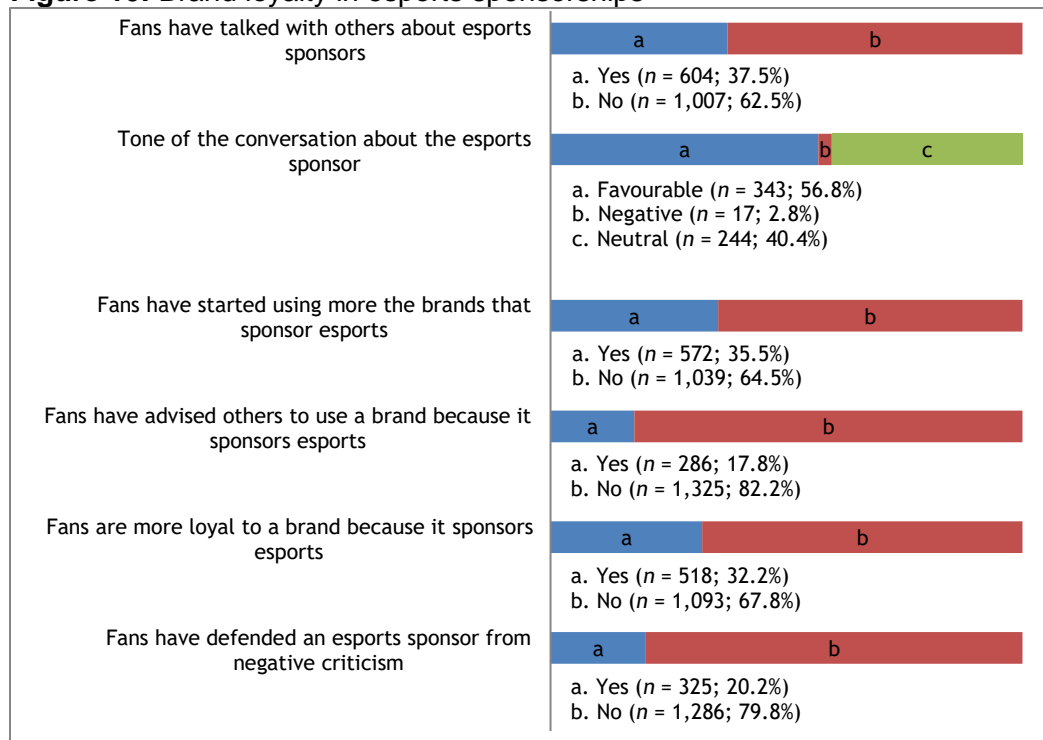
N = 1,611.
Source: Own survey.

CONCLUSIONS

The research allowed the development of both a conceptual and an empirical framework. While the conceptual framework was based only on a literature review and was lacking in detail, which ironically mirrors the great lack of scientific research on esports sponsorships, the empirical framework improved

upon it by crossing it with empirical data. The result is a much more detailed and reliable framework that provides brands with a better understanding of how esports sponsorships can benefit their brand image. Figure 11 presents the results of crossing the literary and empirical data.

Figure 11. The benefits of esports sponsorships on the sponsor's brand image (empirical framework)

Audience accepts both endemic and non-endemic sponsors
- Fans like and are not bothered by the presence of esports sponsors.
- Fans do not perceive sponsors as intrusive or irritating.
- Most accepted types of ads are: Static ads, native ads, traditional and non-online ads, and social media ads.
- Fans like seeing both endemic and non-endemic sponsors.
- Fans want more endemic and non-endemic sponsors.
- Endemic sponsors are slightly preferred but both are widely accepted.

Supporting esports
- Fans understand that esports need sponsors to survive and grow.
- Fans understand that the current large scale events are not possible without sponsors.
- Fans believe that some sponsors, besides wanting commercial success, also want to help the esports industry.
- Fans like sponsors whose support goes beyond the expected monetary offer in exchange of exposure.

Passionate audience
- Fans prefer esports over sports.
- Esports fans watch more esports than sports fans watch sports.
- Fans know tournament schedules.
- Fans are very or extremely passionate about esports.
- Fans like and consider it very important for sponsors to be passionate about esports.

Celebrity status of esports personalities
- Fans have favorite pro-players and teams.
- Fans perceive pro-players as celebrities.
- Pro-players can influence fans to like their sponsors more.
- Pro-players can influence fans to consume the sponsors' products.

Increased engagement opportunities
- Fans follow pro-players on social media.
- Fans watch pro-players' training sessions.
- Fans interact with pro-players.
- Twitch, Reddit, YouTube, and Twitter are the most used platforms by fans.
- Fans see, participate, and like events and tournaments created by sponsors.
- Fans visit and follow the social media pages of esports sponsors.
- Fans feel more connected with esports sponsors.

Brand image transfer
- Fans start liking more the brands that sponsor esports and their favorite pro-players or teams.
- Fans perceive esports sponsors are more interesting and modern.
- Negative brand image transfer does not occur if the sponsored party loses.
- Fans like brands that organize good esports tournaments.
- Sponsors must be cautious not to organize bad events and avoid negative situations.

Improved brand image

Source: Own survey.

Theoretical implications

This study expanded upon the very limited research on esports and on the almost non-existent research on esports sponsorships. Since the empirical data showed that esports sponsorships do not have a significant impact on brand loyalty, this element was not featured in the empirical framework. Hence, this research identified a total of seven elements that can lead or facilitate the improvement of the esports sponsor's brand image. Six are focused on how sponsors can capitalize on the positive fan perceptions (i.e. audience accepts endemic esports sponsors, audience accepts non-endemic esports sponsors, supporting esports, passionate audience, the celebrity status of esports personalities, and brand image transfer) and one is focused on how sponsors can reach fans (i.e. increased engagement opportunities).

Managerial implications

Since the large majority of the audience accepts sponsorships in esports, there is a very low chance of fans being bothered or irritated by the presence of sponsors and ads. In fact, since the large majority indicated to like seeing sponsors, this already creates the opportunity for an improved brand image just by activating a sponsorship. Brands will have an even greater chance of benefiting from this if they present their sponsorships in the form of static ads, native ads, traditional and non-online ads, or as social media ads. The fact that the audience likes seeing both endemic and non-endemic sponsors also lowers any possibilities on non-gaming or non-technology-based brands suffering from sponsor incongruence. Although there was a slight preference for endemic brands, both are liked, and even wanted, by the fans. This facilitates the creation of a positive brand image as there are no significant congruency-related barriers for entering the esports scene.

It was proven that fans recognize how important sponsors are for the sustainability and growth of esports. Fans also believe that some sponsors have altruistic motives and wish to support esports. If sponsors are able to demonstrate that they are not only focused on commercial gains, but also on supporting and improving the esports scene (e.g. creating tournaments and activities), then sponsors will have a very high chance of being loved by the fans. This is in line with Taylor (2012), who mentions that some fans even to want to thank the sponsors for helping the esports industry.

The fans' passion also plays a vital role in facilitating the improvement of the brand image. This is a very passionate audience that consumes high amounts of esports. If sponsors manage to show fans that they share that same amount of passion and enthusiasm for esports they will be liked by the fans.

Since the sample perceives pro-players as celebrities and these individuals are able to influence fans to like and consume brands more, brands can be highly benefited if they correctly activate their sponsorships and maximize the potential of pro-players and teams as brand endorsers and brand ambassadors. An adequate sponsorship of a popular pro-player or team seems to have a high chance of leading to an improved brand image.

Fans are constantly in contact with pro-players. They follow their every move through a variety of social media. The interactivity of streaming platforms like Twitch and YouTube means that they can easily and directly interact with the pro-players. This high, intimate, and constant engagement is another element that sponsors can benefit from to gain, not only higher brand awareness, but also an improved brand image as long as the correct sponsorship activations are conducted. This will result in fans visiting and following esports sponsors on social media and in them feeling more connected with these sponsors.

Finally, brand image transfer was identified in esports sponsorships. Whenever a brand sponsors esports, fans start perceiving the brand as more interesting, modern, and likable. This is another element that, if properly leveraged, will highly benefit the brand image.

The findings from the empirical framework present valuable data for all sponsors who are unsure of how esports may benefit their brand image and may even fear that sponsoring esports will only lead their brands to be associated with the negative aspects of gaming. While this research did not delve into the topic of how sponsoring esports may damage the sponsor's brand image, it found that sponsoring esports provides several opportunities for improving the sponsor's brand image.

LIMITATIONS AND FUTURE RESEARCH

This research was greatly limited by the little to no scientific research on esports sponsorships and by the recentness of the esports industry. The quantitative approach limited the richness of the data and did not allow the sample to freely vocalize their opinions, which in turn made it impossible to conduct a deep analysis of each of the discussed elements that lead or facilitate the improvement of the brand image. Lastly, the research only analysed what elements may improve the brand image and did not cover which may damage it.

The topic of esports sponsorships is in deep need of more scientific research as currently not much is known about this area. To deepen our knowledge, future studies should analyse esports sponsorships with a qualitative approach to gather more rich and detailed data. It would be very interesting to interview long-running esports sponsors and analyse if they agree with the data on this research's empirical framework and if any elements may be missing. Finally, the hypotheses that resulted from this study should also be tested on esports sponsors.

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EVALUATING THE SCIENTIFIC PERFORMANCE OF RESEARCHERS AT THE FIELD OF EU AGENCIFICATION FROM A BIBLIOMETRIC APPROACH

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Abstract

The paper aims to provide an overview on the field of European Union agencification, a later trend characterizing EU's policy agenda and functioning to a significant extent. EU agencies are responsible for a wide range of policies and an unavoidable element when testing EU's legitimacy. In the paper, the research field of EU agencification is analyzed from a bibliometric aspect, quantifying the academic production, identifying the main publication and network patterns of authors, and defining the leading research directions by keyword analysis. Bibliometric metadata was collected from the Scopus international citation database, collecting the research output of 14 researchers participating in the TARN project (The Academic Research Network on Agencification of EU Executive Governance). The TARN project is an international research collaboration specially designed to study EU agencification process. Data was imported and analyzed using the software VOSViewer and Gephi. In total, 437 records were found. The findings indicated that the researchers participating in the TARN projects are the research group leaders, primarily coming from Western European countries. We found that the co-authorship network contains 13 communities and having the density of 0.787, while the co-citation network consists of 4 communities with a density of 0.39. Findings, implications, and suggestions for future research are presented.

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INTRODUCTION

EU agencification as a policy area is crucial with respect to the European Union's policy decision-making and functioning, getting in the forefront in many specific policy areas. These policy areas are of a wide range of themes, providing a colorful landscape but an ever-demanding research topic for analysis. The paper aims to provide an evaluation of the publication performance of the researchers involved and research performance of institutions involved as members of the TARN international project. The present paper aims to investigate the main academic actors, researchers in the research field of EU agencification, providing a bibliometric analysis on the existing literature. Studying the publication performance, the connectivity of the researchers and identifying leading topics by keywords for the topic sheds light on the latest and most relevant trends and research directions of EU agencification. In parallel, based on our results, we can draw up an expected research direction for the future that can guide academicians and practitioners, pointing out the most attractive spaces for further developing the EU agencification topic, and calls attention to some of the existing concerns. These two aspects gain their significance when discussing the deliberate functioning of the EU and the legitimacy of EU agencies being responsible for certain policies at a European level. The methodology of this examination consists of the tools of bibiliometrics, including research and publication patterns, co-authorship and co-citatiton networks and keyword analysis. After an overview on the main issues of the field of EU agencification based on the available international scientific literature, the methodology is presented. Then, the discussion of our results is divided into three chapters – the identification of authors and co-authorship network, the publication performance in a comparative analysis and a keyword analysis pointing the latest topical trends of the research field. Based on the empirical results, practical implications are formed.

LITERATURE REVIEW

The subject itself is rather complex, it requires an inter- and multidisciplinary approach and the parallel observation of different processes. It is necessary for the good understanding of the research carried out and the point of the article to know what the field itself is, whose scientometric patterns we are trying to draw. Hereunder, in this chapter, the main issues are outlined in short summaries, such as the meaning of agency and agencification – especially in the context of the EU –, the 2008 economic crisis and its effect

on the EU financial supervision regime, and the later developments of the process, such as the European Banking Union and the changes in the relevant case-law.

The term 'agency'

The history of the agencies – nota bene: an *'agency'* is understood as set out later in this paper – starts in the middle of the 20th century, in the Pan-American continent. From a European standpoint, naturally, the US is to be examined further, where many agency-type administrative organizations have been functioning throughout the decades. It is the so-called U.S. Code, the code containing the general and permanent laws of the US, which beside a definition, enacts a positive taxative list of the U.S. agencies (e.g. the Securities and Exchange Commission – SEC, or the Board of Governors of the Federal Reserve System – FED, etc.) (Kálmán, 2013, p. 1).

There are many definitions of the term 'agency' because even the scholars of one single legal regime cannot reach a complete agreement regarding the exact nature of the 'agency' phenomenon. The EU-specific agency-definition accepted in this paper due to its consistency is as follows: 'A 'European agency' is a public administration body established by a legal act of the European Union, has a legal personality and a relatively independent organization, and participates in the regulation of a certain line on a European level and/or in the implementation of a EU-policy.' (Kálmán, 2013, p. 3)

The above definition reflects the most controversial features of agencies, namely, their relative independence and non-departmental character. By nature, EU agencies are non-treaty based which means that they do not have an explicit legal basis in the primary law of the EU. They are only implicitly acknowledged in the Founding Treaties, and Art. 263 (1) and (5) of the Treaty on the Functioning of European Union (TFEU) provides a legal remedy against the decisions of agencies when it talks about 'bodies, offices and agencies' of the European Union as objects of legal control of the Court of Justice of the European Union (CJEU).

The Europeanization of the administrative law

To understand the exact place and role of the agencies in the EU, the structure of the European administration (Schwarze, 1988, pp. 21-36) needs to be considered briefly. Danwitz (2008) distinguishes the EU's own administrative law (Eigenverwaltungsrecht), enforced by the organizations of the EU, the common administrative law (Gemeinschaftsverwaltungsrecht), enforced by the authorities of the Member States, and cooperative administrative law (Kooperations- oder Verbundverwaltungsrecht), enforced in cooperation. Since agencies are subject to the EU's own administrative law (Danwitz, 2008, pp. 312-314), as a result of agencification, the enforcement of the EU law shifts towards direct enforcement which means that the positions of EU organizations are strengthening in comparison to the authorities of Member States.

The agencification of the European Union

Chronologically, three generations of EU agencies are distinguished: 1) first-generation agencies established before 1975, 2) second-generation agencies established between 1975 and the 2003 framework regulation and 3) third-generation agencies, including executive agencies set up in accordance with the framework regulation [Council Regulation (EC) No 58/2003 of 19 December 2002, laying down the statute for executive agencies to be entrusted with certain tasks in the management of Community programmes] and the regulatory agencies created after 2003 (Danwitz, 2008, pp. 312-314). In line with those mentioned in the previous paragraph, we can speak about a so-called *'agencification'* trend within the EU administration. In a quantitative approach, this means the proliferation of agencies, as Griller and Orator puts it, the *'mushrooming of agencies'* (Griller and Orator, 2010, p. 3) but it also has a qualitative meaning, namely that EU agencies in general get more and more competences and powers. It is to be noted that EU agencification – and agencification in general – has no such elaborated definition as the definition of EU agencies by Kálmán for instance (see above), as the nature of the phenomenon is widely disputed. The aforementioned approach of Griller and Orator is probably the closest one can get to the definition of the construct.

The effects of the 2007/08 financial-economic crisis

Paradigmatic changes in the economy and the public administration
The crisis brought about a nearly global paradigm change. The neoliberal economic policy and its administrative counterpart, the New Public Management (NPM) proved to be insufficient in terms of effective regulation and supervision of the market – especially the financial market – and of the prevention of the financial crisis (Lőrincz, 2010, pp. 50-51). NPM, focusing on competition and profit to measure the efficiency of administration in a given state, was replaced by the neo-Weberian State (NWS), a combination of *'Weberian'* and *'neo'* elements, in other words, a reorganization of the Weberian elements without neglecting the achievements of the previous paradigms (Nakrosis *et al.*, 2016, pp. 78-94; Hajnal and Jenei, 2012, pp. 515-520). Above all, this means 'the reaffirmation of the state as the main facilitator of solutions to the new problems of globalization', the reaffirmation of representative democracy as a legitimating element, the reaffirmation of the role of administrative law in regard of the principles of state-citizen relationship, and 'the preservation of the idea of a public service with distinctive status, culture, and terms and conditions' (Lynn, 2008, pp. 27-30) The *'neo'* elements includethe external orientation of the administration (i.e. towards citizens), the professionalization of public services, a redesign of the management of resources in order to focus on virtual achievements rather than simply following protocols, etc. (Lynn, 2008, p. 30). Regarding EU agencies, this whole paradigm changes strongly enhanced the mentioned process (in Section 2.3), which is described as the '*mushrooming of agencies*' by Griller and Orator. For instance, in the field of financial

supervision, the three European Supervisory Authorities (see below) were established, as a regulatory response to the previous insufficient system, and to the crisis.

The European Supervisory Authorities
The three financial supervisory authorities, namely, the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA) and the European Insurance and Occupational Pensions Authority (EIOPA), collectively referred to as European Supervisory Authorities (ESA) are third-generation decision-making regulatory agencies. These three agencies were established after several unsuccessful efforts made by the decision-makers of the EU to handle the 2007-2008 crisis when they realized that more powerful organizations were needed to regulate and supervise the three sub-sectors of the financial market. On the one hand, this decision is a welcome acknowledgment of the failure of the concept of the neoliberal self-regulatory market, on the other hand, the extensive competences of these authorities may seem to be an overkill or a legal risk for the participants of the market. For a spectacular example, see the EBA-regulation [Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority)], whose Art. 8 para (2) f) applied together with Art. 17 para (6), or Art. 18 para (4), or Art. 19 para (4) provides the competence for EBA to *'take individual decisions addressed to financial institutions'* without involving the National Competent Authorities.

The European Banking Union
A further step in the field of the supervision of banking was – after the establishment of EBA – the construction of the so-called European Banking Union. It is remarkable, that out of the three fields covered by the ESA, the banking sector was the only one where the EU legislator has deemed it necessary to take a further step. The Banking Union consists of four instruments, namely: 1) the Single Supervisory Mechanism – SSM, 2) the Single Resolution Mechanism – SRM, 3) the Common Deposit Guarantee Scheme – CDGS, and 4) a so-called Single Rulebook as an accessorial collection of guidelines for the whole of the sector (Everson, Monda and Vos, 2014, pp. 132-140). The reason why in the case of the two other fields (securities and insurance) the EU legislation has not taken this further step yet, is probably because ESMA and EIOPA proved to be fully sufficient. EBA, however, is responsible for not predicting the failure of the Spanish banking system in its 2011 stress-test, which resulted in a bail-out by the EU worth more than 100 billion euros in June 2012 when the Spanish banking system almost collapsed. It is presumed that the members of the Board of Supervisors in the EBA, who are national delegates from all Member States, became the victims of the so-called 'groupthink', and in order to prevent future decisions against their own countries, they made a much more conservative decision by the 2011 stress-test regarding Spain than they should have. This incident provoked the establishment of a bank supervision system (i.e. the European Banking Union) depending on a supranational

institution of the EU (i.e. the European Central Bank) (Szegedi, 2018, p. 106). The organizational structure of the SRM includes another agency, the Single Resolution Board (SRB). As Asimakopoulos puts it: 'The establishment of the SRB has pushed the constitutional boundaries of agencification further. After elaborating on the SRB's powers and safeguards, one can argue that its governance structure combined with its policy-making powers distinguish the SRB from all other agencies.' (Asimakopoulos, 2018, p. 1) And by that, it has to be taken into consideration that the constitutional boundaries mentioned had already been modified and expanded by the ESMA-case by the time the European Banking Union including the SRB was constituted (see below).

The Meroni-doctrine and its transformation

The original Meroni-doctrine was laid down by the Court of Justice of the European Union (CJEU) in a ruling which was brought at a very early stage of the European integration in 1956 (Case C-9/56). The doctrine had a very clear set of criteria regarding the powers and competences of the European Commission (back then the High Authority. These were as follows: 1) only such competences can be delegated, which are possessed by the delegator itself, 2) the delegated competences are exact executory competences which do not require a discretionary decision, and the delegator keeps them under supervision, 3) the delegation is an explicit decision and 4) the delegation does not generate any disturbance in the institutional balance of the European Community (European Union). For decades it was a set of criteria which was virtually only strengthened by further rulings of the CJEU, and so it became the basic dogma regarding the conferral of powers from the Commission to other EU bodies (Hofmann and Morini, 2012, pp. 1-41). The change came in connection with the agencification trend related to the handling of the 2007-2008 crisis.

The effect of the ESMA-case (C-270/12) of the CJEU
The concrete subject of the case (i.e. the substantive legal debate itself) is not so important from the perspective of the Meroni-doctrine, only the effect which was caused by the ruling itself (Pelkmans and Simoncini, 2014). Repasi (2014) summarizes the changes brought about by the new ruling as follows: 'According to the updated Meroni-doctrine any conferral of powers must be (1) clearly defined by the empowering act and the exercise of the powers must be (2) effectively controlled by the delegating authority (political control) and (3) subject to a legal review (legal control). Finally, as the purpose of 'Meroni' is the protection of the institutional balance, (4) political responsibility cannot be conferred upon executive bodies.' (Repasi, 2014)

The relevance of the Meroni-doctrine and the ESMA-case

The CJEU traditionally has a significant role in shaping not only the application of the EU law and the related jurisprudence, but also the topics of the common talk related to the Euopean Union. The original Meroni-

judgment become a doctrine intact for long decades. Questioning it, and transforming it into something much more up-to-date and fit for the challenges of the post-2008 world had an amplifying effect on the willingness of scholars to research it and, in connection with that, to research the new financial supervision agencies as well.

METHODOLOGY

Identification of institutions

After defining the research field from a theoretical aspect, the TARN international research network provides support in identifying the most significant academics. The research field specialty that a well-identified research network has been established with the participation of leading Western European universities. This network stands as alternative in listing the most influencing representatives in the topic of EU agencification. According to its Mission Statement, the Academic Research Network on Agencification of EU Executive Governance (TARN) aims to promote multi- and interdisciplinary research about the agencification of EU executive governance and to encourage a dialogue between academia and practitioners. As we have seen, the research field of EU agencification is very narrow and close among researchers, and that is also seen in the case of the TARN network. With only nine partner institutions from eight participating countries, it can be observed that for a researcher desiring to join, it is only available by invitation. All the participating countries are Western European countries, pointing out the dominance of West Europe in the research field. TARN is a research, information, and agenda-setting network informing agency operation within the EU in a transnational setting. It brings together renowned and young academics and practitioners from various disciplines and policy areas and pools knowledge on research and legal provisions, policy documents and information on the practical operation of EU agencies. TARN aims to fill two particular lacunae in current agency research by: 1) promoting in-depth multi- and interdisciplinary research on critical concerns about the position and operation of EU agencies and agency-like bodies to integrate isolated disciplinary approaches; 2) encouraging the dialogue between academia and practitioners that is needed to enhance the democratization of the EU in scholarship and practice (Mission Statement of TARN). It is important to note here that data collection was carried out based on the TARN member universities and especially along with the research activities of the participating leading researchers. A detailed list of these researchers can be found among the descriptive statistics.

  However, in visualizing the co-authorship and co-citation networks, other researchers related to the 14 leading professors can be observed as well. By this technique, we exported the articles of the 14 TARN member researchers from the Scopus database. The size of the total sample is 437

articles authored by these 14 researchers. For further data analysis, we used the VOSViewer 1.6.16. version for Microsoft Windows System and Gephi 0.9.2. Both software visualize networks, while the VOSViewer was more useful to import the Scopus database from CSV file and create basic visualization of the scientific landscape, the Gephi was used to calculate basic statistics.

Mapping of the topic of EU agentification

The mapping of EU agencification was carried out based on the above-mentioned 437 exported articles – being the total publication collection of the 14 investigated researchers. The identification of the research topic plays a key role in defining the most important research topics, directions, and research questions. It comes extremely useful for practitioners and researchers trying to collect appropriate literature for their research to connect.

Research topics were analyzed by the SciVal research intelligence online tool, based on a defined group of the 14 researchers. Leading keywords were visualized by VOSViewer based on the co-occurrence analysis of all keywords. All keywords contain both the author keywords and index keywords providing the whole collection of relating keywords found in the articles. Three indicators are presented with regard to the keywords: scholarly output, field-weighted citation impact and prominence percentile. Here, it is important to clear the meaning of these variables. Scholarly output refers to the number of publications published by the predefined set of authors. Field-weighted citation impact is the ratio of the total citations received by the denominator's output, and the total citations that would be expected based on the average of the subject field. It considers the differences in research behavior across disciplines such as the difference between heavily co-cited and lightly co-cited disciplines. Prominence percentile shows the current momentum of a topic by looking at very recent citations, views and CiteScore values. CiteScore here refers to the yearly average number of citations to recent articles published in that journal.

RESULTS

Identification of authors

Studying research patterns, it is indispensable to identify the researchers, being the units of the analysis. In this section we concentrate on the identification process of the authors of the field, and further investigate the scientific collaborations among them. In terms of collaborations, two types of ties should be clearly calculated: the co-authorship network and the co-citation network.

Figure 1: Network graph of the countries of TARN project member researchers
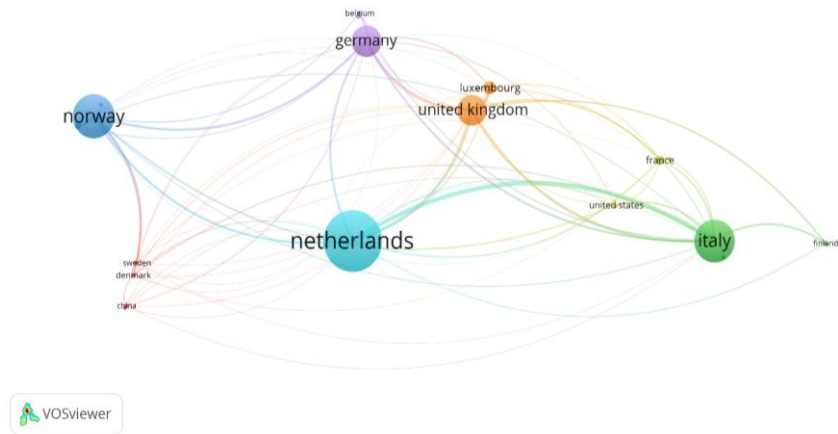
Source: Own survey.

Figure 1 shows the edges between cooperating countries. It is important to note that although the TARN research group consists of 8 countries being the home of the 9 partner universities, some other states join to these research activities through co-authorship. The leading country is the Netherlands, being the headquarters of the TARN project formally as well. Tight relations can be identified between the Netherlands, and Italy, the United Kingdom, Germany, and Norway. The network is undirected as the direction of edges is not relevant from the co-authorship aspect, however, we will further analyze it if the leading researchers are Dutch. Other connected countries are Sweden, Denmark, and China, connected to Norway primarily. Germany attracts Belgium, while the United Kingdom involves Luxembourg in the publications. Between Italy and the United Kingdom, France is a connected component, while between Italy and the Netherlands, the United States has significant ties. Finland is also displayed in the graph, but interestingly not being clustered with the Scandinavian countries , rather as a strongly connected component to Italy.

Figure 2: Co-authorship network based on the publications of TARN member researchers
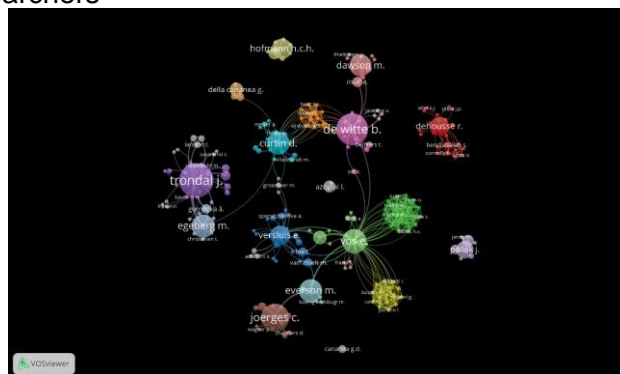
Source: Own survey.

In Figure 2 the network of TARN researchers is displayed. Here, it is important to note some of the basic statistics of the network to have a better insight on its nature. The basic statistical information is extracted from Gephi. The average degree of the network is 3.26, meaning that every author involved has on average more than 3 co-authors. The average weighted degree is 4.026, and the network diameter is 8 (meaning the longest path between authors). The average path length is however 3.83. The graph density is 0.029, meaning a 2.9% proportion of ties in a network relative to the total number of links possible. The modularity is 0.787 with 13 communities, while the connected components are 6. The number of communities and components show a dense network within the clusters, meaning an active link between authors constituting the clusters.

Network clusters demonstrate that the TARN member researchers are the research group leaders being surrounded by their co-authors in our sample. The biggest component is centered around J. Trondal, B. de Witte, C. Joerges, while other researchers such as H.C.H. Hofmann, M. Dawson, D. Curtin, M. Egeberg, M. Everson and R. Dehousse are centered by medium-size groups. It is important to note the links between the clusters. In terms of inter-cluster links the tandem of J. Trondal and M. Egeberg is observed, while for another bigger component E. Vos is a center figure having inter-cluster links with B. de Witte, M. Everson, E. Versluis among others. Separated clusters are centered around H.C.H. Hofmann, R. Dehousse, J. Pollak, G. della Cananea and I. Azoulai.

Figure 3: Co-citation network based on the publications of TARN member researchers
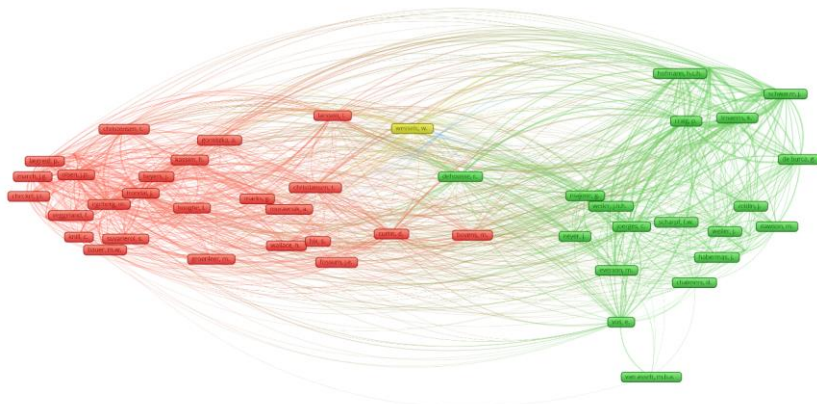
Source: Own survey.

In Figure 3 the co-citation analysis of authors can be observed. The co-citation network was analyzed by the Gephi to further investigate some of its basic statistical properties. The average degree is 4.788, which is much

higher than it is in the co-authorship network, meaning a higher connectivity of researchers by citations. The network diameter is significantly lower with the value of 3. The graph density is 18%, while the modularity is 0.39 with 4 communities. This also reveals the higher connectivity of researchers based on co-citations. There are 2 connected components, displayed in the figure above. The clustering coefficient of the network is 0.775.The nature of co-citation network is visible on the graph above too. Researchers are divided into two clusters, one being centered around J. Trondal and M. Egeberg, the other is centered around E. Vos, M. Everson, and C. Joerges. R. Dehousse (with more citation links to the group dominated by Joerges-Everson-Vos, indicated with green on the graph) and D. Curtin (with more citation links to the group dominated by Trondal-Egeberg indicated with red on the graph) are found between the two components having co-citation links to both groups standing in a bridging place. H.C.H. Hofmann and M. Dawson are researchers having more citation links to the group dominated by Joerges-Everson-Vos.

Publication performance of investigated authors

Publication performance, after mapping the researchers in their relative position and ties with each other, is evaluated based on the TARN member universities and participating researchers.

Figure 4: Research performance of the partner institutions involved in the TARN project by the number of documents and total citations
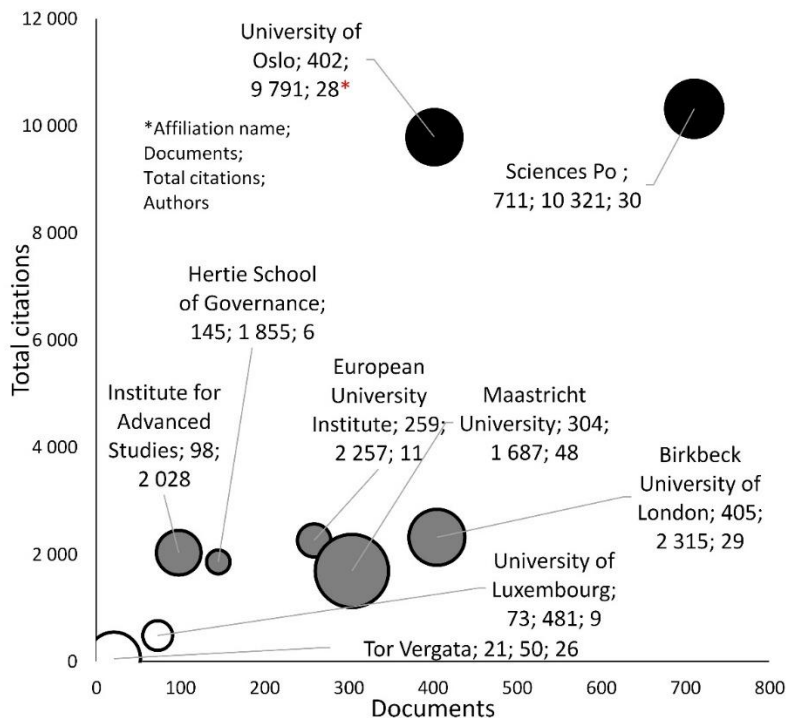
Source: Own survey.

It is worth continuing the analysis by investigating the publication performance of the authors clusters based on their institutions as seen on Figure 4. It is important to note here, that the general performance of partner universities is measured but not limited to the 14 researchers. Figure 4 shows the number of documents and number of citations, drawing the significance on leading institutions of the EU agencification research field. We can observe that most researchers belong to Maastricht University, which is the leading institution of the TARN project. From the aspect of publication performance, the Sciences Po French university stands out, regarding both the number of documents and number of citations (711; 10,321). It is followed by the University of Oslo (402; 9,791) and the Birbeck University of London (405; 2,315). However, it is surprising that the Maastricht University can be classified into the group of average institutions with the result of 304 documents and 1,687 citations. The nine institutions clearly form three categories. The Sciences Po and University of Oslo belong to the group of top institutions which consists of universities publishing a great number of documents and receiving a high number of citations. They are followed by the second group consisting of the average universities from which some reach a high number of publications, others have been cited highly. Last but not least, the third category includes the University of Luxembourg (73; 481) and Tor Vergata (21; 50) with the poorest publication performance. The results of the Hertie School of Governance are outstanding in terms of the average number of documents and citations per capita because with its 6 researchers it is a member of the second group with 145 documents and 1,855 citations.

After the analysis of the institutions, the mapping of the topic of EU agencification can be continued by the comparison of the research performance of the 14 academics involved in the TARN project. These results are presented in the H-index – root square of total citations coordinate system (where the H-index is the number of documents published by the given author which has received at least the same number of citations based on the Scopus dataset). A correlation can be found between the H-index and the number of citations as following (Yong, 2014, pp. 1040-1050):

$$H - index \approx 0{,}54 * \sqrt{number\,of\,citations}$$

Figure 5: Research performance of researchers involved in the TARN project by the square root of total citations and H-index
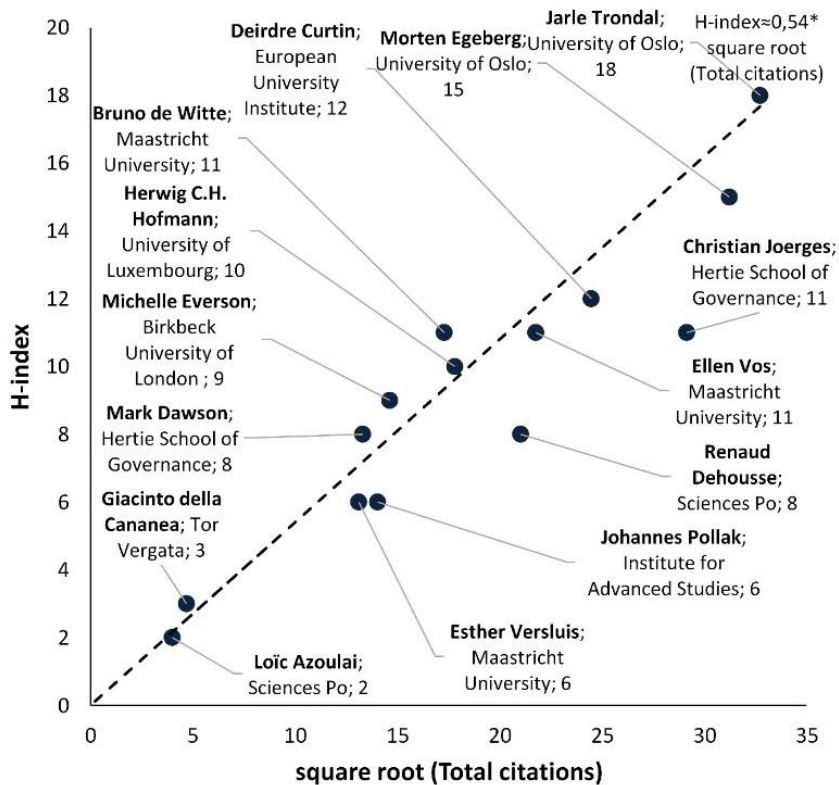
Source: Own survey.

Figure 5 demonstrates the publication performance of the participating researchers. We can see the square root of total citations and H-index as the above-described correlation is studied among these two variables. It can be observed that the most successful academics belong to the University of Oslo (Jarle Trondal, H=18; Morten Egeberg, H=15). They are followed by Deirdre Curtin H=12, Christian Joerges, Ellen Vos and Bruno de Witte with all of them having H=11. The researchers having H>10 produce an above average H-index compared to other academics working in the field of social sciences as they usually have much lower H-indices than those dealing with natural sciences and engineering. The examined academics can be categorized into four groups based on their H-indices: H=18-15, H=14-10, H=9-6 and H=5-0. The two biggest groups are the H=14-10 and H=9-6 with 5 researchers each. In the group of H=18-15 only the two researchers from the University of Oslo can be found. They are followed by the group dominated by the staff of the Maastricht University. It is surprising that the academics of the Sciences Po are classified into the two last groups with H-index 2 and H-index 5, even though this university leads the ranking of institutions. Which means that the outstanding results of the university come from other academics working at the examined department. It is also interesting that even though the Maastricht University is classified into the group of average universities, its three academics are in the top (with H-index 11, 11 and 6).

Mapping of the topic of EU agencification

After identifying and analyzing the participating researchers, and research patterns among them, it is worth continuing the analysis by mapping the leading topics and keywords characterizing the research field studied.

Table 1: Dominant research topics in the research activity of TARN member researchers

Number	Topic	Scholarly Output	Field-Weighted Citation Impact	Prominence percentile
1	New Public Management; Regulatory Agencies; Social Responsibility	28	2,47	93,192
2	European Parliament; European Council of Ministers; Lisbon Treaty	24	1,62	92,266
3	European Law; Public Advocate; Court of Justice	16	1,22	75,851
4	Banking Union; Eurozone; Euro Crisis	16	3,48	95,902
5	Genetically Modified Organisms; Subsidiarity; Scientific Uncertainty	16	0,5	68,354
6	National Parliament; Lisbon Treaty; Open Method of Coordination	14	1,3	76,079
7	European Stability Mechanism; Economic and Monetary Union; Sovereign Debt Crises	14	4,3	70,2
8	Court of Justice; Fundamental Rights; Constitutional Courts	10	2,19	85,969
9	Euroscepticism; European Parliament; Referendum	6	2,91	98,022
10	European Neighbourhood Policy; Europeanization; Enlargement Policy	6	0,45	95,901

Source: Own survey.

In Table 1, the most actively involved research topics are listed based on the scholarly output. The list was exported from the SciVal studying the 14 participating researchers of the TARN project as a group of researchers in a whole. Their research activity points out the research topics defined by 3 keywords in the SciVal. Agencies are essential part of the organizational structure of the supranational level of the EU governance. Therefore, euroscepticism and its field-specific components are obviously relevant as the manifestations of criticism towards the supranational level.

It is to be noted how many questions and problems related to the financial sector are overrepresented in the topics, in comparison to any other sector-specific topics, which are virtually non-existent within the top ten topics. Topics no. 4 and 6 are entirely about the questions related to the future of the EMU and the euro, and the means of financial-economic stabilization after the 2008 crisis. Which means, that the researchers examined prioritized these topics to the sector-specific issues of other sectors, and that is an obvious evidence of the importance of the topic described in the first part of this paper, including the Banking Union.

Moreover, in terms of field-weighted citation impact, the leading topics are associated with the financial aspects of the EU agencies. Here, the leading topic is the "European Stability Mechanism; Economic and Monetary Union; Sovereign Debt Crises" with the value of 4.3, followed by the topic of "Banking Union; Eurozone; Euro Crisis" (3.48) and the critical topic of "Euroscepticism; European Parliament; Referendum" (2.91). From the prominence percentile aspect, hot issues are identified led by the topic of "Euroscepticism; European Parliament; Referendum" (98.022), the "Banking Union; Eurozone; Euro Crisis" (95.902) and the "European Neighbourhood Policy; Europeanization; Enlargement Policy" (95.901). These topics are very much centered around the fundamental questions concerning EU's internal (among member states) and external (towards third party) legitimacy.

Figure 4: Co-occurrence density network
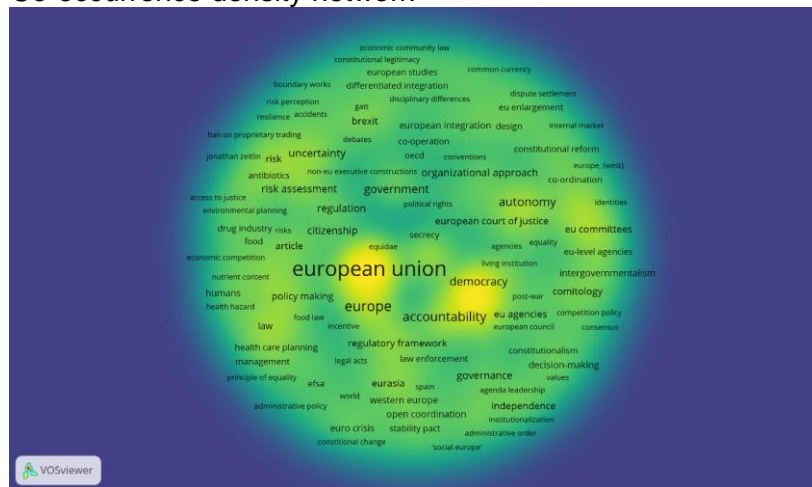
Source: Own survey.

Figure 4 on co-occurrence density analysis indicates the central keywords in yellow. These leading keywords are in the central positions, led by the term of "European Union", "Europe", "democracy" and "accountability". Further keywords connect to these ones, drawing the landscape of EU agencification. The terms of "regulatory framework", "citizenship", "policy making", "autonomy", "risk assessment", "uncertainty", "euro crisis" are the theoretical concepts primarily connected to the research field. Along these

words, various research directions can be observed. The abovementioned 'euroscepticism' and criticism towards the supranational level of EU governance is detailed here, as the expressions 'accountability', 'autonomy', 'democracy', 'government' 'uncertainty' are among the most visible and therefore most relevant expressions in this figure. Consequently, it can be claimed that the EU agencies and agencification is one of the focal points of the contemporary research of the European Union. The plurality of the categories of the expressions visualized leads us to the fact how versatile is this field of research.

Figure 5: Co-occurrence cluster analysis
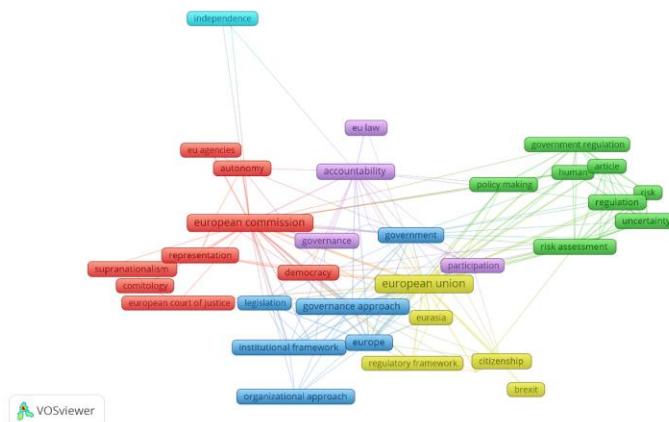
Source: Own survey.

Co-occurrence cluster analysis defines 6 modules of keywords. It demonstrates the connections and connected components among the clusters, but it is worth studying the clusters and their content. Keywords indicated with bigger size of letters means the highest number of occurrences, while the central place shows the more inter-connected keywords. Most keywords were identified within the red cluster, having the content about the "supranational", "autonomy", "democracy" and "representation" characterizing the democratic functioning of EU agencies. The green cluster collects keywords related to the policy making and regulating issues, while the blue module gains its content from the institutional and organizational framework of EU agencies. The yellow module (focusing on foreign policy), the purple module (focusing on accountability and participation issues) and the turquoise module (focusing on independence) are clusters gathering fewer keywords, but nevertheless important for the research of the EU agencification. It is important to note here that the figure indicates only the most common keywords based on the number of occurrences.

DISCUSSION AND IMPLICATIONS

The study of the EU agencies and agencification, just as the study of the academic background and scientometric aspects of these entities and phenomena, is a very important task and has many scientific and practical applications. It is of fundamental importance for practically all actors dealing with the legal and economic nature, and the institutional design of the European Union on either theoretical or practical levels.

This research helped to identify the core patterns of publication of the TARN network, which is the almost exclusive organised network of scholars, universities and research institutions focusing on the study of EU agencification. This result, besides the field-specific usable knowledge it gives to us, also sets an example how to analyze the scientometric aspects of a certain field of research, which must be of great use for researchers involved in subjects of social science. It is inevitable that researchers know the fellow researchers and academics who are active in the same field of research, and through that they can get familiar with almost the entirety of the relevant literature.

Future studies are suggested, especially in the sense of seeking wider connections of the study of agencification, i.e. the study of agencification on a global level. Since the cradle of the phenomenon is the United States of America and the Pan-American continent, it is certain, that a comparison between the different regimes would be intriguing, and the same is true for the comparison of the scientometric aspects, for instance publication patterns of the researchers of EU agencification and non-EU agencification. For a research like that, it would be crucial to catalogue and investigate the directions taken by the research of the phenomenon on a global level. The current paper would be a good starting point for such research.

CONCLUSIONS

As it must have become apparent by now, the circle of the researchers, academics dealing with the subject of EU Agencies and EU Agencification is relatively closed. Nevertheless, the importance of this field of study is undoubtedly outstanding and this is being realized by more and more people who encounter the subject during their studies. By evaluating these results and links of the publication performance, we can tell that the TARN project has reached its aims in providing a platform for the researchers in the field of EU agencification and encourages the cooperation between academics for the development of the field.

In spite of the relatively small number of researchers involved, the subject is quite thoroughly elaborated. However, we are absolutely dealing with such a field where new twists can occur in any minute due to the decisions of the EU legislator or the national legislators, therefore, as long as the European Union exists, we can never say that the research is over. Many predictions, including that of the authors of this article, say that the trend of agencification will get even stronger in the near future, in the quantitative just as in the qualitative meaning of the word. It can be perceived that when an EU-wide problem occurs, (be it a cybersecurity problem, the Dieselgate scandal, or

the quality of Nutella in the Eastern European Member States) the establishment of a new EU agency is almost always among the recommendations for a solution to the problem and there are cases when this idea prevails.

Conclusively, more and more researchers will be attracted to the questions of EU Agencification as the spectrum of fields where an EU Agency functions gets wider and wider. It will also bring along the more conscious and more organized networking between these individuals, which will result in an even stronger academic background for the subject.

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FROM FACE-TO-FACE TO FACE-TO-DISPLAY MANAGEMENT: AN ONLINE SURVEY

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Abstract

Covid-19 forced managers out of cubicles into their homes – to a face-to-display environment. To provide an insight into managers' needs during the pandemic, the authors completed a survey addressing 900 Austrian, Czech and Slovak managers. A range of useful findings was uncovered, especially on how the managers approached the transition to e-working as well as their future perspectives after the epidemic. The results show favourable scores for e-management, modern technology and business communication, while maintaining informal communication seems to be problematic. Our data suggest that e-managers have come forward with novel and innovative types of collaboration. The data also reveal calls for better support. The greatest fear of managers, apart from concerns about families, friends, colleagues and acquaintances, is that their salaries may be cut. In general, they feel they can work at home as effectively as in the office. Women cope better with e-working than their male colleagues; parents and the young generation experience challenges working from home.

Key Words

E-working; e-management; manager perceptions; lockdown; Covid-19.

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INTRODUCTION

In late 2019, an outbreak of illness caused by a novel coronavirus called Sars-Cov-2 was identified and labelled Covid-19 (WHO, 2020a). On 11 March 2020, the World Health Organisation declared coronavirus to be a pandemic (WHO, 2020b). On that date, the biggest global transition to working from home began. For many, working from home is the new normal and poses all sorts of new challenges (Roulet, 2020). There have been speculations about whether this will become the new post-pandemic standard (EY, 2020; Field, 2020; Hilton, 2020). Most companies have adopted remote offices and homeworking solutions as an emergency measure (Deloitte, 2020a).

Overnight, everyone in managerial positions lost many of the critical aspects of doing their jobs, particularly the non-verbal aspects of communication and the interaction in space and in person, which are essential for managers to remain attuned to the various personal needs of their colleagues at all times. It is worth mentioning that a changed culture requires the introduction of not only an appropriate communication and collaboration infrastructure, but also more subtle details, such as a room for informal social communication (Dávideková and Hvorecký, 2017). Also, the boundaries between work and personal life erode when work is done from home. All workers experience this situation in a different way, depending on their family situation, their dependants and the various dimensions of their personalities (Roulet, 2020). The ongoing global pandemic has presented a challenge in the change from face-to-face to face-to-display management (e-management). The authors of this paper understand e-management as the situation where managers put their trust in others to lead and to ensure business sustainability.

As a result of government-issued stay-at-home instructions, almost four in 10 employees in Europe started e-working (Ahrendt et al., 2020). A recent JCR study estimates around 25% of employment in teleworkable sectors in the EU as whole (Fana et al. 2020). On the contrary, e-working was increasing slowly in the nine years preceding the Covid-19 outbreak (Eurostat, 2020). The Covid-19 crisis presents not only negative effects, e.g. declining economic growth and unemployment (Saunders, 2020; The World Bank, 2020) but opportunities - especially in the emergence of a greener economy. It provides a boost for online communication and its supporting technologies (Cox and Piccolo, 2020; Henriques, 2020; Politico Magazine, 2020).

It is challenging to conduct a manager perception survey during a pandemic. At the same time, the survey carried out by the authors demonstrates that listening to managers' voices in similar unusual conditions has its value. From a managerial perspective, these perception surveys help to ensure open communication, building trust and connection with employees. The results reflect their handling of the crisis and their reactions. We were interested in their experience, attitudes and feelings in dealing with the realities of the new, virtual world. Furthermore, we inquired into the likely effects of the crisis on the world of work in the future.

In a time of crisis, people often call for strong managers. What does the Covid-19 shock mean for management in the change from face-to-face to face-to display work? Does it mean a call for managers who have trust, who protect their employees' interests, rather than their own or their friends' agendas? Employees generally would like to have managers who focus on practical solutions - beyond ideologies and political intrigues.

It is assumed that managers know their employees best. They probably know what works for them and what does not. They should know how their messages will be received and how to adjust their content and context appropriately. They should even be familiar with the unique challenges each employee is facing at work and at home. Based on the current reported findings, there are three important reasons for the fall in productivity related to e-working: 1) Providing childcare/home schooling, pet sitting and/or care for others while working (28.41%); 2) Work-from-home routine (26.13%); and 3) Having less work to do (21.59%) (Beno and Hvorecky, 2021). If this is so, they have a unique level of trust and understanding and a connection with employees that no one else at their organisational level and position probably has. Managers need to navigate their employees through these uncertain times with empathy. For this reason, employers need to arm their managers with the tools and communications to support the activities they will be experiencing in specific situations.

The focus of our survey was on mapping their impressions from the lockdown to the gradual relaxation of the contact restrictions. Nevertheless, managers are aware that this crisis will also have long-term effects. That is why we also asked what impact the crisis will have on the world of work in the future: Will the acceptance of e-working increase?

The following section provides an account of the theoretical background of the e-management concept. The third section briefly outlines the methodology used in this research. The fourth section gives an overview of the results. The next section presents our discussion. Then we present our conclusions, followed by a note on the implications of the study.

THEORETICAL BACKGROUND

Every sudden event generates challenges and opportunities. The pandemic did not stop the transition from the industrial to the information society – it is giving it a new impetus. It only limited interpersonal contact, e.g. between managers/leaders and those whom they lead. It raises the question: Can people achieve the same outcomes without their face-to-face meetings?

Before answering this, some terms must be explained. Management includes leadership (leading people), control, planning and organising. In this sense, e-management represents a series of objectives and person- and goal-oriented tasks in a virtual workplace. The prefix "e-" expresses decentralised work processes not bound to any particular location. E-work

means the utilisation of ICT rather than commuting to work (Beňo and Ferenčíková, 2019). Traditionally this has been understood as working remotely, that is away from the office, usually from home, whether full-time or for part of the working week (WDC, 2017). The employees work at home full-time/part-time, on a hybrid basis or at a different place, but their managers are located at the company's premises. The epidemic has also changed the latter assumption.

There are several definitions of e-management (Alkhsabah, 2017). This author emphasises that e-management includes all components of management, including planning, implementation, follow-up and stimulation. At the same time, it takes the company's internal and external organisational processes to the next level: using software tools to centralise the data, to interconnect systems and customers and to use the feedback from those tools to take appropriate action (Maiorescu, 2008). The digital and paperless environment (Connolly and Kleiner, 1993; Okoro et al., 2013; Orantes-Jiménez et al., 2015) is one of the most important elements in e-working and in e-management.

Below, the authors of this paper understand e-management as managers putting their trust in others to lead and ensure business sustainability. Their role is to create a suitable work environment so that employees can stay productive, given adequate technology and remote access, and to expand the existing trust in the workplace to a virtual workplace, and to establish cooperation and communications strategies. The authors interpret this as a transition from managing by presence to virtual management. In a broader meaning, e-management refers to any situation where the supervisor and employees collaborate, but do not meet on a daily basis. In certain cases, such meetings may take place as rarely as on one or two occasions during the entire year (TTK.FI, 2020). Therefore, a well-defined virtual culture is just as important as the traditional team culture in cubicles. A virtual team climate creation and team coordination are the team leader's challenge (Krawczyk-Brylka, 2017). Bell and Kozlowski (2002) distinguish conventional and virtual teams. In their interpretation, virtual teams are not in physical contact but have the same tasks, goals or missions as conventional teams. The authors further add that virtual teams are more complex in comparison with face-to-face teams because they cross boundaries while using advanced communication technologies. Another key difference between a virtual and a conventional team is that e-working needs a flatter organisational structure. In other words, creating a virtual culture, regardless of the hierarchy, should encourage trust, creativity and collaboration targeted at delivering results. In a virtual environment, the team leader must support the members of the team and provide them with the required technology (Dávideková and Hvorecký, 2017). This position motivated us to study these factors.

METHODOLOGY

The main research method resulting in this paper was quantitative research. The data were collected by questioning a target group of 900 out of 1680 addressed managers of multinational companies. The sample included managers from the Czech Republic, Slovakia and Austria (all are member countries of the EU). All respondents were opinion leaders who manage and have a good level of knowledge of development in these countries. Hofstede's country-level characteristics, as well as their historical, political and social background significantly affected the responses (Hofstede Insights, 2021). Additionally, the field of the authors' research interest played a role in the selection of the target country sample.

There were 300 respondents from each country. Three out of 10 managers belonged to the top management. Men dominated at the top level, and women at the middle and low management level. Among the respondents, 18% were female and 82% male. In the age categories, Generation X dominated with 71% of respondents, followed by 16% baby boomers and 14% of Generation Y.

Our age groupings resulted from the generally accepted differences among the groups. According to Salahuddin (2010), baby boomers tend to be more positive about authority, hierarchy and tradition and are also optimistic, driven and team-oriented. They prefer a collegial and consensual style. They make efforts to turn the hierarchy upside-down (Zemke et al., 2000). Since they are less tech-savvy than other generations, the ability to keep up with technological developments sometimes hinders their job performance (Johnson, 2015). Gen Xers tend to be more individually motivated and self-reliant. Salahuddin (2010) describes their core values as diversity, global thinking, balance, technological, fun, informal, self-reliant and pragmatic. Those in this group are less bound by tradition and place more weight on independent thought (Williams and Page, 2011). They tend to want "action rather than talk and promises" (Hahn, 2011, p. 121). The essential work/life balance is attained thanks to technology (Crampton and Hodge, 2007). Generation X disrespects authority, as did past generations, but tends to be fair, competent and straightforward. There is a fondness for challenge, and they thrive on change (Zemke et al., 2000). Generation Xers do not value achievement as highly as other generations do. Generation Y has a "soccer mom" mentality, namely, it's all about the children. This shaped their core values of optimism, civic duty, confidence, achievement, sociability, morality, diversity and being street-smart (Salahuddin, 2010). Many of them do not live to work but, rather, focus on their life outside the work situation. Millennials do not make good team players and their attention is rather easily distracted, however they are diligent and perform as well as earlier generational groups (Johnson, 2015). Millennials are also concerned about values, and they consequently like the assurance that their efforts are worthwhile and appreciated (Al-Asfour and Lettau, 2014). They prefer a polite relationship with authority and like leaders who pull people together. They believe in collective action and have the will to get things changed (Zemke et al., 2000). In our investigations, we looked for the following responses:

- Under what conditions is e-working a win-win-win solution (i.e. the optimum outcome for employer, employee and society)?
- Which factors should dominate in managerial solutions concerning e-working in the future?

The average age of respondents was 46 years. Female managers were more frequently single than their male counterparts: 71.4% were married, compared with 91.3% of men. Their average for number of children is also lower (0.74 versus 1.59). Data collection took place from 15 to 30 April 2020. All participating managers were informed of the purpose of the study. Their participation was voluntary, and they were assured that their responses would remain confidential.

The questions were posed using an online questionnaire, which was based on three levels (before and during Covid-19 and after the lockdown) to evaluate the impact of the coronavirus from the point of view of managers. The scale to measure the impact on managers in the different periods consisted of 10 items (namely,. workplace flexibility, short-time versus lay-offs, salary decreases, preparedness for Covid-19, responding to the lockdown, measures taken, feelings, challenges of managing remotely, personal effect of the lockdown and impact of the lockdown on business in the next 12 months). Eight items were rated on a 5-point Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The remaining points made provision for expressing the following: 1) possible feelings, 2) affirmative or negative; and 3) uncertainty. A cross-tabulation analysis was used to examine relationships within the data obtained.

The respondents were accessed via online channels. Part of the questionnaire addressed potential cultural differences among the employees of the participating countries (in Hofstede's sense), while the other part investigated changes in their lives as a result of their (forced) home-office mode of work, and its advantages and drawbacks. Our results were then compared with the outcomes of other researchers in order to obtain a more global view.

The authors of this paper have assumed that there could be national characteristics in these Hofstede dimensions where they demonstrate the most significant differences, namely power distance, masculinity and indulgence – see Table 1.

Table 1: Hofstede dimensions

	Power Distance	Masculinity	Indulgence
Austria	11	79	63
Czech Republic	57	57	29
Slovakia	100	100	28

Source: Hofstede Insights, 2021.

The authors were interested in particular in the factors related to the participants' ability to adapt to a home-office and their readiness to continue with this arrangement after the end of the lockdown. The sample

was a heterogeneous group of professionals working in several areas, including customer services, accounting, electronic data processing, research and development, marketing and logistics. Responses to the questionnaires were anonymous.

Note that there is a reliability risk with e-mail questionnaires. It is more difficult to guarantee anonymity. The respondents may have concerns that the information they provide could be misused. To assure them that this would not happen, the authors proceeded as follows: First, the anonymity of their responses was emphasised in the questionnaire invitation. This also contained a description of the procedure which was then followed. Trusted software, which did not allow linking identifiers with their responses, was used. Their personal information and responses were stored in separate files. Then, the authors made certain that all IP addresses, e-mail data and other personal data were not archived.

RESULTS

Analysis of the impact of cultural differences on COVID-19 responses

The three countries are adjacent to each other in Central Europe and were formerly part of the Austro-Hungarian empire. Austria and the Czech Republic are similar in terms of geography, economics and demographics, while Slovakia and the Czech Republic are similar in terms of economics and history. Culturally, they are similar in some ways. They have medium scores for individualism and almost the same score for uncertainty avoidance. However, on four of Hofstede's six dimensions, there are significant differences. Slovakia scores much higher for power distance, masculinity and long-term orientation, and lower for indulgence. Also Austria scores higher for masculinity, uncertainty avoidance, indulgence and long-term orientation, but, very low for power distance. The Czech Republic scores higher for uncertainty avoidance and long-term orientation, but lower for masculinity, power distance and indulgence (Hofstede Insights, 2021).

Cultures with high uncertainty avoidance (such as Austria and the Czech Republic) tend to act more quickly in a crisis, because they want to remove the uncertainty or anxiety that the crisis creates. Low uncertainty-avoidance cultures, such as Slovakia, tend to be more tolerant of the anxiety that uncertainty brings and are therefore slower to act in a crisis. But, compared with Austria, the Czech Republic and Slovakia acted more quickly than expected during Covid-19. Several countries of Eastern Europe were quick to impose lockdown restrictions, a move that allowed them to avoid the worst effects of the initial bout of the Covid pandemic. However, their success did not continue, and they suffered seriously under the second round of infections, a situation that is just the opposite of what happened in the rest of Europe (Stickings, 2020).

The authors are of the opinion that national culture and leadership explain how countries have dealt with Covid-19 differently. Fincher (2020) pointed out that women leaders have handled the crisis more effectively, e.g. in Taiwan, Germany, New Zealand and Nordic countries (Finland, Iceland). Nevertheless, the role of women is still underestimated in most countries. Fortunately, the issue of gender inequality is being solved by various institutions thanks to international projects. One of these is the Horizon 2020 project "Linking Research and Innovation for Gender Equality" (CALIPER). The duration of the project is 4 years, from 2020 to 2023 – see (Caliper-project.eu, 2020a) and (Caliper-project.eu, 2020b). The project team is composed of 12 partners: seven project research-performing organisations (RPOs), two research-funding organisations (RFOs), two small and medium enterprises (SMEs) and one professional association. The main aim of the project is to design and implement gender equality plans (GEPs) to influence structural changes that will bring gender balance and a greater engagement of female researchers to the fields of science, technology, engineering and mathematics (STEM) research and innovation. The object of the RPOs and RFOs is to promote gender equality, which they aim to do by means of appropriate GEPs (Caliper-project.eu, 2020a). The implementation of GEPs will help to improve the gender balance in decision-making bodies, remove barriers to the recruitment, retention and career progression of female researchers and integrate the gender dimension in research and innovation content, improving the quality and societal relevance of produced knowledge, technologies and innovations (Caliper-project.eu, 2020b).

In all societies, there are social contracts that governs people's actions, which occur in two basic patterns, that is on the level of the individual or on the level of the group (for example in the US or in China respectively) or on some intermediate level (such as in Canada and France) (Airhihenbuwa et al., 2020). Every country, nationality, race or ethnic group carries a self-coded formula of values that differs from every other country, regardless of geographical distance. Each country has its own customs, traditions, values and standards, and these differ significantly from one another. This is why multicultural differences arise (Cagáňová et al., 2019). One of the key lessons for a global response to a pandemic is that the cultural logic of different societies shapes and influences their prevention strategies. In collective societies, people accept the need for harsh measures like general tests for Covid infection and checking of temperatures amid universal lockdowns (CAI, 2020). Farrington (2020) indicates that individualistic societies are geared towards unsustainable consumerism, intellectualise away responsibility and are immune to shame, contributing to a tendency to disregard social-distancing measures. Pansini (2020) suggests that the Chinese collectivist model is better at coping with the virus than the Western model. He observes that while Westerners lay great emphasis on the free choice of the individual, people in the East set store by their role as parts of the greater society.

The milder impact of Covid-19 in Japan has attracted attention. Factors put forward to explain this phenomenon have ranged, for example, from

high levels of hygiene and health in the country and the higher regard for society than for the individual to the high level of internet use (Acar, 2020). The next dimension - unilateralism versus multilateralism - concerns the extent to which politicians seek to collaborate. Cultural determinants play an important role in controlling infection behaviour (Borg, 2014; Gaygısız et al., 2017). Unilateralism held sway when the world became fully aware of the seriousness of the problem, and countries looked to their own interests first. Some countries halted the exporting of personal protective equipment (PPE), others closed their borders. The US government reportedly even tried clinching a deal with a German enterprise for a consignment of vaccine (Sie Dian Ho, 2020).

People's responses to the Covid-19 pandemic depend on their cultural background (Van den Engel, 2020). Recent studies provide evidence that public health strategies and interventions should be immediately enforced to reduce social gatherings by raising the "*uncertainty avoidance*" factor (Huynh, 2020). Based on van den Engel (2020), we observe that Austria and the Czech Republic cope with the Covid-19 danger by avoidance. But we disagree that a medium score on the uncertainty avoidance index corresponds to a light lockdown in the case of Slovakia.

Survey Results

Considering the previous analysis of cultural factors, the authors of this paper stress that during lockdown, the observed countries adapted the same cultural uniformity in workplace responses. Based on our data, collectivism (flatter hierarchy) produces better responses.

What stands out during lockdowns are results showing that e-working has increased as a result of the coronavirus crisis: The *Covid*-19 *crisis has* revolutionised *e-working*. Before the Covid-19 restrictions, managers and their teams preferred hybrid working for 1-2 days a week (more widespread in Austria than in the Czech Republic and Slovakia). Due to the exit restrictions, work largely shifted to the home office. After the lockdown, only a few managers returned to the office (e-working 3-4 days a week). Executives expect that in future they will work from home about twice as often as before the crisis (hybrid working 2-3 days) or will move to a 9-to-4 model instead of 9-to-5. According to data from a YouGov (2017) survey, two-thirds of British workers would prefer an earlier start and an earlier finish, that is the so-called 8-to-4 working model, rather than the traditional 9-to-5 model. It seems as if the 9-to-5 workday no longer meets the needs of the modern worker because times have changed. Generally, employees put in a considerable amount of work outside those hours, which can cause employee burnout. A Gallup study revealed that two-thirds of full-time workers experience burnout on the job (Wigert and Agrawal, 2018). For the employer, the cost of burnout is absenteeism and increased staff turnover. For the employee, it is frustration and health problems (Castrillon, 2020).

Covid-19 can be seen as a turbo-charging accelerant at the workplace. Both managers and employees will work in a more "hybrid" fashion, changing place, state and mode more often. A hybrid work model, in which

work is done at the home, at the office and elsewhere, will be the chosen model for employees who do not need to be physically present at their place of work.

Unsurprisingly 92% (n=828) of managers expect further increases in the acceptance of e-working. According to Bloom (cited by Wong, 2020), people live not only in an information and gig economy, but also in a new **"working-from-home economy"**. "Short-time working" is when employees are provided with less work and less pay for a short period (Tillvaxtverket, 2021). "Lay-offs" are when employees are not provided with any work or pay for a short period, but are kept on as employees (GOV.UK, 2021). According to the authors of that paper, managers were affected in different ways depending on their activities and sector. On average, about 15% of managers would agree with short-time working, but almost 85% are against lay-offs. Generally, once staff have been laid-off, they may not be available to return to work immediately when needed. It may incur costs to bring back staff after a temporary lay-off. The majority of managers (82%) believe that their pay should not be cut. Clearly, in these precarious and uncertain times, managers must think dynamically to formulate urgent continuity plans. These may include cuts to senior executives' pay and/or wide scale redundancies, both of which require proactive analysis of the legal and commercial implications by managing directors in order to minimise otherwise catastrophic risks to their organisations.

When organisations are facing economic difficulties, they seldom propose pay cuts. The usual decision is to reduce staff because when salaries are reduced, the best workers inevitably resign and join the staff of another company in the field, thereby compounding the loss for the company. In contrast, if a company decides to reduce staff, the employer has control over who leaves— and can then capitalise on the advantage of removing less productive workers (Sandvik et al., 2018).

Some 25% said their organisation was "very" prepared for Covid-19, while 45% said they were "somewhat" prepared. Approximately half of them (48%), however, said that the possibility of an infectious disease occurring was not covered by their crisis planning. Meanwhile, 25% of respondents did not have a crisis communications plan at all. Almost two-thirds of managers said their organisation did not have a return-to-work strategy. According to recent survey data, more than 73% of companies have not yet developed a return-to-work strategy (Blankrome, 2020). A key element is the degree of flexibility with which organisations reacted to the coronavirus crisis. For a business to survive the Covid-19 crisis, flexibility in how they operate and work with their people is required. Overall, managers evaluate the reaction of their companies to the challenges of the crisis positively; 88% of managers stated that they and their employees received the best possible support (52% "strongly agree", 36% "agree"). These figures show that a large number of companies were not fully prepared for the challenges, but were able to react flexibly. In 42% of the companies, the necessary IT infrastructure was fully available; with a further 30% this was true with minor restrictions. Among the respondents, 35% "strongly agree"

and 28% "agree" that their organisations have the necessary IT infrastructure for increased use of home offices.

It has been found (Mackenzie, 2020) that nine out of 10 managers keep workers up to date about the details of the coronavirus restrictions in the company and constantly weigh up the developing conditions and how they affect everyone involved in the business. This kind of approach has long-lasting rewards. Trust is the cornerstone of working relationships between employees and employers, colleagues and customers. And it is crucial to success. One of the easiest ways to rebuild trust in the organisation is to trust in return. Building trust means building relationships; managers must have confidence in their ability to ensure business success post-pandemic.

A home office can be a great advantage: No time is wasted on commuting, one has the opportunity to work on projects without any interruptions, and there is a change of environment. However, not having access to the physical tools and infrastructure is one obvious challenge. Digital platforms have been implemented to a greater extent than ever before (Holmberg and Petrelius, 2020). With 82% of respondents, virtual meetings, conferences and workshops were the tools most frequently used by managers to communicate with employees in their home office (See Figure 1). To help stop the spread of Covid-19, people were asked to stay at home and limit social interactions to an absolute minimum. Shifting to virtual working methods to keep things going during the lockdown was an absolute necessity. Based on our results, the home became the office for more than 80% of workers with different flexible, individual home office models (70%). Working from home is going to stay. Hybrid working was less popular during the lockdown (49% and 22%).

Figure 1: As a manager, what measures did you take during the lockdown? (in %)
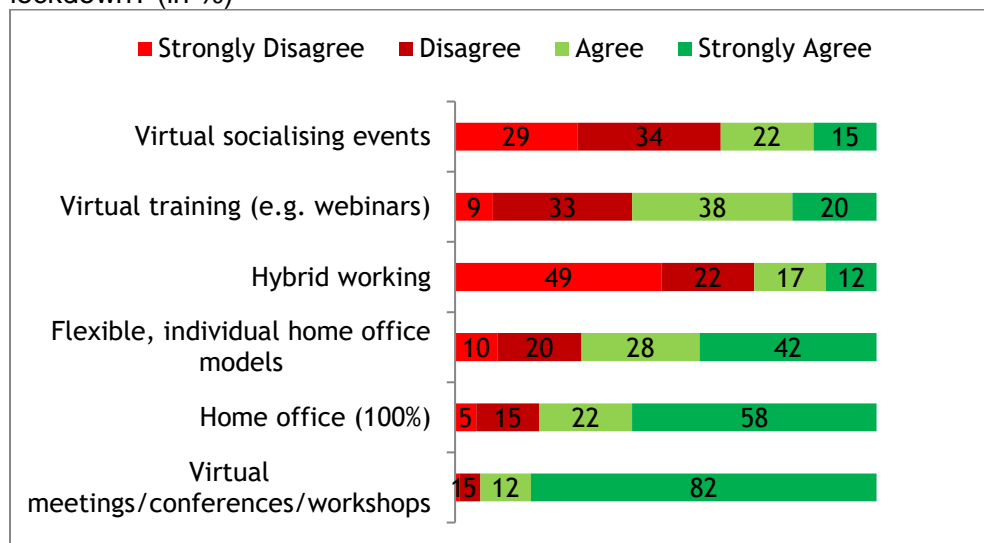
Source: Own survey.

With many people now working from home, keeping the team spirit high is essential, for productivity and other reasons. Working from home means more distractions, fewer ways to interact naturally with fellow employees, and more social isolation — all of which can lead to less productivity (Workforce Africa, 2021). Tools to promote team spirit or loyalty to the company, such as virtual events for socialising, were used in only one-third of companies. But when a team has a strong culture and traditions, adapting to a virtual format of the original is one way to keep this aspect. Furthermore, casual conversations and even work-related discussions do not happen as spontaneously as when workers are sitting next to one other at work. Communication when working remotely is hard, but encouraging feedback and discussion minimise the margin for error. Technology is very helpful for improving communication in a remote arrangement, but care must be taken to ensure it is used properly, e.g. making sure the camera is on during a call.

For 55% of managers, concerns about family, friends, acquaintances and colleagues are in the foreground, while concerns about their own health are almost the same (43%). The crisis is also making a large number of managers more resilient; 38% feel they have a greater belief in personal abilities. However, 16% of them have doubts about the future viability of the company. Furthermore, 14% were worried about losing their jobs and 5% had concerns about social insecurity.

The results also show the tone of less worrying by e-managers about losing their jobs (top-level managers (1.56% - 14), middle-level (3.89% - 35) and lower-level (8.56% - 77)).

The current turmoil is not a typical home office situation; many employees have children to care for after school, and employees do not necessarily feel like doing something relaxing, like going for a walk, during the lunch break. Note that not everybody can work remotely. Managers find it particularly difficult to maintain informal communication (68%).

It is unanimous across organisations that the biggest challenges compared with cubicles are the following: (formal) communication within the team for more than half of the managers (54%), motivation of employees (51%), communication between manager and team (46%), availability of a trouble-free workplace at home (42%) and the cohesion of the team (39%). Executives' satisfaction with the home office, productivity, target achievement and flexibility in processes and handling IT (digital maturity) are less problematic (see Figure 2).

Figure 2: To what extent do you perceive the following aspects as a challenge in managing remotely? (in %)
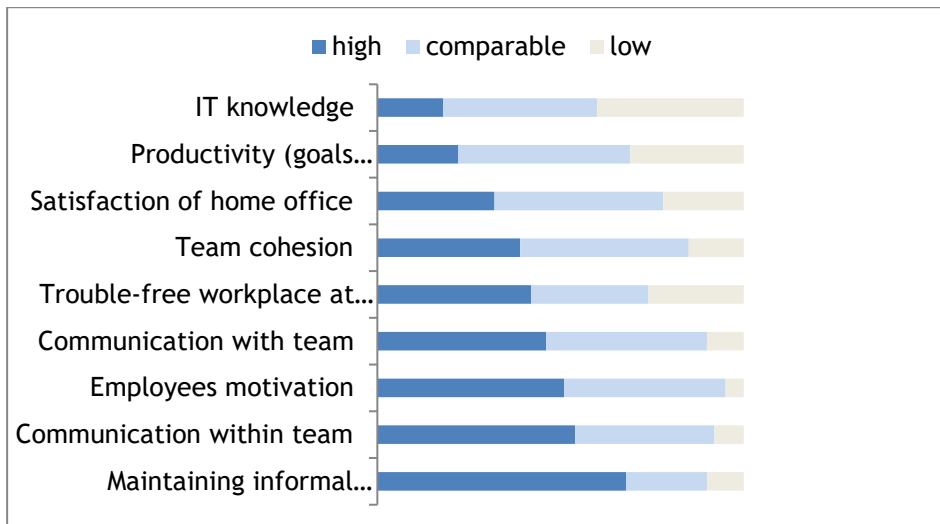
Source: Own survey.

Based on our results, the key factor to e-working success is clearly (online) communication (formal and informal). In pre-pandemic times, many people had the opportunity to communicate with colleagues and teams in person daily, but during and after the pandemic many people rely on online communication technology. A report by GWI (2020) shows that many people expect to continue using the new digital media even when this crisis is a thing of the past, but of course no one can foretell the future, and how behaviour patterns evolve remains to be seen.

Most managers are comfortable with working from home. So far, 89% of managers are good at motivating themselves. In particular, managers lack social contact with friends and colleagues (83%); 80% of them have a suitable workplace at home; 72% are able to separate their private and professional lives and are satisfied and balanced. As we have gained more experience of working from home, the authors have become more proficient at evaluating the pros and cons. Almost all respondents across the various managers want to continue doing some work from home in the post-Covid-19 period. More than half of them (52%) state that they work more efficiently at home compared with working in cubicles. However, there are clear differences between men and women: 41% (303) of men declare they have become more productive while working from home; 65% (105) of women say the same. Women manage the e-working (home office) set-up better. They are generally more flexible with the work situation in the home office and are often more responsive to events in their everyday lives. Managers who have children and who care for adult family members usually have more difficult working conditions in the home office than childless managers or those who do not have to care for adult family members (which means that they are more efficient).

Based on our results, the younger Generation Y (> 1980) managers find it much more difficult to work in the home office than their older colleagues. Generally, millennials struggle with remote work (Agovino, 2020; Arboleda,

2020; Nicholas and Guzman, 2009). Although tech-savvy younger managers are likely to be more familiar with the digital and technological challenges of the home office, they have some issues compared with their older colleagues. Some of them still live at home with their parents or have young families with small children or share with roommates. For this reason, they do not have a suitable workplace at home. Almost one-fifth of the younger managers can combine the requirements of the home office with the needs of their families. According to the latest results from Eurofound's Living, working and Covid-19 survey, however, young people and women are still the biggest losers. Women not only face greater job losses than men, but those who manage to stay in employment also experience major and disproportionate declines in work-life balance (Ahrendt et al., 2020). But the data in that paper show that women cope better with working in a home office than their male colleagues: 57% (92) (versus 47% of men - 347) have an adequate workplace at home; 54% (88) (compared to 40% of men - 295) can motivate themselves satisfactorily, and 48% (78) (compared to 30% of men - 221) are able to combine the requirements of the home office with the needs of their families, especially children. Female executives evaluate the work of their teams in a home office much more positively than their male colleagues do. Three-quarters of them think that their team reacts flexibly to the challenges. More than half said that their team was just as productive as usual. One-third estimate that their employees were positive and satisfied with their work in the home office. Accepting home office regulations will increase significantly as a result of the coronavirus crisis. Almost nine out of 10 managers estimate that the acceptance of home office regulations will increase significantly in the next 12 months. But more videoconferencing instead of business trips (87%), the greater importance of digitisation projects (75%) and the acceleration of change and innovation processes (65%) are also expected. The negative economic consequences of the crisis will undoubtedly lead to restructuring (62%), job insecurity (54%) and impending losses (51%). After all, more than two-fifths of managers expect that the coronavirus crisis will intensify sustainability measures. Furthermore, 38% of managers expect a downsizing of office space, almost the same percentage as in recent survey data from Ireland (Robert Walters, 2020). Organisational leaders must carefully consider Gen Y and Gen Z viewpoints in the workplace after the pandemic, according to Deloitte's report on its 2020 Global Millennial Survey (Deloitte, 2020b).

Looking further ahead, we see that the e-working concept will have an extensive impact on the future workplace. Workers' habits will change radically, and safety and security will become more important than anything else during the period of the virus. According to managers' perceptions, the e-working model will remain a lasting part of our working lives, even after the pandemic, and cybersecurity will be deemed an essential factor in the long term. Daily reports of cyberattacks received by the FBI's Cyber Division have recently climbed to 4 000 cases (Miller, 2020). Interpol (2020) is also seeing an alarming rate of cyberattacks aimed at major corporations, governments and critical infrastructure. Cybersecurity

companies have reported huge increases in hacking attempts since the beginning of the Covid-19 crisis (Knowles, 2020; Microsoft, 2020, Panda, 2020).

DISCUSSION

Our results call into question the function of organisations. Are they solely committed to the shareholders' interests? Should they, on the other hand, also be interested in matters that lie outside their balance sheets and assume responsibility for the interests of others, of employees, of dealing fairly with suppliers, of society around them and last, but not least, of the climate and the environment? After the financial crisis more than 10 years ago, turbocapitalism with its super-returns for corporations came under severe criticism, and the question was raised whether this economic order serves the people sufficiently. Now the question returns. Why can this gig economy generate high profits and stock market prices but not provide urgently needed medical equipment? Why is industry in many countries so dependent on foreign-supplier products?

Before the outbreak of the coronavirus, the young generation desired more meaning and enjoyment from their lives and work than their parents' generation did. But according to a survey, nearly half of US workers believe they have gained weight at their present jobs, an indication of dissatisfaction (Careerbuilder, 2018). How have employers behaved in the uncertain coronavirus time? What has Covid-19 taught employers? Is more intervention by managers needed?

Generally, managers should be prepared for incidents, accidents and emergencies by having a magical "Plan B" in place. But when Covid-19 appeared, it became apparent there was no appropriate plan to fall back on. How could plans be made for something we knew nothing about? It was similar to earlier pandemics and their disastrous impact. We wish to emphasise that it is very important to think about what the work situation will look like once there is no longer any e-working (stay-at-home policies, temporary flexible work options) and the curve of death rates is sufficiently flattened. It is time to plan for when things start returning to normal, whatever normal will be (PWC, 2020). We are of the opinion that employers' response to the post-Covid-19 environment should be linked to good planning in the short term (what should be done now?) and the long term (what should the organisation look like?). Leaders have reacted by recognising the need to manage costs and the workforce, by settling into new ways of working and preparing for the return to the workplace (BDI, 2020). A very important issue remains the return-to-work strategy, including e-working options. Will the lessons learnt during Covid-19 (working and living under the same roof) be remembered after the crisis is over? Are we, post-Covid-19, able to create a strategy that will suit dedicated employees? Yes, we have an opportunity to emerge from this crisis with healthier and happier (more productive) employees.

We should start working on a new Plan B today that will even include the assumption that e-working might (for whatever reason) be impossible. Ask: In these circumstances, what will keep the organisation functioning and how can this be achieved?

CONCLUSIONS

Managers are responsible for the productivity, progress and well-being of the team. The coronavirus has changed the way we work, and the manager's role has never before been this difficult and so important in order to ensure business goes on as usual. Today, managers are experiencing the same challenges as their employees, for example, both have to balance the needs of the business with the needs of their families and relations. The crisis will cost many people their jobs. That is an unfrortunate fact that has to be accepted. Using a base level figure of 188 million unemployed people throughout the world in 2019, the ILO (2020) has made low and high projections of unemployment rates climbing by between 5.3 million and 24.7 million. It is interesting to compare this with the situation during the worldwide financial crisis of 2008-2009 when international unemployment rose by 22 million.

The aim of the authors of this paper was to provide an insight into how best to meet managers' needs during a pandemic. Data from 900 Austrian, Czech and Slovak managers provided a range of useful findings, especially concerning how they approached the transition to working from home and their future perspectives.

Our results show a more favourable score than expected. Our data suggest that e-managers have come forward with novel and innovative types of collaboration. It is also shown that the status of e-working is increasing and will probably continue growing with better support (relevant and necessary IT infrastructure). In view of these data, it is not surprising that 92% (n=828) of managers expect a further increase in the acceptance of e-working. The majority of managers (82%) believe their pay should not be cut. Managers feel they can work at home as effectively as in the office. The important key to success is communication, and here technology plays an important role. It makes managing, coaching and collaborating much easier. The majority of managers (90%) showed enough concern for the well-being of their employees to update them without delay about the consequences of the Covid-19 pandemic in their company (namely the lockdown restrictions, the required social distancing and the need to start e-working from home wherever possible). They reviewed the current arrangements regularly to address the evolving situation while managing the risks to their employees and customers and the impact on the market. The complex social changes (e.g. the necessity for homeschooling, reduced amusement activities) caused parents and the young generation to experience particular challenges with working from home. Women cope more easily with working in the home office than their male colleagues. The

biggest problem area seems to be how to promote informal communication among staff. Once employees have had the experience of this kind of work, it will have an extensive impact on the future workplace.

Our findings enabled us to give the following responses to our research questions:

- *Under what conditions is e-working a win-win-win solution i.e. the optimum outcome for employer, employee and society?* Firstly, face-to-display work keeps employees safe and reduces the risk of productivity decrease due to the virus. Secondly, it has benefits for employees (a happier and more productive workforce), employers (reduced costs) and the entire society (a healthier environment). Thirdly, it provides an example for other organisations by showing that working from home may have cumulative benefits for both employee and employer. In this way, it creates additional opportunities for the further spread of this kind of work.

- *Which factors should dominate in managerial solutions concerning e-working in the future?* Based on the data obtained, a revolution in managerial practices must come about. It is evident that changes in attitudes to work combined with modern ICT do not affect only employees, but managers too. In particular, maintaining informal communication seems to be problematic; the idea of a 9-to-5 model seems to be obsolete. The new approach to work should involve a substantial shift in control from managers to staff. Today, the managers themselves rely on results-driven measurement systems. The goal should be an autonomous working scheme with employees having more flexibility. According to our data, successful leaders lead by example, working in a virtual environment themselves. Outcomes are determined by productive results, not simply by being physically present.

Managing remotely has created many challenges. Recent generations have not experienced a pandemic. What we know about this kind of situation comes from research in the past into illnesses such as SARS, H1N1 and various lesser flu epidemics. We also learned something about returning to work after social upheavals in the aftermath of the First and Second World Wars. History has shown that society, organisations and managers need to anticipate workforce problems when people return to work. Covid-19 has not only economic but also psychological implications. Although managers are key to the recovery process, their subordinates have to play their role too. Intensive information flows, scenario planning and risk improvement are the principal requirements during uncertain times. Managers are in a unique position to provide calm leadership and recognise e-working challenges before complications arise.

Further research should be carried out with data from future lockdowns. This is needed in order to understand how additional data can throw further light on e-management. This research should involve a more thorough investigation of e-management because the future of management belongs to those who can manage remotely. This can be done both through

qualitatively focusing on case studies and through quantitative effect studies.

   This research has highlighted some limitations. Firstly, data collection took place by means of e-mail questionnaires because of distance, financial aspects and Covid-19. There is no guarantee that the researchers obtained all the possible information from the participants that could be used in the analysis of the data and results. Also, the quality of the data depends upon the quality of the questions asked. Secondly, the sample does not reflect the population by sectors. Lastly, the researchers had no way of ascertaining whether the respondents replied honestly or not. It should also be stated that the results from this study do not necessarily reflect how the managers' way of going to work will change after the pandemic is over.

IMPLICATIONS

A natural inclination when managing cubicles is to manage people (that is, as individuals). In a remote setting, management efforts focus first on the processes involved. In a tele-environment, when every member works outside the business premises, the manager has to manage the team collaboratively. In a hybrid tele-environment, the manager must manage the team both physically and collaboratively. This study shows that e-managers may perform as well as or better than they did before; but they will have the same concerns, such as dealing with employees. These results are useful as the Covid-19 pandemic may result in more widespread use of e-working in the post-Covid period. It is becoming increasingly clear that such willingness to offer e-working is more than just a good idea - it is a necessity. Even if managers had only a few employees doing e-work, they will also face supervision and communication challenges. And these issues are of course hugely magnified for organisations with no experience of people working remotely (Sharkey, 2021). Trust and non-micromanaging form the cornerstone of the remote worker-manager relationship. Managers and younger managers of the sandwich generation are likely to find it more difficult to manage remotely. This finding suggests that social learning processes in which managers learn how to supervise and deal with their staff should be incorporated in their training.

   Our research insights can contribute to better organisational e-management of the challenges that managers face when working from home, and consequently they can help to create the preconditions for higher efficiency of managers and employees, higher levels of work motivation and greater efficiency of e-working.

ACKNOWLEDGEMENTS

This paper was written within the scope of the H2020 project "Linking Research and Innovation for Gender Equality" (acronym CALIPER).

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