

Effectiveness of Communication Tools in Slovak Enterprises Before and During the Covid-19 Pandemic

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Background and purpose: The Covid-19 pandemic brought about a shift in the way businesses operate, accelerating the adoption of digital communication tools. The study examines the effectiveness of communication tools in Slovak enterprises, comparing the dynamics before and during the pandemic. The study highlights the need for businesses to address communication-related issues.

Methodology: An electronic questionnaire was used to collect the data. The representative survey sample consisted of 555 respondents. The results of the research were processed using the statistical tools McNemar Test, Pearson's Chi square test and Cramer's V.

Results: Before the pandemic, Slovak enterprises relied on traditional means of communication, with face-to-face meetings, phone calls and emails being the primary means of interaction. However, when the pandemic forced people to work from home, dependence on digital communication tools such as video conferencing and collaboration platforms increased significantly.

Conclusion: The research findings indicate that during the pandemic, businesses recognized the importance of digital communication tools for sustaining business operations and employee collaboration. In conclusion, the Covid-19 pandemic was a catalyst for the transformation of communication practices in Slovak enterprises. The findings emphasise the continued importance of digital communication tools in the post-pandemic era and the need for businesses to strike a balance between traditional and digital communication methods in order to optimise overall effectiveness.

Keywords: *Communication, Communication tools, Effectiveness, Slovak companies, Covid-19*

1 Introduction

The COVID-19 pandemic has brought in significant changes across various sectors, with businesses experiencing profound transformation. As governments implemented lockdowns and social distancing measures to limit the spread of the virus, businesses had to quickly adapt to remote working conditions. This sudden shift accelerated

the adoption of digital communication tools, which led to modification of traditional business operations and interactions.

Slovak enterprises, as their global counterparts, faced the need to transition from in-person interactions to virtual ones. Prior to the pandemic, business communication in Slovakia relied mainly on face-to-face meetings, phone calls, and emails. These traditional methods, although effective prior to pandemic, proved to be insufficient in ad-

addressing the challenges that remote working environments represented. As a result, enterprises turned to digital communication tools such as video conferencing, instant messaging, and collaborative platforms in order not to break off the continuity of processes and maintain efficient employee collaboration.

This study evaluates the effectiveness of digital communication tools within Slovak enterprises by comparing the communication dynamics before and during the COVID-19 pandemic. The results of the research provide enterprises with an insight into the relevance of digital communication tools and help them realize the significance of addressing related challenges.

Effectiveness of communication tools

Effective communication has always been a critical element of business success (Gomez et al., 2023). It enables the exchange of information, ideas and feedback between employees, management and external stakeholders (Bucata and Rizeccu, 2017). In enterprises, as in many other parts of the world, the choice of communication tools has a direct impact on the efficiency, productivity and overall effectiveness of the enterprise (Holá, 2012; Szeiner et al., 2022). It is of great importance to develop and maintain appropriate communication channels in the workplace that not only increase the workplace performance but have an impact on the behaviour and well-being of employees (Bencsik et al., 2019). The greater the team is, the greater demands on communication efficiency among its members are required (Stacho et al., 2020).

The Covid-19 pandemic has significantly impacted businesses around the world, forcing them to adapt to working from home and rely heavily on technology to communicate effectively (Boyadjiev and Vaneva, 2021). Especially, small and medium-sized enterprises are struggling to cope with the business uncertainty caused by the Covid-19 pandemic (Fernando, 2023). Prior to the pandemic, businesses typically relied on a combination of traditional communication methods such as face-to-face meetings, phone calls, and emails to facilitate internal and external interactions. Erjavec (2021), Bojadjev and Vaneva (2021) in their studies emphasized the importance of face-to-face communication for building trust, fostering collaboration and effective conflict resolution. However, limitations regarding communication tools, physical presence and the need for shared space were observed. Emails used for information sharing faced problems related to congestion, misunderstandings, and delayed responses (Smolag, Slusarczyk, 2021). Telephone calls, used for instant communication, often had no permanent record and were difficult for larger enterprises to manage effectively.

Prior to the pandemic, enterprises were undergoing a gradual digital transformation (Priyono et al., 2020). This transformation was particularly evident in the way businesses used communication tools. Digital communication and media create new cultural forms while it concurrently

interacts with the conventional communication and media systems (Uçar et al, 2022). Digital communication tools including video conferencing platforms (e.g. Zoom, Microsoft Teams), instant messaging applications (e.g. WhatsApp) and collaboration software (e.g. Microsoft 365, Google Workspace) have become tools for maintaining business operations and ensuring smooth communications between remote and distributed teams (Smolag, Slusarczyk, 2021).

The outbreak of the Covid-19 pandemic required the rapid adoption of digital communication tools and the introduction of social disengagement measures in enterprises (Boyadiev and Vaneva, 2021; Sanders et al., 2020). The efforts to minimize physical contact to the lowest possible level temporarily changed how people work and their free time. In jobs that can be performed without physical presence, including education, working from home and online education came to the fore. The issue of work virtualization gained in importance. A revolution in dominant modes of communication is happening because of the rapid spread of the virus (Marjański and Sułkowski, 2021). Therefore, the IT sector, virtual devices, communication applications and online services were among those that benefited from the pandemic the most (Szeiner et al., 2023). Video conferencing platforms such as Zoom and Microsoft Teams have emerged as essential tools for remote working and virtual meetings. Neil and Bowen (2021) highlighted the effectiveness of videoconferencing tools in facilitating visual cues, nonverbal communication, and increasing team cohesion. Collaboration platforms, such as Microsoft Teams, enabled employees to communicate in real time, share files, and organize discussions effectively. These platforms have improved information sharing, reduced email overload and improved team collaboration through instant messaging and virtual workspaces. Growing collaboration on platforms creates requirements for abilities to work in teams, communication skills in virtual environment, multimedia skills, understanding and compliance with IT security and the ability to collaborate (Stacho et al., 2021). Mobile communication apps such as WhatsApp have gained popularity due to their accessibility and convenience. They offered quick updates, informal communication channels and made team building easier. In practice, cross-functional teams often fail due to misleading coordination in a competitive tension (Ton et al., 2023). These tools have been critical for keeping employees connected, informed, and productive in remote work environments (Torre, Sarti, 2020). However, privacy and security concerns have been identified as potential drawbacks (Smolag, Slusarczyk, 2021).

The Covid-19 pandemic has changed the communication environment in enterprises. It has accelerated the adoption of digital communication tools.

As stated by Obrenovic et al. (2020) and González-Tejero et al. (2022) the development of effective communi-

cation techniques during Covid-19 has led to improved performance and mental support among individuals. While this shift offers many benefits, it has also brought challenges such as communication fatigue, security concerns and the need to address work-life balance, which brings increased levels of stress. Stress on several levels consumes time, energy and individual attention, so it can hinder performance and cause increased employee turnover (Berke et al., 2021; Kórmúves, Berke, 2021; Ariani, 2021). Understanding these dynamics is critical for businesses looking to adapt and thrive in the post-pandemic era, as digital communication tools continue to shape the way businesses communicate and operate both inside and outside the country (Krchová. Hoesová, 2021). Changes in the communication environment led us to explore differences in the use of communication tools before and during the COVID-19 pandemic, as part of our research presented in the following chapter.

Aim, material, and methods of investigation

The aim of the study is to identify changes in the perception of the importance of communication tools by

employees of Slovak companies before and during the Covid-19 pandemic. The identified changes will help companies in deciding how to set up a communication system in the post-pandemic period and will provide a basis for the development of an action plan in case of similar situations in the future.

Data collection was conducted in 2023 in the form of a questionnaire survey. The electronic questionnaire was created on the Google Docs platform. Respondents were contacted in person or by email (500 people) and through the social networks Facebook and LinkedIn (3128 people). The survey sample consisted of 555 respondents who completed the entire questionnaire. The return rate of the questionnaire survey was 15.30%. The representativeness of the survey sample was verified by using the Chi-square goodness of fit test according to two classifiers - gender and age. For the identification of the basic set we used data from the Statistical Office of the Slovak Republic, namely the STATdat database with data as of 31/12/2022. We performed the testing at the significance level $\alpha = 0.05$. The results of the tests are shown in Tables 1 and 2.

Table 1: Representativeness of the survey sample by age

Age					
	Observed N	%	Expected N	Expected %	Residual
< 25	99	17.8	82.3	14.8	16.7
25 – 40	168	30.3	173.8	31.3	-5.8
40 – 55	200	36.0	192.1	34.6	7.9
> 55	88	15.9	106.8	19.3	-18.8
Total	555	100.0	555	100.0	
Null Hypothesis		Chi-Square	df	Asymp. Sig	Decision
The categories of Age occur with the specified probabilities		7.245 ^a	3	0.064	Retain the null hypothesis
a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 82,3.					

Source: Own data, 2023

Table 2: Representativeness of the survey sample by gender

Gender					
	Observed N	%	Expected N	Expected %	Residual
Valid	273	49.2	271.5	48.9	1.5
Male	282	50.8	283.5	51.1	-1.5
Female	555	100.0	555	100.00	
Null Hypothesis		Chi-Square	df	Asymp. Sig	Decision
The categories of Gender occur with the specified probabilities		0.017 ^a	1	0.895	Retain the null hypothesis
a. 0 cells (0,0%) have expected frequencies less than 5. The minimum expected cell frequency is 271,5.					

Source: Own data, 2023

Before creating the questionnaire, we formulated the research questions.

RQ1: How often were different communication tools used in the companies before and during the pandemic?

RQ2: Was there a change in employees' perception of the effectiveness of the most frequently used communication tools?

RQ3: Is there a relationship between perceptions of the effectiveness of communication tools during the pandemic and respondent characteristics (gender, age)?

In the study of our research, we present an evaluation of selected questions that relate to the formulated research questions. In the first two questions, we asked respondents which tools were used in their company before and during the Covid-19 pandemic. In questions 3 and 4, we wanted to know which communication tools they considered effective before and during the pandemic.

We used the McNemar Test to assess differences in the use of communication tools, perceptions of their effectiveness, and barriers to communication before and during the pandemic. To determine the relationship of perceived importance of communication tools with gender and age, we used Pearson's Chi square test and Cramer's V. We assessed the significance of differences and relationships with different groups of respondents at $\alpha = 0.05$ level. We chose to investigate the differences between respondents' gender because it should be stressed that gender differences include important difference in needs, behaviours and attitudes and taking them into account provides new ideas and excellence, relevant for whole society (Misiak-Kwit et al., 2017). The importance of exploring age differences is justified by several authors (e.g. Reis, Braga, 2016; Hitka et al., 2021), who explain that different generations tend to have different requirements in terms of motivation, communication, work organization or perception of their own person.

Results and discussion

To evaluate the use of different communication tools before and during the pandemic, we based our findings on the questionnaire responses of the survey. Respondents had the opportunity to select any number of communication tools. We then ranked the most frequently used communication tools before and during the pandemic and used the McNemar test to determine whether there were statistically significant differences in their use (Table 3).

The null hypothesis of McNemar's test assumes that the distribution of different values across categories are equally likely. We accept the null hypothesis only when using the intranet. Thus, there was no statistically significant difference in its use before and during the pandemic. For the use of all other communication tools, we find a statistically significant change, with only chat, cloud storage, shared calendars, and video calls becoming more frequently used during the pandemic. The same results were obtained in a study by Erjavek (2021), where respondents

in companies in Slovenia preferred to use e-mail, video-conferencing, and chat during the Covid-19 pandemic. In our research, the most significant increase was recorded in the use of cloud storage, with an increase of up to 30.81 percentage points. All other communication tools were used less frequently during the pandemic. The biggest decrease in use was, understandably, in face-to-face communication (65.40 percentage points), meetings (47.03 percentage points), but also in telephone communication (46.48 percentage points). Comparable results were also reached in a study conducted in Macedonia, concluding that face-to-face communication was the most preferred communication tool before the pandemic and chats during the pandemic. Similarly, research conducted in Slovenia and Poland revealed that telephone communication was the most preferred communication tool (Erjaveka, 2021; Smulag, Slusarczyk, 2021).

The same procedure was applied to detect differences in the perceived effectiveness of individual communication tools. Respondents could express their view of effectiveness even if the tool was not used in their company. The results in Table 4 are similar in many aspects to the results in Table 3, documenting the accuracy of the actions taken by enterprises in introducing alternative communication tools in a pandemic situation.

When examining perceptions of the effectiveness of communication tools, we accept the null hypothesis that there is no statistically significant difference in the perceptions of written communication, corporate information systems, and message boxes. Thus, there is no statistically significant difference between them. Conversely, we reject the null hypothesis of equality of distribution of different values across categories for perceptions of the effectiveness of using telephone, face-to-face communication, emails, meetings, directives, chats, company periodicals, intranet, training, bulletin boards, video calls, cloud storage, and shared calendars. Of these tools, respondents considered chats (up 22.16 percentage points), shared calendars, video calls, cloud storage, and intranets to be more effective during the pandemic, while they considered in-person communications (down 59.46 percentage points), meetings, directives, phone use, emails, company periodicals, training, and bulletin boards to be less effective. Similarly, a study conducted by an international financial group operating in the Central European market confirms that one of the most effective communication tools before the pandemic was face-to-face communication and ranked video calls as one of the least effective (Jakubiec, 2019).

To explore the relationship between the perceived effectiveness of the communication tools used and gender, we tested the null hypothesis H_0 , which assumes that there is no statistically significant relationship between gender and the perceived effectiveness of communication tools, using the Pearson Chi-Square test and Cramer's V.

Table 3: Change in the use of communication tools before and during the Covid-19 pandemic

	% before	% during	Difference (perc. points)	U → N*	N → U**	Ranking before	Ranking during	Ranking difference
Telephone	93.51%	47.03%	- 46.48	47.57%	1.08%	1.	1.	0
In person	80.54%	15.14%	- 65.40	68.65%	3.24%	2.	7.	↓ 5
Email	63.78%	47.03%	- 16.75	32.43%	8.11%	3.	1.	↑ 2
Meetings	60.00%	12.97%	- 47.03	49.19%	2.16%	4.	8.	↓ 4
Directives	38.38%	15.68%	- 22.70	32.43%	7.03%	5.	6.	↓ 1
In writing	29.19%	9.19%	- 20.00	25.41%	5.41%	6.	10.	↓ 4
Magazine	24.86%	5.95%	- 18.91	20.54%	1.62%	7.	13.	↓ 6
Boards	24.86%	3.24%	- 21.62	23.78%	2.16%	8.	15.	↓ 8
Training	23.78%	4.86%	- 18.92	21.62%	2.70%	9.	14.	↓ 5
Intranet	16.22%	24.86%	+ 8.64	10.81%	10.27%	9.	5.	↑ 5
Mailboxes	16.22%	4.86%	- 11.36	15.14%	3.78%	11.	14.	↓ 3
IS	15.14%	12.97%	- 2.17	12.43%	6.49%	12.	8.	↑ 4
Chat	11.89%	25.95%	+ 14.06	6.49%	41.62%	13.	4.	↑ 9
iCloud	8.65%	39.46%	+ 30.81	4.86%	21.08%	14.	3.	↑ 11
Calendars	0.54%	7.03%	+ 6.49	0.05%	7.03%	15.	12.	↑ 3
Video	0.00%	9.19%	+ 9.19	0.00%	25.95%	16.	10.	↑ 6
McNemar Test								
	Telephone	In person	Email	Meetings	Directives	In writing	Magazine	Boards
N	555	555	555	555	555	555	555	555
Chi-Square	244.626	328.431	79.804	237.193	89.498	70.760	87.935	98.340
Asymp. Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Null hypot.	reject	reject	reject	reject	reject	reject	reject	reject
	Training	Intranet	Mailboxes	IS	Chat	Cloud	Calendars	Video
N	555	555	555	555	555	555	555	555
Chi-Square	80.119	0.034	36.610	9.752	140.959	55.007	29.147	142.007
Asymp. Sig.	0.000	0.853	0.000	0.002	0.000	0.000	0.000	0.000
Null hypot.	reject	accept	reject	reject	reject	reject	reject	reject

* Change from Using to Not using

** Change from Not using to Using

Source: Own data, 2023

For gender, we identified a statistically significant relationship for telephone, written and email communication (Table 5). Although a Cramer's V value < 0.3 suggests that this is a relatively small effect, we reject the null hypothesis based on a Pearson Chi-Square test p-value < 0.05. Thus, looking at the relative frequencies, we can argue that men found telephone communication more effective than women during the pandemic. Conversely, women found written and email communication to be more effective

compared to men. A study conducted in an international financial group operating in the Central European market concluded that men perceived working from home to be more negative than women, citing lack of personal interaction as the reason (Jakubiec, 2019). We came to a similar conclusion in our research, as men preferred the more personally interactive mode of communication, the telephone. In the perception of the effectiveness of the other communication tools studied, we accept the null hypothesis and

argue that there is no relationship in the perception of their effectiveness and gender.

The results of testing the relationship between the perceived effectiveness of the communication tools used and the age categories of the respondents, we used Pearson Chi-Square test and Cramer's V to test the null hypothesis H0, which assumes that there is no statistically significant relationship between the age categories of the respondents and the perceived effectiveness of the communication

tools (Table 6).

In identifying a statistically significant relationship between perceptions of the effectiveness of communication tools during a pandemic and age categories, we can respond positively for telephone and written communication, the use of meetings, video calls and intranet. Like previous testing, Cramer's V values are < 0.3, indicating a relatively small effect. However, the calculated p-values of the Pearson Chi-Square test < 0.05 for the above-men-

Table 4: Change in perceptions of the effectiveness of communication tools before and during the Covid-19 pandemic

	% before	% during	Difference (perc. points)	E → I*	I → E**	Ranking before	Ranking during	Ranking difference
Telephone	84.86%	69.19%	- 15.68	24.32%	8.65%	1.	1.	0
In person	74.59%	15.14%	- 59.46	61.08%	1.62%	2.	6.	↓ 4
Email	51.35%	44.86%	- 6.49	18.38%	11.89%	3.	2.	↓ 1
Meetings	48.65%	12.43%	- 36.22	39.46%	3.24%	4.	7.	↓ 3
Directives	23.78%	5.41%	- 18.38	20.54%	2.16%	5.	12.	↓ 7
In writing	11.89%	10.27%	- 1.62	8.11%	6.49%	6.	10.	↓ 4
Chat	10.81%	32.97%	+ 22.16	5.41%	27.57%	7.	3.	↑ 4
Magazine	9.19%	3.24%	- 5.95	7.03%	1.08%	8.	13.	↓ 5
IS	8.11%	7.03%	- 1.08	5.41%	4.32%	9.	11.	↓ 2
Intranet	8.11%	11.35%	+ 3.24	4.86%	8.11%	9.	9.	0
Training	7.03%	1.62%	- 5.41	6.49%	1.08%	11.	16.	↓ 5
Boards	6.49%	3.24%	- 3.24	5.95%	2.70%	12.	13.	↓ 1
Video	5.41%	21.08%	+ 15.68	1.62%	17.30%	13.	4.	↑ 9
iCloud	4.86%	18.38%	+ 13.51	3.78%	17.30%	14.	5.	↑ 9
Mailboxes	1.08%	2.70%	+ 1.62	1.08%	2.70%	15.	15.	0
Calendars	0.54%	12.43%	+ 11.89	0.54%	12.43%	16.	7.	↑ 9
McNemar Test								
	Telephone	In person	Email	Meetings	Directives	In writing	Chat	Magazine
N	555	555	555	555	555	555	555	555
Chi-Square	40.415	311.037	7.292	168.776	80.960	0.790	81.333	22.756
Asymp. Sig.	0.000	0.000	0.007	0.000	0.000	0.374	0.000	0.000
Null hypot.	reject	reject	reject	reject	reject	accept	reject	reject
	IS	Intranet	Training	Boards	Video	Cloud	Calendars	Mailboxes
N	555	555	555	555	555	555	555	555
Chi-Square	0.463	4.014	20.024	6.021	70.438	46.803	58.681	3.052
Asymp. Sig.	0.496	0.045	0.000	0.014	0.000	0.000	0.000	0.078
Null hypot.	accept	reject	reject	reject	reject	reject	reject	accept

* Change from Effective to Ineffective

** Change from Ineffective to Effective

Source: Own data, 2023

tioned communication tools force us to reject the null hypothesis. By looking at the relative frequencies, we can assess for which age group a given communication tool appears to be more or less effective during a pandemic. In the perceived effectiveness of the other communication tools studied, we accept the null hypothesis and argue that there is no relationship in the perception of their effectiveness and age categories.

We were then interested to find out how many respondents perceived the effectiveness of the tools during their actual use during the pandemic. Thus, for each communication tool, we considered only the replies of respondents who had practical experience with each tool during the pandemic.

In Figure 1, the communication tools are grouped in a matrix according to the frequency of their use in the companies and how effective they were considered by the

employees who actually used them during the pandemic. Employees considered the telephone to be the most effective communication tool (90.80% of users), yet it was only used to communicate during the pandemic in 47.03% of businesses. Even lower proportions of tool use were identified for emails (47.03%), face-to-face communication (15.14%), meetings (12.97%), and shared calendars (7.03%). On the contrary, more than half of their users found them to be effective. These communication tools, given their effectiveness, are the ones that should be developed and promoted in companies. Smolag and Slusarczyk (2021) also consider e-mail, telephone, and MS Teams to be effective distance communication tools. In the case of face-to-face communication and meetings, there may be complications during pandemic situations, but when safety regulations are followed, employees still find them more effective than some other communication tools.

Table 5: Relationship of perceived effectiveness of communication tools during a pandemic with gender

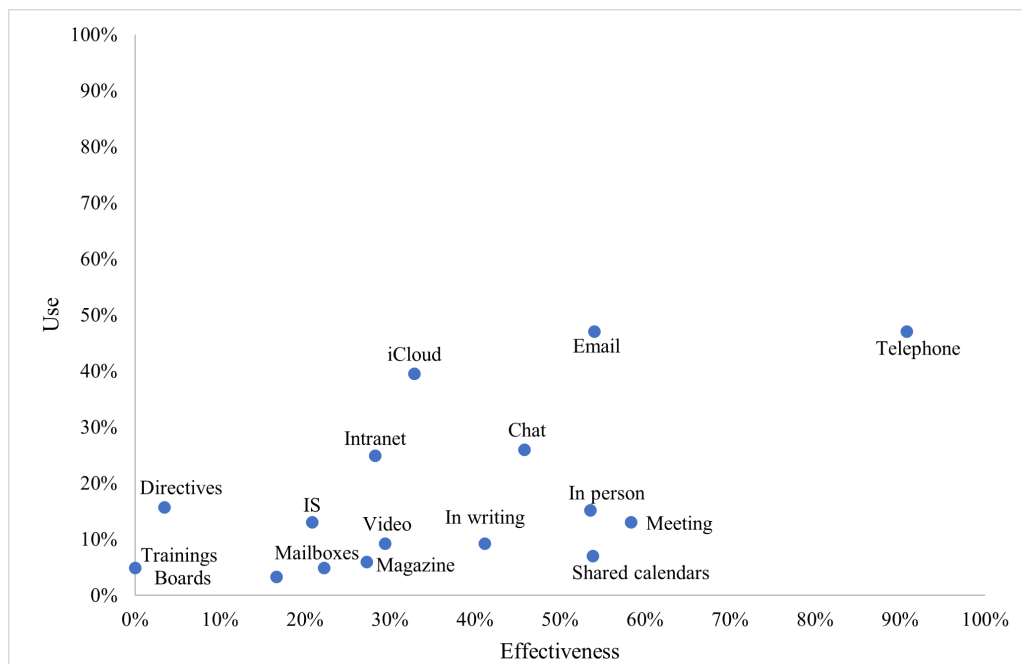
	Telephone	In writing	E-mail
Male	80.20%	7.70%	40.70%
Female	58.50%	12.80%	48.90%
Together	69.20%	10.30%	44.90%
Pearson Chi-Square	30.666	3.875	3.842
Phi	-0.235	0.084	0.083
Cramer's V (df = 1)	0.235	0.084	0.083
Asymp. Sig. (2 sided)	0.000	0.049	0.049
Null hypot.	reject	reject	reject

Source: Own data, 2023

Table 6: Relationship of perceived effectiveness of communication tools during a pandemic with age categories

	Telephone	Meeting	In writing	Video	Intranet
< 25	71.70%	10.10%	18.20%	31.3%	5.1%
25 – 40	59.50%	8.90%	4.80%	26.2%	9.5%
41 – 55	76.00%	19.50%	10.50%	13.0%	16.5%
> 55	69.30%	5.70%	11.40%	18.2%	10.2%
Alltogether	69.20%	12.40%	10.30%	21.1%	11.4%
Pearson Chi-Square	12.012	15.249	12.381	17.161	9.843
Phi	0.147	0.166	0.149	0.176	0.133
Cramer's V (df = 1)	0.147	0.166	0.149	0.176	0.133
Asymp. Sig. (2 sided)	0.007	0.002	0.006	0.001	0.020
Null hypot.	reject	reject	reject	reject	reject

Source: Own data, 2023



Source: Own data, 2023

Figure 1: Perceptions of the effectiveness of communication tools in actual use

Active contact among employees has a significant impact on the efficiency of the company and the effectiveness of individual employees' task performance, as well as on their loyalty and motivation. During the COVID-19 pandemic, the level of employee motivation, needs and demands in almost all motivational factors changed significantly, not excluding the communication environment (Hitka et al., 2022). Effective communication is crucial for the success of an enterprise in the marketplace. If employees provide information ineffectively, it exposes the enterprise to not only loss of time but also money. Investing in modern communication tools in an enterprise has a positive impact on their resilience in times of various crises, such as the COVID-19 pandemic, as the breakdown of communication between employees was one of the first impacts of the pandemic (Roffia, Dabic, 2023).

Practical implications

This study on the adoption and effectiveness of digital communication tools in Slovak enterprises has several practical implications that enable the enterprises to operate in the post-pandemic environment.

Adoption of digital technologies results in the enhanced operational resilience, which can be described as the enhancement of the enterprise's resilience against future disruptions. This ensures continuous communication and collaboration regardless of external conditions. By investing in digital infrastructure and training employees in

their use, the enterprise can reduce potential risks associated with the shift to remote work. The other advancement brought in the enterprise is optimization of communication strategies. Development of hybrid communication strategies utilizes the strengths of both traditional and digital approaches. While face-to-face meetings or phone calls may be preferable for certain interactions, digital tools offer more flexibility. Clear guidelines on using each method can improve the overall enterprise efficiency. Employee training and development is another implication that may tackle the gap in digital literacy among different generations of employees. Investing in training programs leads to the enhancement of employee digital skills and reduces resistance to change. One of the implications for potential further research is the advantage gained from informed decision-making should enterprises decide to evaluate their own communication practices by similar analysis. This, naturally, leads to enhanced collaboration and innovation, mainly due to the fact that digital communication tools simplify collaboration and information sharing, and thus support innovation. Promoting a culture that encourages the use of digital tools may strengthen teamwork and problem-solving processes. The transition to digital communication tools can also result in cost savings as the need for physical meeting spaces, travel expenses, and/or printed materials may reduce significantly. All this enables an enterprise to maintain its competitive advantage in the

increasingly digital world. In conclusion, the practical implications of this study emphasize the critical role of digital communication tools in modern business operations. By adopting the suggested approach to communication, investing in employee development, and taking advantage of the relevant information, Slovak enterprises, as well as global ones, can optimize their communication practices and enhance their overall effectiveness in the post-pandemic era.

Limitations and future research

The article focuses on the effectiveness of communication tools in Slovak companies before and during the covid-19 pandemic. Although it brought valuable knowledge, it revealed several limitations that must be mentioned. We consider the implementation of the research in Slovakia as one of the limits, which limits the possibility of generalizing its conclusions to other countries and regions. Among other limitations, we perceive the use of questionnaires as a method of data collection, which may be influenced by the subjective opinions of the respondents. However, in order to obtain a quantitative overview, we stand behind the selection of the mentioned method and its validity. The article also focused only on selected communication tools, not on all possible tools used by businesses. This fact also emerged from the available secondary literary sources. Furthermore, it only examined the employees' perspective, not that of management or other stakeholders.

At the same time, these limits open several possible directions for future research. First, the implementation of similar studies in other countries and regions would allow international comparison and identification of cultural differences in access to communication tools. Supplementing the quantitative data with qualitative methods, such as in-depth interviews or case studies, provided a deeper understanding of the issue. It would also be interesting to investigate the long-term effects of the use of digital communication tools on the performance, motivation and well-being of employees.

Another option is to analyse the perspective of management and identify the challenges associated with the implementation and management of digital communication tools in the enterprise. Focusing on specific factors such as company size, industry or generational differences and their impact on the effectiveness of communication tools could yield useful insights. Exploring potential risks and challenges related to digital tools, e.g. cyber security, privacy or excessive workload is also an important topic.

The article could also benefit from a deeper analysis of the cultural and behavioural changes that influence communication tool effectiveness. This includes examining how organisational culture and employee attitudes toward technology influence the adoption and perceived effectiveness of new communication tools.

Last but not least, future research could develop and test best practices and models for integrating traditional

and digital communication approaches in the post-pandemic work environment. These proposed focuses can not only deepen theoretical knowledge, but also provide practical knowledge for businesses on how to effectively use communication tools and manage related challenges.

Conclusion

Teleworking and social distancing measures have made communication tools essential to keep employees engaged, informed and productive. The adoption of digital tools has been positively correlated with the ability of businesses to adapt quickly to teleworking, ensuring minimal disruption to their operations. The study highlights the importance of digital communication tools in maintaining business continuity and employee engagement in times of crisis. Understanding the evolution of communication tools in this context is vital for businesses seeking to adapt and thrive in an ever-changing business environment.

The findings presented in this study show that the effectiveness of the work depends on the appropriate choice of communication tools. They also reveal that teleworking poses new challenges in internal communication with employees in order to strengthen their bonds and relationships.

To provide effective implementation of these tools in the Slovak business environment, it is necessary to address constraints such as technological differences, information overload and potential privacy/security threats. Further research is needed to explore the long-term effects of using these communication tools and to identify best practices for the post-pandemic work environment.

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Učinkovitost komunikacijskih orodij v slovaških podjetjih pred in med pandemijo Covid-19

Ozadje in namen: Pandemija Covid-19 je prinesla spremembo v načinu poslovanja podjetij, kar je pospešilo sprejetje digitalnih komunikacijskih orodij. Študija preučuje učinkovitost komunikacijskih orodij v slovaških podjetjih in primerja dinamiko pred in med pandemijo. Poudarja potrebo po reševanju komunikacijskih izzivov v podjetjih.

Metodologija: Podatke smo zbrali s pomočjo elektronskega vprašalnika, pri čemer je reprezentativni vzorec obsegal 555 anketirancev. Rezultate raziskave smo obdelali s statističnimi orodji, kot so McNemarjev test, Pearsonov test hi-kvadrat in Cramerjev V.

Rezultati: Pred pandemijo so slovaška podjetja uporabljala tradicionalne komunikacijske metode, kot so osebna srečanja, telefonski klici in e-pošta. Vendar je med pandemijo odvisnost od digitalnih komunikacijskih orodij, kot so video konference in platforme za sodelovanje, močno narasla.

Zaključek: Raziskava kaže, da so podjetja med pandemijo prepoznala pomembnost digitalnih komunikacijskih orodij za ohranjanje poslovnih operacij in sodelovanje zaposlenih. Covid-19 je deloval kot katalizator za preoblikovanje komunikacijskih praks v slovaških podjetjih. Ugotovitve poudarjajo nenehno pomembnost digitalnih komunikacijskih orodij v povojnem obdobju ter potrebo po uravnoveženem pristopu med tradicionalnimi in digitalnimi metodami komunikacije za optimizacijo celotne učinkovitosti.

Ključne besede: *Komunikacija, komunikacijska orodja, učinkovitost, slovaška podjetja, Covid-19*