

# MOBILE APPS AS AN IMPORTANT MARKETING COMMUNICATION TOOL IN STARTUP BUSINESS IN THE SLOVAK REPUBLIC

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**Abstract:** The aim of this conference paper is to provide a perspective on the issues in start-up entrepreneurship. Start-ups in the European Union represent a driving force for research and development in many areas, and therefore the authors have sought to obtain insightful information on the entrepreneurship of entities that consider themselves start-ups from the beginning of their business activities. Start-up business models are significantly supported by EU funds and in Slovakia by the Slovak Business Agency. Many of these ideas have become successful products and profitable business forms.

The main methods of research on start-up businesses were qualitative and quantitative marketing research methods. A questionnaire survey was sent to a selected sample of small and medium-sized enterprises in Slovakia based on data from the Statistical Office of the Slovak Republic. The return rate of the questionnaire was 638. Enterprises answered questions related to the focus of business activity, the area of start-up entrepreneurship, the innovativeness of enterprises, and the merit questions addressed mobile applications, patents, and trademarks of the surveyed enterprises. The data collected by the questionnaire survey was processed by advanced statistical methods, the method of artificial neural networks (ANN) was used to identify influential variables. Critical analysis is being used to identify specific factors and reasons that influenced the start-up enterprises' decisions to develop mobile applications and their subsequent use in marketing communications.

The paper brings empirical evidence of how locally based companies have been approaching the evaluation of mobile apps and how they incorporate the specific modern forms of marketing communications into their start-up development. The research yielded interesting findings that more than 36% of the companies studied started as start-ups and more than 24% of the entities still consider their activities as start-up activities. 17% of the surveyed enterprises have already developed a mobile app for both Android and IOS and more than 20 plan to develop mobile apps, more than 8% have mobile apps in the development phase.

The findings published in the paper are partial results of the INMARK research task, in which the researchers are looking for innovative approaches to marketing management, not only in the field of marketing communication but across all marketing tools. The creation of mobile applications as new products is analysed in terms of the reasons that preceded its creation. Designing a model of innovative approaches in marketing management can help a number of start-ups in their managerial decision-making and marketing management.

**Key words:** start-up, mobile app, marketing, new product development, innovative marketing tools

## Introduction

Our world is currently affected by a health crisis caused by the coronavirus pandemic (COVID-19). We have to cope with various restrictive measures (e.g. regional lockdowns, business restrictions, social distancing). These measures are

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undoubtedly curbing the spread of the pandemic, but unfortunately, they are also not contributing to the development of the business activities of the majority of enterprises, not only in Slovakia but worldwide. In March 2020, the International Monetary Fund declared that the global economy has entered a recession and the outcome may be worse than the effects of the global financial crisis in 2009 (Georgieva, 2020). Although the International Monetary Fund predicts a recovery or a significant upturn, this unprecedented crisis has brought negative impacts on most companies, including innovative ones (Mora Cortez and Johnston, 2020, p. 126). In the wake of this situation, managers of firms around the world have started to intensively implement various contingency plans to overcome this pandemic crisis (Ritter and Pedersen, 2020, p. 220). Unfortunately, it is not possible to rule out further waves of pandemics and so various constraints need to be considered for the future. The possibilities of digital technologies help to overcome some of the complications.

In the new global economy, innovative start-ups have been seen as a key player in economic development. The reasons for their importance are their contributions to job creation (which increases employment) and economic growth at regional, national, and industrial levels. Their contribution can be seen in the generation of breakthrough innovations and future large enterprises (Tripathi et al., 2019, p.58).

The aim of the paper is a perspective on the issues in start-up entrepreneurship. Start-up business models are significantly supported by EU funds and in Slovakia by the Slovak Business Agency. Many of these ideas have become successful products and profitable business forms. Start-ups have earned an irreplaceable place in today's national economy. Many success stories and case studies from beyond Slovakia's borders show that this type of entrepreneurship has the potential to increase foreign investment inflows, strengthen the innovation capacity of the economy, and at the same time can significantly strengthen competitiveness and create new jobs in special sectors with high added value.

Authors consider that the most important thing is to get entrepreneurial business environment, and the regulatory framework in the field of innovation support and entrepreneurship education. All these aspects are basic prerequisites for the further development of this type of business, that is, a segment of mostly micro-enterprises. The authors decided to look for and specify the reasons that led start-up units to create their own mobile applications and their use in modern forms of marketing communication.

## **Literature review**

The experience of many foreign and domestic companies indicates a significant impact of digitalization on sales activities. Digital methods of processing and using information are a major source of efficiency and effectiveness of these activities (Rourke, 2018, p. 133). The challenges of modern globalization contribute to the rapid implementation of the latest innovative capabilities of the digital world. It is also due to the ongoing digitalization that the field of marketing communication is evolving rapidly. (Verhoef et al., 2021, p. 889). In this context, modern digital

marketing communication has established itself as an ever-growing part of marketing firms (Schubach and Schumann, 2020, p. 469, Santosh and Patil, 2020, p.13). In addition, the use of multi-channel marketing activities is important to stay competitive (Li et al., 2017, p.42) as well as the ability of digital agility in marketing communication (Verhoef et al., 2021, p. 890).

There is a clearly entrenched view of traditional marketing and its potential to use communication tools. With digital tools becoming more prevalent in IMC, consumers can actually experience an increased level of convenience and undeniable speed that brings knowledge, and thus we can make consumers realize the value of communicated goods much faster (Colton, 2018, p. 94).

The Covid-19 pandemic has changed consumer behaviour in every way. This has probably been most reflected in online shopping, with a significant proportion of purchases moving online. The e-commerce sector continues to expect very positive prospects for significant growth. According to research by eMarketer, global spending on online shopping is expected to grow from €3.2 trillion in 2019 to €5.9 trillion in 2023. m-commerce, which is considered one of the fastest growing industries, is gaining a stronger foothold in e-commerce. It is inextricably linked to the growth in consumer purchases using mobile apps. Mobile apps are end-user software applications developed for the smartphone operating system and are able to extend the capabilities of the device by allowing individuals and app providers to complete additional tasks beyond those available on the brand's website (Purcell, Entner, & Henderson, 2010). Often cited as a unique advantage of mobile apps is the ability to be accessed anytime, anywhere, providing consumers with a useful and easy way to shop (Marriott & Williams, 2018, p. 134).

Even with the Covid-19 pandemic currently underway, where the shift in consumer behaviour towards the online space is evident, it appears that mobile shopping has the potential to become a mainstream shopping channel and change consumer habits even more fundamentally. This is due to the fact that consumers are now more dependent on digital devices than ever before. From a marketing perspective, it should be noted that the growth of smartphone devices and the subsequent adoption of mobile apps is changing not only the recalled attitude towards shopping, but also how consumers interact with brands (Fang, 2019, p.337).

## **Methodology**

The main methods of research on start-up businesses were qualitative and quantitative marketing research methods. The questionnaire survey consisted of 812 completed questionnaires. Questions in the survey were related to the focus of business activity, the area of start-up entrepreneurship, the innovativeness of enterprises, The merit questions were addressed to the area of mobile applications, patents, and trademarks (together 17 questions). 10 questions were oriented to the characteristics of surveyed enterprises, region, date of establishment, and identification questions about the respondents, relationship to the enterprise, gender, education, etc. The method of artificial neural networks (ANN) was used to identify influential variables (Fajčíková, 2017, p. 1514). Critical analysis is being used to

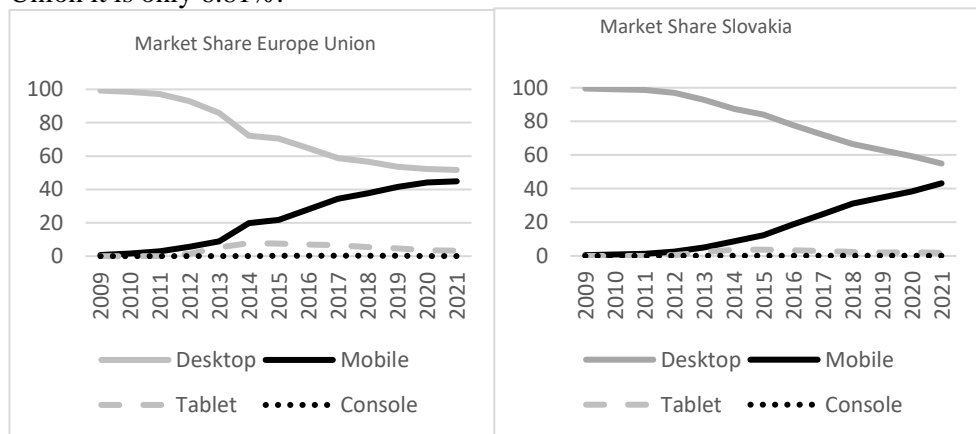
identify specific factors and reasons. We used the SAS statistical program to process the obtained data. The non-parametric method (Stehlíková, 2005, p. 48) was the Kruskal-Wallis test. Distribution of the survey via an online form in Google forms between September 2019 and August 2020. As part of the sub-evaluations of the survey, the authors set the following hypotheses:

H1: The start-up form of business has a significant impact on the reason for creating a mobile app.(Q2-5)

H2: The main reasons for mobile app creation by start-up forms of businesses are mostly for direct communication with the customer. (Q7-10)

## Results

According to the latest data from Statcounter (Fig. 1), it is clear that although most of the Slovak population still connects from desktop devices, currently 54.95% of connections from mobile devices are growing year-on-year and will account for 43.18% of all internet accesses in 2021. Thus, from 2018 to 2021, the number of accesses from a desktop device decreased by 11.49%, and in a comparison mobile access increased by 12.15%. The situation with the change in access is even more pronounced in the case of the entire European Union, where while in Slovakia the difference between desktop and mobile access is 11.77% and within the European Union it is only 6.81%.

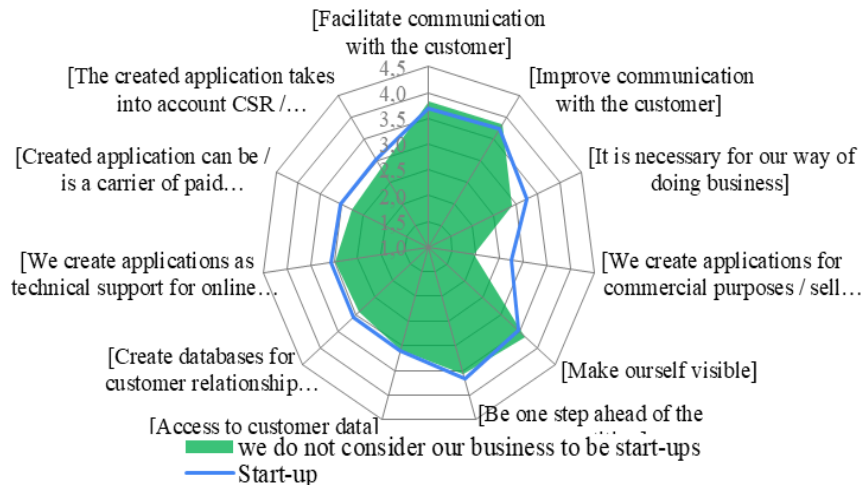


**Figure 1. Desktop vs Mobile vs Tablet vs Console Market share EU and Slovakia**

Sources: own processing according to statcounter

The increase in the use of mobile devices by users not only in Slovakia is forcing businesses to look for solutions to reach consumers at any hour and in any place. This is one of the main reasons why start-ups are focusing, among other things, on creating their own mobile applications. The order of importance of mobile app development does not differ much between businesses that are considered start-ups and those that are not considered start-ups. A marked difference is in the creation of a mobile app for commercial purposes. Start-ups create apps just for commercial

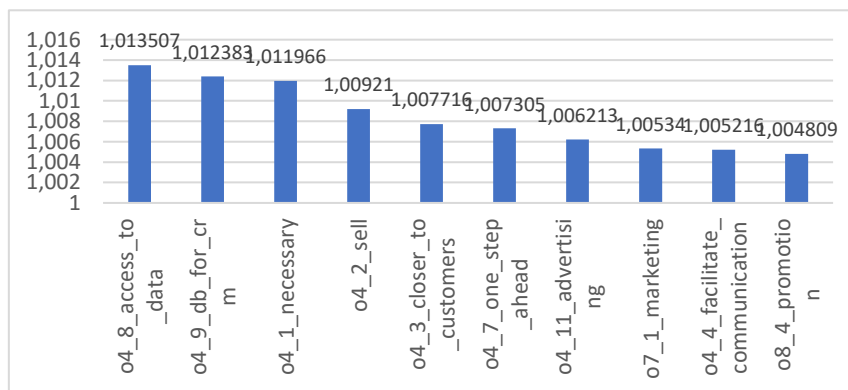
purposes. The most significant reason cited by both groups of businesses was "to be one step ahead of the competition" (Fig.2).



**Figure 2. The reasons for developing the mobile apps**

Sources: own processing according to survey

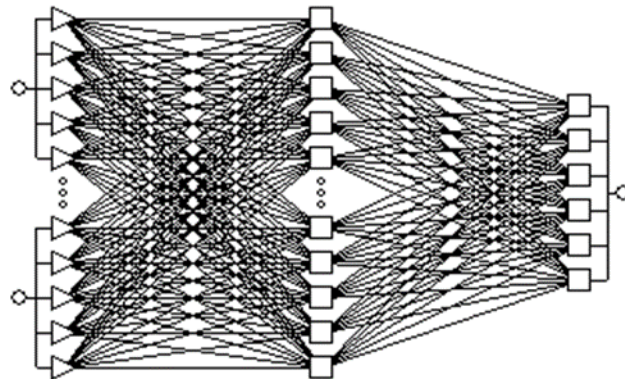
The ANN method was used to test one variable each time with five options. The baseline was the creation of a custom mobile application for businesses that were considered start-ups both currently and in the early days of entrepreneurship. As can be seen from the graph of the 10 highest sensitivities (Fig. 3), we can consider the most significant the possibility of obtaining data from customers through the created mobile application, then the creation of databases for Customer Relationships Management. Sales, being closer to customers. In the third position in sensitivity is the necessity to currently own a mobile application from the enterprise perspective. Tools of direct communication (H1 confirmation) with the customer and impersonal forms of promotion also show high sensitivities.



**Figure 3. The highest sensitivity to the reasons for developing the mobile apps**

Sources: own processing according to survey, ANN

The sixth highest sensitivity is exhibited by trying to stay one step ahead of the competition, followed immediately by advertising, which is consistent with several of the literary transformations we present in the discussion and conclusion.



**Figure 4. ANN, MLP with 80 inputs**

Sources: own processing according to survey, ANN

MLP with 80 inputs represents 1 variable with 5 alternatives, Fig.4 shows simultaneously 12 neurons in the hidden layer where 1 output has 6 alternatives.

## Discussion

Evaluation of stated hypotheses.

We reject H1. By testing the non-parametric Kruskal Wallis test and Two-sample Wilcoxon rank-sum (Mann-Whitney) test of the influence of the variable form of business start-up on the decision to create a custom mobile application. The testing failed to show that the form of business start-up has a significant impact on the creation of a mobile application as a tool for direct communication with the customer. From this point of view, the form of business is irrelevant, direct communication with potential customers through a custom mobile application was a decision made by all the enterprises of the present research. H2 we confirm. As can be seen from the ANN testing, among the 10 variables with the highest sensitivity to the creation of a custom mobile application are several IMC tools that provide a direct form of communication with the consumer. The shift to mobile is so clear and it is only a matter of time before there are more mobile accesses. Mobile apps were initially offered for general utilitarian purposes such as emails, calendars, and weather information (Hsiao et al., 2016, p.343); social networking (Salehan end Negahban, 2013, p.2635), and mobile shopping capabilities (Lu et al., 2017, p.5). Unlike websites, a mobile app can offer a more customized environment and leverages both software and hardware features of the mobile device to provide a unique experience to the consumers i.e., using the camera function to scan barcodes, using GPS features to provide location-specific content, and keeping customers up to date with push notifications.

## Conclusion

The significance of this claim is illustrated by the fact that in 2021, the European Union has created the so-called Digital Compass 2030 (Europe's concept of the Digital Decade), which commits to doubling the number of innovative and emerging 'unicorns' by 2030 (Europe union, 2021). Start-up unicorns are pre-IPO businesses valued at more than USD 1 billion. Just a few years ago, there were only a handful of these companies in the world, and that is why they are referred to as unicorns (Aldrich, & Ruef, 2018, p.20).

The creation of mobile applications as new products has been analysed in terms of the reasons that preceded its creation. From the partial results of the INMARK research task, it is possible to confirm the importance of creating your own mobile application not only for start-up forms of business, but also for other businesses that want to communicate with customers using modern communication tools, so as not to lose the overview and use the mobile application to create customer databases and improve CRM.

Designing a model of innovative approaches in marketing management can help a number of start-ups in their managerial decision-making and marketing management. Start-up entrepreneurship, as in the entire SME segment, can only move forward if it is supported by an appropriate business environment. Barriers to starting a business should be removed as far as possible and regulatory and administrative burdens systematically removed.

As an untapped potential for business development of young talents, start-up and innovation potential of the country's economy, we also see insufficient activities and efforts to continuously and systematically link academic research with real needs of the private sector. In line with the findings as well as demonstrable statistical analyses, we can conclude that in start-up and innovative businesses, enterprise mobile apps play a very important role in the modern marketing communication.

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