THE ROLE OF DIGITAL (SOCIAL) MEDIA IN THE MANAGEMENT OF INNOVATION PROJECTS AT THE COMPANY AND SELF-EMPLOYMENT LEVELS

ABSTRACT

The study of the impact of digital social media on the development of entrepreneurial innovation projects of different levels is topical. The aim of the study was to create a conceptual approach to assessing the impact of digital social media on innovative business development, regardless of the legal form of organization. Therefore, a new concept of mediatization was identified in the course of the research, which describes the role of different digital media as part of the process of communicative construction of the economic, social and cultural environment. The research involved the methodology for data analysis from an empirical context. The start-up incubator — Neudali, Germany — was the practical background of the research. The research sample included all start-ups (innovative projects) that were launched in 2017-2020 (3,426 projects), regardless of whether they continue as start-ups or have already entered the serial production stage. The research objective was fulfilled through the methods and tools of economic and statistical analysis, forecasting and business simulation. Studies have confirmed that the legal form of organization does not affect the project’s success, but only the assessment of information effects (mediatization effect) does, which includes all forms of communication in social networks (R2=0.8 for companies and R2=0.6 for self-employed persons). In theoretical terms, this study has bridged the gap in the literature regarding the lack of research on the role of social media in the innovation potential of both companies and self-employed individuals. In practical terms, this research has implications for various stakeholders, primarily businesses, academics and consumers.

Keywords: Innovative development, legal forms of organization, social media, start-up

JEL Classification: L22, O35

INTRODUCTION

Digital transformation and the development of Internet technologies actively affect modern business, necessitating the review of traditional models of managing innovative development and strategies. Every year, companies pay more and more attention to the use of social media to manage innovative projects. At the same time, digital business platforms, forms of organization of self-employed persons are changing and transforming, and the business itself is also changing — it is becoming more dynamic, open and socially oriented.

In general, digital (social) media are a separate type of mass communication in the Internet space and, while determining the main trends in the perception of modern problems and the priorities of public opinion regarding them. New trends of saturation of the media with social values, as well as the transition of the communication space to the globalization platform, as well as all processes that change society and the economy, provide for the development of new mass media formats, diversify the information sources and create prerequisites for the emergence of new forms of communication between Internet users.

Digital transformation, or the use of digital technologies, is an increasingly common strategic initiative for many businesses today to dramatically improve operational efficiency or capture market share. High competition, rapid development of technology and...
pressure from consumers force entrepreneurs to work, promote and produce with more agility and creativity than ever before, to implement digital innovations in all areas to achieve success [1]. The use of social networks is one of the powerful ways to accelerate digital transformation.

Management of innovative project activity is a rather important component in the structure of business strategies of many industries in different regions of the world. Using social media to increase brand relevance and awareness is not a new concept. The percentage of companies that use social media to develop their business is almost 76%, indicating that companies are well aware of its positive impact on business growth and consumer engagement [2]. Digital media products most often include social networks (or platforms), video streaming platforms, messaging apps for mobile users, mini-apps for mobile devices, shopping services, express delivery, and other services [3].

The aim of this study was to study whether the use of (digital) social media affects the business activity of entrepreneurs and self-employed persons in terms of implementing start-ups or other types of innovative activities. The aim involved the following research objectives:

- determine differences in development depending on the type of legal form of organization;
- confirm the relationship between the use of social media and the effectiveness of the innovative project implementation in the business activities of entrepreneurs and self-employed persons.

LITERATURE REVIEW

Although social media is a tool widely used in marketing, more than 20% of entrepreneurs do not know how social media can be used to increase the overall growth of their business. At the same time, 90% of consumers use social networks for direct communications with their favorite brands, which is a powerful impetus for entrepreneurs to understand their own opportunities available to improve customer support through digital social media [2].

Scientists [4] define digital social media as online social networking platforms for entrepreneurs or self-employed persons to communicate with others, find potential investors, develop their professional activities, improve themselves, etc. Authors [5, 6] state that digital social media enable entrepreneurs to gain knowledge about customers or new business opportunities, mobilize resources to develop their businesses, and manage customer relationships [7]. Authors [8] add that social media allows entrepreneurs to effectively manage their online relationships and strengthen offline relationships.

Despite a great number of studies on the impact of social media on the start-up stage and during the functioning of an entrepreneurial business initiative, there is an opinion that social media significantly harms start-ups by spreading false, inaccurate or even falsified information that may not benefit its users [9]. On the other hand, network activity allows businesses to manage social sentiment, build consumer loyalty, and increase brand value [10]. So, “it becomes unthinkable to be absent from social networks” [9]. Scientists [9] also note that this is proved by the record growth of platforms such as Facebook, Instagram, Twitter or WhatsApp, which reach billions of users.

At the same time, the forms of self-employment of individuals are changing as a result of the development of digital media, and new forms of work are emerging. For example, COVID-19 created the background for the development of Internet technologies in times of teleworking. Some companies have switched to teleworking permanently. Author [11] believes that self-reflection, communication and interaction with other entrepreneurs are the main drivers of business identity development. Besides, people who become entrepreneurs experience themselves as acting ethical subjects [10], often driven by their passions and inspired by the social context of entrepreneurship [12].

We should note the distinction between the concepts of “entrepreneur” (owner or manager of an enterprise) and “self-employed person”, which are the objects of research, should be defined. From an economic point of view, an entrepreneur is an individual who creates and/or invests in one or more businesses, bears most of the risks and receives most of the repayments. The process of creating a business is known as entrepreneurship. An entrepreneur is usually considered as an innovator, a source of new ideas, products, services and business in general [12].

Other definitions describe entrepreneurship as the process of developing, starting, and running a new business, or as “the ability and willingness to develop, organize, and manage a business, along with any of its risks, in order to make a profit” [13]. People who create these businesses are called entrepreneurs [14]. At that time, authors [15] emphasize that the term “entrepreneur” is used to refer to an entity that has the ability to transform inventions or technologies into innovative products and services. In this sense, entrepreneurship is characterized by an innovative approach to business processes [12].
On the other hand, scientists [13] define self-employment as one of the forms of employment, which involves the independent organization of one's own labour, the independent disposal of benefits from this activity and bearing of all associated risks. Self-employed people are usually classified as private entrepreneurs, independent contractors, or members of partnerships [14].

As a rule, self-employed people provide themselves with a job rather than an entrepreneur or employer, and receive income from the profession, trade or business they run. Self-employment involves work primarily for the business founder (entrepreneur). Therefore, the term "entrepreneurship" refers to all enterprises, including self-employment and enterprises that are founded by a group of individuals or are part of holdings or corporations [12].

Digital (social) media are actively used in innovation management. So, companies that use modern technologies in their activities and have sustainable development goals work with audiences on social networks, run blogging platforms, work in geosocial services, and multimedia hosting (Youtube, Pisaca, etc.) in order to manage the majority of innovative projects. The use of these tools contributes to the improvement of the efficiency of the implementation of innovative projects and the growth of profits in general [16, 17]. Scientist [18] calls for a clear theorization of concepts related to digital technologies that help explore how these digital (media) technologies transform the nature of entrepreneurial processes and results, as well as how entrepreneurs act.

In their works, authors [19, 20] dealt with the innovative projects implemented through social media. The researchers believe that it is possible to attract additional funds for the implementation of start-ups [20], most often socially oriented, with the help of methods of influencing the opinion of society, through fundraising and crowdfunding [19].

The study of the influence of digital social media on the development of entrepreneurial start-ups of various levels is topical. Therefore, a new concept of mediatization was identified in the course of the study, which describes the role of various digital media as part of the process of communicative construction of the economic, social and cultural environment [17]. Therefore, the comprehensive development of support for enterprises and self-employed persons in using start-ups through social media and digital media technologies is the main principle of mediatization. Authors [5] defined the concept of mediatization as a reflective social process in which entrepreneurs use digital media platforms and networked media to communicate with each other, thus creating and sustaining an innovative reality [16]. Digital social media are more than specific information content channels: they include platforms that have literally become spaces for many people to engage in social and professional communication [7]. That is, media have become tools, channels, platforms, and strategies for obtaining, producing, and sharing knowledge through communication and interaction [10]. Digital mass media can not only give us the opportunity to communicate, work, and receive information and specific knowledge, they provide opportunities to act and interact in the modern world through communication [21]. Businesses use social networks as an important tool to influence consumer attitudes and behavior. Interaction occurs in social media-based brand communities because community members control over the sharing and dissemination of information that shapes brand images. For example, Burberry Group Inc., a London-based luxury fashion brand, relies heavily on social media to reach all of its customers and fans. In 2011, Burberry spent more than 60% of its marketing budget on digital media and increased this figure to 82% in 2020 [22]. Social media have huge potential for the digital transformation of businesses from the inside, which can improve customer service, inform about new digital growth strategies, and build trust among B2B and B2C audiences, as well as develop prospects for future sales [17].

In view of the foregoing, the main hypothesis of this study was advanced: mediatization, that is, the wide application of digital media technologies has a positive effect on the efficiency of innovative activities of companies and self-employed persons.

METHODS

The research involved the methodology for data analysis from an empirical context. The practical background of the research was the Neudali start-up incubator at the Bauhaus University in Weimar, Germany. The data comprise observations for 2017-2020, as well as interviews (Appendix A) with 3 founders and 26 consultants on the development of start-ups for both companies and self-employed persons, which were identified as having a strategic advantage because of the use of digital media. The interviews were oral and did not have a clear structure of questions, but 3 groups of respondents were formed based on the survey results. The research sample included all start-ups (innovative projects) that were launched in 2017-2020 (3,426 projects), regardless of whether they continue as start-ups or have already entered the serial production stage.
Figure 1 presents a research design developed to study the role of digital social media in the management of innovative projects for companies and self-employed persons.

The research objectives were fulfilled through the methods and tools of economic and statistical analysis, forecasting and business simulation:

- statistical data analysis methods – for analysing the state of the market of media technologies and digital services; data of web portals that provide start-up development services to companies and self-employed persons;
- forecasting — for drawing preliminary conclusions about the directions and prospects for the development of innovative project management strategies based on digital (social) media technologies;
- business simulation — for developing a universal model of innovative project management based on digital (social) media technologies for both the company and the self-employed person.

Digital (social) media products

Communicative:
Social networks (for example, Facebook, Instagram, Twitter and LinkedIn), review websites, forums and messengers (WhatsApp, etc.)

Information:
Blogs, news portals, online magazines

Business of all levels (company or self-employed person)

Stage I
Formation and analysis of the information obtained

Stage II
Assessment of information effects (mediatization effect)

Stage III
Mathematical verification of research hypotheses

Stage IV
Analysis of interviews of research participants

Stage V
Drawing research conclusions

Figure 1. Research design to study the influence of digital (social) media on the effectiveness of management of innovative business projects.

The information effects (mediatization effect) were assessed through the Pareto Efficiency formula 1:

\[ f(x) = \left\{ \begin{array}{ll}
\frac{a_{\min}^n}{x^{n+1}}, & x \geq \min \\
0, & x < \min 
\end{array} \right. \]

(1)

Where the variable \( x \) – the number of reactions to a publication in the media.

At the same time, the Pareto distribution has a finite value at the minimum \( x \) and monotonically decreases as \( x \) increases. All types of economic and statistical analysis, as well as elements of forecasting, are performed using the AnyLogic tools. The initial data for analysis and building graphs were formed in Microsoft Excel.
RESULTS

There is no consensus in the global business community on the advantages of big business over self-employed persons. According to the Organization for Economic Cooperation and Development, there is no clear economic dependence in the world between the legal form of organization and income (Figure 2).

The data shown in Figure 2 should be further adjusted by the COVID-19 statistics, as 2020 was a peak year in terms of the impact on business across all industries and forms of ownership. In general, the data obtained show that the income does not depend on the legal form of the organization, although it has some regional features. For example, Colombia (51%) is the leader in the number of self-employed persons in the country, while the largest number of companies among all legal forms of organization is registered in Canada (92%).

Figure 3 shows the distribution of income shown on the cluster diagram.
The data presented in the figure indicate that the income of the companies in the selected countries totaled USD 65-95 million, while self-employed persons received USD 8-35 million. The primary reason is the type of activity because self-employed persons are primarily involved in those areas of the economy which provide for the individual provision of customer needs, such as consulting, trade or the service sector. The availability of staff, materials and technical resources allow the companies to cover a wider range of orders.

Innovation is crucial in obtaining a competitive advantage in any business, regardless of the legal form of organization. Social media provides businesses with a new platform to drive innovation as consumers become increasingly involved in the entire innovation process through digital technologies, as they perceive social media as a resource for innovation and new product development and a tool for developing customer ideas, accessing knowledge, co-creating ideas and concepts with users and support for new product launches.

The Neudali business incubator chosen for the study is a full-cycle incubator that provides services for the development of start-up projects, as well as provides further support and attracts investment in innovative companies. In general, about 90% of the firms included in the business incubator deal with the use of high technologies and innovations. The structure of innovative business projects of the incubator for 2017-2020 is as follows (Figure 4). The total number of completed start-ups during this period was 3,426 projects.

![Figure 4. Structure of completed innovative projects in the Neudali incubator for 2017-2020.](image)

Information about each of the start-ups is covered by developers in social networks, helping to invest in the development of innovations through crowdfunding and crowdsourcing. Research has confirmed that the legal form of organization does not affect the project’s success. It is affected by the assessment of information effects (mediatization effect), which includes all forms of communication in social networks (Table 1).

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>R</th>
<th>R²</th>
<th>t</th>
</tr>
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<tbody>
<tr>
<td>Mediatization has a positive effect on the efficiency of innovative activities of companies</td>
<td>0.433</td>
<td>0.811</td>
<td>0.038</td>
</tr>
<tr>
<td>Mediatization has a positive effect on the effectiveness of innovative activities of self-employed persons</td>
<td>0.241</td>
<td>0.599</td>
<td>0.027</td>
</tr>
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Therefore, the value of R² for companies was 0.8, which indicates that the regression model is valid. The significance level was <0.05; so, the null hypothesis was rejected. Accordingly, we concluded that social network platforms have a significant impact on start-ups, ensuring the development of companies’ innovative projects. The R² value for the self-employed was 0.6, which means that the model accounts for 60% of the variance in the dependent variable. The significance level for this model was <0.05; thus, the null hypothesis was also rejected in this case. Accordingly, it was concluded that mediatization, that is the wide use of digital social networks, has a positive effect on the innovative development of both companies and self-employed persons (Figure 5).
Three groups of potential business development were formed based on the results of interviews with 26 founders and 3 consultants on the development of start-ups for both companies and self-employed persons, whose strategic advantage was noted through the use of digital media:

- I – Mediatization contributes more to the development of innovative projects of companies;
- II – Mediatization contributes more to the development of innovative projects of self-employed persons;
- III – Mediatization contributes to the development of innovative projects regardless of the legal form of organization.

A correlation test was conducted to reveal the relationship between the development of a company or a self-employed person and informational effects on social media (Table 2).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mediatization contributes more to the development of innovative projects of companies</th>
<th>Mediatization contributes more to the development of innovative projects of self-employed person</th>
<th>Mediatization contributes to the development of innovative projects regardless of the legal form of organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mediatization contributes more to the development of innovative projects of companies</td>
<td>1</td>
<td>0.222</td>
<td>0.212</td>
</tr>
<tr>
<td>Mediatization contributes more to the development of innovative projects of self-employed person</td>
<td>0.034</td>
<td>1</td>
<td>0.294</td>
</tr>
<tr>
<td>Mediatization contributes to the development of innovative projects regardless of the legal form of organization</td>
<td>0.414</td>
<td>0.321</td>
<td>1</td>
</tr>
</tbody>
</table>

The test results revealed a positive correlation between business development and innovation, as well as between innovation and social networking websites. Interviewees confirmed that social media help those business initiatives, regardless of the legal form of organization, that have a dynamic entrepreneurial spirit, to succeed. Social media play an important role in the digital ecosystem and the implementation of global business strategies. Media resources help users to express their ideas and thoughts, as well as exchange connections on the platform and expand their base through mutual contacts. Besides, these platforms enable businesses to communicate with stakeholders, including other businesses, government agencies, and consumers.
DISCUSSION

The literature review of theoretical approaches to the study of the impact of digital social media in the management of innovative projects of companies and self-employed persons showed that almost all researchers [3, 5, 6] note the positive impact of media resources on innovative business development. For example, social media is increasingly being used as an important digital platform for establishing and developing connections that influence entrepreneurial innovation [3]. Besides, social media platforms such as Facebook and Twitter provide a digital space where a business can share achievements, participate in professional networks, and engage in microblogging [16]. This activity directly affects companies’ innovation. In support of this view, the study found a direct correlation between mediatization and innovation rates, thus confirming Voorveld’s [17] opinion that digital platforms increase company performance.

However, the opinion of authors [6] that there are also some disadvantages of using social networks, such as the loss of potential customers because of delayed responses to their comments, cannot be rejected. Social media create knowledge-sharing platforms, which, in turn, enhance the innovative potential of their users [9]. This is consistent with the point of view of Neuman, one of the founders of the incubator chosen as the object of this study, who said that “the use of social media in business will create innovative ideas for the company.”

Neuman also noted that “the use of social media should be defined in terms of identifying ways to find out whether we have benefited from its use.” In fact, this point of view is consistent with Chaffey’s [11] statement that one must consider how consumer response to a company’s presence on social media is measured in order to achieve the desired effect of social media on organizational performance. Besides, companies should use the indicators to measure the return on investment in using social media.

At the same time, the current lack of a common opinion about the effectiveness of a specific approach or methodology for assessing the impact of the use of digital (social) media technologies on the performance indicators of investment projects is obvious. On the other hand, it makes the research more unique and emphasizes scientific novelty. This is why it was proposed to use the concept of mediatization in the course of the research in order to assess the influence of digital social media on the innovative activities of companies and self-employed persons [23].

Digital transformation results in real changes in approaches to the use of digital (social) media in business — the development of new management models and diversification of innovative projects. Digital technologies are changing not only the principles of managing innovative projects but also the consumers’ ideas about how media should work [24]. In view of the lack of consensus on the approach or method for evaluating the effectiveness of digital (social) media in the management of innovative projects, it can be concluded that the proposed model is quite universal and is proposed for use in further research related to the study of the role of digital (social) media in the management of innovative projects.

CONCLUSIONS

The results demonstrate that innovative social media websites have a positive impact on the performance of both companies and self-employed persons. Therefore, it is extremely important to use various types of digital social media for the development of innovative business projects. The conducted research established a direct relationship between the use of digital (social) media technologies and the effectiveness of innovative projects regardless of the legal form of organization (R2=0.8 for companies and R2=0.6 for self-employed persons).

This study has theoretical and practical significance. In theoretical terms, this research has bridged a gap in the literature regarding the lack of research on the role of social media in the innovation potential of both companies and self-employed persons. In practical terms, this research is significant for various stakeholders, primarily companies, academics and consumers. Understanding the role of social media and its two-way impact on existing and potential customers by companies urges the creation of a development concept that recognizes the impact of social media on their performance. This is why a new mediatization concept was identified in the course of the research, which describes the role of various digital media in the process of communicative construction of the economic, social and cultural environment. Therefore, comprehensive development of support for companies and self-employed persons in using start-ups through social media and digital media technologies was determined as the main principle of mediatization.

Social networks are a tool for customers to express satisfaction/dissatisfaction with the product(s) of a particular company. This extension of opportunities puts businesses under greater direct customers’ scrutiny, who can use their comments to evaluate the company’s performance. In their turn, the companies can use customer feedback to improve their operations.
Further research may be related to the assessment of the impact of digital media transformations and digitalization on the effectiveness of the main business processes in the company.

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РОЛЬ ЦИФРОВИХ (СОЦІАЛЬНИХ) МЕДІА В УПРАВЛІННІ ІННОВАЦІЙНИМ ПРОЄКТАМИ НА РІВНІ ПІДПРИЄМСТВА ТА САМОЗАЙНЯТИХ ОСІБ

Дослідження впливу цифрових соціальних медіа на розвиток підприємницьких інноваційних проектів різного рівня має важливе значення. Метою праці було створення концептуального підходу до оцінки впливу цифрових соціальних медіа на розвиток інноваційного бізнесу, незалежно від організаційно-правової форми. Тому в ході дослідження було виділено нову концепцію медіатизації, яка описує роль різних цифрових медіа як частини процесу комунікативного конструювання економічного, соціального та культурного середовища. Дослідження включало методологію аналізу даних з емпіричного контексту. Практичною основою дослідження став стартап-інкубатор – Нойдалі, Німеччина. До вибірки дослідження ввійшли всі стартапи (інноваційні проекти), які були запущені в 2017-2020 роках (3426 проектів), незалежно від того, чи продовжують вони працювати як стартапи, чи вже вийшли на стадію серійного виробництва. Завдання дослідження вирішувалась за допомогою методів та засобів економіко-статистичного аналізу, прогнозування й бізнес-симуляції. Дослідження підтвердили, що на успішність проекту не впливає організаційно-правова форма, а лише оцінка інформаційних ефектів (ефект медіатизації), яка включає всі форми спілкування в соціальних мережах (R2=0,8 для компаній і R2=0,6 для самозайнятих осіб). У теоретичному плані це дослідження подолало прогалину в літературі щодо відсутності досліджень ролі соціальних медіа в інноваційному потенціалі і компаній, і самозайнятих осіб. У практичному плані це дослідження має наслідки для різних зацікавлених сторін, насамперед для бізнесу, науковців і споживачів.

Ключові слова: інноваційний розвиток, організаційно-правові форми, соціальні медіа, стартап

JEL Класифікація: L22, O35


