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THE IMPACT OF INTERNET ACCESS ON ECONOMIC DEVELOPMENT

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Abstract. This paper seeks to conduct a thorough examination and gain a comprehensive understanding of how Internet access influences economic development. The primary focus is on discerning the crucial factors that drive this impact, exploring the challenges involved, and identifying potential opportunities that arise from the intersection of Internet accessibility and economic progress. The present research is based on a review of the academic literature in the field, examining the positions of various authors in the field and, at the same time, analyzing statistical data in the field. The paper also examines the role of the internet in business, highlighting its importance for global reach, cost-effective campaigns, targeted communications and informed decision-making. It also analyses the development of Internet access in Moldova and presents statistics on broadband penetration and its uneven growth. Through this study, we aim to contribute to a valuable exploration of the complex relationship between internet access and economic development and shed light on trends, challenges and opportunities in the digital age.

Keywords: *digitalization, digital economy, innovation, entrepreneurship, business application*

JEL code *O31, O36*

Introduction

Internet access plays an important role in economic development and has transformative consequences for society, companies and individuals. Internet connectivity facilitates global connectivity, allowing companies and individuals to communicate, collaborate and do business worldwide. On a business level, it also provides tools and platforms that increase productivity, efficiency and innovation. Companies can rationalize their operations, access information in real time and use digital technologies to increase productivity.

This article conducts a comprehensive analysis to understand the multifaceted impact of Internet access on economic development. With a specific emphasis on identifying pivotal drivers, addressing challenges, and exploring opportunities, the paper aims to contribute valuable insights into the intricate relationship between Internet accessibility and economic progress.

On the one hand, the need for internet access and its many advantages are clearly visible, some of which are seen as absolutely natural and minimally necessary, but on the other hand internet access brings with it many challenges, such as: digital disparities, inadequate technical infrastructure, poor digital skills of people who are going to use the internet resource efficiently, cyber security, ensuring personal data protection and finally the emergence of severe digital addictions.

Literature review

As a key instrument for promoting economic development and social progress, internet technology is extending its influence across a range of digital technologies. Digital transformation is taking hold in a variety of sectors, using internet information flows to facilitate capital flows, improve production efficiency and refine business models [1].

The literature shows that Information and Communication Technology (ICT), in particular Internet connectivity, is an engine of economic growth at national, regional and rural levels. Without business applications, Internet connectivity has little impact on economic growth [2]. In essence, it underscores the idea that the transformative potential of the Internet on economic development is fully realized when coupled with purposeful and impactful business uses. The synergy between

Internet connectivity and business applications becomes the key driver in unlocking the substantial benefits and contributing significantly to overall economic growth.

According to Yang in his paper based on conceptual modeling of Internet of Things (IoT) networks in a big data-driven business ecology model, 47.5% of embedded companies have started to update their business ecology model to help companies make better decisions and plan. Formal modelling and specifications should be used to incorporate IoT into business model innovation programs to ensure that IoT is considered in overall business planning and decision-making strategy at all levels [3].

By focusing on the importance of updating the corporate environmental model and using formal modelling techniques, companies can improve their ability to make informed decisions and strategic plans in the rapidly changing environment of IoT networks.

Business process management (BPM) is an essential method for standardised and systematic management in the context of the Industrial Internet, in particular the Internet of Things (IIoT). With the rapid development of the mobile internet and the increasing amount of data generated by IoT devices, traditional data storage systems are no longer adequate to manage the data of mobile IIoT enterprises [4].

The Internet offers organisations opportunities to develop their business in an efficient and practical way. This means that the Internet can be used to conduct marketing research, find new markets, serve customers better, distribute products faster, solve customer problems and communicate more effectively with business partners [5]. The benefits of internet marketing include better information exchange, new products and services for customers, improved accessibility and market transparency.

On the other hand, online marketing aims to advertise goods using online platforms accessible through the internet, such as social networks, websites, blogs, online adverts, and the like. The global growth in the number of internet users is a potential market that SMEs should maximally utilize to sell their products [6]. Internet access is the cornerstone of modern marketing strategies, offering unrivalled opportunities for global reach, cost-effective campaigns, targeted communications and data-driven decision-making. Companies that harness the power of the Internet can create a strong online presence, connect with their audience and thrive in the digital landscape.

Combining the power of the Internet with education unquestionably represents the future of educational methods. It not only provides a pathway for educational institutions but also serves as a strategic direction for overcoming challenges, especially in the midst of the epidemic. By leveraging digitization, financialization, and integration, education enterprises can harness the full potential of the synergy between the 'Internet' and 'education' [1].

As revealed by the fieldwork conducted by the researchers (Javier Valentin-Sibico, Casey Canfield, Sarah A. Lowe and Kristel Golnick), the participants were primarily motivated to derive quality-of-life benefits from the Internet, rather than to obtain impact measures related to employment, education and health [7].

Statistical data on the evolution of Internet access in the Republic of Moldova

In the contemporary digital era, the development of internet connectivity has become a key indicator of a country's technological development and societal change. Located in Eastern Europe, Moldova has experienced a dynamic connectivity journey that has shaped the landscape of communication, commerce and education.

This study examines the statistics on the development of internet connectivity in Moldova and provides a comprehensive overview of trends, challenges and opportunities. The integration of digital technologies has contributed to the transformation of the socio-economic fabric of the country, affecting different aspects of everyday life.

This study presents the statistical nuances over the last 10 years to today's growing connectivity landscape that define Moldova's digital journey. By examining key parameters such as broadband penetration, mobile connectivity and digital inclusion initiatives, we aim to create a vivid picture of how Moldova has embraced the digital age.

The following figure shows statistical data on the evolution of internet access in the Republic of Moldova.

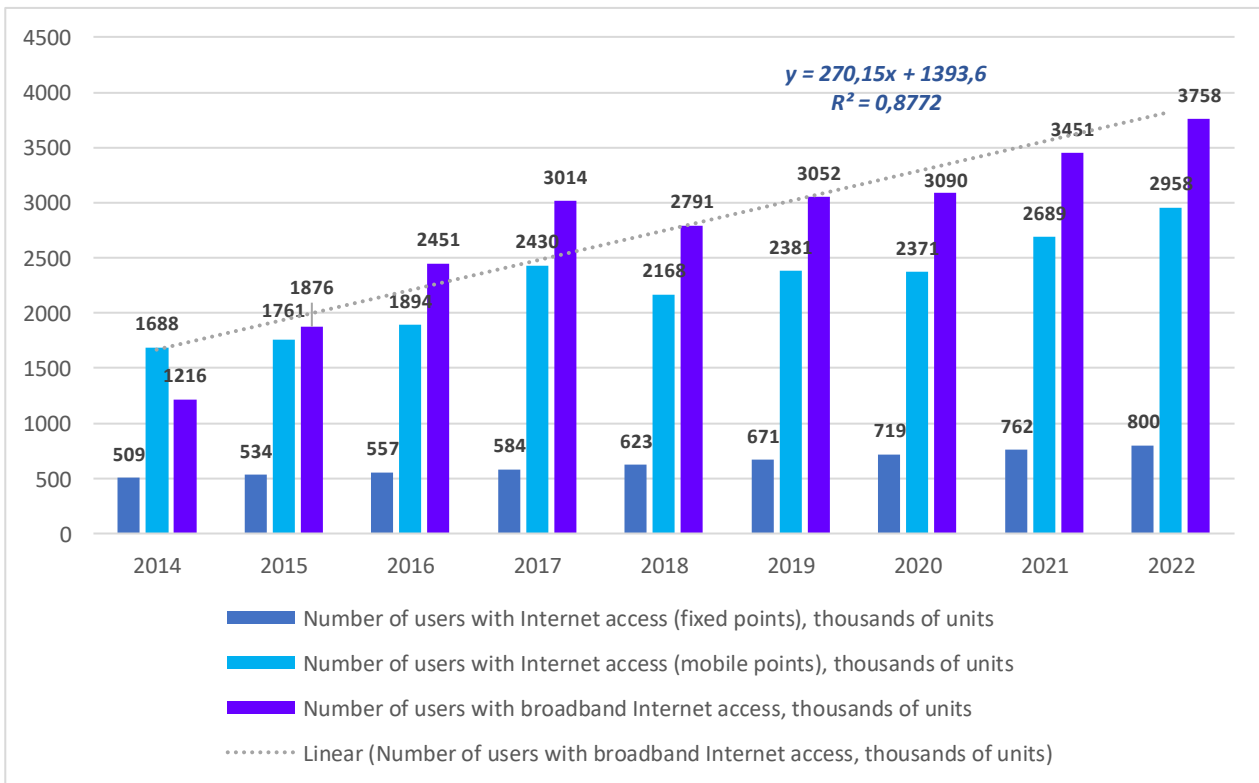


Figure 1. Evolution of indicators reflecting internet access in the Republic of Moldova in the period 2014-2022

Sources: Elaborated by the authors based on data from the National Bureau of Statistics of the Republic of Moldova [8]

Broadband internet access is essential for high-speed and reliable connectivity. This indicator reflects the number of people who have access to fast internet connections, which is essential for activities such as video streaming, online education and advanced communication.

During the reporting period, the number of users with broadband internet access in the Republic of Moldova increased from 2197 thousand units in 2014 to 3758 thousand units in 2022, an increase of about 71.05%, and this increase is substantial. Analysing the chain variation of this indicator, it can be concluded that the number of users with broadband Internet access in the Republic of Moldova is growing very unevenly every year. The largest increase in this indicator occurred in 2017, growing by 22.97% over the previous year, while the following year saw a decrease in the indicator by 7.4%. In 2020, the year when the COVID-19 pandemic was triggered, the number of users with broadband internet access in the Republic of Moldova increased by only 1.25% compared to the level of the previous year, in the following two years this increase was about 10%. Positively, it is estimated that the number of users with broadband Internet access does not decrease in one year. As the trend line equation presented in the figure above shows, annually the number of users with broadband internet access in the Republic of Moldova increases by about 270 users. An increase in the number of users with broadband access signals an improvement in digital infrastructure and technological capabilities. This is vital for stimulating innovation, supporting businesses and improving the overall quality of online services.

However, users with broadband internet access can also access the internet via fixed and mobile locations. The number of people using fixed Internet access is the number of people who access the Internet at fixed points, such as at home or in the office. This reflects the country's level of infrastructure development, as fixed points are usually fixed connections such as broadband or DSL. Between 2014 and 2022, the number of users accessing the internet through fixed points increased

from 509 to 800,000, an increase of more than 57%. The number of users with Internet access via fixed points will increase by 4.32-7.70% per year. The steady increase in the number of fixed internet users is an indication of the growth of infrastructure and better connectivity. This can bring many societal benefits such as better communication, access to information, education and employment opportunities.

In terms of the number of users accessing the internet via mobile hotspots, this indicator shows how many people use the internet via mobile devices such as smartphones or tablets. Mobile internet access is often associated with flexibility, convenience and the ability to connect from anywhere. According to statistics from the National Bureau of Statistics, the number of users accessing the internet via mobile hotspots is growing quite strongly, with an increase from 1,688 to 2,958 thousand users in the period 2014-2022, i.e. by more than 75%. During the period under review, there are two years in which the number of users accessing the internet via mobile hotspots decreases compared to the previous year, while in the following years the number of users accessing the internet via mobile hotspots increases to a much higher extent, covering a slight overall decrease and ensuring an overall increasing trend. The significant increase in the number of mobile internet users shows that people are increasingly using mobile technologies to communicate, search for information and for other online activities. This can have a positive impact on economic activity, e-commerce and digital inclusion in general.

It is obvious that different devices can be used to browse the internet and this differs from user to user, the main devices being the desktop computer, laptop or mobile phone. If we are talking about internet use at work, then in most cases the device used is the computer. The following figure reflects the evolution of the total number of personal computers owned by legal entities in the Republic of Moldova in the period 2014 – 2022.

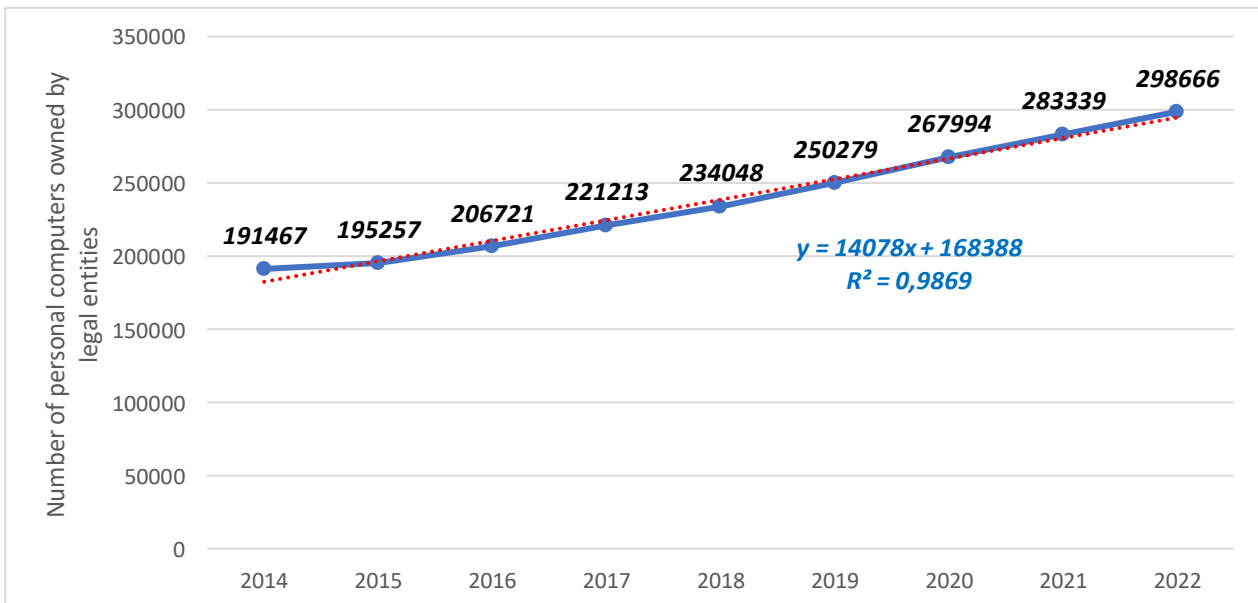


Figure 2. Evolution of the total number of personal computers owned by legal entities in the Republic of Moldova in the period 2014-2022

Sources: Elaborated by the authors based on data from the National Bureau of Statistics of the Republic of Moldova [8]

A general upward trend in the total number of computers owned by legal persons in the Republic of Moldova is observed between 2014 and 2022. In particular, the number of PCs will increase steadily in the later years (2020-2022), reflecting continued demand and technology uptake in the business sector. The continued growth of this indicator may reflect the general trend towards digitization of businesses and the adoption of IT for efficiency and growth. The trend in the total number of PCs owned by legal entities is influenced by technological developments and increased

demand for IT solutions in a changing economic and business environment. Given the continuous growth, this trend may continue in the future, in particular in the context of the increasing reliance on technology in the business environment. Companies can view these investments in PCs as a strategy to increase operational efficiency, improve processes and remain competitive in the market. This growth underlines the continued importance of digitization in businesses, where technology adoption is increasingly necessary to adapt to market changes.

It is clear from the statistics that access to the internet is not just a technical measure, but also a catalyst for social development. Access to information, online services and global networks affects education, economic participation and civic participation. Understanding the statistical dynamics of internet access in Republic of Moldova will provide valuable insights into the country's technological infrastructure, resilience and readiness to meet the challenges and opportunities of the digital future.

The following figure reflects the main directions of impact of increased internet access at country or society level.

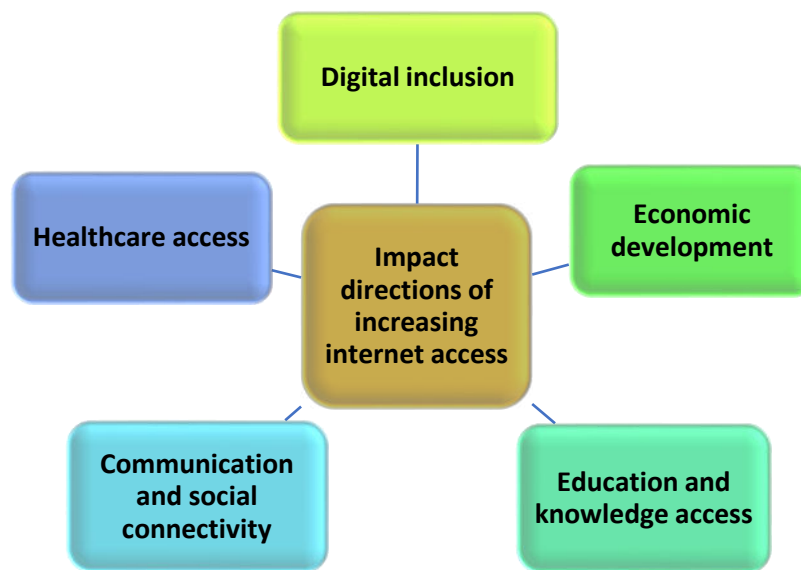


Figure 2. The main directions of impact of increased internet access at country or society level in developing countries

Access to the internet has a major impact on digital inclusion at national level, as it bridges gaps in information, communication and opportunities. Internet access provides citizens with easy access to a wide range of information, enabling them to stay informed on topics ranging from news and education to health and government services. Digital inclusion allows individuals to learn about different perspectives, fostering a more informed and empowered population.

The growth in the number of internet users, both fixed and mobile, highlights the increasingly important role of the internet for communication and social connections, fostering participation and civic engagement. The Internet serves as a platform for communication and collaboration, bringing together people across geographical distances. It fosters a sense of community and facilitates the exchange of ideas, knowledge and cultural understanding. Digital inclusion promotes social cohesion by breaking down communication barriers and creating opportunities for global interaction.

Access to the internet is a key factor in education and the dissemination of knowledge. Internet access is essential for educational purposes, providing students with resources for research, online courses and collaboration with peers and teachers. Evidence shows that more and more people can access educational resources and information online. Digital inclusion in education ensures that people, regardless of their geographical location or socio-economic background, have access to educational materials and opportunities for skills development. Improved access to the internet, in particular through mobile and broadband services, can contribute to economic development by

fostering e-commerce, digital entrepreneurship and remote working opportunities. Internet access plays a key role in economic inclusion by enabling people to work online, engage in business and participate in the digital economy. Digital inclusion enables people to participate in online markets, financial transactions and e-commerce, boosting economic growth and reducing disparities.

Another important strand is that internet connectivity will support digital health initiatives by giving people access to health information, telemedicine services and health monitoring tools. Digital inclusion in health will ensure that people, especially in remote areas, benefit from better health resources and information. The growing number of internet users, both fixed and mobile, underlines the increasingly important role of the internet in communication and social connectivity, fostering community collaboration and participation. The increase in the number of internet users, both fixed and mobile, highlights the growing role of the internet in communication and social connectivity, which fosters collaboration and community participation. The indicators present a positive picture of societal progress and underline the importance of continued investment in digital infrastructure to further improve connectivity and the benefits it brings to people and the economy.

Conclusions and suggestions

The study on the development of internet connectivity over the last decade has revealed important information about the transformative impact on different facets of the social, economic and educational environment. Internet connectivity has become an important indicator of technological development and social change in Moldova. The dynamic development of connectivity has had a profound impact on communication, trade and education and marks an era of change in the country's socio-economic structure. Statistics from the last decade show clear trends, major challenges and promising opportunities. The significant increase in the number of broadband Internet users reflects a marked improvement in digital infrastructure and technological capacity. These improvements are needed to encourage innovation, support businesses and improve the overall quality of online services. The steady increase in fixed and mobile Internet penetration reflects improvements in infrastructure and connectivity, as well as the growing use of mobile technologies by the population. These developments will have a positive impact on economic activity, e-commerce and digital inclusion.

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