https://doi.org/10.52326/mled2025.26

DIGITAL DISPARITIES AMONG ENTERPRISES IN THE REPUBLIC OF MOLDOVA: CURRENT STATE AND DEVELOPMENT PERSPECTIVE

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Adnotare: Acest articol analizează disparitățile digitale spațiale dintre întreprinderile din Republica Moldova. Pe baza datelor de la Biroul Național de Statistică al Republicii Moldova, sunt examinate amploarea și structura investițiilor în TIC, accesul la echipamente informatice și infrastructură web, precum și diferențele spațiale în ceea ce privește nivelul de digitalizare. Rezultatele studiului au relevat o concentrare ridicată a resurselor digitale în municipiul Chișinău și un decalaj sistemic față de alte regiuni ale țării, ceea ce poate spori polarizarea economică și tehnologică. Articolul formulează concluzii cu privire la riscurile asociate cu inegalitatea digitală și prezintă recomandări pentru nivelarea situației prin inițiative regionale specifice, stimularea inovării și dezvoltarea competențelor digitale.

Cuvinte-cheie: decalaj digital, disparități teritoriale, tehnologii ale informației și comunicațiilor, dezvoltare regională.

Abstract: This article analyzes the spatial digital divide among enterprises in the Republic of Moldova. Based on data from the National Bureau of Statistics of the Republic of Moldova, the scale and structure of ICT investments, access to IT equipment and web infrastructure, as well as spatial differences in the level of digitalization are examined. The results of the study revealed a high concentration of digital resources in the Chisinau municipality and a systemic gap compared to other regions of the country, which may increase economic and technological polarization. The article draws conclusions on the risks associated with the digital divide and presents recommendations for leveling the situation through specific regional initiatives, stimulating innovation and developing digital skills.

Keywords: digital divide, territorial disparities, information and communication technologies, regional development.

Introduction

Today, digital technologies are increasingly changing the rules of the game in the economy. For companies, this means one thing: without technological flexibility, it is difficult to maintain positions in the market and continue to develop. This is especially relevant now, when the world is facing increasing challenges, and digital business models are becoming the norm. But it is necessary to understand: digitalization is a heterogeneous process. It does not move in a smooth front, but, on the contrary, amplifies differences. In some places, the infrastructure has already been built, and in others, the digital environment is just beginning to form. This creates a gap between regions, large players and small businesses, the center and the periphery.

If you look at the entrepreneurship situation in Moldova, one thing becomes clear: the picture is uneven. The main flow of investments, resources and business initiatives gravitates towards the capital, Chisinau, where most economic activity is concentrated. But in the regions, the situation is completely different – they often remain on the periphery of attention, with limited opportunities and a lack of support [1].

This situation is especially relevant when it comes to the digital economy. E-commerce has long been more than just a trend — today it is a full-fledged tool for business: it helps to enter new

markets, simplifies processes, and increases efficiency. But it is important to understand: how actively companies use these opportunities depends greatly on the region. In some places there are both the necessary technologies and people who know how to work with them, while in others the digital infrastructure is still at the development stage. This is why the level of e-commerce implementation is so uneven [2].

When businesses have limited financial resources, it is especially important to build a close connection between the scientific and educational environment and real business practice. Such a connection helps not only to generate ideas, but also to transform research into specific digital solutions - especially useful for small and medium-sized businesses in the regions [3].

Against this background, the Internet is no longer just a way of communication. It is becoming a real engine of change: both in the economy and in the field of digital technologies. Especially if its capabilities are combined with business applications - the very ones that help companies work more productively and integrate more deeply into the digital ecosystem [4].

The problem of territorial digital inequality is becoming even more noticeable against the backdrop of the implementation of the Strategy for Digital Transformation in the Republic of Moldova for 2023–2030. One of its priorities is to ensure equal access to digital opportunities for everyone and remove barriers that hinder the development of small and medium-sized businesses in the regions [5]. However, as current statistics show, the gap between the country's regions and the Chisinau municipality in key digitalization indicators is still significant.

This study attempts to comprehensively assess the scale and characteristics of digital inequality between territories at the enterprise level, both quantitatively and qualitatively. The focus is on such indicators as companies' IT expenses, the availability of personal computers, the level of online presence (for example, their own websites), as well as other elements of the digital infrastructure. The goal of the study is not just to record the current situation, but to propose specific steps that will help reduce this digital divide.

It is worth emphasizing: the higher the level of digitalization of an enterprise, the more noticeable its ability to innovate and the more significant its contribution to the economy as a whole [6, 7]. In this sense, digital becomes not just a convenience, but a real lever for development. But small and medium-sized businesses, especially in the regions, often have difficulties with this. Unlike large companies, such enterprises are less likely to implement digital solutions - and the reasons for this are quite clear: limited budgets, a shortage of specialists, difficulties with access to modern technologies and, importantly, weak support from development institutions [8, 9, 10].

1. Spatial analysis of legal entities' expenses on information technology

To better understand the nature and depth of territorial differences in the digital sphere, it is interesting to look at how companies in different regions invest in information technology (Figure 1).

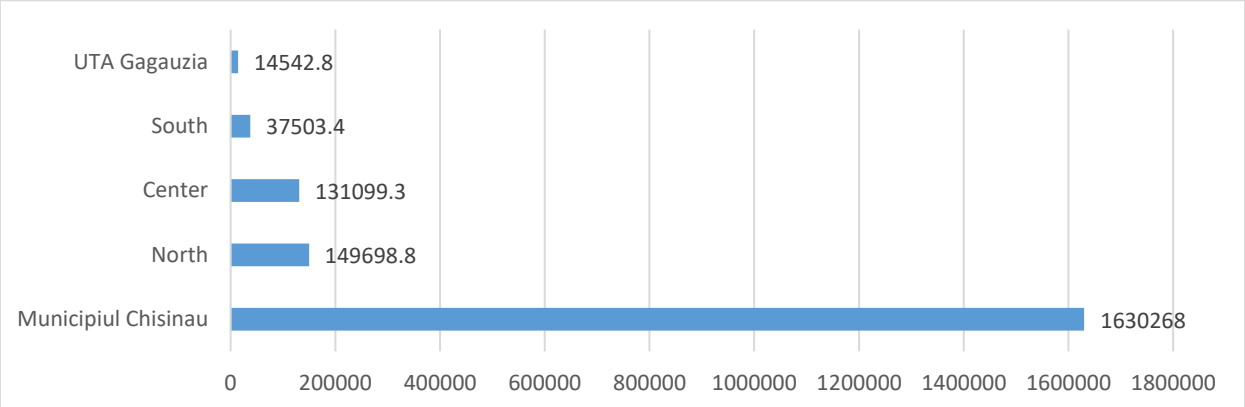

Figure 1. Enterprises' expenditure on information technologies, by territorial breakdown in 2020, thousands of lei

Source: compiled by the authors based on [11].

As can be seen from Figure 1, there is a huge imbalance in the distribution of IT expenses by region. Chisinau Municipality is a confident leader: over 1.63 billion lei, which is more than 85% of all IT expenses in the country. The other regions are far behind: the North - about 149.7 million lei, the Center - 131.1 million, the South - only 37.5 million, and the least funds were spent in Gagauzia - 14.5 million lei. These figures speak for themselves: most of the investments are concentrated in the capital, which only increases the digital divide and confirms the uneven access to technology in different parts of the country.

But it is important to consider not only the total amount of investment, but also what exactly this money is spent on (Figure 2).

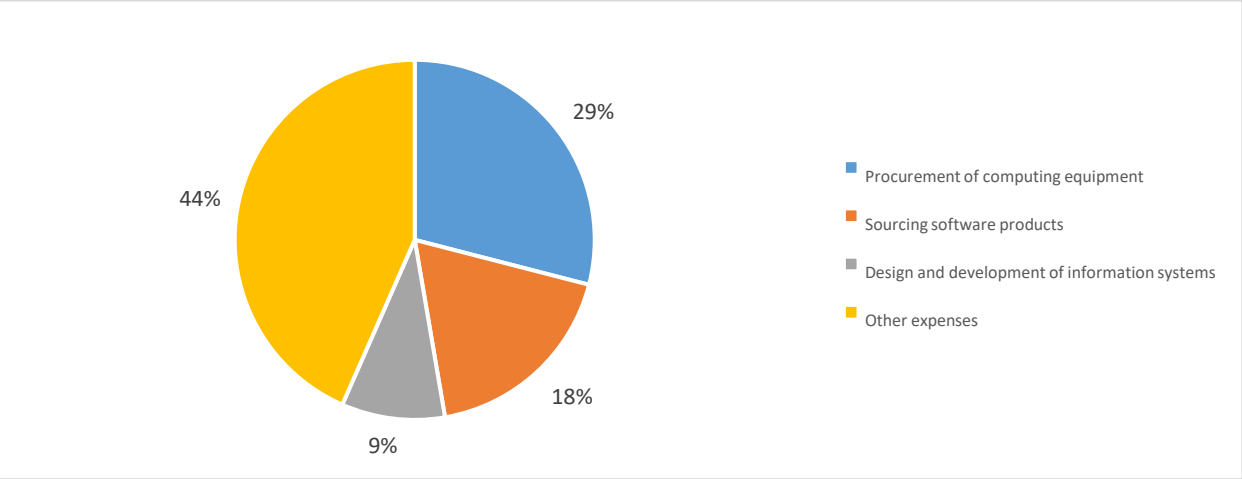

Figure 2. Structure of legal entities' expenditure on information technologies in 2020, %
Source: compiled by the authors based on [11].

Figure 2 shows the structure of enterprise expenses on IT. Almost half of all expenses - 44% - go into the "other" category: this includes consulting, maintenance, rental of IT infrastructure and other services. Computer equipment accounts for another 29%. But the costs of developing our own solutions are negligible.

This leads to an important conclusion: in the regions of Moldova, digital transformation mainly comes down to purchasing ready-made solutions and adapting them to existing processes, rather than creating our own digital products. And this is especially noticeable if you look at which regions are investing in equipment - this part of the investment best reflects the current level of maturity of the digital infrastructure.

To understand the digital divide in detail, it is important to examine which regions are investing predominantly in physical infrastructure (Figure 3).

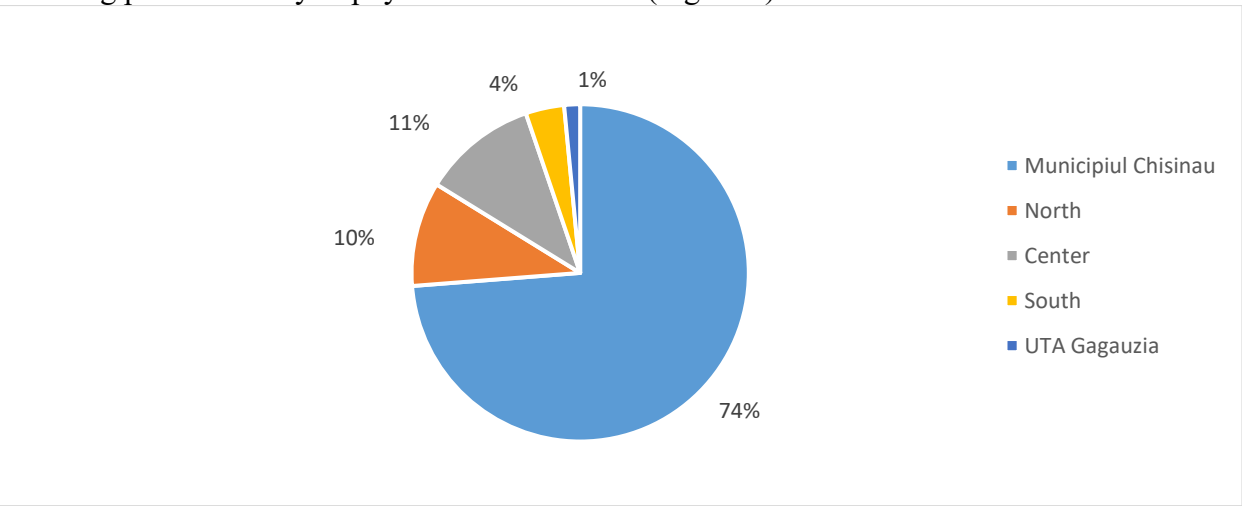

Figure 3. Structure of procurement of computing equipment,
by territorial breakdown in 2020, %
Source: compiled by the authors based on [11].

Figure 3 clearly shows that 74% of all computer equipment purchases were made in Chisinau. The other regions accounted for only 26%. This once again highlights how unevenly digital resources are distributed across the country. The capital is home to almost all key investments, while peripheral areas – especially rural areas and less developed regions – are left behind by enterprises in the digital transformation. This situation can only exacerbate the existing territorial gap, especially when it comes to opportunities for SMEs.

2. Spatial analysis of enterprise access to ICT and online services

To truly understand how serious the problem of digital inequality is, investment data alone is not enough. It is also important to see how this is reflected in reality: what enterprises actually have, how developed their digital infrastructure is, and how they are represented in the online space.

In this context, it is especially revealing to look at how widespread personal computers are among legal entities in different regions and whether enterprises have their own web resources. This is what allows us to understand how deeply digitalization has penetrated the daily activities of companies outside the capital.

Figures 4 and 5 illustrate these aspects, showing data for 2023.

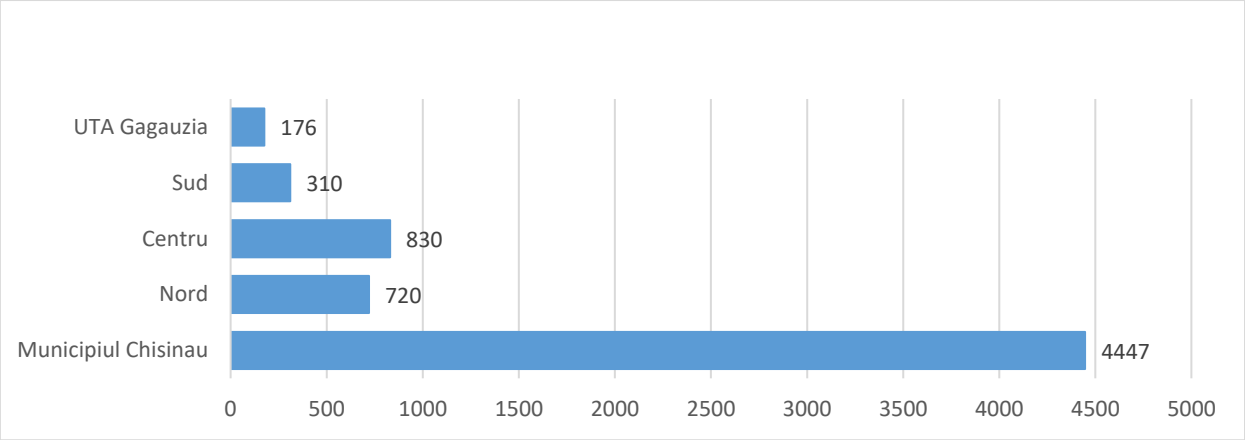

Figure 4. Legal entities that have personal computers, by territorial profile in 2023, individuals
Source: compiled by the authors based on [12, 13].

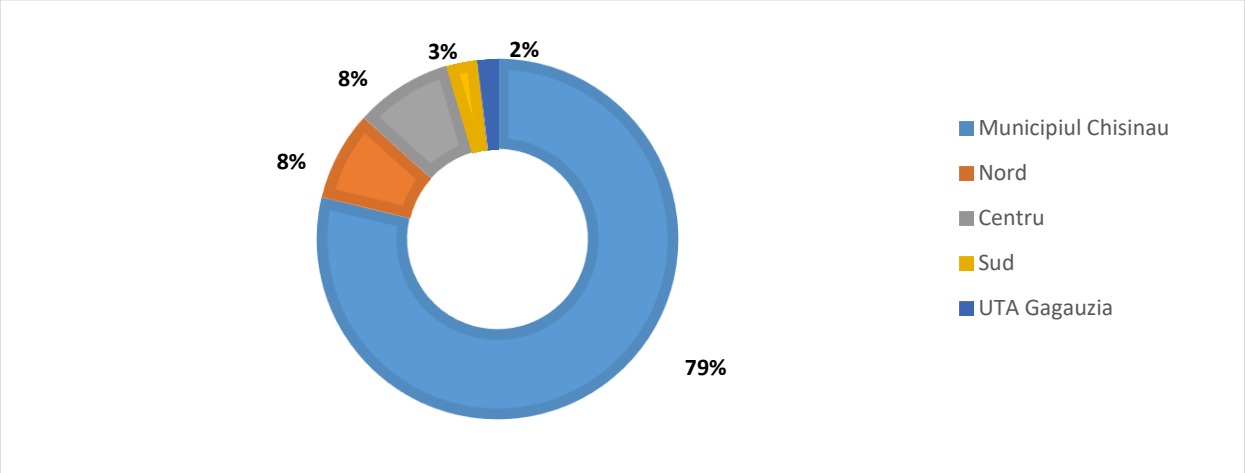

Figure 5. Structure of legal entities that have a website by district in 2023, %
Source: compiled by the authors based on [12, 13].

The next step in the analysis is not just the distribution of computers, but access to digital communication channels, primarily to the companies' own websites.

According to data for 2023 (Figure 5), the overwhelming majority of legal entities with sites located in Chisinau — 79%. Other regions look much more modest: North and Center — 8% each, South — 3%, and Gagauzia — only 2%.

If you compare it with data on ownership of personal computers (Figure 4), where 82% of PCs are also in the capital, it becomes obvious: there is a direct connection between the availability of basic ICT infrastructure and digital presence in the network — but almost exclusively in Chisinau.

In regions, on the contrary, the presence of computers still does not lead to the active exit of enterprises in the online environment. This indicates a low level of digital maturity on the periphery and indicates the need for targeted support for small and medium-sized businesses. Without additional incentives, enterprises in the regions simply will not be able to fully join the digital economy.

Conclusions

The analysis of how digital resources are distributed between enterprises in the Republic of Moldova clearly shows that territorial disparities are not just there — they are becoming more stable and deep. Chisinau — non-negotiable center of digital activity. It is precisely here that the main investments in information technologies, the main purchases of computer technology, the largest number of companies with personal computers and — what is important — the active presence of the business in the online space are concentrated.

Against this background, the other regions - the North, Center, South and especially the ATU Gagauzia - demonstrate a much more modest level of digitalization. All this indicates not just the existence of digital inequality, but the risk of its further deepening if targeted measures are not taken. Currently, the digital infrastructure, necessary skills and access to technology are mainly concentrated in the capital. And enterprises outside it are on the periphery - both economically and technologically. They risk being left outside the key process driving transformation.

In such conditions, the need to review the entire policy of digital development becomes obvious. The country needs a more balanced, targeted approach — with an emphasis on reducing the digital divide, ensuring equal access to technologies and forming a solid base for digital growth in all regions [14, 15], not only in Chisinau.

To reduce the territorial digital gap, it is worth considering the following practical steps:

1. Targeted investments in the regions. It is necessary to develop and launch specialized state programs to support IT infrastructure outside the capital. The focus is on the North, South, Center and ATU Gagauzia. This is where resources should be directed first.
2. Development of local digital ecosystems. It is important not only to build infrastructure, but also to create an environment where technologies can develop. These are IT parks, digital incubators, competency hubs in district centers. They can become points of attraction for business and innovation.
3. Support for small and medium-sized businesses. SMEs need specific incentives: grants, tax incentives, consultations and technical support - all this can give impetus to the implementation of IT in production processes, especially where companies do not have their own resources.
4. Improving digital skills at the local level. Without people who know how to work with technology, no infrastructure will work. Training programs need to be developed, both for entrepreneurs and employees, with an emphasis on digital literacy and applied skills.

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