

DIGITAL TRANSFORMATION AND SECURITY CHALLENGES IN THE ECONOMIC,
GOVERNMENTAL, AND EDUCATIONAL SECTORS

THE ROLE OF CROWDFUNDING IN STIMULATING INNOVATION AND
ECONOMIC GROWTH IN MOLDOVA

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Abstract. Modern economic transformations increasingly necessitate the adaptation of funding mechanisms through digital integration. In the Republic of Moldova, the emergence of the crowd economy introduces alternative opportunities for mobilizing capital, particularly in support of innovation-driven initiatives. This article examines crowdfunding as a non-traditional tool for financing, outlining its key actors, operating models, and sectoral applications. Drawing on best practices from the European Union and recent data provided by ESMA, the study identifies pressing regulatory and infrastructural challenges. Based on the analysis, the article proposes recommendations for strengthening Moldova's legal and institutional framework to better support the growth of digital investment platforms. The *aim of the study* is to explore the possibilities of using innovative financing methods, such as crowdfunding, to create and promote innovative activities of enterprises. To this end, the following *objectives* have been formulated: to study the characteristics of crowdfunding, to conduct a cross-country analysis of the implementation of crowdfunding, and to develop recommendations for the use of crowdfunding in innovative activities. The study used *methods* of analysis of theoretical aspects, global statistics, synthesis of information, and generalization of the data obtained.

Keywords: innovation, financing, crowd economy, crowdfunding, investment platform, small and medium-sized enterprises.

JEL Classification: O31, G23, M13

INTRODUCTION

In a market-driven economy, attracting investment is a critical component of sustainable growth, particularly for small and medium-sized enterprises (SMEs) that serve as the backbone of economic resilience. In the Republic of Moldova, however, the regulatory environment for crowdfunding as a financing mechanism remains underdeveloped and insufficiently structured. Advancing the technological and operational capabilities of SMEs requires active support for innovation, with digital crowdfunding platforms emerging as one of the most accessible and flexible instruments for mobilizing capital.

To effectively implement innovation-driven initiatives, crowdfunding must evolve into a well-established investment tool, grounded in voluntary participation and transparent reward mechanisms. This development calls for a clear understanding of the methodological foundations and research approaches necessary for shaping the institutional framework and governance of crowdfunding—particularly in relation to state oversight and legal regulation.

Interest in digital collective investment platforms has increased significantly since the enforcement of Law No. 181/2023 “On Collective Financing Services” in March 2024. The legislation outlines the principal actors involved in the ecosystem: platform operators, investors, project initiators, and third-party service providers. Nevertheless, critical financial and legal challenges remain unresolved, including low levels of public and corporate trust in new financial instruments, and the lack of analytical expertise needed to adequately assess and compare project proposals *Law No. 181/2023 (2023)*.

At the same time, the rapid evolution of digital technologies is introducing a new generation of investment instruments and assets. This shift necessitates the urgent development of coherent methodological and regulatory frameworks to ensure the safe, effective operation of digital finance tools.

This article aims to explore the feasibility and relevance of integrating modern digital financing models—particularly crowdfunding—into the national innovation and economic development strategy of the Republic of Moldova.

MAIN CONTENT

1. Materials and Methods

The study used quantitative and qualitative methods. Qualitative methods included an analysis of literature on the subject, as well as legislative acts of the Republic of Moldova to establish the characteristics of the legal framework and create conditions for the functioning of crowdfunding platforms with the aim of developing innovative projects. At the same time, an analysis of quantitative values related to global trends in these processes was conducted.

2. Results and Discussion

2.1. Crowdfunding Platform as a Digital Investment Ecosystem

The ecosystem approach views a crowdfunding platform as a structured environment that facilitates interaction among participants in the allocation of financial resources and execution of investment agreements (Lafuente, *et al.*, 2021). Its primary objective is to ensure sustainability through mechanisms of self-organization.

A digital ecosystem is defined as a scalable system composed of interconnected digital elements, driven by collaboration and innovation (Ghig Elia, *et.al*, 2020). A digital platform (DP) leverages technology to connect participants, offering services via the internet, including financial tools and advisory support. These platforms accelerate the launch of startups. Key ecosystem actors include borrowers, investors, regulatory authorities, banks, technology developers, and support institutions (Tretiacova, *et.,al*, 2022).

Ecosystem Participants

- Borrowers (Founders): Enterprises seeking funding.
- Investors (Backers): Individuals backing projects.
- Regulators (NCFM, NBM): Authorities overseeing operators.

- DP Operator: Manages operations, mitigates risks, and provides risk-reduction strategies and auto-investment options.
- Banks and Organizations: Offer support services.

The operator handles marketing activities, publishes project offers, and calculates return forecasts based on risk factors. Borrowers undergo a due diligence process, and their offers are promoted using a marketing mix framework (7P theory) (Korsun, 2022).

Investors independently select projects and reduce risk exposure through diversification. Funds are pooled in an escrow account and are released only upon successful closure of the funding round. Profits are distributed to investors in the form of interest payments or dividends.

Given the current regional climate and Moldova's strategic direction toward implementing European Union directives, the promotion of innovation remains a key priority of national economic policy. To date, Moldova's system of public support includes targeted programs, research grants, special economic zones, and SME support funds. A comparative assessment of these mechanisms and their counterparts in international practice is presented in Table 1.

Table 1. Methods of Financing Innovative Projects on International Capital Markets

Financing Method	Brief Description	Key Features
IPO (Initial Public Offering)	Initial public offering of company shares on a stock exchange	High disclosure requirements, regulatory compliance; demands extensive preparation
SPO (Secondary Public Offering)	Issuance of additional shares by a public company	Used for business expansion, M&A financing, or debt refinancing
Corporate Bonds	Raising funds through debt securities issuance	Debt financing tool, often applied in medium- to long-term projects
Venture Capital	Investments in innovative firms for equity stakes	Targets high-growth startups; high risk, high reward
Crowdfunding	Capital raised from numerous investors via digital platforms	Effective for early stages; available in equity, debt, or hybrid formats

Source: compiled by the authors based on research

In international practice, the most widely used methods for financing innovation activities are presented in Table 2.

Table 2. Comparative Analysis of Innovation Support: Moldova vs. International Practice

Criterion	Moldova	International Practice
Government Programs	National targeted programs, research grants, industrial park creation	Programs like SBIR (USA), direct state investments, tax incentives, tech accelerators
Project Selection Criteria	Regional priorities, significance of scientific and applied research	Commercial viability, export potential, alignment with global challenges and ESG principles

Funding Conditions	Co-financing, phased approach, strict reporting, deadlines	Flexible terms, MVP/prototype support, acceleration programs, tailored funding paths
Expected Economic Impact	Local employment, regional value added, research infrastructure growth	Global scalability, tech startup growth, contribution to global innovation chains

Source: compiled by the authors based on research

Crowdfunding is a form of alternative finance that typically involves small contributions from a large number of individuals — commonly referred to as the “crowd” — via digital platforms.

These platforms serve as intermediaries that connect potential investors or lenders with businesses seeking capital, most often startups and small or medium-sized enterprises (SMEs). Unlike traditional banking systems, crowdfunding enables direct interaction between funders and recipients, bypassing financial intermediaries. Funding may take the form of loans or transferable debt and equity instruments. Crowdfunding plays a particularly critical role for businesses operating in smaller or emerging markets, where access to capital is often limited (*World Investment Report (2022)*).

2.2. The Role of Crowdfunding in Innovation Activities

As previously noted, in a competitive market environment, small and medium-sized enterprises (SMEs) require access to alternative sources of funding to successfully implement their projects and strengthen their positions both domestically and internationally. However, in the Republic of Moldova, the volume of investment has been declining, which necessitates new approaches to capital mobilization. Crowdfunding, as a financing tool, enables external investment into projects at early development stages, bypassing traditional financial intermediaries.

A critical enabler of crowdfunding success is the digitalization of society, as supported by Moldova’s National Digital Transformation Strategy for 2025–2027, approved in May 2025. This strategic plan focuses on fostering a digital society, expanding the ICT sector, and boosting the growth of the digital economy (*Logos Press (2025)*).

By the end of 2027, the implementation of this programme is expected to accelerate national economic development. The export share of ICT services is projected to grow to 14%, up from 10% two years prior. Annual public investment in the IT sector will amount to MDL 2.7 billion. Entrepreneurs will access 85% of public services online, and 45% of the population will be actively using digital identification [7].

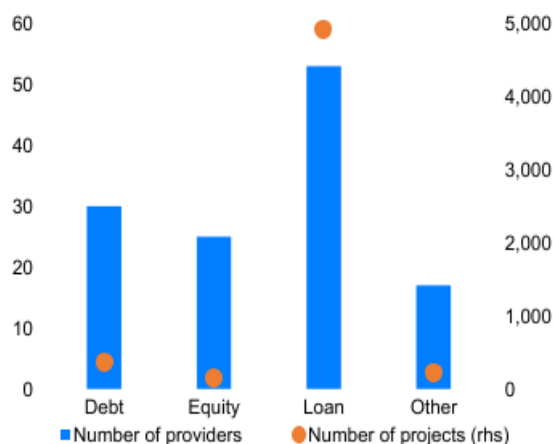
Digital platforms unlock new opportunities for financing startups, social initiatives, and charitable projects due to their high return potential and streamlined processes. Crowdfunding represents a collaborative model of resource mobilization through digital platforms in support of business ideas or social causes. Beyond funding, these platforms offer cost-effective promotional tools for public engagement and marketing outreach.

Among the most widely used global crowdfunding platforms are:

1. Kickstarter – A leader in fundraising for creative projects, including music, film, and environmental initiatives.
2. Indiegogo – Supports a wide variety of initiatives, from tech innovations to social impact projects.
3. Republic – A digital investment platform that has raised over \$800 million from 1.5 million investors across 100 countries for startups, arts, and real estate initiatives (*Republic (2025)*).

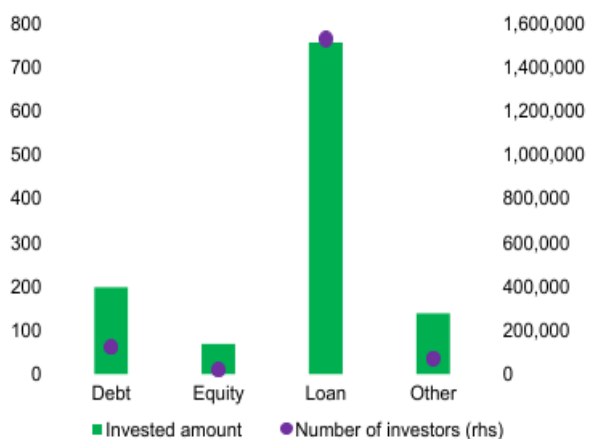
In Moldova, loan-based crowdfunding is the most prevalent model, involving repayment of funds with interest. By early 2025, the total amount of capital raised through crowdfunding had reached approximately EUR 9 million (*Fagura* (2025)).

Since 2024, Moldova's crowdfunding market has been in a formative phase, demonstrating steady progress in terms of the few of active platforms, transaction volume, and user base expansion. The positive momentum aligns with EU best practices and is supported by statistical data provided by ESMA (2025). According to ESMA, total crowdfunding investment volumes in the EU exceeded EUR 1 billion in 2023. Loan-based crowdfunding accounted for the majority (65%) of this funding, followed by debt-based models (17%) and equity crowdfunding (6%) (ESMA (2025)). (Figure 1, 2)



Note: Number of EU crowdfunding service providers and number of projects (rhs), by type of funding, 2023. "Other" includes admitted instruments for crowdfunding purposes. Data from 17 NCAs, as detailed in the appendix. Sources: Data reported by NCAs, ESMA.

Figure 1: Providers by funding type:
Most projects are loan-based
Source: *ESMA*



Note: Invested amount, in EUR mn, and number of investors (rhs), by type of funding, 2023. "Other" includes admitted instruments for crowdfunding purposes. Data from 17 NCAs, as detailed in the appendix. Sources: Data reported by NCAs, ESMA.

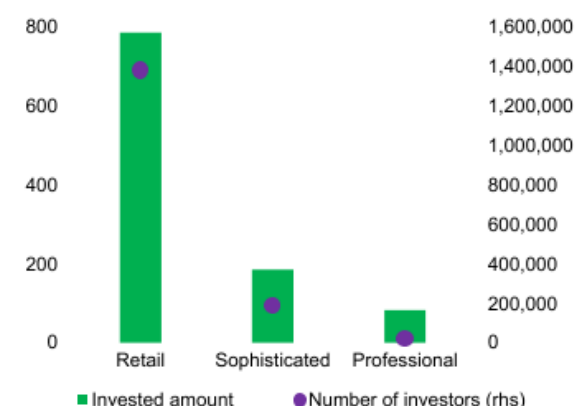
Figure 2: Investing by funding type
Large majority of fundings is loan-based
Source: *ESMA*

Interestingly, the average amount raised per loan-based project was approximately EUR 15,000 — significantly lower than the average for debt-based models (EUR 53,000) and equity-based models (EUR 46,000).

The majority of crowdfunding participants (87%) were classified as retail investors. An additional 12% were identified as sophisticated investors, while only 1% qualified as professional market participants. According to ESMA data, the average investment per individual was as follows:

- Retail investors: ~EUR 590
- Sophisticated investors: ~EUR 990
- Professional investors: ~EUR 4,200.

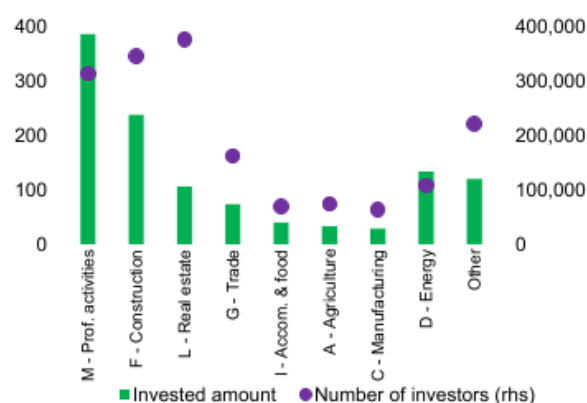
The most attractive sector for investors was professional, scientific, and technical services, which attracted approximately EUR 390 million — accounting for one-third of the total raised capital. The construction sector ranked second, with EUR 240 million raised, while the real estate market led in terms of investor participation, engaging over 380,000 individuals. (Figure 3, 4)



Note: Note: Invested amount, in EUR mn, and number of investors (rhs), by investor type, 2023. Sophisticated investors are those classified by providers under ESCPR; professional are classified by investment firms under MiFID. Data from 17 NCAs, as detailed in the appendix. Sources: Data reported by NCAs, ESMA.

**Figure 3: Investors by type:
Retail investors predominate**

Source: ESMA



Note: Invested amount, in EUR mn and number of investors (rhs) by economic sector, 2023. "Prof. activities" = professional, scientific and technical activities; "Accom." = accommodation. Sector codes are the NACE Level 1 classification, revision 2, per Regulation (EC) 1893/2006, which gives definitions. Data from 17 NCAs, as detailed in the appendix. Sources: Data reported by NCAs, ESMA.

**Figure 4: Projects by economic sector:
Range of economic activity supported**

Source: ESMA

France remains the European Union's largest crowdfunding market in terms of both the number of platforms (30) and total funds raised (EUR 292 million). The Netherlands ranks second on both counts, with 17 platforms and EUR 291 million raised. Lithuania, meanwhile, leads in the number of investors (500,000) and projects (2,840) (ESMA, 2024).

It is worth noting that Lithuania and France began developing national crowdfunding regulations well before the adoption of the EU-wide framework — in 2017 and 2014 respectively.

Approximately 17% of all funds raised were contributed by cross-border investors. Austria and Estonia recorded the highest proportions of cross-border financing (around 80%), while in nine countries this figure remained below 10%.

Particular attention has been drawn to Lithuania, where nearly 500,000 residents have participated in crowdfunding — representing more than 20% of the country's adult population. This reflects both the early adoption of national legislation and the country's broad digital penetration (ESMA, 2024).

Despite the rapid development of crowdfunding in EU countries, the Republic of Moldova continues to face a number of systemic challenges — particularly related to the underfunding of key sectors such as science, education, and innovation.

An analysis of capital allocation patterns in the EU compared to Republic of Moldova reveals a low degree of intersectoral capital redistribution within the Moldovan economy. On one hand, this highlights a continuing conservatism among local investors; on the other, it points to the untapped potential for expanding the crowdfunding sector, provided there is proper institutional support. Shifting the national economy toward an investment- and innovation-driven model could be a critical factor for sustainable growth during the period of structural transformation.

The most promising sectors for attracting funds through digital platforms remain the IT industry, computing systems development, telecommunications, and digital infrastructure. These areas are essential pillars of the modern information-rich economy and require ongoing investment — including from alternative sources.

At present, Republic of Moldova lacks a comprehensive legal framework that governs crowdfunding in its broader sense. This creates uncertainty for all parties involved — from project initiators to potential investors. The key goals of state regulation should include: the development of a legitimate and transparent crowdfunding environment, increased attractiveness of digital platforms, legal recognition of project income, and the formation of a stable base of private investors willing to support projects of varying scales.

To unlock this potential, Republic of Moldova requires a clearly structured model of government engagement — from regulatory frameworks to the design and oversight of crowdfunding project mechanisms. Publishing and executing projects via specialized digital platforms offer a cost-effective and time-efficient way to attract capital, which is especially crucial for startups and SMEs.

In conclusion, active government support in fostering and regulating crowdfunding could become a powerful tool to overcome existing development gaps, boost digitalization, and stimulate entrepreneurial activity. Crowdfunding allows entrepreneurs to launch innovative initiatives with minimal overhead and without the need for large marketing budgets — a vital option given the limited access to traditional banking finance.

CONCLUSION

In summary, the development of crowdfunding is a key driver for the emergence of innovative solutions, new products, and advanced technologies on the market. It creates additional opportunities to stimulate investment in innovation and production in the Republic of Moldova. Furthermore, this practice can help mitigate the outflow of scientific talent and skilled professionals by enabling them to implement their ideas domestically. Crowdfunding is increasingly recognized as a promising mechanism to support entrepreneurial initiatives. The experience of implementing such projects reflects growing societal interest in modern financial tools for launching new business ventures.

At present, crowd-based technologies represent a rapidly evolving segment of alternative investment and business financing. The market continues to expand year after year, offering attractive returns for investors and accessible financing solutions for entrepreneurs.

Compared to economically advanced countries, Moldova's crowdfunding ecosystem remains in an early development stage. This is largely due to limited investor trust and a delayed start relative to international trends. Nevertheless, recent trends indicate steady growth in both the number of crowdfunding projects and platform users. In this context, businesses—particularly small and medium-sized enterprises (SMEs)—are encouraged to actively explore and leverage the potential of available digital platforms for attracting capital.

Key Challenges Identified:

- Low public awareness and limited penetration of crowdfunding within the SME sector due to a lack of systematic educational initiatives on this topic.
- Limited transparency regarding platform activities, making it difficult for both entrepreneurs and investors to make informed choices.
- Gaps in the legal framework, including the absence of clear regulations for specific types of crowdfunding technologies.

Recommended Actions:

- Expanding the scope of legal regulation: there is a need to formalize governance mechanisms for donation-based and reward-based crowdfunding models at the legislative level.
- Establishing professional and ethical standards for the operation of investment platforms.

- Mandating the definition of procedures for investor-project initiator interactions in the event of unforeseen circumstances or force majeure.

From a public policy perspective, a systematic approach is needed to support the development of crowdfunding infrastructure, alongside the introduction of a transparent, coherent, and comprehensive legal framework capable of effectively governing the activities of digital investment platforms.

The work represents **scientific novelty** in that it combines two related areas—alternative financing methods and innovation management—as well as the economic characteristics of the Republic of Moldova, which is in the process of establishing this interconnection.

The study is limited by time constraints, given that the concept of crowdfunding is only beginning to gain interest in the Republic of Moldova, but for many, this term is still unfamiliar, so the next limitation is its weak perception by the population. Given the national characteristics of doing business, successful examples from other countries cannot always be transferred to the Moldovan economy, which is also a limitation.

Looking ahead, **further research** should focus on analyzing the quality and maturity of the infrastructural components of the crowd economy. This will be essential for broadening the range of available projects and attracting new flows of capital to Moldova's emerging alternative finance ecosystem.

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