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MVP strategy as a tool for business model validation in the early stages of a startup lifecycle

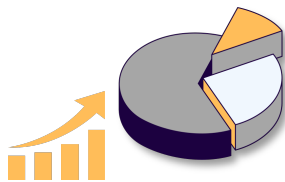
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Abstract. The study's relevance is determined by the need to enhance the effectiveness of business model validation for startups in the early stages of their lifecycle by implementing an MVP as a tool for risk reduction and optimizing project scaling processes. Under economic instability and limited resources, there is a growing demand for a comprehensive approach to market hypothesis testing focusing on cost minimization. This **article aims** to identify strategic solutions for utilizing MVP as a business model validation tool, facilitating project adaptation to market conditions, and increasing scalability potential. **Methods.** The study employs system analysis to assess key MVP components in the business model validation process, structural-functional analysis to identify the interrelationships between MVP elements and their role in hypothesis testing, and forecasting methods to formulate recommendations for MVP optimization during scaling. **Results.** The primary methods of integrating MVPs into startup processes have been explored, emphasizing their role in mitigating risks and confirming the project's investment appeal. A systematic approach to MVP formation was found to promote timely



hypothesis testing, collection of feedback, and adjustment of the business model in response to market changes. The scientific novelty lies in the proposed enhancement of the MVP integration approach as a strategic tool for evaluating the viability of a startup's business model by developing a comprehensive system for assessing financial, technological, and marketing indicators, thereby reducing risks at the scaling stage. **Conclusions.** It has been demonstrated that implementing MVP enables rapid testing of key market hypotheses with minimal financial costs, reduces the risk of resource loss during scaling, and facilitates the optimization of the business model before market entry. An integrative MVP assessment model focusing on a comprehensive evaluation of financial and technological indicators is proposed, along with the implementation of machine learning algorithms for feedback analysis and forecasting target audience behavior changes

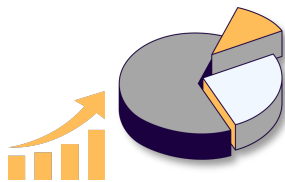
Keywords: startup, risk management, resource optimization, hypothesis testing, feedback, investment appeal.

Стратегія MVP як інструмент валідації бізнес-моделі на ранніх етапах життєвого циклу стартапу

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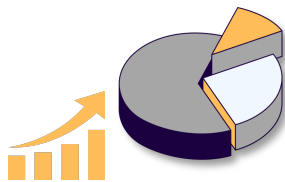
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Анотація. Актуальність дослідження зумовлена необхідністю підвищення ефективності валідації бізнес-моделей стартапів на ранніх етапах їх життєвого циклу шляхом впровадження MVP як інструменту зниження ризиків та оптимізації процесу масштабування проєктів. В умовах економічної нестабільності та обмежених ресурсів стартапів виникає необхідність у комплексному підході до тестування ринкових гіпотез, з акцентом на



мінімізацію витрат. **Метою статті** є визначення стратегічних рішень щодо використання MVP як інструменту перевірки бізнес-моделі, що сприятиме адаптації проєкту до ринкових умов та підвищенню його масштабованості. **Методи.** Застосовано системний аналіз для оцінки ключових компонентів MVP у процесі валідації бізнес-моделі стартапу, структурно-функціональний аналіз для визначення взаємозв'язків між елементами MVP та їхньою роллю у тестуванні ринкових гіпотез, а також методи прогнозування для формування рекомендацій щодо оптимізації MVP на етапі масштабування. **Результати.** Досліджено основні методи інтеграції MVP у процеси стартапу, визначено їх роль у мінімізації ризиків та підтвердженні інвестиційної привабливості проєкту. Встановлено, що системний підхід до формування MVP сприяє своєчасному тестуванню гіпотез, збиранню зворотного зв'язку та коригуванню бізнес-моделі відповідно до змін у ринкових умовах. Наукова новизна дослідження полягає в удосконаленні підходу інтеграції MVP як стратегічного інструменту для оцінки життєздатності бізнес-моделі стартапу шляхом впровадження комплексної системи оцінки фінансових, технологічних та маркетингових показників, що сприяє зниженню ризиків на етапі масштабування. **Висновки.** За результатами дослідження доведено, що впровадження MVP забезпечує можливість оперативного тестування основних ринкових гіпотез з мінімальними фінансовими витратами, знижує ризики втрати ресурсів на етапі масштабування та сприяє оптимізації бізнес-моделі до виходу на ринок. Запропоновано розробити інтегративну модель оцінки MVP з акцентом на комплексну оцінку фінансових та технологічних показників, а також впровадити алгоритми машинного навчання для аналізу зворотного зв'язку та прогнозування змін у поведінці цільової аудиторії.

Ключові слова: стартап, управління ризиками, оптимізація ресурсів, тестування гіпотез, зворотний зв'язок, інвестиційна привабливість.

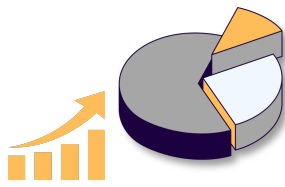


Problem statement. Given the rapid development of the startup ecosystem, the problem of effective business model validation in the early stages of the project life cycle is becoming particularly relevant. The lack of a coherent approach to formulating key hypotheses and testing them increases the risk of startup failure due to the product's failure to meet market demands and the gap between the product's capabilities and the needs of the target audience.

Strategies for creating a Minimum Viable Product (MVP) allow to minimize uncertainty by gradually testing hypotheses, identifying systemic constraints and adjusting the business model, without attracting significant financial resources. The scientific objectives of the study include analyzing MVP assessment tools as the main means of verifying the viability of the business model, substantiating the criteria for making management decisions on further scaling of the startup, and developing a methodology for an integrative approach to MVP assessment, taking into account financial, technological and market indicators. The practical significance of the study lies in the development of recommendations for optimizing the process of creating an MVP to increase the likelihood of successful implementation of a startup at the pre-incubation, incubation and acceleration stages.

Analysis of recent research and publications. An analysis of current research on the use of MVP as a business model validation tool in the early stages of the startup life cycle reveals four main content areas.

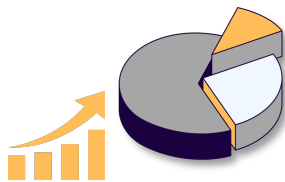
The first area focuses on the integration of MVP as a tool for testing the value proposition and market relevance of a product. L. V. Tesheva [1] analyzes the components of the company's activities that influence the formation of the brand, emphasizing the importance of iterative MVP testing to determine the main value elements of the product. T.V. Sack [2] explores digital marketing tools for MVPs, focusing on the use of social media to form a target audience and collect feedback in the early stages. S. Horbachenko, O. Chepurna, and V. Slatvinska [3] consider the adaptation of a project approach to startup management, using MVP as a means of



identifying weaknesses in the business model before scaling it up. Marchenko [4] focuses on the use of MVP within lean startups, emphasizing the need to adjust it before entering the market. Further research should be directed to the development of a methodology for systematizing MVP feedback, which will allow adapting the product to the specific needs of users in different market segments.

The second area covers strategic planning of MVPs with a focus on market dynamics and investment risks. Levchuk O. M. and Oprya D. I. [5] analyze the role of MVPs in increasing the competitiveness of startups in a dynamic environment, emphasizing the importance of feedback analysis as a means of product adjustment. Göcke and R. Weninger [6] investigate the development and validation of a business model in digital entrepreneurship, focusing on digital tools and their role in testing market hypotheses. D. A. Shepherd and M. Gruber [7] study Lean Startup as a conceptual framework for integrating MVPs into the strategic planning process, emphasizing the role of the prototype in reducing the risks of unsuccessful investments. R. Stevenson, D. Burnell and G. Fisher [8] emphasize the importance of combining Lean Startup and MVP as a way to optimize resources and identify the most promising business models. Further research in this area should be directed to the formation of an integrative model of strategic planning for MVPs that takes into account the specifics of different market segments and investment risks.

The third area focuses on technological tools for implementing MVPs in product testing and validation processes. D. A. Shepherd and M. Gruber [9] propose a model for integrating innovation management tools into the MVP development process for technology startups. M. L. P. Souza, L. D. R. M. Filho, R. B. Bagnó, W. C. Souza, and L. C. Cheng [10] investigate MVP marketing strategies based on empirical data, focusing on the importance of MVP life cycle analysis to support startup positioning. J. Ulč [11] develops a continuum validation framework for MVP business models, emphasizing the importance of dynamic adaptation of the test prototype to changes in the market environment. Further research should focus on

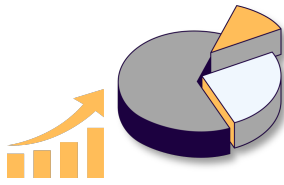


the development of technology platforms for MVP integration, with analytical tools for automated processing of feedback data.

The fourth area covers the international experience of using MVP as a tool for minimizing risks in the early stages of the startup life cycle. L. Corbo, S. Mahassel and A. Ferraris [12] propose a dynamic business model focused on overcoming the "valley of death" of startups by integrating MVPs with innovative technologies and feedback from early users. A. Corallo, F. Errico and M.E. Latino [13] consider aspects of creating lean startups in the context of MVP, emphasizing the importance of adjusting MVP based on market research data in the context of international expansion. M. M. Marchenko [14] explores the mechanisms of translation of MVP business models in international settings, focusing on the adaptation of MVP to the specifics of different markets and cultural environments. Further research should focus on the adaptation of international practices to the Ukrainian market, in particular, in conditions of limited resources and unstable economic situation.

Thus, research suggests the need to further improve approaches to assessing the effectiveness of MVPs as a tool for validating the value proposition, integrating technology platforms to automate feedback processes, and developing strategic planning models focused on reducing risks and adapting the product to a dynamic market.

Identification of previously unsolved parts of the overall problem. Despite the widespread use of MVPs in startups, the issue of developing a clear system for determining mandatory components for effective business model validation remains relevant. The lack of clearly defined criteria limits the ability of startups to prioritize MVP functions, which leads to the development of redundant elements and inefficient use of resources. In addition, methods for integrating financial, technological, and marketing indicators into the overall MVP evaluation system remain underdeveloped, which complicates strategic decision-making at the scaling stage.



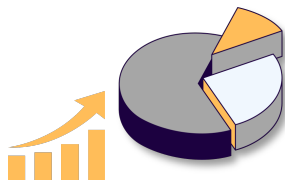
Methodological limitations also relate to the lack of specific approaches to assessing the investment attractiveness of MVPs as a risk mitigation tool in the early stages of a startup. Insufficient attention to the analysis of typical errors associated with underestimation of market hypotheses and unreasonable financial forecasts limits the ability to formulate recommendations for MVP optimization. The proposed study is aimed at developing an integrative MVP evaluation system, taking into account a comprehensive analysis of market hypotheses, financial indicators, and technological compatibility to reduce scaling risks.

Formulation of the article's objectives (definition of tasks). The purpose of the article is to study strategies for using MVP as a tool for validating business models in the early stages of the startup life cycle to increase the likelihood of successful project scaling.

Objectives of the article:

1. Identify the key elements of MVP and their role in the startup business model validation process, with a focus on market hypothesis testing and resource optimization.
2. Analyze the methods of MVP evaluation, taking into account financial, technological and marketing indicators, to make management decisions on product scaling.
3. Develop recommendations for integrating MVP as a tool to reduce risks and increase the investment attractiveness of a startup in the early stages of development.

Summary of the main research material. As already mentioned, MVP is a basic tool for the initial verification of the viability of a startup's business model, as it allows to assess the reaction of the target audience to the product and confirm or refute key market hypotheses with minimal time and resources. Its concept is based on hypotheses that must be carefully developed and structured to identify potential value propositions, key features, and user segments. The use of MVP in the early



stages of a startup provides an opportunity to adjust the product development strategy in time, in accordance with the feedback received, and minimize the risks of unforeseen losses. The table below presents the main elements of MVP and their functional role in the process of testing market hypotheses (Table 1).

Table 1

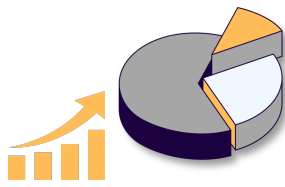
MVP elements and their functional role in the process of testing market hypotheses

Element	Description	Functional role
Value proposition	Formulating the main benefit for consumers that distinguishes the product in the market	Identify key competitive advantages and test users' willingness to pay for the product
Keys. functions	The minimum set of functions that realize the main idea of the product	Checking whether the product meets the expectations of the target audience at a basic level
User segments	Identify the user groups that will benefit most from the product	Identify the target audience and check the correctness of segment selection
Channels interactions	Ways to communicate with users to collect feedback	Identify the most effective channels for collecting product perception data
Monetization mechanism	Justification of the product cost and ways to make a profit	Testing the willingness of users to pay for the proposed value proposition

Source: compiled on the basis of [1; 2; 3; 5].

In the context of dynamic market changes, the value proposition becomes one of the most important components of an MVP, as it focuses on identifying the key benefit that the user receives and also makes it possible to compare the proposed product with competitors [5]. For example, in the digital sphere, an effective value proposition can determine whether users are willing to spend money on a test product, which serves as the basis for further investment decisions.

MVPs focus on the minimum set of features necessary to meet the basic needs of the target audience. In practice, these can be prototypes that implement only one



or two basic functions, but allow you to evaluate the user's reaction to the core functionality. For example, in mobile applications, this may be only registration and the main product function, while other features remain at the planning stage.

Identifying user segments is the basis for building an MVP marketing strategy. The accuracy of the data obtained on market expectations depends on the correct segmentation, so the basic prototype of is often tested on several segments to identify the most promising audiences for further scaling.

Interaction channels provide feedback from users, which allows not only to check demand but also to adjust the product in accordance with the collected data. For example, the use of questionnaires, surveys, or prototypes provides comprehensive information on what aspects of the project need to be improved.

The monetization mechanism makes it possible to identify sources of profit even before the product development is completed. This is especially important for startups in financially constrained conditions, where every expense must be justified by expected revenues [11].

Thus, the MVP serves as a kind of "test" for the willingness of consumers to pay for the product, which ensures the rational allocation of resources at the development and marketing testing stages.

MVP evaluation is a critical step in the process of validating a startup's business model, as it allows you to identify the strengths and weaknesses of a product at minimal cost. The use of financial, technological, and marketing indicators provides a comprehensive analysis of the MVP, which helps to make informed management decisions. Financial methods determine the profitability of the MVP, technological methods assess its readiness for integration, and marketing methods analyze the perception of the product by users (Table 2).

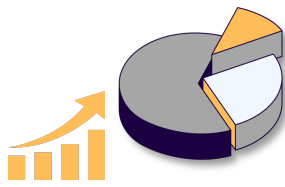


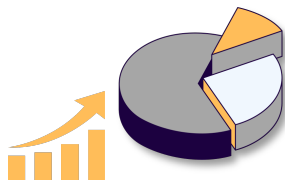
Table 2

MVP evaluation methods in different areas

Direction of evaluation	Method	Description of the method	Practical application
Financial	Break-even analysis	Determination of the MVP break-even point, which allows you to estimate the minimum sales volume to achieve zero profit	Generating forecasts to determine the sales volumes required to cover expenses
	ROI analysis	Evaluating the feasibility of investing in MVPs based on ROI calculation	Determining the level of potential profitability of an MVP before entering the market
Technological	Compatibility testing	Testing MVP integration with existing technologies and platforms	Identify possible technical limitations of the MVP for further product optimization
	Prototyping	Creating an MVP prototype with a minimum set of functions for testing technological solutions	Determine the effectiveness of the main functions of the product before scaling it
Marketing	Feedback analysis	Collecting feedback from potential users to identify MVP weaknesses	Correcting MVPs according to the needs of the target audience
	Price testing	Establishing the optimal MVP pricing policy based on market demand analysis	Forming a pricing policy before entering the market

Source: compiled on the basis of [4; 6; 7; 8; 10].

In practice, the comprehensive application of valuation methods allows startups to identify critical aspects of the product in a timely manner and minimize risks at the stage of finalizing the business model. The use of financial methods, such as break-even analysis and ROI analysis, helps determine the economic feasibility of an MVP before it is scaled up [7]. For example, Dropbox, by creating a simple



video presentation, tested the demand for basic functionality without investing heavily in product development, which allowed it to attract early investors and generate financial forecasts [15].

Technological methods, in particular, compatibility testing and prototyping, provide an assessment of the MVP's readiness for market introduction. Zappos tested its online sales concept through a simple website, without a real warehouse of goods, which allowed it to test the technical capabilities of the dropshipping model and assess potential problems at the stage of business expansion [16].

Marketing methods, such as feedback analysis and price testing, are focused on determining whether the MVP meets the needs of the target audience and formulating an optimal pricing policy. Attracting early users by sending out promotional offers or simple landing pages allows you to quickly collect data on product interest and adjust the pricing strategy before the main launch. This approach ensures that the MVP adapts to market conditions at minimal cost, facilitating its further scaling.

Integration of a minimum functional product in the early stages of a startup's development enables timely testing of key hypotheses and minimizes the risks associated with its failure to meet market needs. MVP is a kind of early idea testing tool that allows startups to assess market demand, adjust the business model, and confirm the potential investment attractiveness of a project before making large-scale financial investments. The use of MVP as a methodology involves not only the creation of a basic product but also systematic data collection for strategic decision-making, which significantly reduces the likelihood of financial losses and helps attract investment resources. Table 3 shows the main ways of integrating MVP and their role in minimizing risks.

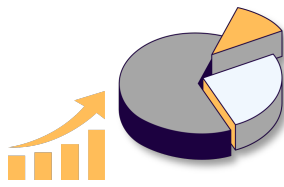


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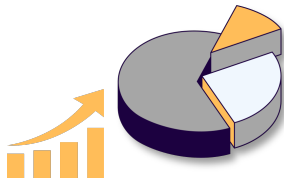
Methods of MVP integration in the early stages of a startup and their role in minimizing risks

Integration method	Description	Role in minimizing risks
Lean Startup	Determining the minimum set of MVP functions for rapid testing of market hypotheses	Reduce development costs and accelerate product proof of concept
Customer Development	Engage early users to collect data on the needs of the target audience	Identify mismatches between market expectations and MVP functionality
Smoke Testing	Launch an advertising campaign or landing page to test demand without actually developing an MVP	Assessing interest in the product and identifying the target audience
Concierge MVP	Providing a product in a service format to collect feedback	Identify weaknesses in the MVP concept through direct interaction with users
Pre-Sell MVP	Selling an MVP before it is actually launched to test the willingness to pay	Assessing the level of audience readiness to purchase a product and testing pricing

Source: compiled on the basis of [7; 9; 11; 12; 14].

Thus, implementing a basic version in the early stages of a startup reduces financial costs, speeds up hypothesis testing, and ensures that the business model is optimized before the main product launch. The Lean Startup methodology involves creating an MVP with a minimum set of functions, which allows you to quickly test the product concept and determine which aspects need to be improved. The use of Customer Development helps to attract early users, which allows to identify functional shortcomings of the MVP before entering the market, and Smoke Testing helps to assess the level of interest of the target audience without significant development costs [10].

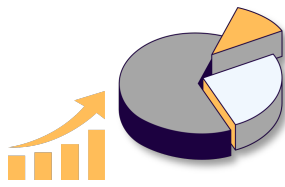
The Concierge MVP approach provides feedback through direct interaction with users, which allows identifying product weaknesses. For example, the Food on



the Table startup offered users a service for selecting recipes and products via email, which allowed them to quickly test the concept and identify key features for the future application [17]. The Pre-Sell MVP method allows assessing market readiness to purchase a product before its actual launch, which reduces financial risks and creates prerequisites for attracting investors. For example, the startup Pebble started selling smartwatches through the Kickstarter platform before the product was completed, raising significant funds to finalize the MVP [17]. This approach confirmed the demand for the product and increased the investment attractiveness of the startup.

Ineffective use of MVPs in startups is often caused by insufficient attention to testing market hypotheses, which leads to a number of systemic problems that can significantly affect the further development of the project. One of the main problems is the discrepancy between the formulated hypotheses and the real needs of the market, which arises due to a limited sample of respondents or insufficient depth of research in the early stages [11]. The lack of detailed segmentation of the target audience and failure to take into account the peculiarities of consumer behavior leads to the development of a product that does not meet user expectations. Instead of testing specific hypotheses and identifying critical points of the value proposition, startups often focus on general market perceptions, which distorts the results of MVP evaluation.

Another problem is the lack of attention to the financial aspects of MVPs, in particular, to the justification of projected costs and revenues. Many startups start developing a project without a clear understanding of its financial needs, which leads to a rapid exhaustion of resources or to making unreasonable decisions about product scaling [4]. Mistakes at this stage include overestimating market demand, not taking into account the costs of finalizing the MVP, and ignoring possible financial risks, which can cause serious problems when attracting investors.

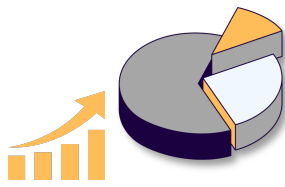


Technological aspects also become a source of problems when startups underestimate the complexity of integrating MVPs with existing systems or fail to conduct proper compatibility testing with key platforms. This leads to technical limitations that make it difficult to finalize the product or force developers to abandon certain functions due to limited resources [8]. In such cases, the MVP does not fulfill its main function - product validation - but only creates the illusion of a successful launch, which is not supported by real data.

Ignoring the marketing aspects of MVP also negatively affects the effectiveness of its use. The lack of a clearly defined strategy for collecting user feedback reduces the value of MVP as a tool for testing market hypotheses [6]. Startups often limit themselves to a superficial analysis of feedback or focus on a small group of users, which leads to false conclusions about the market's readiness to accept the product. In addition, underestimating the importance of MVP price testing can lead to the establishment of an incorrect (false) pricing policy that does not take into account the financial capacity of the target audience and distorts market demand.

Thus, optimizing the MVP process is a critical step in ensuring the sustainable development of a startup at the scaling stage, as it is at this stage that key aspects of further product development, its functionality, and market attractiveness are determined. First of all, it is recommended to implement a systematic approach to MVP testing, which includes step-by-step hypothesis validation and a clear structure for collecting user feedback. Instead of a one-time MVP launch, it is worth implementing a gradual integration of product functions, focusing on the most risky aspects of the business model, which will provide valuable data for strategy adjustments before scaling.

The financial optimization of the MVP process should be based on the definition of clear profitability indicators and the assessment of potential risks based on preliminary analysis. It is advisable to use the lean budgeting methodology,

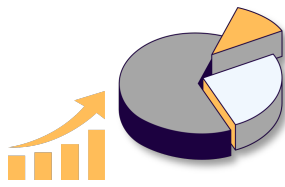


which involves the adaptive allocation of resources depending on the results achieved by the MVP, as well as regular analysis of break-even points in order to adjust financial forecasts. In case of successful confirmation of demand for the basic version of the product, pre-sales of new features should be initiated, which will allow obtaining additional financial resources for finalizing the MVP without attracting external investments.

In terms of technology, it is recommended to use a modular approach to MVP development, which will allow you to focus on the implementation of the most important functions, with the possibility of their further integration and scaling. Implementation of a cloud-based architecture will ensure the flexibility of the MVP and simplify its adaptation to new technological requirements during scaling. It is also advisable to use prototyping to test the MVP's technical compatibility with key platforms and services. This makes it possible to identify critical technical limitations even before the main product launch, which minimizes the risks of additional costs for eliminating technical deficiencies.

Marketing recommendations include an emphasis on segmenting the target audience for each stage of the MVP. In the early stages, it is advisable to focus on a narrow segment of users who are most interested in solving a particular problem, and subsequently expand the coverage based on the data obtained. To ensure effective feedback, it is advisable to implement a system of analytics tools that track user behavior and their reactions to new MVP features. This approach allows timely adjustment of the marketing strategy depending on the identified needs and expectations of the audience.

At the MVP scaling stage, it is worth implementing a Pre-Sell MVP or Concierge MVP to confirm the readiness of the target audience to pay for the product before the development of new features is completed. This not only helps to optimize financial flows but also forms the basis for building a loyal community of users who act as potential product ambassadors. Involving such users in the MVP testing



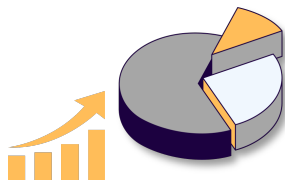
process allows you to get valuable feedback on future product updates and at the same time creates conditions for testing market hypotheses in real-world conditions.

Thus, optimizing the MVP creation process at the startup scaling stage involves integrating a phased approach to hypothesis testing, implementing a modular architecture for flexible product development, introducing lean budgeting to reduce financial risks, and using analytics tools to generate data on market expectations. This comprehensive approach increases the investment attractiveness of the project and reduces the risks of its inefficient scaling.

Conclusions. It has been established that MVP facilitates rapid testing of market hypotheses at minimal cost, allows timely adjustment of the business model in accordance with feedback from the target audience, and minimizes the risks of financial losses at the scaling stage.

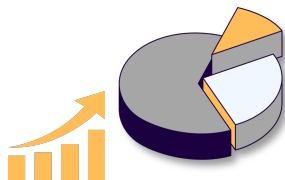
The main problems with validating startup business models include insufficient testing of market hypotheses, unreasonable financial forecasts, and underestimation of MVP infrastructure aspects, which leads to technical limitations when integrating the product with existing platforms. The lack of clear criteria for financial evaluation of MVPs makes it difficult to predict profitability, and insufficient attention to user feedback limits the ability to identify product weaknesses before entering the market.

Prospects for further research are related to the development of an integrative MVP assessment model that will take into account financial, technological and marketing indicators, as well as the introduction of automated tools for collecting and analyzing feedback. Particular attention should be paid to the use of machine learning algorithms to predict market changes and adapt MVPs to dynamic market conditions, which will contribute to the sustainable development of the startup.



References

1. Тешева Л. В. Основні компоненти діяльності компанії, які впливають на формування бренду. *Veda a perspektivu*. 2022. Вип. 7, №14. С. 478-485. DOI: [https://doi.org/10.52058/2695-1592-2022-7\(14\)-141-151](https://doi.org/10.52058/2695-1592-2022-7(14)-141-151).
2. Сак Т. В. Маркетинг стартапу: особливості, цифрові інструменти та канали просування. *Маркетинг і цифрові технології*. 2023. Вип. 7, № 1. С. 107-119. URL: http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?C21COM=2&I21DBN=UJRN&P21DBN=UJRN&IMAGE_FILE_DOWNLOAD=1&Image_file_name=PDF/mardigt_2023_7_1_11.pdf (дата звернення: 02.11.2024).
3. Горбаченко С., Чепурна О., Слатвінська В. Адаптація проєктного підходу до управління стартапами. *Трансформаційна економіка*. 2023. Вип. 4, № 4. С. 24-28. DOI: <https://doi.org/10.32782/2786-8141/2023-4-5>.
4. Марченко М. М. Особливості побудови бізнес-моделі ощадливого стартапу. *Економіка. Менеджмент. Бізнес*. 2022. Вип. 3-4. С. 72-77. DOI: <https://doi.org/10.31673/2415-8089.2022.037277>.
5. Левчук О. М., Опря Д. І. Стартап як форма підприємницької діяльності: методика просування Customer Development. *Обрії друкарства*. 2023. № 1(13). С. 158–170. DOI: [https://doi.org/10.20535/2522-1078.2023.1\(13\).287531](https://doi.org/10.20535/2522-1078.2023.1(13).287531).
6. Göcke L., Weninger R. Business model development and validation in digital entrepreneurship. *Digital entrepreneurship. future of business and finance* / eds M. Hughes, L. Göcke. Springer: Cham, 2021. P. 71-85. DOI: https://doi.org/10.1007/978-3-030-53914-6_4.
7. Shepherd D. A., Gruber M. The lean startup framework: closing the academic–practitioner divide. *Entrepreneurship Theory and Practice*. 2020. Vol. 45, № 5. P. 967-998. DOI: <https://doi.org/10.1177/1042258719899415>.



8. Stevenson R., Burnell D., Fisher G. The minimum viable product (MVP): theory and practice. *Journal of Management*. 2024. Vol. 50, № 8. P. 3202-3231. DOI: <https://doi.org/10.1177/01492063241227154>.

9. Shepherd D. A., Gruber M. The lean startup framework: Closing the academic–practitioner divide. *Entrepreneurship Theory and Practice*. 2021. Vol. 45, № 5. P. 967-998. DOI: <https://doi.org/10.1177/1042258719899415>.

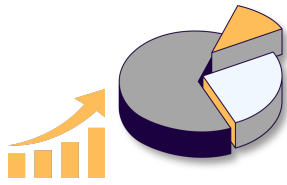
10. Souza M. L. P., Filho L. D. R. M., Bagno R. B., Souza W. C., Cheng L. C. A Process model integrated to innovation management tools to support technology entrepreneurship. *Portland International Conference on Management of Engineering and Technology (PICMET)*. 2018. P. 1-12. DOI: 10.23919/PICMET.2018.8481921.

11. Ulč J. Technology start-up marketing strategy and lifecycle: first empirical findings by qualitative research. *Trends Economics and Management*. 2021. Vol. 15, № 38. P. 71-91. DOI: <http://dx.doi.org/10.13164/trends.2021.38.71>.

12. Corbo L., Mahassel S., Ferraris A. Translational mechanisms in business model design: introducing the continuous validation framework. *Management Decision*. 2020. Vol. 58, № 9. P. 2011-2026. URL: <https://www.emerald.com/insight/content/doi/10.1108/md-10-2019-1488/full/html> (дата звернення: 02.11.2024).

13. Corallo A., Errico F., Latino M. E. Dynamic Business Models: a Proposed Framework to Overcome the Death Valley. *Journal of Knowledge Economy*. 2019. Vol. 10. P. 1248–1271. DOI: <https://doi.org/10.1007/s13132-018-0529-x>.

14. Marchenko M. M. Lean startup methodology in the context of MVP strategy for international market expansion. *Economic Research*. 2023. Vol. 18, № 1. P. 113-127. URL: https://example.com/economic_research_2023_1_113 (дата звернення: 02.11.2024).



15. Examples of minimum viable product: 9 startups that started with an MVP. Antler: website. 2024. URL: <https://www.antler.co/academy/minimum-viable-product-examples> (дата звернення: 02.11.2024).

16. Top 15 minimum viable product examples and stories behind them. Purrweb: website. 2024. URL: <https://www.purrweb.com/blog/top-15-minimum-viable-product-examples-and-stories-behind-them/> (дата звернення: 02.11.2024).

17. The most inspirational minimum viable product examples. Codica: website. 2024. URL: <https://www.codica.com/blog/most-inspirational-minimum-viable-product-examples/> (дата звернення: 02.11.2024).