



## The Use of Artificial Intelligence in Business Valuation in Bulgaria, Romania and Greece

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### Abstract:

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Nowadays, when digitalization and automation are key trends, technologies such as artificial intelligence are also used in the valuation process itself. Traditional valuation methods are increasingly supplemented with modern tools, including the use of artificial intelligence. In response to this development, it is possible to examine the extent to which these technologies are used in practice and how experts perceive them. This article is based on research and its aim is to map whether companies use automation and artificial intelligence, what specific applications they use and what benefits they perceive from combining modern technologies with traditional valuation procedures. To achieve the set goal, three research questions were formulated. A quantitative research method in the form of a questionnaire survey was used to obtain the necessary data. The data obtained were subsequently analyzed and evaluated using descriptive statistical methods and the set research questions were answered based on the results achieved. The research found that all respondents use modern approaches in the valuation process, such as automation, digitalization and artificial intelligence. Companies use applications such as Valutico, Chat GPT and BgGPT Chat in the business valuation process. Companies perceive the following benefits of integrating digitalization, automation and artificial intelligence into the business valuation process: big data analysis, time savings, accuracy, acceleration of routine calculations, elimination of human errors and reduction of human labor costs.

### Keywords:

Business valuation, digitalization, automation, artificial intelligence, company

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## Introduction

This article contributes to the discussion by examining technological innovations in the business valuation process. Business valuation is a key process in mergers, acquisitions, and investment decisions. Traditional valuation approaches have been the basis in this area for many decades. Current technological developments reveal their limits, but these approaches help to speed up, refine, and streamline the business valuation process.

As a result of the development of digitalization, automation, and, above all, artificial intelligence, valuation practice has undergone a significant transformation in recent years. Modern technologies enable faster and more efficient data processing, provide better and more accurate predictions, and foster a deeper understanding of the factors that influence a business's value. Automated systems can easily take over time-consuming routine tasks, allowing experts to devote more time to the more complex tasks that the process requires.

The aim of this article is to map whether companies utilize automation and artificial intelligence, what specific applications they employ, and what benefits they perceive from combining modern technologies with traditional valuation procedures.

The introductory part of the article is devoted to theoretical foundations. The text includes an analysis of the current literature and a summary of the theoretical foundations of business valuation. It introduces the concept of business valuation and the current state of digitalization and automation in this area. The following part describes the research itself, which forms the central pillar of the work. The research in this article focuses on the reactions of experts to new approaches in business valuation in Bulgaria, Romania, and Greece. The final part of the article is devoted to a conclusion, in which the achieved results are evaluated.

## Business valuation

The process of business valuation is a crucial component of corporate finance. (Farahani, 2024). The term business valuation can be defined as a set of procedures, analyses, and assessments used to estimate a company's value in monetary units at a given moment. Another possible definition, according to Fang (2023), is that business valuation is an analytical method of calculating the current or expected value of a company. Using this process, it is therefore possible to determine the value of a company or its assets (Farahani, 2024). Valuation has an impact on strategic decisions regarding mergers, acquisitions, investment allocation, and the commercialization of technological innovations. (Blanquet et al., 2025)

The choice of methods is crucial for the accuracy of the valuation. When choosing a method, it is essential to consider the valuation objective, the situation of the valued entity, the nature of the business, and the area of its business activity. Miciuła, I., Kadłubek, M., & Stępień, P. (2020).

According to Farahani (2024), the current traditional methods of business valuation can be divided into the following six approaches.

1. Asset-based approach – Book value method, Adjusted net asset method.

2. Income approach – Discounted cash flow, Capitalization of Earnings Method, Capital Asset Pricing Model.
3. Market approach – Comparable Company Analysis, Comparable Transaction Analysis, Guideline Public Company Method.
4. Hybrid approach – Weighted Average Method, Adjusted Present Value.
5. Industry-specific methods – Real Estate Valuation, Technology Valuation.
6. Intangible asset valuation – Income method, Market method, Cost method.

Mukhlynina & Nyborg (2016) found and proved, based on their research, that the discounted cash flow method, hereinafter referred to as DCF, is one of the most widely used valuation tools. According to Damodaran (2012), the DCF method is used to determine the value of an asset by evaluating the present value of future cash flows. According to Kruschwitz & Loeffler (2006), this method takes into account the time value of money. By discounting these future cash flows back to their present value, DCF valuation provides insight into the intrinsic value of the asset (Herman et al., 2024).

Nenkov, D. N. (2023) surveyed certified independent valuers in Bulgaria, which shows that the valuation methods and models used are approximately the same as those in Europe and the world. For example, the most preferred are the aforementioned DCF models.

According to Damodaran (2012), the most commonly used valuation method is the relative valuation method. This method is used to assess the value of an asset by comparing it to similar assets in the same market or industry (Herman et al., 2024).

A survey by Bancel, F., and U. Mittoo (2014) found that DCF and RV methods are equally popular. Approximately 80% of respondents reported using both DCF and RV methods. The survey also found that most respondents use multiple methods for valuation. Approximately 60% of respondents rely on two or three methods; only about 21% use a single method. A combination of DCF and RV approaches is the most popular, used by more than 67% of respondents.

Finally, through company valuation analysis, a company's fair value, or intrinsic value, can be roughly estimated, which can then be compared to the current market value to determine whether the company is overvalued or undervalued. (Fang, Z., 2023).

### **Limits of traditional methods and modern approaches**

Traditional approaches to company valuation often fail to capture the full range of factors that influence value, including technological potential, scalability, and intellectual capital. (Miciuła, I., Kadłubek, M., & Stępień, P., 2020).

Uddin et al. (2024) described the limitations of traditional methods. Table 1 lists the limitations of traditional methods, along with their descriptions.

**Table 1. Limits of traditional methods**

Limits of traditional methods	
Limits	Description
Manual processes	Manual data entry and calculation methods increase the risk of errors and inefficiencies, which can result in inaccuracies in financial models and valuations.
Limited predictive capabilities	Traditional methods often cannot handle large data sets and complex variables, which limits their predictive capabilities.
Time-consuming analysis	Manual processes can take longer and delay decision-making processes, which can limit responsiveness to rapidly changing market conditions.
Scalability difficulties	Traditional methods can struggle with the increasing volume and complexity of financial data, making them ineffective at analyzing large data sets.
Risk of irregularities	Human biases and subjective interpretations can introduce inconsistencies into financial models and valuations, which can compromise their credibility.

*Source: own processing according to Uddin et al. (2024)*

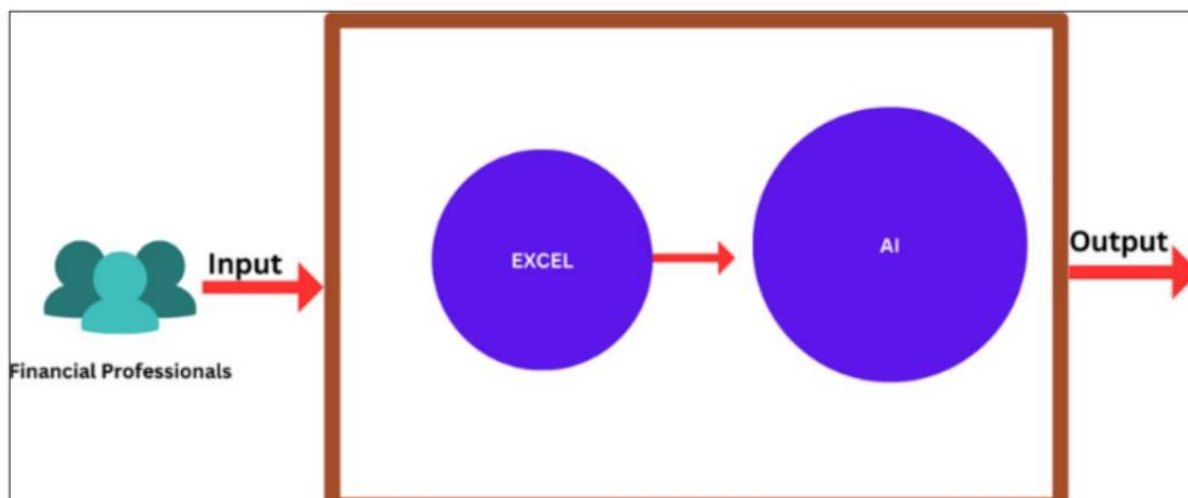
Although the DCF method is the most commonly used, it has its limitations. Its limitations include the need for accurate revenue and cost projections, as well as the selection of an appropriate discount rate. Artificial intelligence technologies can help overcome these limitations, for example, by automating the data collection and analysis process. (Farahani, 2024).

Another popular valuation model is the comparable company analysis method, hereinafter referred to as CCA. This method can be time-consuming and subjective, as it relies on analysts' judgment to select an appropriate set of comparable companies. (Farahani, 2024). With the advent of artificial intelligence technology, traditional valuation models are being improved to provide more accurate and reliable estimates. They can also help this method overcome its limitations.

Herman et al. (2024) found, based on their research, that traditional methods such as discounted cash flow and relative valuation are outdated. Modern approaches such as simulation-based valuation, machine learning, and neural networks combine traditional methods with advanced techniques. Using large datasets and advanced algorithms, modern approaches enhance predictive accuracy and deepen understanding of market dynamics, thereby overcoming the limitations of traditional methods.

Uddin et al. (2024) presented a new system for business valuation graphically. The proposed system aims to revolutionize financial modeling and valuation analysis by leveraging the transformative capabilities of artificial intelligence technologies. This system aims to address the limitations of traditional methods and improve accuracy, efficiency, and predictive power.

*Figure 2. Proposed system*



*Source: Uddin et al. (2024)*

Koklev (2023) investigated whether machine learning is more effective than traditional methods. The author found that machine learning is indeed more effective. He also found that the use of machine learning outperforms some advanced econometric approaches, such as linear regression. Furthermore, Koklev P. S. (2022) concluded, based on his research, that machine learning offers a more accurate and cost-effective approach to company valuation.

Geertsema & Lu (2023) used machine learning for relative valuation and selection of comparable companies in their research. The authors found that their machine learning-based model was more accurate than traditional methods across different types of companies. The research found that the model accurately predicted fundamental values.

Ortega et al. (2020) conducted research aimed at improving company valuation methods. In their research, they used traditional DCF models, which they improved with machine learning techniques. Based on the research, it was found that introducing endogenous and exogenous variables improves the model's predictive ability. It was found that the methods Bagging Trees, Support Vector Machine Regression, and Gaussian Process Regression provide the best results. Koklev (2023) investigated whether machine learning is more effective than traditional methods. The author found that machine learning is indeed more effective. He also found that the use of machine learning outperforms some advanced econometric approaches, such as linear regression. Furthermore, Koklev P. S. (2022) concluded, based on his research, that machine learning offers a more accurate and cost-effective approach to company valuation.

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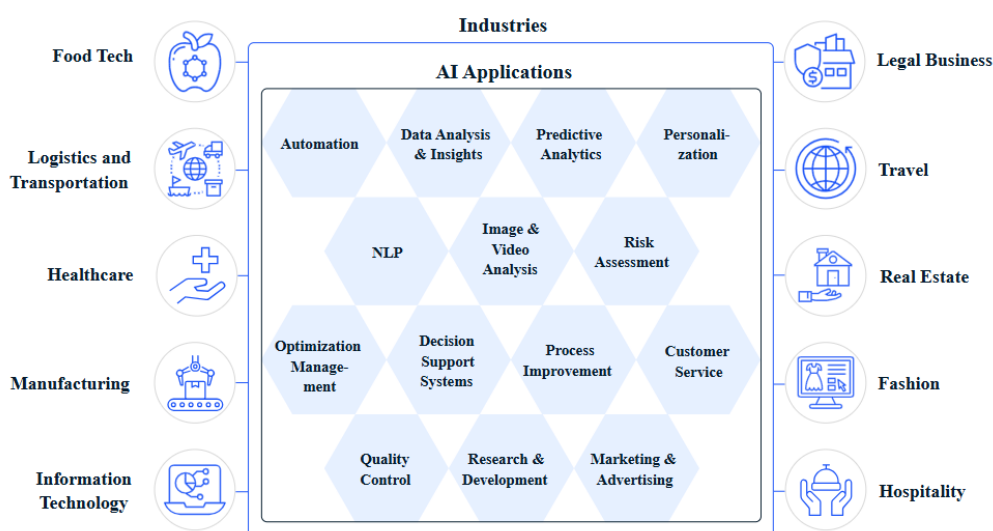
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### Artificial intelligence and its implementation in the business valuation process

Nowadays, with the advent of digitalization, artificial intelligence is being integrated into many industries. According to Bonaparte (2024), artificial intelligence represents one of the most fundamental innovations in human history, and its development is fundamentally transforming the global ecosystem. Secundo, G. et al. (2025) state that in the era of digital transformation, technologies based on artificial intelligence significantly strengthen the possibilities of collaboration within innovation ecosystems. These ecosystems function as collaborative networks in which different actors jointly create value, making them important for the process of value creation. (Adner and Kapoor, 2010)

Artificial intelligence includes machine learning, deep learning, and natural language processing. (Suarez & Ask, 2025) The following figure illustrates the various industries in which artificial intelligence can be applied.

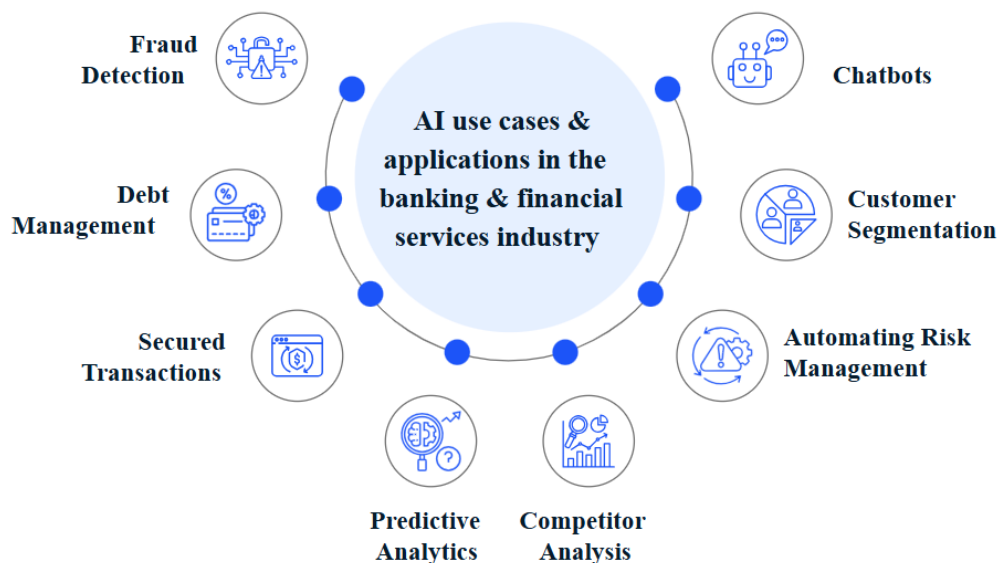
Figure 3. Industries where artificial intelligence can be used



Source: Takyar (2025)

Business valuation is a part of the financial sector. Figure 3 shows examples of use and applications in the financial sector.

*Figure 4. Use cases and applications of artificial intelligence in banking and the financial sector*



*Source: Takyar (2025)*

Automation using AI optimizes financial processes with the help of optical character recognition and voice-activated programs. These technologies streamline tasks such as document scanning and data extraction. (Takyar, 2025) According to Suarez & Ask (2025), AI can efficiently extract large amounts of data. This helps analysts quickly verify the information they use to value a business. AI systems improve decision-making processes, accuracy, and streamline workflows. These technologies reduce manual effort and errors. By automating repetitive tasks and reducing manual labor, AI increases productivity and process accuracy (Takyar, 2025).

In the field of business valuation, AI has great potential. AI can be utilized in the business valuation process to process large amounts of data quickly, automate daily administrative tasks, and perform predictive modeling. These tasks would take employees longer to complete and may be less accurate. However, it is essential to recognize that the human factor remains indispensable and irreplaceable in the valuation process of a business. An expert with knowledge, understanding of the market and trends, and financial analysis must supervise the entire process. Neither technology nor algorithms can replace his decision-making and logical thinking (Suarez & Ask, 2025).

Due to rapid technological development, artificial intelligence techniques are also in high demand in business valuation, as they offer innovative ways to assess a company's performance and identify factors that affect valuation. Artificial intelligence techniques used in business valuation include: Machine Learning, Natural Language Processing, Deep Learning, Predictive Analytics, Sentiment Analysis, Image Recognition, Robotic Process Automation, Knowledge Graphs, Data Mining and Pattern Recognition, as well as AI-powered valuation tools. Thanks to artificial intelligence techniques, companies and valuation professionals can improve the accuracy, efficiency, and reliability of valuation (Farahani, 2024).

Despite the benefits of artificial intelligence in business valuation, several challenges also need to be considered. One of the main challenges is the need for

high-quality data to train artificial intelligence algorithms and ensure accurate predictions (Herman et al., 2024).

## Methodology

First, a literature search and review of relevant database sources were conducted. Within the framework of this research, three research questions were set. To carry out the research and answer the research questions, respondents from three countries were approached: Bulgaria, Romania, and Greece. The selection of companies was random. The only prerequisite was that the company was engaged in business valuation. To obtain the necessary data, the quantitative research method was used. The data collection technique employed a survey, conducted in the form of a questionnaire using the Survio program, which was sent to the respondents via email. The data obtained from the questionnaire survey were analyzed and evaluated using descriptive statistics. Based on the data evaluation, answers to the research questions were found.

Research questions:

RQ1: Do companies in Bulgaria, Romania, and Greece use automation, digitalization, artificial intelligence, or traditional methods without modern approaches in the business valuation process?

RQ2: Which applications are used by companies in Bulgaria, Romania, and Greece in the business valuation process?

RQ3: What advantage do companies in Bulgaria, Romania, and Greece perceive in combining digitalization, automation, and artificial intelligence with the business valuation process?

## Research

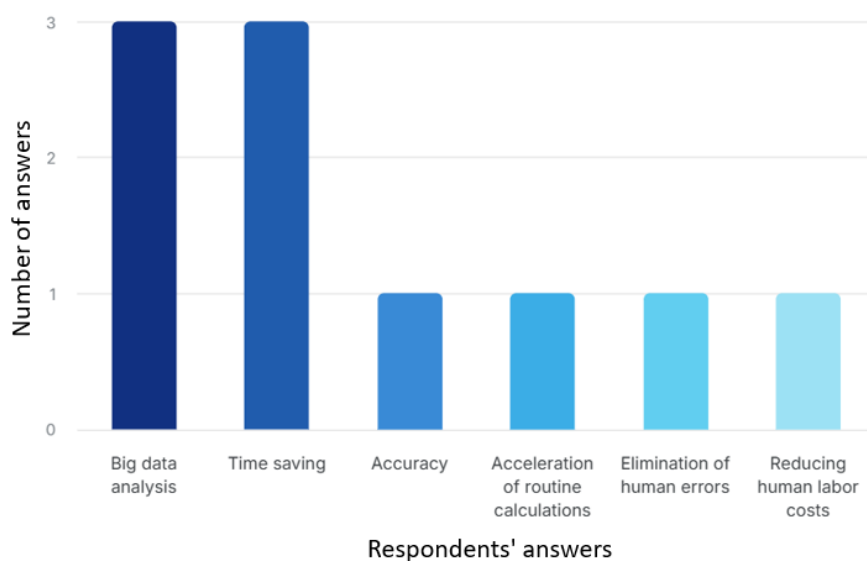
The following questions and requirements were asked as part of the questionnaire survey, which allowed the set research questions to be answered.

The first question was: Do you use automation, digitalization, or artificial intelligence in the valuation process, or do you employ classic, traditional methods without modern approaches? All respondents use Modern approaches, such as automation, digitalization, and artificial intelligence. The answer to RQ1 is unequivocal: modern approaches such as automation, digitalization, and artificial intelligence.

The second requirement in this research was to write the name of the application you are using in the business valuation process. The answers from the companies and the answers to RQ2 are Valutico, Chat GPT, and BgGPT Chat.

Another question in this research was: What do you think are the advantages of integrating digitalization, automation, and artificial intelligence into the business valuation process? The answer to this question is recorded in Figure 5. Most respondents mentioned big data analysis and time saving. The answer to RQ3 is therefore that big data analysis enables time savings, accuracy, acceleration of routine calculations, elimination of human errors, and reduction of human labor costs.

**Figure 5. The benefits of connecting digitalization, automation and artificial intelligence to the business valuation process**



Source: own processing

## Conclusions

In conclusion, implementing AI into business valuation models can effectively change the way companies are valued. By automating repetitive tasks, enhancing data quality, and improving the accuracy of predictions, AI can enable analysts to make faster, more accurate, and more efficient decisions about a company's value. (Farahani, 2024) The introduction of artificial intelligence into business operations represents a transformational process that offers significant benefits, but also presents ethical and labor law challenges (Oyekunle & Boohene, 2024). While some challenges and limitations need to be considered before implementing AI into the business valuation process, there are many advantages to using this technology in business valuation. (Farahani, 2024)

The research shows:

1. Business valuation has undergone modernization in selected companies in Bulgaria, Romania, and Greece, which is associated with the implementation of digitalization, automation, and AI.
2. All the entities interviewed confirmed that they no longer use traditional methods alone in valuation, but combine them with modern approaches, which bring greater efficiency and accuracy. This trend indicates a shift in the financial sector, where technology is becoming an integral part of analytical processes.
3. The most frequently used applications are Valutico, ChatGPT, and BgGPT Chat. These tools enable not only the rapid processing of large volumes of data but also the automation of calculations, the creation of predictive models, and the support of analytical decision-making. This significantly reduces the time required for document preparation, increases the accuracy of valuation models, and reduces the risk of errors caused by human data processing.

4. Respondents perceive the most significant advantages in terms of time savings, the possibility of analyzing large data sets, more accurate calculations, speeding up routine tasks, and reducing the costs associated with human labor.

5. Companies in Bulgaria, Romania, and Greece engaged in business valuation perceive modern technologies as a tool that helps them increase the quality of their services. We can expect further development of artificial intelligence-based tools, which, when combined with traditional valuation approaches, will make the entire valuation process even more efficient. Lee J et al. (2019) emphasize that the further development of artificial intelligence technologies will continue to bring new opportunities and new challenges in the future.

These findings confirm that combining traditional valuation methods with modern technologies makes the process of valuing companies more efficient. However, technologies such as artificial intelligence are not a substitute for professional judgment and decision-making. They are a tool that helps experts achieve faster and more accurate results.

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## References

- Adner R, Kapoor R. (2010). Value creation in innovation ecosystems: how the structure of technological interdependence affects firm performance in new technology generations, *Strategic Management Journal*, 31(3):306–333. <https://doi.org/10.1002/smj.821>
- Bancel, F., and U. Mittoo. (2014). The Gap between the Theory and Practice of Corporate Valuation: Survey of European Experts. *Journal of Applied Corporate Finance*, Columbia Business School, 26(4), pp. 106–117. Available at SSRN: <https://ssrn.com/abstract=2420380> or <http://dx.doi.org/10.2139/ssrn.2420380>
- Blanquet, L. B., Pereira, M. A., & Petrov, S. (2025). An interpretable machine learning framework for explaining company valuation. In *Decision Analytics Journal* (16 ed.). <https://doi.org/10.1016/j.dajour.2025.100611>
- Bonaparte, Y. (2024). Artificial Intelligence in Finance: Valuations and Opportunities. In *Finance Research Letters* (Volume 60). <https://doi.org/DOI:10.1016/j.frl.2023.104851>
- Damodaran, A. (2012). *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*. 3rd Edition, Wiley, Hoboken.
- Fang, Z. (2023). Research and Application of Company Valuation Methods. *BCP Business & Management*, 45, 109-114. <https://doi.org/10.54691/bcpbm.v45i.4870>
- Farahani, M. S. (2024). Analysis of business valuation models with AI emphasis. *Sustainable Economies*, 2(3), 132. <https://doi.org/10.62617/se.v2i3.132>
- Geertsema, P., & Lu, H. (2023). Relative Valuation with Machine Learning. *Journal of Accounting Research*, 61(1), 329–376. <https://doi.org/10.1111/1475-679X.12464>
- Herman, A., Mumel, D., & Jagrič, T. (2024). Meta analysis of business valuation solutions – are AI based methods better? In *Mednarodno inovativno poslovanje - Journal of Innovative Business and Management* (16(2):1–16). <https://doi.org/10.32015/JIBM.2024.16.2.6>

- Koklev, P. (2023). Prerequisites for the Use of Machine Learning for Business Valuation. *Relacoes Internacionais No Mundo Atual*, 6(39). <https://doi.org/10.21902/Revrima.v6i39.6267>
- Koklev, P. S. (2022). Business Valuation with Machine Learning. *Finance: Theory and Practice*, 26(5), 132–148. <https://doi.org/10.26794/2587-5671-2022-26-5-132-148>
- Kruschwitz, L., & Loeffler, A. (2006). *Discounted Cash Flow: A Theory of the Valuation of Firms*. John Wiley and Sons. [https://books.google.si/books?hl=sl&lr=&id=mWM9b6gDVi0C&oi=fnd&pg=PR5&dq=discounted+cash+flow&ots=0q1lFCCjHA&sig=iJYphwkfs3WLaRV6BpPBPEAxB6U&redir\\_esc=y#v=onepage&q=discounted cash flow&f=false](https://books.google.si/books?hl=sl&lr=&id=mWM9b6gDVi0C&oi=fnd&pg=PR5&dq=discounted+cash+flow&ots=0q1lFCCjHA&sig=iJYphwkfs3WLaRV6BpPBPEAxB6U&redir_esc=y#v=onepage&q=discounted cash flow&f=false)
- Lee, J., Suh, T., Roy, D., & Baucus, M. (2019). Emerging Technology and Business Model Innovation: The Case of Artificial Intelligence. *Journal of Open Innovation: Technology, Market, and Complexity*, 5(3), 44. <https://doi.org/10.3390/joitmc5030044>
- Miciuła, I., Kadłubek, M., & Stepień, P. (2020). Modern Methods of Business Valuation—Case Study and New Concepts. *Sustainability*, 12(7), 26–99. <https://doi.org/10.3390/su12072699>
- Mukhlynina, L., & Nyborg, K. G. (2016). The Choice of Valuation Techniques in Practice: Education versus Profession. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2784850>
- Nenkov, D. N. (2023). Company Valuation: The Most Widely Used Valuation Methods in Bulgaria. *Finance, Accounting and Business Analysis (FABA)*, 5(1), 1–13. Retrieved from <https://faba.bg/index.php/faba/article/view/150>
- Oyekunle, D., & Boohene, D. (2024). Digital Transformation Potential: the Role of Artificial Intelligence in Business. *International Journal of Professional Business Review*, 9(3), e04499. <https://doi.org/10.26668/businessreview/2024.v9i3.4499>
- Secundo, G., Spilotro, C., Gast, J., & Corvello, V. (2025). The Transformative Power of Artificial Intelligence within Innovation Ecosystems: A Review and Conceptual Framework. In *Review of Managerial Science* (pp. 2697–2728) <https://doi.org/https://doi.org/10.1007/s11846-024-00828-z>
- Suarez, L. A., & Ask, D. K. (2025). The Potential Application of Artificial Intelligence in Business Valuation. Willamette. Retrieved November 8, 2025, from [https://www.willamette.com/assets/files/January\\_2025\\_Perspectives\\_AI\\_in\\_Business\\_Valuation.pdf](https://www.willamette.com/assets/files/January_2025_Perspectives_AI_in_Business_Valuation.pdf)
- Takyar, A. (2025). AI in banking and finance: Use cases, applications, AI agents, solutions and implementation. Leewayhertz. Retrieved November 9, 2025, from <https://www.leewayhertz.com/ai-use-cases-in-banking-and-finance/>
- Takyar, A. (2025). AI Use Cases & Applications Across Major industries. Leewayhertz. Retrieved November 9, 2025, from <https://www.leewayhertz.com/ai-use-cases-and-applications/>
- Uddin, M. Z., Jamal, M. Z. U., Umair, M., Khader, M. A., & Kumar, D. M. U. (2024). AI-Powered financial modeling and valuation analysis: Unleashing data-driven insights. In *International Journal of Multidisciplinary Research and Growth Evaluation* (Volume: 05, Issue: 02, pp. 626-629). <https://doi.org/doi.org/10.54660/IJMRGE.2024.5.2.626-629>
- Vayas-Ortega, G., Soguero-Ruiz, C., Rodríguez-Ibáñez, M., Rojo-Álvarez, J.-L., & Gimeno-Blanes, F.-J. (2020). On the Differential Analysis of Enterprise Valuation Methods as a Guideline for Unlisted Companies Assessment (II): Applying Machine-Learning Techniques for Unbiased Enterprise Value Assessment. *Applied Sciences*, 10(15), 5334. <https://doi.org/10.3390/app10155334>