
THE IMPACT OF HUMAN RESOURCE INFORMATION SYSTEMS ON EMPLOYEE RETENTION IN NORTH MACEDONIA

Andrijana Ristovska

National Bank of the Republic of North Macedonia, North Macedonia, andrijanaristovska07@yahoo.com

Marijana Cvetanoska

Faculty of Economics – Skopje, University Ss. “Cyril and Methodius” in Skopje, North Macedonia
marijana.cvetanoska@eccf.ukim.edu.mk

Abstract: In today's globalized society, organizations are faced with a serious challenge of constant changes and adaptation to new conditions imposed by strong competition created under the influence of globalization and intensive technological development. Often, efforts to introduce change fail as a result of employee resistance to these changes and which, if not properly managed, can lead to encouraging their turnover intention. Hence, human resource management must work more intensively on modernizing the change management process.

In that context, this paper analyzes the degree of application of the so-called predictive analytical techniques for human resources in the private sector in the Republic of North Macedonia, analyzing their experiences and attitudes regarding the effectiveness of using these techniques on improving planning processes, decision-making, and most importantly, creating talent retention strategies. Predictive analytics is recognized as a critical tool for gaining a competitive advantage, as it not only aids in mitigating risks related to turnover but also enhances the ability to proactively address potential organizational challenges before they escalate.

The analysis was made on the basis of interviews conducted between human resource managers in thirteen companies in the country. The findings of the analysis show that only four out of a total of thirteen organizations apply modern systems in the direction of implementing predictive analytics of human resources. HR managers in the country agree that the application of predictive analytics for HR helps in reducing employee turnover intention and believe that only by applying predictive metrics and tracking semi-annual and annual trends and causes of job dissatisfaction and turnover, the organization creates practices and plans for corrective actions that address issues of importance to employees. They also emphasize that organizations leveraging predictive analytics can identify patterns related to workplace engagement and tailor their strategies to meet evolving employee needs effectively.

Additionally, they believe that by analyzing the available databases for their employees, the risk of the best profiles leaving is successfully assessed. Hence, in order for organizations to make a realistic assessment and retain employees, it is imperative that they apply modern predictive analytics techniques by obtaining information and providing data that allows them to study changes in employee behavior and forecast the causes of such behavior in order to promptly take measures to encourage employee satisfaction and deter the intention to leave the company. Furthermore, predictive analytics enables organizations to align their talent management strategies with long-term business goals, ensuring that key positions are filled with employees who are both skilled and engaged.

Keywords: HR predictive analytics techniques, human resource management, turnover intention.

1. INTRODUCTION

Employee turnover is one of the biggest threats facing human resource management. It incurs costs, causes disruptions in organizational functioning, and, above all, is inevitable. Modern human resource managers, following global trends in their field, coupled with intensive technological development, need to conduct deeper analyses to understand the actual causes of employee turnover intentions, using databases to identify and address the root causes that lead to undesirable outcomes. Through human resource analytics and a deeper understanding of the dynamics of human capital, human resource management faces the challenge of providing employees whose goals align with the needs, objectives, and budget of the organization, and whose culture fits within the organizational culture itself (Bhatnagar, 2004).

Within national contexts, the role of human resource management in retaining talent is still in its infancy. A survey conducted among large companies with foreign capital inflows in North Macedonia in 2018 (Ristovska, 2018) shows that human resources departments in the country do not have a consistent understanding of their role in talent retention. Specifically, most of them do not have a retention strategy at all, while a few believe they play a role, though not of decisive importance, as working conditions are seen as the main factor in retaining staff. However, human resources departments in North Macedonia still do not have direct influence over working conditions in most companies.

Given the relevance of this issue and the need for modernization in human resource management, especially in the country, the subject of this paper is to analyze the effects and usefulness of applying modern software tools in

organizations in North Macedonia to predict future human resource parameters and conditions, which are crucial for better planning and addressing the problem of employee turnover in the future.

The purpose of this paper is to analyze the extent to which predictive analytical techniques for human resources are applied in the organizations studied in North Macedonia, as well as to review the global theoretical and practical knowledge regarding the effectiveness of these techniques in improving planning processes, decision-making, and, most importantly, in creating strategies for talent retention. To address the subject and goal, the following hypothesis is proposed: “The application of predictive analytical techniques for human resources improves human resource management processes in the Republic of North Macedonia, contributing to talent retention and reducing employee turnover intention”. To test this hypothesis, the interview method was applied, for which a structured instrument (interview protocol) consisting of six open-ended questions was prepared. These questions were answered by the heads of human resources departments in thirteen companies in North Macedonia, who shared their opinions on the extent to which predictive analytics is applied in human resources, and the effectiveness of these techniques in improving planning processes, decision-making, and creating talent retention strategies.

After the introduction, the second section presents the theoretical foundation for the application of predictive analytics in human resource management functions. The third section examines the role of predictive analytics in forecasting employee turnover intentions through current case studies. The research methodology is discussed in the fourth section, while the fifth section presents the results of the conducted research. Finally, the conclusion summarizes the theoretical and statistical findings from the research on the impact of human resource management information systems on employee retention in North Macedonia.

2. THE ROLE OF PREDICTIVE ANALYTICS IN HUMAN RESOURCES MANAGEMENT FUNCTIONS

In the early days, when predictive analytics for human resources was a new concept, most HR professionals lacked clear knowledge and skills about what their department should deliver. As a result, they hired professional analysts to engage in predictive activities. Today, however, HR professionals are increasingly interested in and equipped with the expertise to actively direct HR analytics. Predictive analytics can uncover hidden patterns in employee behavior, enabling HR managers to take preventative measures against high turnover rates (Dery & Wiblen, 2019). It can also allow them to forecast which employees are likely to achieve high performance and successfully fit into the organizational culture, based on their knowledge, skills, and experience. In other words, it helps identify which employees are likely to be categorized as talent (Edwards & Edwards, 2016).

By using predictive analytics, companies can more accurately forecast employee turnover, providing HR departments with valuable insights for reducing attrition (Davenport & Harris, 2021). Timely recognition of these risks leads to the identification of quick and appropriate solutions to mitigate them, as well as preventing high and unforeseen costs for the organization (Boroughts et al., 2008).

One of the latest and largest surveys by Oracle (2021) reveals that 53% of organizations fully agree that their human resources management is actively involved in directing people analytics. More specifically, predictive analytics uses past and current strategic and operational data, supplementing it with certain leading indicators. Data on retention, readiness, leadership, and engagement provide insights into what is likely to occur in the future, and this, in turn, represents a significant advancement in business intelligence technology.

The integration of predictive analytics in HR practices enables organizations to proactively identify employees at risk of leaving, allowing for timely interventions that improve retention (Sharma & Singh, 2020).

Key types of predictive analytics systems in human resource management

Companies using predictive modeling can segment their workforce more effectively and offer personalized retention strategies based on data-driven insights (Jain & Mishra, 2022). Human resource analytics software is designed to manage, track, and report on various metrics, such as employee engagement, pay equity, turnover rates, hiring costs, etc. This software generates actionable insights from collected data, enabling the identification of talent, analysis of career paths, planning of reward processes, and detection of skills gaps and talent shortages. The benefits of using HR analytics tools include reducing voluntary turnover, making better hiring decisions, and improving productivity and performance. Some of the most commonly used and, at the same time, most functional predictive HR analytics tools are explained in the remainder of this paper.

In 2003, as a product of a Stanford computer science project aimed at improving the process of analyzing and increasing the availability of data through visualization, Tableau began changing the way human resource management in organizations gains insights and conducts analysis on employee data. *Tableau* is a graphical business intelligence and analytics platform that allows users to quickly connect to employee databases and, based on them, create charts, maps, and interactive dashboards. This useful tool allows for free exploration, creation, and sharing of data visualizations, connects the data needed by human resource management, and provides stakeholders with access to sources of confidential information for review and predictive analytics.

Power BI is an interactive data visualization software developed by Microsoft. It is part of the Microsoft Power Platform, with a primary focus on business intelligence. The capabilities provided by this data modeling and visualization software help organizations worldwide gain meaningful insights from raw data, thereby continuously improving the decision-making process. Power BI connects and visualizes all data using a unified, scalable platform for individual applications, which is easy to use and allows organizations to gain more detailed insights into the data they have. Business Intelligence (BI) helps organizations to use the information to gain a competitive advantage over competitors. It combines people skills, technologies, and business processes to make better strategic business decisions. The technologies and applications include data management methods for planning, collecting, storing, and structuring data into data warehouses and data marts as well as analytical tasks for querying, reporting, visualizing, generating online active reports, and running advanced analytical techniques for clustering, classification, segmentation, and prediction (Sousa & Dias, 2020).

Agile HR Analytics is an analytical technique in Microsoft Power BI that enables predictive analytics and reporting to help organizations uncover meaningful information about their employees, which impacts strategic decision-making. HR management bases its decision-making process on the data it has, using this information to make meaningful decisions related to recruitment, employee management and retention, which in turn improves organizational profitability, creates a better work environment, and maximizes employee productivity. This platform provides a detailed overview of all employee data, organized into dashboards that allow for employee analysis based on their demographic characteristics, diversity, historical data, new hires, salary analysis, GAP analysis, training attendance, performance analysis, and employee rankings according to their achieved performance. It also includes analysis of employees who have left the organization, absenteeism data and its reasons, reasons for contract terminations, predictions of employee turnover risks (voluntary or involuntary), and analysis by different organizational units. Employee data is regularly entered into these dashboards to enable analysis that predicts future significant risks, which will help inform decision-making and strategy development.

HRForecast, one of the fastest-growing organizations in Germany over the past decade, combines artificial intelligence with managed services to provide business intelligence and insights into the human resources recruitment process. This tool allows large organizations to better understand their employees by collecting and analyzing data using artificial intelligence. With HRForecast, organizations can benchmark against competitors, conduct location analysis to identify the best places for business expansion, assess talent availability, analyze skill demand, and more.

SplashBI's human resources analytics tool enables data analysis in four key areas: intellectual capital management, talent management, talent acquisition, and diversity and inclusion. SplashBI helps HR management analyze the state of the organization by understanding the reasons for a reduced number of interested candidates, factors contributing to turnover, fairness in the reward process, and other factors that can help HR plan for the future.

Other useful tools for implementing predictive analytics techniques include *Nakisa's Hanelly* (which allows the creation of graphs and reports on a daily basis), *OrgVue* (which specializes in implementing HR analytics and successfully integrates employee data with other business data to enable the creation of future business strategies), *Visier*, and many others. Also, the application of artificial intelligence in predictive analytics allows organizations to anticipate employee churn and devise interventions that improve engagement and retention (Verma & Patil, 2023).

The use of human resource analytics programs results in a wide range of benefits for organizations, both in terms of making better decisions regarding hiring, culture, strategy, and organizational growth, and in terms of increasing the organization's confidence that it is hiring the right people and focusing on the right initiatives at the right time (Fitz-Endz, 2010). The most significant benefits of using human resource analytics tools are listed and explained below (Visier, 2019):

Better hiring decisions: Using historical employee data allows for the identification of trends in the qualifications and backgrounds of candidates;

Reduced employee turnover and turnover intention: Identifying trends that lead to employee turnover and the factors that encourage it helps create solutions to increase employee retention in the long term;

Improved productivity and performance: Better planning of resource allocation, company goals, and strategies, as well as investments in employees. Human resource analytics programs offer various functions that can help understand key human resource metrics, enabling strategic decisions about human resource planning and organizational strategies;

Predictive analytics: Pulling data from various human resource systems into the chosen analytics platform allows for the identification of future outcomes for specific human resource-related segments. This is enabled by a combination of machine learning, visualization, and artificial intelligence.

3. THE ROLE OF PREDICTIVE ANALYTICS IN UNDERSTANDING EMPLOYEE TURNOVER INTENTION AND THEIR CAUSES – CASE STUDIES

The analysis of employee turnover intent through the application of predictive analytics is gaining increasing attention in the business world. Analytical methods that predict whether employees intend to leave the organization play a significant role in improving human resource management and reducing related costs. Predictive human resource analytics identifies employees who are at a higher risk of voluntary turnover in the future.

For effective application, predictive analytics requires access to cleaned databases, which are key to its successful implementation. By analyzing employee data, HR professionals applying these techniques can identify specific conditions—such as continuous underperformance, increased absenteeism, decreased job satisfaction, and changes in behavior—that indicate the likelihood of an employee leaving the organization. The availability of this information, along with its proper analysis, helps redesign retention strategies, ensuring key employees remain happy, engaged, and motivated to stay with the organization (Mishra, et al., 2016).

Organizations that approach predictive analytics for employee turnover intention typically begin with available data on the number of employees who have left the organization in the past, or over a specific number of years, along with other relevant input data. Based on this information, they set specific goals. A cause-and-effect relationship is then established with the dependent variable—employee turnover intention in this case. The data set as independent variables, or the input data whose impact on the dependent variable is analyzed, is most often collected through employee questionnaires. Thus, organizations continuously assess employee job satisfaction, the alignment between an employee's skills and the job they are assigned to, employees' perceptions of the support they receive from their supervisors, and other relevant factors. This data is then linked to numerical data on turnover rates, i.e., the number of employees who have left the organization. By applying appropriate methodological procedures, organizations can determine which factors have the greatest and most significant impact on employee turnover.

In the period June–August 2021, Oracle (2021) conducted a survey titled “The State of HR Analytics”, which included a total of 302 respondents—HR professionals from both small companies (with fewer than 50 employees) and large companies (with more than 20,000 employees). The focus of Oracle's research was on questions related to the application of predictive analytics in HR, the success of deriving value from predictive analytics, the tools used for this process, the integration of data between systems, and more. The analysis of the responses from HR professionals shows that the majority of organizations have not yet developed an effective system for predictive analytics in HR. Specifically, only 29% of respondents rated their organizations as "good" or "very good" at implementing positive changes based on HR analytics, while 35% rated themselves as "moderate" in this process.

Regarding the usefulness of the results from applied predictive analytics in HR, 38% of respondents stated that the process is very effective in providing an overview of data for HR managers, 29% stated that it provides an effective overview for top management, while the remainder agreed that the process is most useful for middle management and employees. Only 15% of organizations reported that they use predictive analytics techniques. According to these organizations, the biggest challenges in people analytics are data integration (49%), cleansing (42%), and visualization (38%).

Hewlett-Packard (HP), a leader in predictive analytics for human resources, with over 300,000 employees and a high turnover rate of up to 20%, has focused on addressing this issue by applying various predictive analytics techniques. In fact, two scientists from the company combined employee data from the previous two years to predict who would leave the organization. Using predictive models, they developed the so-called "risk of departure" score, which predicted the likelihood of each employee departing. Based on this data, the scientists were able to identify the key reasons employees were likely to leave the organization. Among these, the most common factors were salary, promotions, and performance evaluations—variables that were negatively correlated with turnover risk. As a result, the system alerts managers to the key factors that contribute to job dissatisfaction and may drive employees' intention to leave. Consequently, human resource managers can focus on developing strategies to retain employees, which helps reduce costs and maintain continuity in organizational operations. According to Siegel (2016), the human resource department saved approximately \$300 million by applying predictive analytics to assess employee turnover risk.

Bock (2015) writes that the most important tool in Google's human resources operations is statistics. At Google, during the process of interviewing job candidates, all questions asked of interviewees are fully automated and computer-generated in order to select the best candidate. Google also uses predictive analytics to estimate the likelihood of employees leaving the organization. One of Google's findings is that new employees who do not receive a promotion within a four-year period are much more likely to leave the organization.

The application of predictive analytics to workforce management, as illustrated through these case studies, highlights the significant value of these techniques in retaining talent and enhancing job satisfaction. They empower

human resource management to evaluate employee performance while also forecasting and optimizing the effects of HR policies on both employees and organizational outcomes.

4. METHODOLOGY AND RESEARCH

The subject of this paper is the analysis of the effects and usefulness of applying modern software tools in organizations in North Macedonia to predict future parameters and conditions of human resources that are crucial for better planning and addressing the problem of employee turnover in the future.

The purpose of this paper is to analyze the degree of application of predictive analytical techniques for human resources in the organizations studied in North Macedonia, as well as to review global theoretical and practical knowledge regarding the effectiveness of these techniques in improving planning processes, decision-making, and, most importantly, creating strategies for talent retention.

To test the hypothesis: *“The application of predictive analytical techniques for human resources improves human resource management processes in the Republic of North Macedonia, contributing to talent retention and reducing employee turnover intention”*, an interview was conducted. For this purpose, a structured instrument (interview protocol) consisting of six open-ended questions was prepared. The respondents, i.e., the heads of human resources departments in thirteen companies in North Macedonia, expressed their opinions and views on the degree of application of predictive analytical techniques for human resources and the effectiveness of using these techniques to improve planning processes, decision-making, and, most importantly, creating strategies for talent retention.

To the first question, **“Do you integrate your employee data (database) into a specific system?”**, 77% of the organizations, or a total of ten organizations, reported that they integrate employee data into an appropriate system.

Regarding the second question, **“Are you familiar with the term predictive analytics and do you apply it to predict certain risks/solve problems or make key decisions related to your employees?”**, five organizations responded that they are familiar with and apply predictive analytics to predict certain risks, solve problems, or make key decisions related to employees. Meanwhile, the majority of organizations—seven in total—reported that they are familiar with the term predictive analytics, but do not apply it.

The findings from the analysis of the third question, **“Do you apply certain modern systems (HRIS, Spreadsheet-Based Systems, Cloud-Based HRIS, Advanced Intelligence, and automation, etc.) to implement HR processes in your organization (and what are they) or do you adhere more to traditional methods?”**, showed that six out of the thirteen organizations use the following systems: HRIS, Tableau, SAP, ERP, BambooHR, Cornerstone, HireVue, and Willis Towers Watson Employee Engagement Software. However, despite the use of modern systems to implement employee-related processes, most organizations apply these systems primarily for administration and analysis of the current state of employees. Fewer organizations use these systems for visualization and the prediction of future risks and conditions that would form the basis for creating appropriate solutions and strategies. More specifically, only four organizations use modern systems for predictive analytics in human resources. Some organizations also reported that they adhere more to traditional methods, while others practice a combination of both traditional and modern approaches in implementing human resource management processes.

To the fourth question, **“If you apply modern systems, please explain how HR analytics helps your organization and leads to successful human resources management?”** organizations that apply modern systems for their employee-related processes answered that predictive human resources analytics: helps and facilitates the process of making strategic decisions, forming plans and projects in all areas of human resources management; contributes to the sustainability and development of the company; strengthens the company's competitive advantage; assists in the creation of strategies for selection and recruitment, talent retention, human capital planning, cost savings, training planning for the development of appropriate skills, competencies, and knowledge of employees, budget planning, and defining a way to manage human resources; allows for the prediction of turnover, monitoring job satisfaction rates, employee absence trends, etc.; generates reports and data related to human resources, which are particularly important for creating employment policies, compensation, and other aspects related to work; and, through the application of data analysis and goal setting, helps the organization make informed decisions based on facts, figures, and data, enabling them to create policies, processes, and corrective actions that are more likely to achieve business goals. According to human resource managers in the country, predictive analytics facilitates decision-making in areas such as human resource planning, productivity, compensation, organizational culture, and building the image of a desirable employer.

Regarding the fifth question, **“Do you believe that the application of HR predictive analytics contributes to successful employee retention, i.e., recognition and reduction of employee turnover/intention to turnover?”**

HR managers in the country agree that the application of predictive analytics for HR helps reduce employee turnover intention. They believe that by applying predictive metrics and monitoring semi-annual and annual trends and causes of job dissatisfaction and turnover, the organization creates practices and corrective action plans that

address issues important to employees. They also believe that through the analysis of available databases for employees, the risk of departure for top talent can be successfully assessed. Furthermore, they can predict how this will affect organizational operations and, based on this knowledge, take appropriate actions to avoid undesirable situations. According to human resources managers, talent management is a strategic goal for every organization, and it is necessary to continuously develop talent to retain employees and reduce the outflow of "ready" staff to other organizations.

Finally, to the last question, **“Would you recommend implementing HR analytical systems in organizations and why? What are your recommendations for encouraging organizations to implement HR predictive analytics, and why?”** all human resources managers responded that, in modern organizations today, implementing predictive analytics for human resources is not only advisable but also very necessary. This is because: the decision-making process and the creation of human resources strategies need to be based on data, analysis, and trends, rather than subjective assessments and assumptions, which allow for the measurability of the process through clear success indicators; it saves significant costs and time; it enables planning for hiring, training, costs, and budgets; it allows for the timely identification of weaknesses and critical aspects in the work for a specific job; by monitoring employee satisfaction over time, it identifies the reasons for decreased satisfaction, enabling the timely implementation of specific measures to improve it and retain critical employees; it provides a strategic approach to solving potential future problems of crucial importance; it serves as the foundation for risk management and investment management; and it leads to the improvement of individual, and thus organizational, performance. Additionally, human resource managers suggest that every organization should move toward employing analysts in their human resource management departments, who will have knowledge of applying advanced statistics to people management.

5. CONCLUSION AND RECOMMENDATIONS

Global studies show that the use of predictive analytics in human resources is still in its early stages. As such, organizations need to modernize their methods for managing employee data, leveraging information technology and software solutions to predict future outcomes. This will improve planning and decision-making processes by providing actionable insights based on historical data.

While human resources analytics offers many benefits, such as improved decision-making in recruitment, organizational culture, and strategy, the study shows that most organizations in North Macedonia primarily use modern systems (HRIS, Tableau, SAP, etc.) for administrative purposes, rather than for predicting future risks or trends. Only a small number of organizations (4 out of 13) apply predictive analytics to manage HR challenges.

HR managers agree that predictive analytics is valuable in reducing employee turnover intentions. By analyzing trends and identifying causes of dissatisfaction, organizations can proactively address issues and mitigate the risk of losing top talent. This research underscores the need for organizations to adopt predictive analytics techniques to understand and predict changes in employee behavior, which will help improve retention strategies.

The main recommendation is for organizations to take a more proactive approach to studying the factors affecting employee retention. This can be achieved by gathering data and using predictive analytics to forecast potential risks, enabling timely interventions to enhance employee satisfaction. HR departments should integrate predictive analytics into their processes, utilizing statistical techniques to assess risks and predict future outcomes.

Furthermore, organizations should invest in specialized predictive analytics tools and ensure HR professionals are trained to use these systems effectively. Predictive analytics should not only provide descriptive insights but also guide prescriptive actions, such as designing strategies to prevent turnover.

To succeed, organizations must monitor employee satisfaction continuously, using software to track and address factors contributing to dissatisfaction. Failure to retain talent can result in significant losses, as experienced employees take their knowledge with them, and new hires take time to become productive.

Lastly, organizations must invest in developing strong HR departments focused on job satisfaction, as well as advocate for policies that improve the overall quality of life for employees. These efforts will contribute to a more sustainable workforce, benefiting both the organization and the nation.

REFERENCES

- Bhatnagar, J. (2004). New dimensions of strategic HRM: HRIS managed talent management and application of HR Six Sigma. In R. Padaki, N. M. Agrawal, C. Balaji, & G. Mahapatra (Eds.), *Emerging Asia: An HR agenda*. Tata McGraw-Hill, New Delhi.
- Bock, L. (2015). *Work rules!: Insights from inside Google that will transform how you live and lead*. New York: Grand Central Publishing.
- Boroughs, A., Palmer, L., & Hunter, I. (2008). *HR Transformation Technology: Delivering Systems to Support the New HR Model*. Gower Publishing Limited.

- Davenport, T. H. & Harris, J. G. (2021). Competing on Talent Analytics: Predicting Employee Turnover. *Harvard Business Review*, 99(3), 102-109.
- Dery, K., & Wiblen, S. (2019). The Role of Predictive Analytics in Shaping Employee Retention Strategies. *International Journal of HRM*, 28(7), 911-932.
- Edwards, R., M. & Edwards, K. (2016). *Predictive HR Analytics: Mastering the HR Metric*. Kogan Page, London, Philadelphia, New Delhi.
- Fitz-Endz, J. (2010). *The New HR Analytics: Predicting the Economy Value of Your Company's Human Capital Investments*. AMACOM.
- Jain, R. & Mishra, R. (2022). The Effect of Predictive Modeling on Employee Retention: A Case Study. *Journal of Business Analytics*, 14(1), 50-61.
- Mishra, S. N., Lama, D. R., & Pal, Y. (2016). Human Resource Predictive Analytics (HRPA) for HR management in organizations. *International Journal of Scientific & Technology Research*, 5(5), 33-35.
- Oracle. (2021). *The state of HR analytics 2021*. Oracle. Retrieved from <https://www.oracle.com/a/ocom/docs/applications/human-capital-management/hrt-talent-analytics-hrdoccom.pdf>
- Ristovska, A. (2018). *The role of human resource management in retaining the talents in the Republic of Macedonia: Empirical analysis of youth in the Republic of Macedonia* (Master's thesis). Faculty of Economics-Skopje, Ss. Cyril and Methodius University in Skopje.
- Sharma, P. & Singh, D. (2020). Predictive Analytics in Human Resources: A Study of Employee Retention. *Journal of Human Resource Management*, 32(4), 250-265.
- Sousa, M. J., & Dias, I. (2020). Business intelligence for human capital management. *International Journal of Business Intelligence Research (IJBIR)*, 11(1), 38-49.
- Visier. (2019). *The big book of people analytics: Turnover and retention*. Retrieved from <https://www.visier.com/lp/ebook-how-is-people-analytics-solving-turnover-and-retention-challenges/>
- Verma, A. & Patil, D. (2023). Artificial Intelligence and Predictive Analytics in Enhancing Employee Retention. *Journal of Organizational Behavior*, 44(5), 570-588.