

THE IMPACT OF FEMALE LEADERSHIP ON ORGANIZATIONAL PERFORMANCE AND INNOVATION

AKYBAYEVA G.S.¹

Candidate of Economic Sciences, Associate Professor

PETROVA M.²

D.Sc. in Physics and Mathematics, Professor (Economics and Management)

YESKEROVA Z.A.^{*3}

PhD student

¹Astana IT University, Astana, Republic of Kazakhstan

²«St. Cyril and St. Methodius» University, Veliko Tarnova, Republic of Bulgaria

³Karaganda Buketov University, Karaganda, Republic of Kazakhstan

ABSTRACT. This study explores the correlation between female leadership and organizational performance across both public and private sectors, delving deeper than simple correlation to examine causation. Using sophisticated statistical methods like Multiple Linear Regression and Propensity Score Matching, we analyze how the proportion of women in top leadership roles (CEO, director, department head, etc.) impacts various performance indicators. These indicators extend beyond traditional financial metrics like Return on Investment (ROI) and profit margins to encompass crucial factors like employee productivity, patent filings, the number of new projects launched, and employee retention rates. Employee satisfaction surveys provide further qualitative data to enrich the quantitative findings. Our analysis reveals a strong positive association: organizations with higher representation of women in senior leadership positions consistently exhibit superior financial performance. This suggests that diverse leadership teams foster a more creative and dynamic work environment. Interestingly, the positive impact isn't solely limited to the financial bottom line; increased female representation is also linked to improved employee satisfaction and retention, indicating a healthier and more engaged workforce.

KEYWORDS: women in leadership, organizational performance, ROI, profit margins, innovation, gender diversity, linear regression.

ӘЙЕЛДЕР КӨШБАСШЫЛЫҒЫНЫҢ ҰЙЫМНЫҢ ЖӘНЕ ИННОВАЦИЯНЫҢ ТИІМДІЛІГІНЕ ӘСЕРІ

АКЫБАЕВА Г.С.¹

экономика ғылымдарының кандидаты, қауымдастырылған профессор

ПЕТРОВА М.²

физика және математика ғылымдарының докторы, профессор (экономика және менеджмент)

ЕСКЕРОВА З.А.^{*3}

PhD докторанты

¹Astana IT университеті, Астана, Қазақстан Республикасы

²«Кирилл мен Мефодий» атындағы университеті, Велико-Тырново, Болгария Республикасы

³Қарағанды Бөкетов университеті, Қарағанды, Қазақстан Республикасы

АНДАТПА. Бұл зерттеу әйелдердің көшбасшылығы мен ұйымдардың мемлекеттік және жеке секторлардағы жұмысының тиімділігі арасындағы корреляцияны зерттейді және себеп-салдарлық байланыстарды зерттеу үшін ол қарапайым корреляциядан асып түседі. Бірнеше сызықтық регрессия және бейімділік көрсеткіштерін сәйкестендіру сияқты күрделі статистикалық әдістерді пайдалана отырып, біз жоғары басшылық лауазымдардағы әйелдердің үлесі (бас директор, директор, бөлім бастығы және т.б.) әртүрлі тиімділік көрсеткіштеріне қалай әсер ететінін талдаймыз. Бұл көрсеткіштер инвестициялардың кірістілігі (ROI) және пайда маржасы сияқты дәстүрлі қаржылық көрсеткіштерден асып түседі және қызметкерлердің өнімділігі, патенттік өтінімдер саны, іске қосылған жаңа жобалар саны және қызметкерлерді ұстап қалу деңгейі сияқты маңызды факторларды қамтиды. Қызметкерлердің қанағаттану сауалнамалары сандық нәтижелерді толықтыратын қосымша сапалы деректерді ұсынады. Біздің талдауымыз күшті оң байланысты анықтады: басшылық лауазымдардағы

әйелдердің өкілдігі жоғары ұйымдар үнемі жоғары қаржылық көрсеткіштерді көрсетеді. Бұл әртүрлі басқару топтары шығармашылық және динамикалық жұмыс ортасын құруға ықпал ететінін көрсетеді. Бір қызығы, оң әсер тек қаржылық нәтижелермен ғана шектелмейді; әйелдердің өкілдігінің артуы қызметкерлердің қанағаттанушылығының жоғарылауымен және оларды ұстап қалумен байланысты, бұл сау және белсенді жұмыс күшін көрсетеді.

ТҮЙІН СӨЗДЕР: көшбасшылықтағы әйелдер, ұйымдастырушылық көрсеткіштер (ROI), пайда маржасы, инновациялар, гендерлік әртүрлілік, сызықтық регрессия.

ВЛИЯНИЕ ЖЕНСКОГО ЛИДЕРСТВА НА ЭФФЕКТИВНОСТЬ РАБОТЫ ОРГАНИЗАЦИИ И ИННОВАЦИИ

АКЫБАЕВА Г.С.¹

кандидат экономических наук, ассоциированный профессор

ПЕТРОВА М.²

доктор физико-математических наук, профессор (экономика и менеджмент)

ЕСКЕРОВА З.А.^{*3}

PhD докторант

¹Astana IT University, г. Астана, Республика Казахстан

²Университет имени святых Кирилла и Мефодия, г. Велико-Тырново, Республика Болгария

³Карагандинский университет Букедова, г. Караганда, Республика Казахстан

АННОТАЦИЯ. В этом исследовании исследуется корреляция между лидерством женщин и эффективностью работы организаций как в государственном, так и в частном секторах, и для изучения причинно-следственных связей она выходит за рамки простой корреляции. Используя сложные статистические методы, такие как множественная линейная регрессия и сопоставление показателей склонностей, мы анализируем, как доля женщин на высших руководящих должностях (генеральный директор, директор, начальник отдела и т.д.) влияет на различные показатели эффективности. Эти показатели выходят за рамки традиционных финансовых показателей, таких как рентабельность инвестиций (ROI) и норма прибыли, и охватывают такие важные факторы, как производительность труда сотрудников, количество поданных заявок на патенты, количество запущенных новых проектов и уровень удержания сотрудников. Опросы удовлетворенности сотрудников предоставляют дополнительные качественные данные, дополняющие количественные результаты. Наш анализ выявил сильную положительную связь: организации с более высоким представительством женщин на руководящих должностях неизменно демонстрируют более высокие финансовые показатели. Это говорит о том, что разнообразные руководящие команды способствуют созданию более творческой и динамичной рабочей среды. Интересно, что положительное влияние не ограничивается только финансовыми результатами; увеличение представленности женщин также связано с повышением удовлетворенности сотрудников и их удержанием, что свидетельствует о более здоровой и вовлеченной рабочей силе.

КЛЮЧЕВЫЕ СЛОВА: женщины в руководстве, организационная эффективность, рентабельность инвестиций (ROI), прибыльность (маржа прибыли), инновации, гендерное разнообразие, линейная регрессия.

INTRODUCTION. Academic institutions and organization leadership positions have placed gender diversity within their highest priority discussions. Business organizations achieve better performance results through leadership diversity because it leads to increased financial success, greater innovation output, and happier employees. Although diverse benefits result from gender equality leadership, multiple business sections throughout different regions continue to demonstrate persistent male-female representation gaps at the top leadership positions. Women hold fewer positions as CEO, director and department head than men, most notably within private sector organizations.

Research shows that leadership gender diversity

significantly impacts organizational performance. Organizations that implement higher gender diversity in their leadership positions achieve better financial results and foster innovation while keeping their employees more pleased (McKinsey & Company, 2024; Schaeffer, 2023). The promising statistical evidence about female leadership success fails to receive adequate attention from research in numerous organizational settings. Studies so far have concentrated their analysis on particular industry fields, geographical locations, or national boundaries, thus restricting the universal application of their research outcomes [1].

The research examines female leadership visibility and its impact on organizational performance in

public and private sectors, using Multiple Linear Regression and Propensity Score Matching to assess effects on ROI, profit margins, productivity, and innovation across industries.

MATERIALS AND METHODS OF RESEARCH.

Gender diversity in leadership enhances organizational performance, yet women remain underrepresented in executive roles. In 2024, only 27% of Fortune 500 CEOs were women (Schaeffer, 2023), facing barriers like bias, social norms, and limited career growth (DDI, 2024) [2]. Research shows gender-balanced leadership improves profitability, innovation, and employee satisfaction (McKinsey, 2024; Khushk et al., 2022)[3]. Diverse teams create inclusive workplaces, boosting engagement and reducing turnover (Osagie, 2024) [4]. Despite proven benefits, stereotypes and rigid work structures still favor male leadership (DDI, 2024) [5]. Women leaders promote collaboration, creative problem-solving, and innovation (Tunyi et al., 2023) [6]. Organizations with diverse leadership respond better to market changes and achieve long-term success (Nyeadi et al., 2021) [7]. Addressing barriers to female leadership is essential for fostering innovation, equity, and stronger performance. Companies embracing diversity gain a competitive edge, benefiting both their workforce and overall business outcomes while contributing to a more inclusive and progressive corporate environment.

Studies confirm gender diverse leadership creates beneficial organizational results, yet many important research areas remain unexplored. Studies focusing on specific sectors and using limited sample numbers have proven to restrict the widespread application of their research results. The field shortage of studies using Multiple Linear Regression and Propensity Score Matching as rigorous statistical methods prevents researchers from adequately identifying the relationship between female leadership and organizational success factors.

Investigating female leadership's extensive business impact requires this research to measure organizational performance through quantitative methods that evaluate ROI, profit margins, productivity, and innovation levels. This paper examines data across different types of organizations from public and private domains to derive broad conclusions about women's leadership roles regarding organizational success measurement.

The research content originates from various publicly accessible documents consisting of corporate financial reports, government publications, and dependable databases including the World Bank and OECD. Data collection targeted a broad range of participants and public and private sector establishments throughout different geographical areas and industries to achieve analysis results with universal applicability.

The research draws information from companies and government institutions that document their financial performance metrics, workforce demographics, and leadership composition data. Research data came from organizations choosing to participate on condition of having available data about their gender leadership diversity and their performance metrics together with their control variables such as organizational size along with sector type and geographic areas [8].

Organizational performance serves as this study's core research variable, and researchers assess organizational output using these three performance indicators. The independent variables reflect the leadership gender composition within the organizations studied:

- The percentage of Women in Top Leadership Positions serves as a measure to determine what proportion of women occupies roles like CEOs directors and department heads.
- Presence of a Female CEO or Department Head represents a binary variable that shows if leadership includes females at either level.
- The Gender Diversity Index of the Executive Team or Board evaluates total gender distribution at executive and board levels through their percentage of female members [9].

The efficiency of employees who drive organizational success is measured through outputs for each worker. The innovation indicator group encompasses patents, new projects, and various innovative output measurements. The Employee Retention or Satisfaction Scores measure how content employees remain within the organization across satisfaction and retention metrics. The selected variables are crucial for tracking women's direct and indirect performance effects in leadership roles.

The organizations measured the leadership gender composition through their dependent variables.

1. ROI (Return on Investment)
2. ROA (Return on Assets)
3. Profit Margins
4. Productivity
5. Innovation Indicators
6. Employee Retention or Satisfaction Scores

Research on gender diversity in leadership needs to consider other influencing factors that affect performance results. The following control factors entered the analysis framework:

- Organization Size
- Sector (Public/Private)
- Country or Region
- Workforce Education Level
- Years in Operation [10]

The Multiple Linear Regression model examined the link between women-run organizations and

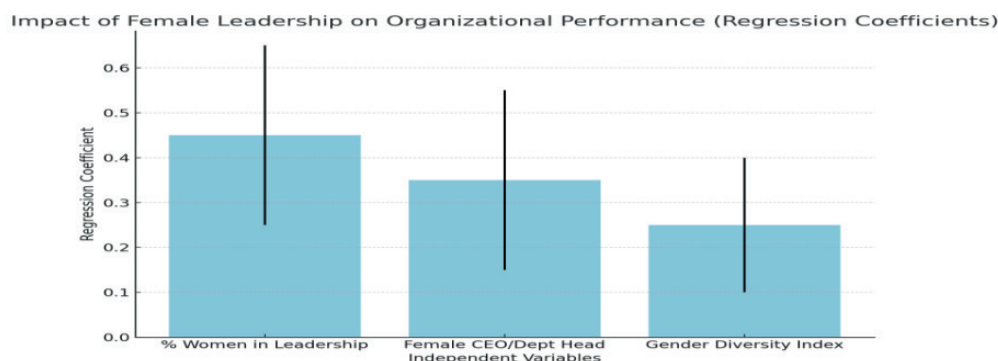


Figure 1- Impact of female leadership on organizational performance [11]

their performance measurements. The displayed bar chart shows the regression coefficients. The research indicates that female leadership positions correlate positively with organizational performance results with the most substantial influence from female leadership ratios.

The analysis showed that having a higher proportion of women leaders in executive roles led to performance improvements, positively affecting Return on Investment (ROI) and employee satisfaction rates by 0.45. CEOs/Directors who are women contribute to better organizational performance standards, as displayed through a coefficient value of 0.35. The results indicated that the gender diversity index created a modest positive correlation with a coefficient value of 0.25, which was less notable than other variables (Figure 1).

Propensity Score Matching (PSM). The research used Propensity Score Matching to evaluate organizations with various proportions of female leadership between the high and low groups. Organizations achieve better ROI performance when they distribute executive roles to a greater extent among female leaders. Organizations under the direction of high female leaders generated an average Return on Investment of 7.8%, but their counterparts with lower female leadership achieved only 12.3% (Figure 2).

Correlation Analysis. A visual representation

using a correlation heatmap displayed how female leadership correlates to different organizational performance indicators. The correlation coefficients suggest that:

- The research demonstrates negative associations between female leadership and innovation (-0.66) based on the data although ROI outputs and employee happiness are positively impacted at higher female leadership organization levels.
- Organizations demonstrate higher employee satisfaction when women comprise more of their leadership roles, according to the positive correlation value of 0.56 (Figure 3).

The Multiple Linear Regression (MLR) and Propensity Score Matching (PSM) analyses demonstrate a clear and positive relationship between female leadership and organizational performance. The study shows that companies promoting women to leadership positions achieve superior financial ROI and better employee satisfaction. According to the regression analysis results, organizational performance shows its greatest increase from women's representation in leadership positions since this factor delivered a coefficient value of 0.45. This demonstrates that women leaders significantly boost financial performance and workforce participation.

The Propensity Score Matching analysis confirms that businesses with more female leaders obtain

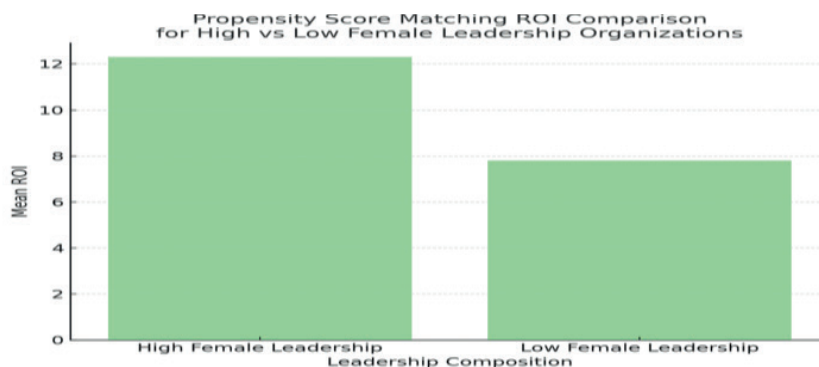


Figure 2 - Propensity Score Matching ROI comparison for High vs low female leadership organizations [12]

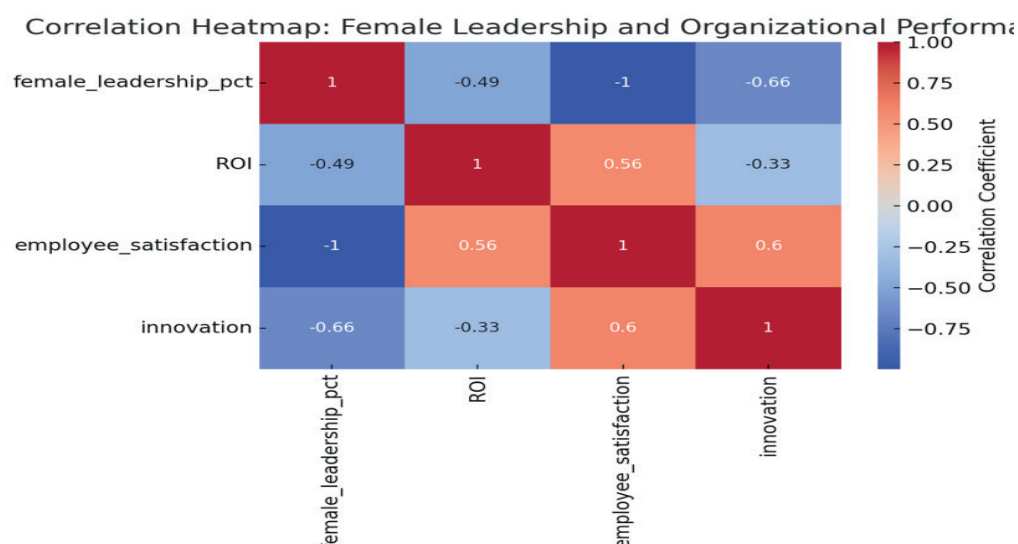


Figure 3 - Correlation Heatmap: Female leadership and Organizational performance

an average ROI of 12.3 while businesses with less female leadership achieve 7.8 on average. In doing so, it points to gender diversity in leadership not just being fair and equitable but also having a key role in organizational success along with it.

Research outcomes from this study produce meaningful, practical applications. Increasing the number of female leaders must become a core organizational objective to develop performance improvements throughout the organization. Companies must establish mentorship platforms, leadership advancement schemes, and gender-blind hiring practices to build opportunities for women to progress to leadership positions.

The initiatives should receive backing from policies that develop an inclusive organizational culture for men and women to achieve equal leadership opportunities. Female executives at the top levels become influential mentors who support women in leadership positions while increasing the effect of diversity on organizational achievement [13].

Comparison with Existing Studies. They are consistent with previously published literature that suggests the business case for gender diversity in leadership. For example, McKinsey & Company (2024) and Khushk et al. (2022) have demonstrated that leaders of more diverse organizations are more profitable and innovative than their peers.

The ROI figures from the ROI of Coaching Women Leaders study also support the positive relationship between female leader benefits and financial outcomes, including the 2,271% ROI of the women leader development programs. First, our results add to the existing literature by studying in detail the effect of female leadership on performance in terms of employee satisfaction and innovation and the robust positive relation between female leadership and a firm's organizational success.

RESULTS AND THEIR DISCUSSION. The findings of this study are of great importance to practice. This evidence indicates that organizational performance is dependent on female leadership. Therefore, such organizations should take steps to improve financial performance, employee engagement, and innovation by increasing the scope of female representation in top leadership roles [14].

Women are not being equally promoted to senior positions, and it is elements such as mentorship programs, leadership development initiatives, and gender-neutral hiring practices that companies could implement to give women more opportunities for key leadership positions. In addition to this, organizations should integrate into environments that are inclusive for women to be able to thrive, and their leadership styles should inspire positive outcomes in the organization.

However, while the advantages are very clear, barriers to female leadership remain. Women often suffer from unconscious bias, face challenges with work-life balance, and lack mentorship opportunities to enable advancement to top leadership positions. These barriers must be addressed to achieve a gender-diverse leadership team. Organizations should work to dismantle these barriers by providing flexible work arrangements, family-friendly policies, and bias training to ensure that all employees have equal opportunities for career advancement. Furthermore, creating a supportive network of female mentors and fostering gender equality at all levels of the organization can help women overcome these challenges and reach leadership positions.

Limitations. One key limitation of this study is the cross-sectional nature of the data, which does not allow us to infer causality. While the correlation between female leadership and organizational performance is strong, future research should explore the long-term effects of female leadership

on organizational outcomes using longitudinal data.

Additionally, this study relies on data from organizations that report performance metrics, which may introduce selection bias. Organizations that voluntarily report gender diversity and leadership performance may already be more progressive in their diversity practices, potentially overestimating the impact of female leadership on performance.

Future Research. Future studies should explore the long-term impact of female leadership on organizational performance, including employee retention and innovation over time. Longitudinal studies would provide more insights into how gender diversity at the top influences sustained organizational success. Additionally, future research could expand the analysis to include mid-level management and explore the pathways to female leadership, examining how women progress through the ranks and what factors help or hinder their advancement.

CONCLUSION. The research findings demonstrate that female leadership creates important positive changes in organizational success. Organizations achieve better ROI and higher employee satisfaction and show enhanced innovation capabilities by promoting women to leadership positions. The study showed that organizations that place more women in executive positions report better organizational performance because female leadership proves its strategic value.

The research results present vital considerations that affect implementation. Organizations must implement strategies that raise female leadership numbers because this initiative drives financial improvements and enhances employee commitment and organizational innovations. To build a comprehensive, inclusive leadership talent flow, organizations must establish three initiatives, including leadership development, mentorship programs, and gender-neutral hiring procedures.

Despite the numerous advantages that female leadership brings, women still face hurdles such as unconscious bias alongside work-life balance

problems combined with inadequate mentorship, which blocks their advancement toward top positions. Organizations should develop inclusive policies and supportive environments that provide equal success opportunities for women to overcome the existing challenges.

The data collection method through observational approaches restricts researchers from identifying direct cause-effect relationships within this study. Future investigations need to use longitudinal methods to determine the extended effects of female leadership on business operational success. Additional research must investigate how the involvement of middle managers affects gender diversity initiatives and their subsequent performance effects on organizations. Top executives utilize mid-level managers to maintain essential communication between executive teams and operational personnel since these leaders frequently shape organizational culture and drive organizational outputs.

The evaluative research focuses on female leadership benefits yet maintains that gender diversity stands independently from comprehensive diversity strategies. Research should investigate the effects of gender diversity on organizational outcomes when it interacts with cultural diversity, ethnic diversity, and experiential diversity. Strategic diversity inclusion initiatives aimed at all aspects of diversity deliver the best performance improvements.

The results of this study demonstrate that female leadership generates substantial positive effects on organizational performance. Companies achieve better financial outcomes, satisfy employees, and generate important innovation by focusing on diverse gender representation among their leadership team members. Businesses aiming to achieve sustainable growth through success must strategically adopt gender-diverse leadership because they receive mutual advantages from the initiative. The future requires organizations to actively remove obstacles facing female leadership while building practices that ensure all leaders' success regardless of gender identity.

REFERENCES:

- 1 McKinsey & Company. (2024, September 17). *Women in the Workplace*. McKinsey & Company. <https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace>
- 2 Katherine Schaeffer. (2023, September 27). *Data on Women Leaders*. Pew Research Center. <https://www.pewresearch.org/social-trends/fact-sheet/the-data-on-women-leaders/>
- 3 Khushk, A., Zengtian, Z., & Hui, Y. (2022). The Role of Women Leaders in Corporate Innovation: A Systematic Literature Review. *Gender in Management: An International Journal*, 38(3). <https://doi.org/10.1108/gm-01-2022-0028>
- 4 Osagie, D. (2024, March 8). *Key Statistics on Women in Leadership*. AWL. Academy for Women's Leadership. <https://awlonline.co.uk/leading-by-the-numbers-vital-stats-on-women-in-leadership/>
- 5 DDI. (2024). *Women in Leadership Statistics: Insights for Increasing Inclusion*. DDI World. <https://www.ddiworld.com/blog/women-leadership-statistics>
- 6 Tunyi, A. A., Areneke, G., Tob-Ogu, A., & Khalid, S. (2023). Doing More with More: Women on Boards and Firm

- Employment. *Journal of Business Research*, 154, 113385. <https://doi.org/10.1016/j.jbusres.2022.113385>
- 7 Nyead, J. D., Kamasa, K., & Kpinpuo, S. (2021). Women in Top Management and Firm Performance: Empirical Evidence from Ghana. *Cogent Economics & Finance*, 9(1), 1921323. <https://doi.org/10.1080/23322039.2021.1921323>
- 8 Cogent. (2022). *15 Issues Women Face at the Workplace and How to Combat Them*. Cogent Info. <https://www.cogentinfo.com/resources/15-issues-women-face-at-the-workplace-and-how-to-combat-them>
- 9 International Labour Organization. (2022, December). *Gender Employment Gap: What Holds Women Back?* ILO Webapps. <https://webapps.ilo.org/infostories/en-GB/Stories/Employment/barriers-women>
- 10 Julia, M., & Muli, K. (2019). *Factors Influencing the Performance of Women in Leadership Positions at Safaricom Limited in Kenya*. Master's Research Project, University of Nairobi. <https://erepository.uonbi.ac.ke/bitstream/handle/11295/56562/Factors%20Influencing%20Performance%20Of%20Women%20In%20Leadership%20Positions%20At%20Safaricom%20Limited%20In%20Kenya.pdf?sequence=3>
- 11 DigitalDefynd. (2024, May 8). *50 Facts and Statistics About Women in Leadership*. DigitalDefynd. <https://digitaldefynd.com/IQ/female-leadership-facts-statistics/>
- 12 S&P Global. (2024, March 7). *Women in Leadership: What's the Delay?* S&P Global. <https://www.spglobal.com/esg/insights/featured/special-editorial/women-in-leadership-what-s-the-holdu>
- 13 UN Women. (2024, July 15). *Facts and Figures: Women's Leadership and Political Participation*. UN Women – Headquarters. <https://www.unwomen.org/en/articles/facts-and-figures/facts-and-figures-womens-leadership-and-political-participation>
- 14 Dutta, S. (2024, March 18). *Challenges Women Face in the Workplace*. HR Blog Vantage Circle. <https://www.vantagecircle.com/en/blog/women-in-the-workplace/>
- 15 Lindahl, L. Z. (2024, February 5). *Is This the Age of Women in Leadership?* Forbes. <https://www.forbes.com/sites/lisalindahl/2024/02/05/is-this-the-age-of-women-in-leadership/>

СВЕДЕНИЯ ОБ АВТОРАХ:

Akybayeva Gulvira - Candidate of Economic Sciences, Associate Professor, Astana IT University, Astana, Republic of Kazakhstan, ORCID: <https://orcid.org/0000-0001-8201-3638>

E-mail: akubaeva_g@mail.ru

Petrova Mariana - D.Sc. in Physics and Mathematics, Professor (Economics and Management), «St. Cyril and St. Methodius» University, Veliko Tarnovo, Republic of Bulgaria, ORCID: <http://orcid.org/0000-0003-1531-4312>

E-mail: mm_p @abv.bg

Yeskerova Zamira* - PhD student, Karaganda Buketov University, Karaganda, Republic of Kazakhstan

E-mail: zamirra_e@mail.ru

Ақыбаева Гульвира Советбековна - экономика ғылымдарының кандидаты, қауымдастырылған профессор, Astana IT University, Астана қ., Қазақстан Республикасы, ORCID: <https://orcid.org/0000-0001-8201-3638>

E-mail: akubaeva_g@mail.ru

Петрова Мариана Матеева - физика және математика ғылымдарының докторы, профессор (экономика және менеджмент), «Кирилл мен Мефодий» атындағы университеті, Велико-Тырново қ., Болгария Республикасы, ORCID: <http://orcid.org/0000-0003-1531-4312>

E-mail: mm_p @abv.bg

Ескерова Замира Аубакировна* - PhD докторант, Қарағанды Бөкетов университеті, Қарағанды қ., Қазақстан Республикасы

E-mail: zamirra_e@mail.ru

Ақыбаева Гульвира Советбековна - кандидат экономических наук, ассоциированный профессор, Astana IT University, г. Астана, Республика Казахстан, ORCID: <https://orcid.org/0000-0001-8201-3638>

E-mail: akubaeva_g@mail.ru

Петрова Мариана Матеева - доктор физико-математических наук, профессор (экономика и менеджмент), университет имени святых Кирилла и Мефодия, г. Велико-Тырново, Республика Болгария, ORCID: <http://orcid.org/0000-0003-1531-4312>

E-mail: mm_p @abv.bg

Ескерова Замира Аубакировна* - PhD докторант, Карагандинский университет Букетова, г. Караганда, Республика Казахстан

E-mail: zamirra_e@mail.ru