



INNOVATION CAPABILITY OF WOMEN AND MEN MANAGERS: EVIDENCE FROM KAZAKHSTAN

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ABSTRACT

The relationship between gender and managers' innovation capability is not thoroughly investigated, and the innovator's contribution and men and women's impact on innovation management is not clearly stated in the research literature. Although recent studies have shown a positive impact of gender on organizational innovations, women managers are still considered less innovative compared to their male counterparts. The paper examines an under-researched role of innovators and their genders in managing innovations in organizations and aims at identifying women and men managers' innovation capability in the context of newly emerging economy of Central Asia. The quantitative research method (a multivariate closed questionnaire) was utilized among 224 respondents from Kazakhstani private organizations functioning in extraction, construction, production, energy, service, trade, and education industries. Subordinates assessed their supervisors' (first-line, middle-level, and top managers) innovation capability: stance on innovations, support of subordinates for innovative ideas and activity, and adopting innovations. Linear regression analysis was used for the hypotheses testing and further data assaying. The findings define that women and men managers demonstrate an equally positive attitude towards innovations in organizations but the former outperform the latter in adopting innovations and encouraging employees to innovate. The work lays the ground for further research in the region of Central Asia and emerging countries with dynamic but unstable economic development. The involvement of more women managers in innovations will further a long-term impact on subordinates' satisfaction, dedication to organization and performance. The social implication of the present work lies in increasing executives and senior officials' awareness of the positive effect of gender diversity on organization innovative capability.

Key words: Innovation, Innovation management; Innovation capability, Gender, Women, Men

JEL Classifications: O32; J16; J24; M3; L9.

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INTRODUCTION

Along with enhancing competition and search for sustainable competitive advantage in organizations (Adams et al., 2016), studies on gender and innovation management are significantly growing for the last 15 years (TM & Joseph, 2020). Innovation management is the main contributor to creating sustainable competitive advantage at enterprise (Kassenova et al, 2020) and assumes "the development and implementation of a new idea, including new technology, products, processes, or arrangements" (Na & Shin, 2019: 3). Human capital provides enterprises with new insights leading to different kinds of innovations (TM & Joseph, 2020).



Innovation management relates to manager's behavior and characteristics engendered by a whole range of personal, individual and organizational factors (Arvanitis & Stucki, 2012). The innovation capability of managers is pivotal, as they are responsible for working environments that further creativity, initiative, ideas creation and organizational change. Leaders need to treat their subordinates in a way contributing to a friendly and collaborative atmosphere, teamwork, openness to new experience and readiness to express independent and innovative thoughts (Kariv, 2010).

Notwithstanding recent research has proved a positive effect of gender on an organization's innovativeness (Díaz-García et al., 2013; Colovica & Williams, 2020), women managers are still considered as less innovative compared to men (Nahlinder et al., 2015). Relations between gender and managers' innovative capability are insufficiently studied (TM & Joseph, 2020) and the role of innovators and women and men managers as contributors to innovations are under-researched (Alsos et al., 2013).

Emerging economies attract researcher's attention as an opportunity to gain knowledge on gender and innovations under conditions of an unstable but dynamically growing economy in opposition to the developed economy with low and stable economic growth (Na & Shin, 2019). However, Central Asia is still an underestimated geographical region for gaining new insights in the field (TM & Joseph, 2020).

This paper aims at studying women and men managers' innovation capability in the newly emerging economy with dynamic growth and raw-materials focus. Three elements of innovation capability are scrutinized: managers' attitude to innovations, encouragement of subordinates to innovate, and adopting innovations; relations between managers' genders and their innovation capability are identified.

Literature review

Innovation capability

Innovation performance of an enterprise is influenced by individual resources and capabilities of its managers (Arvanitis & Stucki, 2012; Ruiz-Jimenez et al., 2016a; Kurmanov, Petrova, Suleimenova, 2019; Kurmanov & Petrova, 2019; Kurmanov et al, 2018; Maralov & Petrova, 2019; Petrova & Akhmedyarov, 2019). Manager's innovation capability is a part of general management capability (Ruiz-Jimenez et al., 2016b) and embraces a leader's education, background, knowledge, skills and abilities, and attitude to innovations (Arvanitis & Stucki, 2012).

Creating favorable conditions for innovative thinking and acting and encouragement of subordinates by managers to innovate presents a considerable part of innovation capability (Kariv, 2010). Supportive leadership and encouragement to creativity facilitate innovations in an organization (Peçanha & Godoy, 2014). Women and men inspiring their employees, expressing individual attention to their ideas and supporting their initiatives trigger subordinates' innovative performance (Reuvers et al., 2008). The study among Israeli and Canadian entrepreneurs demonstrates the substantive importance of encouragement for innovations and business performance (Kariv, 2010). Kariv defines no relationship between gender and innovation



management and no correlation between age and managing innovations. Women motivate subordinates for innovative behavior and are characterized as creative, cooperative and communicative (Özmutafa et al., 2015). Females contribute to creating an auspicious atmosphere for innovative environments through effective knowledge management, information processing, and communications (Xie et al., 2020).

An ability to adopt innovations is a consistent element of innovation capability management (Arvanitis & Stucki, 2012) and requires different resources, knowledge and competences from managers. In the process of adopting innovations, managers utilize various strategies including participative leadership (Carvalho & Williams, 2014), innovation leadership (Lazarova, Zhelyazkova & Vazov, 2015), transformational leadership (Reuvers et al., 2008; Zapalska et al., 2015) and networking (Lindberg et al., 2016).

To date, the various female and male social characteristics and social roles existing in different societies have been researched. Some aspects of gender similarities and differences have also been studied in Latvia, in the branches of family, legal, judicial psychology and management. (Badjanova, Ilisko & Petrova, 2018).

The case study of women in Portugal defined female managers used participative leadership style and prior knowledge to adjust to environmental changes (Carvalho & Williams, 2014). The research of Polish women managers uncovered their attachment to transformational leadership style with individual consideration of their subordinates and positive impact of it on employee innovative behavior (Zapalska et al, 2015). The transformational leadership concept includes such elements contributing most to managers' innovation capability as idealized influence and individual consideration (Reuvers et al., 2008). Nonetheless, women are evaluated higher in overall transformational leadership (Saint-Michel, 2018), men managers' transformational behavior has a more significant impact on their followers' innovative performance than the same deeds demonstrated by women managers (Reuvers et al., 2008).

Female managers are open to innovations and new creative ideas (Özmutafa et al., 2015), express a positive attitude to change and facilitate innovations at enterprises (Peçanha & Godoy, 2014). Both female and male managers exhibit an openness to innovations, innovative thinking and creative ideas (Millward & Freeman, 2002). The Malaysian study (Idris, 2009) reports women entrepreneurs to possess good innovative capability reflected in an openness to new insights compared to men and adopt their leadership styles for meeting innovative challenges. Santos et al. (2019) argue female leaders are inclined to new experience via fresh ideas, people and networks that have a positive impact on their business innovations.

The majority of the above-mentioned qualitative studies report in favor of women's better innovation capability or equal to men qualities in this dimension. Hence, studies grounded in quantitative methods have more contradictory findings as they claim both presence and absence of impact of managers' genders on their innovative capabilities (TM et al., 2019).

Strohmeyer et al. (2017) revealed males practice innovations more extensive in breadth and depth compared to female counterparts with the exclusion of lower-innovation industries where both demonstrate the same level of innovative contribution. Link and Hasselt (2019) also reveal men better in innovations compared to



women, particularly, women-owned enterprises are worse in patenting compared to their male counterparts. Presence of a female founder negatively impacts both innovation input and output, and vice-versa exclusively male founders contribute to innovations in organizations better (Protogerou et al., 2017). In innovative industries, male enterprises and businesses are more successful in surviving (Boyer & Blazy, 2014) and gender factor negatively influences correlation between innovation and enterprise's size (Mas-Tur & Ribeiro Soriano, 2014).

On the contrary, Farooq et al. (2019) and TM et al. (2019) elucidate women entrepreneurs positively affect innovations in organizations. Women practice informal competition for raising innovations at their enterprises. Moreover, diversity of research and development teams has a positive effect on the intensity of innovations (Xie et al, 2020).

It must be underlined that differences in women and men's capability to innovations could be caused by gender structuring and construction. Millward and Freeman (2002) identified role expectations about women as actors of adaptation and men as innovators negatively constrain females organizational behaviors (their readiness to take risks and express innovative ideas on public), whereas men's innovative thoughts are more likely to be accepted in organizations. Women managers have less inclination to behave innovatively because of a higher risk to be criticized (Millward & Freeman, 2002). Despite the above-mentioned characteristics (particularly, encouragement of employees and openness to new knowledge and experience) is often associated with women, they are undervalued as innovators in organizations (Peçanha & Godoy, 2014).

Gender and innovations management in emerging economies

Studies on gender and innovations in emerging markets are constantly growing, particularly with a focus on India and China (Kurt & Kurt, 2015; TM et al, 2020). Kazakhstan presents an interesting case of manager's gender and innovation capability being an emerging country with dynamic economic development and raw-materials economics. The Kazakhstani government initiates numerous large-scale state programs to boost innovation in the country and support entrepreneurial innovative projects with training, consulting and finance (Radosevic & Myrzakhmet, 2009). However, the country is still characterized as a state at its industrial stage of development, while most developed countries have moved to the innovation stage of their development.

The comparative study of 47 emerging countries including Kazakhstan (Ayyagari et al., 2011) concludes the younger and larger firms with the more access to internal or external finance, led by highly educated, middle-level managers are more innovative. Thus, women enterprises a priori have fewer chances to be innovative because of the majority of female enterprises in Kazakhstan present individual entrepreneurship and small enterprises with rather limited finance and investment opportunities (RK Committee on Statistics, 2020).

The recent cross-cultural study of 30 emerging economies embracing Kazakhstan testifies representation of women among owners has a positive effect on individual innovation, on the contrary, process and composite



innovation does not demonstrate a relationship with females (Na & Shin, 2019). Analysis of the existing research, large cross-cultural studies and papers reviews on gender and innovations has allowed us to conclude on the research gaps:

1. Insufficient studies of gender factor as a key variable in innovations management (Alsos et al., 2013; TM & Joseph, 2020).
2. Notwithstanding a growing number of research on gender and innovation management in emerging markets, there are a few studies focused on Central Asia (Na & Shin, 2019).
3. The deficit of research on women and men managers' innovative capabilities (TM & Joseph, 2020).

As a result of previous studies analysis, three hypotheses have been elaborated to test for gaining knowledge about the relationship between managers' genders and their innovative capabilities:

H1 Women managers are better in encouraging subordinates to innovate.

H2 Women managers are better than men in adopting innovations.

H3 Both men and women managers have a positive attitude towards innovations.

METHODOLOGY

We chose an organizational type of study due to the applied character of management through which managers' innovation capability could be favorably examined (Powell, 2019). A special closed multivariate questionnaire consisting of 40 questions was designed by the authors. The questions were elaborated as a result of the literature review on the topic, special tests proved the validity and reliability of the designed tool (test results are given in the next section). The questionnaire expelled any comparisons between females and males to reduce the possible effect of gender bias in the assessment of managers (Hoyt & Burnette, 2013).

The respondent pool was formed randomly; to decrease managers' pressure on their subordinated staff's answers, we passed questionnaires directly to subordinates working at Kazakhstani private enterprises. The questionnaires were passed to respondents both in a hard copy and by electronic mail (35% and 65% respectively).

Overall 224 respondents from large, medium and small companies located in big Kazakhstani cities (Almaty, Nur-Sultan, and Karagandy) answered about their supervisors. The mean age of respondents constituted 37.1 (from 20 to 70), women represented 53% out of all participants. 224 managers (57% men) from extraction, construction and production, energy, service, trade, and education industries were assessed by their direct subordinates to embrace neutral (trade), female-intensive (education, service) and male-intensive (energy, extraction, construction, production) industries (RK Committee on Statistics, 2020). Inclusion of industries different in level of innovativeness and particularly female intensive sectors aims at closing a gap in the research as the majority of studies in innovation management concentrate in high-technology sectors (Alsos et al., 2013).



The distribution of assessed managers along the age continuum was uneven due to the retirement age 60 for females and 63 for males and limited career progress at an early age: 15 supervisors were at the age of 20-30, 56 - at the age of 31-40, 113 - at the age of 41-50, 28 - at the age of 51-60, and 12 supervisors - at the age of 61-70. The majority of assessed managers (47%) are middle managers, 33% are top managers, and 20% - first-line.

Linear regression analysis was used to evaluate the relation between the dependent variable and independent variables via SPSS. We chose this method of data analysis because our study is based on forecasting and research of related relationships. Innovation capability was measured through three key components: a positive attitude towards innovations, encouragement of employees to innovations, and adopting innovations. Gender (women and men) represented an independent variable.

RESULTS

The normality of the data was verified using the statistical package for social sciences SPSS software version 23.0. The strength of the measurement model was ensured by considering the load factor and internal reliability of the structure. Today, as a rule, the Cronbach's alpha coefficient is widely used in research to verify the reliability of measurements, due to its reliability, low cost, practicality, especially in the field of social sciences (Ostrom et al., 2015).

The measurements of the study variables were adapted from previous literature. In the present research, we consider relations of three elements of managers' innovation capability: encouragement of subordinates (ENC), adopting innovations (ADO), and women and men managers' attitude towards innovations (ATT) with the managers' gender (MGen). The report on conducted observations is displayed below in Table 1.

Table 1. Observation Summary Report

Observations	N	%
Valid	224	100,0
Excluded	0	0,0
Total	224	100,0

Source: compiled by the authors

Convergent validity of the instrument is confirmed based on the mean deviation values highlighted by AVE. The discriminant confidence estimation with the extraction of the mean-variance (AVE) was calculated in Excel to which the data from SPSS were uploaded. The values of each measurement, respectively, constituted for the variable ENC 0.706, ADO 0.612, and ATT 0.623. The square root of AVE of all constructions was bigger than its correlation with other constructions, which indicates discriminant confidence.

All questions were tested for Cronbach's alpha and correlations between elements (Table 2).



Table 2. Reliability Statistics

Cronbach's alpha	Cronbach's alpha based on standardized points	Item number
.886	.911	44

Source: Compiled by the authors

In accordance with Table 2, the coefficient of value for this scale is 0.886 with a minimum required level of 0.70; therefore, the internal reliability of the design was proven. Upon verification of the quality of the questionnaire data, we conducted a linear regression analysis of the variables using the ANOVA method for further data analysis and hypothesis testing. First, we analyzed a relation between ENC и MGen (Table 3).

Table 3. ANOVA

Model	Sum of squares	df	Middle square	F	p-value
Regression	29.011	40	.568	1.86	.036 ^b
Remainder	58.984	183	.439		
Total	93.996	223			

Source: Compiled by the authors

In accordance with Table 3, F criterion equals to 1.86, p-value constitutes 0.036 < 0.05, and the determination coefficient (r^2) is 0.957. Therefore, *H1 Women managers are better in encouraging subordinates to innovate* demonstrates has a positive and significant impact and is attested. For the ENC-MGen model, Chi-Square is equal to 29.011, ($p < 0.001$), $df=40$, RMSEA= 0.084, which proves an acceptable model fit. The above-mentioned indicates that the method's system error is not observed in our data.

Further, *H2 Women managers are better than men in adopting innovations* was tested (Table 4).

Table 4. ANOVA

Model	Sum of squares	df	Middle square	F	p-value
Regression	32.826	40	.736	1.94	.074 ^b
Remainder	67.013	183	.403		
Total	104.839	223			

Source: Compiled by the authors

Following Table 4, the relationship between the dependent variable ADO and independent variable MGen has an F-criterion 1.94, p-value 0.074 < 0.05 and the coefficient of determination (r^2) is 0.607. The analysis has testified the *H2 stating Women managers are better in adopting innovations*. The results of the direct impact analysis show a good fit of the model, all elements were loaded on a single factor. Regression analysis with one factor represents the worst fit for the ADO-MGen model, Chi square= 32.826 ($p < 0.001$), $df=40$,



RMSEA= 0.084, which indicates an acceptable fit for the model. The calculations justify the method's system error does not occur in our data.

Table 5 below represent the relationship between the independent variable ATT and MGen, for which the coefficient of determination r^2 is equal to 0.311. This explains that men and women can relate to innovation by 31.1 % for the dependent variable. F-criterion is 2.06, and p-value constitutes $0.001 < 0.05$ that justifies that the method's system error is not observable in our data.

Table 5. ANOVA

Model	Sum of squares	df	Middle square	F	p-value
Regression	35.164	40	.879	2.060	.001 ^b
Remainder	78.081	183	.427		
Total	113.246	223			

Source: Compiled by the authors

As can be seen in Table 5, Chi-Square equals to 35.164 ($p < 0.001$), $df=40$, RMSEA= 0.073, that proves the model meets the requirements. *H3 Both men and women managers have a positive attitude towards innovations* has been attested. Thus, the findings confirm all three hypotheses initially formulated by us and indicate men and women managers' positive attitude towards innovations and women better motivation of subordinates for innovating along with adopting innovations.

DISCUSSION AND CONCLUSIONS

The topic of gender and innovations demonstrating an increasing research interest driven by a business search for effective human capital utilization will grow in the next decades. In their turn, emerging economies, particularly, scantily investigated regions of Central Asia characterized mostly by low-tech industries and growing service sectors could be an area of promising discoveries. Hence, a researchers' repetitive call to appeal their eyes on examining gender in low-tech industries might be realised in the context of Central Asian states (TM & Joseph, 2020; Alsos et al., 2013).

The present study supports the idea of women managers' better-adopting innovations compared to men managers that complies with the early research (Reuvers et al., 2008; Carvalho & Williams, 2014; Zapalska et al., 2015; Lindberg et al., 2016). The findings of the present study show women and men have an equally positive attitude towards innovations that is in line with previous research of Millward and Freeman (2002) but in contradiction with a range of existing studies (Idris, 2009; Peçanha & Godoy, 2014; Santos et al., 2019). This discrepancy can be caused by the different research methods applied as we utilized a quantitative research method of comparative study between women and men, while the mentioned-above studies were qualitative with a primary focus on females.



The findings of women managers' better engagement of subordinates to innovate testify the previous research conducted by Özmutafa et al. (2015) and Xie et al. (2020) but disagree with Kariv (2010). This disparity can be explained by TM & Joseph's (2020) observation in their review of research papers: studies of gender and innovations in emerging economies, as a rule, demonstrate a positive relationship between manager's gender and innovations compared with the same findings in Anglo-Saxon countries and the US. This specific observation was not covered in the present research and requires further examination in the future.

Additionally, the nature of an industry may also cause the identified disparity: the inclusion of different industries in our study, many of which are low-tech ones might facilitate women's better assessment. As Strohmeyer et al. (2017) revealed males were better in high-tech sectors of the economy, whereas there was no difference between females and males' innovative contribution in lower-innovation industries.

This paper lays an initial ground to gender and innovation studies in Central Asia, as Anglo-Saxon and US research is solely unable to fully explain gender and innovations in Asia (Kemppainen, 2019) and the results gained in the latter countries must not be directly extrapolated to the other geographic regions. However, the present study has several limitations. First, only three elements of managers' innovation capability are engaged. Second, the possible influence of socio-cultural aspects such as gender stereotypes and gender bias were not covered by the study. Third, the study is aimed at searching differences/ similarities between men and women. Examining differences/similarities between genders, we are aware of possible gender-biased discourse of femininity and masculinity. For reducing this research bias, we emphasize the possible influence of gendered organizational policies and environments and "gendered construction of innovations" on our respondents' answers (Alsos et al., 2013: 241). Gender stereotypes and gender bias create obstacles for adequate assessment of women and men managers in organizations (Nahlinder et al., 2015; Lipovka & Buzady, 2020) and gendered labour market and innovativeness of industries influences females and males' capabilities to innovate (Strohmeyer et al., 2017).

The social implication of this study lies in raising awareness of governors and decision-makers of the gender composition in management teams' influence on the innovative capability of the whole organization. Notwithstanding an equally positive attitude towards innovations by men and women, the latter could build work environments rather motivating their subordinates' innovative performance. Gender diversity of managers in organizations will have a double positive effect as women prefer to build ties with women, while men are inclined to cooperate with men (Mendoza-Silva, 2021) and female subordinates perform better in innovations under female managers' supervision (Bednar et al., 2019). Thus, the involvement of women in innovation management will provide a long-term impact on employees' motivation, commitment and performance at enterprises.

Conflict of Interest:

The authors declare that there is no conflict of interest.



References:

- Alsos, A. G., Ljunggren, E., Hytti, U. (2013). Gender and innovation: state of the art and a research agenda. *International Journal of Gender and Entrepreneurship*, 5(3), 236–256. doi:10.1108/ijge-06-2013-0049
- Arvanitis, S., Stucki, T. (2012). What determines the innovation capability of firm founders? *Ind. Corp. Chang*, 21 (4), 1049–1084. <https://doi.org/10.1093/icc/dts003>
- Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2011). Firm Innovation in Emerging Markets: The Role of Finance, Governance, and Competition. *The Journal of Financial and Quantitative Analysis*, 46(6), 1545–1580. doi:10.1017/S0022109011000378
- Badjanova, J., Ilisko, Dz., Petrova, M. (2018). *Definition and Dynamics of Gender-Specific Behaviours of Latvian Males and Females. Rural Environment. Education. Personality (REEP)*. (2018). Proceedings of the International Scientific Conference, Volume 11, 11 th - 12 th May 2018. Jelgava: Latvia University of Life Sciences and Technologies. Faculty of Engineering. ISSN 2255-8071, Jelgava, Latvia, 11.-12.05.2018. pp. 53-58, <https://doi.org/DOI:10.22616/REEP.2018.005>
- Bourke, J., Crowley, F. (2018). The Influence of the Manager on Firm Innovation in Emerging Economies. *International Journal of Innovation Management*, 22, 185002801–185002821. <https://doi.org/10.1142/S1363919618500287>
- Carvalho, L., Williams, B. (2014). Let the cork fly: creativity and innovation in a family business, *The International Journal of Entrepreneurship and Innovation*, 15 (2), 127-133. <https://doi.org/10.5367/ijei.2014.0146>
- Colovica, A., Williams, Ch. (2020). Group culture, gender diversity and organizational innovativeness: Evidence from Serbia. *Journal of Business Research*, 110, 282-291. <https://doi.org/10.1016/j.jbusres.2019.12.046>
- Díaz-García, Ch., González-Moreno, A., Sáez-Martínez, F.J. (2013). Gender diversity within R&D teams: Its impact on radicalness of innovation. *Innovation: Management Policy and Practice*, 5 (2), 149-160. <https://doi.org/10.5172/impp.2013.15.2.149>
- Farooq, O., Satt, H., Ramid, S. (2019). Gender difference and informal competition: evidence from India, *Journal of Small Business and Enterprise Development*, 26 (1), 2-17. DOI: 10.1108/JSBED-01-2018-0010
- Hoyt, C., Burnette J. (2013). Gender bias in leader evaluations. *Personal and Social Psychology Bulletin*, 39 (10), 1306-1319. <https://doi.org/10.1177/0146167213493643>
- Idris, A. (2009). Management styles and innovation in women-owned enterprises, *African Journal of Business Management*, 3 (9), 416-425. DOI: 10.5897/AJBM09.131
- Kariv, D. (2010). The role of management strategies in business performance: men and women entrepreneurs managing creativity and innovation, *International Journal of Entrepreneurship and Small Business*, 9 (3), 243–263. <https://doi.org/10.1504/IJESB.2010.031921>
- Kassenova, G., Nurgaliev, G., Pukala, R., Agatayeva, A., Syrlybayeva, N. (2020). Evaluation of the effectiveness of the use of instruments to attract savings in Kazakhstan (for example, “BCC Invest” JSC). *E3S Web Conf.*, 159 (2020) 04014. DOI: <https://doi.org/10.1051/e3sconf/202015904014>
- Kurmanov, N.; Petrova, M.; Suleimenova, S. (2019). Development of a Scientific and Innovative Sphere in Earth Resources Mining Sector of Kazakhstan. *IVth International Innovative Mining Symposium E3S Web of Conferences*, Vol. 105, October 14-16, 2019, Kemerovo, 1-7. <https://doi.org/10.1051/e3sconf/201910504045>
- Kurmanov N.A., Petrova, M. (2019). *Current state of innovative processes development in Kazakhstan*. Proceeding of the scientific and practical conference on the theme: "Innovation in the era of modernization of the economy of Kazakhstan», – Nur-Sultan, L.N.Gumilyov Eurasian National University. ISBN 978-601-337-162-7, p. 45-49



- Kurmanov N.A., Toksanova A.N. Mukhamedzhanov A.A., Syrlybayeva N.Sh.; M.M., Petrova. (2018). Analysis of efficiency of innovation activities in the countries of the Eurasian Economic Union. *The Journal of Economic Research & Business Administration*, [S.l.], v. 126, n. 4, p. 35-51, 2018. Al-Farabi Kazakh National University, Available at: <https://be.kaznu.kz/index.php/math/article/view/2026>
- Lazarova, T., Zhelyazkova, V., Vazov. R. (2015). *Innovation leadership as a key concept in entrepreneurship*, The 8th International Conference for Entrepreneurship, Innovation and Regional Development, University of Sheffield, June 2015, ISBN 978-0-9932801-0-8, pp.275-287
- Link, A.N., Hasselt, M.(2019). Exploring the impact of R&D on patenting activity in small women-owned and minority-owned entrepreneurial firms, *Small Business Economics*, doi:10.1007/s11187-018-00130-9.
- Lipovka, A., Buzady, Z. (2020). Gender stereotypes about managers: a comparative study of Central-Eastern Europe and Central Asia. In: I. Rybnikova, A. Soulsby, S. Blazejewski (Ed.). *Women in Management in Central and Eastern European Countries*, JEEMS Journal of East European Management Studies, 15-36, <https://doi.org/10.5771/9783748907190-15>
- Maralov, A., Petrova, M. (2019). *Snippets transformation and digitalization of business processes in telecommunication companies of Kazakhstan (2019)*. Proc. 27-th National Conference with International Participation "TELECOM 2019", October 30 - 31, 2019, Sofia, Bulgaria, http://ceec.fnts.bg/telecom/2019/documents/CD2019/pdf/3_10.pdf
- Mas-Tur, A., Ribeiro Soriano, D. (2014). The level of innovation among young innovative companies: the impacts of knowledge-intensive services use, firm characteristics and the entrepreneur attributes, *Service Business*, 8 (1), 51-63. <https://doi.org/10.1007/s11628-013-0186-x>
- Mendoza-Silva, A. (2021). Innovation capability: A sociometric approach. *Social Networks*, 64, 72-82. <https://doi.org/10.1016/j.socnet.2020.08.004>
- Millward L. J., Freeman, H. (2002). Role expectations as constraints to innovation: The case of female managers. *Creativity Research Journal*, 14 (1), 93-109, DOI: 10.1207/S15326934CRJ1401_8
- Na, K., Shin, K. (2019). The Gender Effect on a Firm's Innovative Activities in the Emerging Economies. *Sustainability*, 11, 1992; doi:10.3390/su11071992.
- Nahlinder, J., Tillmar, M. and Wigren, C. (2015). Towards a gender-aware understanding of innovation: a three-dimensional route, *International Journal of Gender and Entrepreneurship*, 7 (1), 66-86. <https://doi.org/10.1108/IJGE-09-2012-0051>
- Ostrom, A.L., Parasuraman, A., Bowen, D.E., Patricio, L., Voss, C.A. (2015). Service research priorities in a rapidly changing context. *Journal of Service Research*, 18 (2), 127-159. 10.1177/1094670515576315
- Özmutafa, N.M., Aktekinb, E., Ergania, B., Koray Ç. (2015). The effects of innovative features of women managers on their business performance: The food exporter companies in Aegean region sample. *World Conference on Technology, Innovation and Entrepreneurship. Procedia - Social and Behavioral Sciences* 195, 220 – 229. doi: 10.1016/j.sbspro.2015.06.353
- Peçanha, D., Godoy, R. S. (2014). EPA-1350 – Gender, mental health and innovation culture. *European Psychiatry*, 29, 1. doi:10.1016/s0924-9338(14)78565-7
- Petrova, M., Akhmedyarov, Y. (2019) Foreign experience in supporting innovation. «Economic series of Herald of the L.N. Gumilyov ENU», Issue 4. Publishing: L.N. Gumilyov ENU, Nur-Sultan, Kazakhstan. 2019(4), pp.123-132, DOI: <https://doi.org/10.32523/2079-620X-2019-4-123-132>
- Protogerou, A., Caloghirou, Y., Vonortas, N.S. (2017). Determinants of young firms' innovative performance: empirical evidence from Europe, *Research Policy*, 46 (7), 1312-1326.
- Radosevic, S., Myrzakhmet, M. (2009). Between vision and reality: Promoting innovation through technoparks in an emerging economy. *Technovation*, 29 (10), 645–656. doi:10.1016/j.technovation.2009.04.001
- Reuvers, M., Van Engen, M.L., Vinkenburg, C.J., Wilson-Evered, E. (2008). Transformational leadership and innovative work behaviour: Exploring the relevance of gender differences. *Creativity and Innovation*



Management, 17, 227–244. <https://doi.org/10.1111/j.1467-8691.2008.00487.x>

- RK Committee on Statistics. (2020). Women and men in Kazakhstan 2015-2019. Statistical collection, Astana: Ministry of National Economy of Kazakhstan.
- Ruiz-Jimenez, J.M., Fuentes-Fuentes, M., del, M. (2016). Management capabilities, innovation, and gender diversity in the top management team: an empirical analysis in technology-based SMEs”, BRQ Business Research Quarterly, 19 (2), 107-121. <https://doi.org/10.1016/j.brq.2015.08.003>
- Santos, G., Marques, C.S., Ratten, V. (2019). Entrepreneurial women’s networks: the case of D’Uva – Portugal wine girls, International Journal of Entrepreneurial Behavior and Research, 25 (2), 298-322. <https://doi.org/10.1108/IJEBR-10-2017-0418>
- Strohmeier, R., Tonoyan, V., Jennings, J.E. (2017). Jacks-(and Jills)-of-all-trades: On whether, how and why gender influences firm innovativeness, Journal of Business Venturing, 32(5), 498-518, <http://dx.doi.org/10.1016/j.jbusvent.2017.07.001>
- TM, A., Joseph, R.P. (2020). Gender and firm innovation - A systematic literature review and future research agenda, International Journal of Entrepreneurial Behavior & Research, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJEBR-08-2019-0480>
- Xiea, L., Zhou, J. Zongc, Q., Lud, Q. (2020). Gender diversity in R&D teams and innovation efficiency: Role of the innovation context. Research Policy, 49 (1), <https://doi.org/10.1016/j.respol.2019.103885>.
- Zapalska, A.M., Brozik, D., Zieser, N. (2015). Factors affecting the success of small business enterprises in the Polish tourism industry, Tourism, 63 (3), 365-381.

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