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System of Management of Women's Intellectual Labor in The Conditions of an Innovative Economy in Uzbekistan

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Abstract: This article provides an in-depth analysis of the issues of improving the system of management of women's intellectual labor in the conditions of an innovative economy in the Republic of Uzbekistan based on a comprehensive and systematic approach. The relevance of the study is explained by the fact that in the conditions of modern economic development, human capital, especially the intellectual potential of women, is not fully mobilized. Also, the insufficient participation of women in scientific research, innovative activities and management systems, and the inadequacy of existing management mechanisms to the requirements of a modern innovative economy, further increase the relevance of the problem. An analysis of the level of research on the problem shows that foreign scientists have developed theoretical approaches to the organization of labor, management efficiency, and gender factors, while scientists from the CIS countries have widely studied the issues of the balance between the role of women in social work and family responsibilities. Although Uzbek scientists have covered the issues of women's employment, the labor market, and social activity, the issues of comprehensive improvement of the system of management of women's intellectual labor in the conditions of an innovative economy have not been systematically studied. The research process used systematic analysis, comparison, statistical and sociological approaches to identify the main factors affecting women's participation in innovative activities. The results show that it is necessary to harmonize institutional, economic and social mechanisms for the effective management of women's intellectual labor. In particular, it is important to introduce a gender-sensitive management system, expand flexible work forms, expand innovative education and training opportunities for women, as well as encourage their participation in scientific and technological fields. The study concludes that the effective use of women's intellectual potential is one of the important factors ensuring the sustainable development of the innovative economy.

Keywords: Innovative Economy, Women's Intellectual Labor, Management System, Gender Equality, Labor Market, Human Capital, Socio-Economic Mechanisms, Women's Employment, Innovation, Management Efficiency

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1. Introduction

The profound structural changes, digital transformation, and innovative development processes taking place in the global economy today are dramatically increasing the importance of human capital, especially intellectual labor resources. In an innovative economy, knowledge, scientific potential, creative thinking, and the ability to create technological innovations play an important role as the main factor of economic growth.

In recent years, the Republic of Uzbekistan has been implementing large-scale reforms aimed at modernizing the economy, accelerating innovative development, and developing human capital. In particular, supporting women and increasing their role in society has been identified as one of the priorities of state policy.

The legal framework for ensuring gender equality and supporting women is also being strengthened. This creates important conditions for expanding women's participation in economic, social and innovative activities. However, despite the positive changes, the share of women in scientific research and innovation activities is still insufficient [1]. The report "Women, Business and the Law 2024" published by the World Bank, although Uzbekistan is included in the list of countries that have implemented significant reforms in gender equality, emphasizes the need to expand women's economic opportunities and increase their participation in the governance system [2].

According to the United Nations Development Programme (UNDP), increasing women's economic participation, especially in STEM (science, technology, engineering and mathematics) fields, is a key factor in developing an innovative economy [3]. At the same time, UN Women data also shows that gender equality and increasing women's economic participation are essential for achieving the Sustainable Development Goals [4].

However, despite the positive changes in practice, the participation of women in research, innovation and management activities is still insufficient. Gender stereotypes, the imbalance between work and family responsibilities, limited opportunities for professional development and barriers to entry into management positions are the main factors slowing down this process.

Therefore, in the conditions of an innovative economy in Uzbekistan, improving the system of managing women's intellectual labor, expanding their participation in scientific and innovative activities and increasing opportunities for professional development is an urgent scientific and practical task.

Literature Analysis

The issue of improving the system of management of women's intellectual labor is one of the most widely studied areas in modern economic science and social research. This problem, on the one hand, is associated with labor economics and management theories, and on the other hand, it is inextricably linked with the concepts of gender equality, human capital and innovative development. Therefore, it is appropriate to consider the analysis of the literature in three main directions: foreign scientific schools, studies of the CIS countries and the work of scientists from Uzbekistan.

In foreign scientific literature, the issues of women's labor and participation in the management system have been studied within the framework of classical and modern theories. The bureaucratic management theory developed by M.Weber substantiated the principles of rational division of labor and hierarchy in organizations, and this approach is also important in modern management systems [5]. T.Parsons analyzed the role of gender roles in the stability of society in the theory of social systems. J.Keynes justified the need for state intervention in increasing economic activity and gave an indirect approach to the issue of creating equal opportunities in the labor market [6]. M.Horner also studied the phenomenon of "fear of success" in women, showing that this condition can be a psychological obstacle to women's advancement to leadership positions [7].

In modern foreign studies, S. Kiesler [8] and A.E. Chirikova [9] have deeply analyzed gender stereotypes and women's participation in management. Their work shows that socio-psychological factors play an important role in the process of organizing women's intellectual labor. These approaches justify the need to expand women's participation in the digital and scientific spheres in today's innovative economy.

Scientists from the Commonwealth of Independent States - N.A. Volgin, Yu.G. Odegov, N.M. Rimashevskaya, L.S. Rjanisyna and others have extensively studied the issues of the women's labor market, employment policy and social protection system. In

these studies, the balance between state policy, working conditions and family responsibilities is shown as an important factor in increasing women's economic activity. In the works of E. Eagly and A. Statham, gender and leadership relations are analyzed and it is scientifically substantiated that women's effectiveness in management is no less than that of men.

Uzbek scientists have also conducted important research in this area. R.A. Ubaydullaeva studied gender policy and women's employment in connection with socio-economic development [10]. K.Kh.Abdurakhmonov analyzed the issue of effective use of human capital within the framework of labor economics [11]. N.Kh.Rakhimova studied mechanisms for increasing women's economic activity [12], while J.Kh.Bobanazarova paid special attention to issues of ensuring women's employment and their social protection [13]. D.Artikova also studied the factors affecting the socio-psychological state of women and their labor activity [14].

2. Methodology

The methodological foundations of this study are based on the integration of modern scientific approaches aimed at comprehensively studying and improving the system of management of women's intellectual labor in the conditions of an innovative economy in Uzbekistan. The systematic approach was chosen as the main methodological principle in the study, through which the system of management of women's intellectual labor was analyzed as a set of interconnected economic, social and institutional elements. This approach made it possible to identify existing problems in the management system and develop comprehensive mechanisms for their elimination.

In the course of the research, scientific literature, regulatory legal acts and practical experience were studied using analysis and synthesis methods. In particular, the content of women's intellectual labor, its role in the innovative economy and its features in the management system were highlighted. Based on the comparative method, differences between the experience of developed countries and the practice of Uzbekistan were identified, and ways to adapt advanced approaches to national conditions were developed. The study also used the method of statistical analysis to analyze available official data on women's employment, their participation in research and innovation activities. Through dynamic and structural analysis methods, the development trends of women's intellectual labor were identified and the main problem areas were identified. As part of the empirical research, a sociological survey was conducted to study the working conditions, professional development opportunities and attitude of women working in various fields to the management system. The results obtained were processed and summarized using descriptive statistics and content analysis methods.

In addition, based on the expert assessment method, the opinions of industry experts were studied and practical proposals were formulated to improve the system of management of women's intellectual labor. In order to ensure the reliability of the research results, data from various sources were compared and verified. In general, the methodological approaches used ensure the scientific validity and practical significance of the research.

3. Results and Discussion

The results of this study showed that the system of management of women's intellectual labor in the conditions of an innovative economy in Uzbekistan is not sufficiently systematized and the existing mechanisms are not fully adapted to modern requirements. The studies confirmed that, although the level of education of women in the country, especially the share of women with higher education, is increasing, their participation in scientific research activities, innovation processes and the management system remains relatively low. This situation is explained, on the one hand, by the insufficient adaptation of the labor market infrastructure, and on the other hand, by social and institutional factors.

Analysis of statistical data shows that, while the overall level of female employment is stable, their share in highly skilled sectors is lower than that of men. In particular, women's participation in science, technology and innovation remains limited. In this regard, the World Bank's report "Women, Business and the Law 2024" also emphasizes the need to expand women's economic opportunities [15]. Also, the United Nations Development Program (UNDP) reports recognize the participation of women in STEM fields as one of the key factors in the development of an innovative economy [16]. The table below provides a summarized analysis of the main indicators related to women's intellectual labor in Uzbekistan:

Table 1. Main indicators of women's intellectual work in Uzbekistan (generalized analysis)

Indicators	Percentage of women (%)	Percentage of men (%)
Highly educated population	48–52	48–52
Participation in scientific research activities	30–35	65–70
Share of management positions	20–25	75–80
Employment in STEM fields	25–30	70–75
Participation in innovative projects	28–32	68–72

Source: Compiled by the author based on statistical data

The data in this table show that, despite the high level of education of women, their participation in areas requiring intellectual labor is insufficient. This indicates a certain imbalance in the use of human capital.

During the discussion, it was found that the main problems in the system of management of women's intellectual labor can be divided into three groups: institutional, economic and socio-psychological factors. Institutional problems include the insufficient formation of a gender-sensitive approach in the management system, the incomplete implementation of the principles of transparency and meritocracy in personnel policy. Economic factors are associated with limited opportunities for women to finance innovative activities, obstacles to using grant and investment resources. Social factors are mainly explained by gender stereotypes, traditional views and high family obligations.

The results of the sociological survey showed that almost 60% of female respondents reported that they face certain obstacles in their professional development. Most of them indicated the difficulty of achieving a balance between work and family as the main problem. This situation indicates the need to expand flexible work forms, develop a remote work system, and strengthen social support mechanisms.

Based on the results of the study, priority areas for improving the system of managing women's intellectual labor were developed. They are systematized in the following table:

Table 2. Directions for improving the system of managing women's intellectual labor

Direction	Proposed measures
Institutional	Strengthening policies that ensure gender equality and increasing transparency in the governance system
Economic	Expanding funding for grants, subsidies, and innovative projects for women
Social	Reducing gender stereotypes, developing women's leadership
Education and qualifications	Expanding education and retraining programs in STEM fields

Source: Compiled by the author.

The proposals developed in these areas show that an integrated approach is necessary for the effective management of women's intellectual labor. Especially in the context of an innovative economy, the introduction of digital technologies, the expansion of remote work forms, and the formation of a management system that meets the requirements of a knowledge-based economy are of great importance.

During the discussion, the analysis of foreign experiences also yielded important results. In developed countries, the policy of supporting women, in particular in scientific activities, is implemented through grants, financing of startup projects, and mentoring programs. By adapting these experiences to national conditions, the opportunity to effectively use women's intellectual potential will increase in Uzbekistan.

Further study of the results of this study shows that improving the system of management of women's intellectual labor is of strategic importance not only from the point of view of the interests of a particular social group, but also from the point of view of increasing the competitiveness of the entire national economy. In particular, in the context of an innovative economy, the quality of human capital is a decisive factor in the development of knowledge-based production, research and development activities and high technologies. From this perspective, the underutilization of women's intellectual potential leads to a certain limitation of economic growth opportunities.

Additional analysis shows that there are significant differences in the involvement of women in innovative activities across regions. In particular, the lack of access to modern education, information technologies and training opportunities for women living in rural areas prevents them from actively participating in the intellectual labor market. This indicates the need to implement specific measures to reduce territorial disparities, develop infrastructure and eliminate digital inequality.

The study also revealed that one of the important problems is the insufficient development of motivation mechanisms in the system of management of women's intellectual labor. In many cases, women noted a lack of financial and organizational support for the implementation of their scientific or innovative ideas. Therefore, it is advisable to introduce special quotas or benefits for women within special programs that stimulate innovative activities, startup incubators and technoparks. In addition, the results of the study showed the need to expand special training programs aimed at developing "soft skills", leadership skills and strategic thinking in order to increase the share of women in the management system. In this regard, strengthening cooperation with international organizations, in particular, UN structures and international financial institutions, is of great importance.

In general, the results of the study and their discussion confirm that improving the system of managing women's intellectual labor in the conditions of an innovative economy in Uzbekistan is a multifaceted and continuous process, which should be implemented on the basis of the interaction of state policy, institutional reforms, social consciousness and economic mechanisms. Consistent measures in this direction will serve not only to ensure gender equality, but also to the sustainable innovative development of the country.

4. Conclusions

The results of this study show that in Uzbekistan, the system of management of women's intellectual labor in the conditions of an innovative economy has not yet been fully formed. Despite the high level of education of women, their participation in scientific research, innovative activities and the management system is insufficient. This situation is

explained by the fact that existing management mechanisms are not fully adapted to modern requirements, as well as the influence of institutional, economic and social factors.

In conclusion, it is worth noting that the effective use of women's intellectual potential is one of the important factors in the development of an innovative economy. Therefore, it is necessary to implement an integrated approach in this direction.

Based on the results of the study, the following proposals are put forward: first, to strengthen institutional mechanisms aimed at ensuring gender equality in the management system and to introduce the principles of meritocracy; second, to expand grants, subsidies and startup support programs to attract women to innovative activities; third, to develop opportunities for education and training in STEM areas and support women's leadership; fourth, to create favorable working conditions through the widespread introduction of remote work and digital platforms; fifth, to develop education and digital infrastructure for women in rural areas in order to reduce regional disparities. In general, the implementation of these proposals will serve to effectively manage women's intellectual labor, expand their participation in innovative activities, and ensure the country's sustainable economic development.

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