

THE FACTORS AFFECTING INNOVATION MANAGEMENT

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Abstract: *In our study, we aimed to identify the factors that influence innovation management within the Mongolian public sector, specifically focusing on personal skills, cooperation, professional knowledge, and rewards. A total of 649 public servants working within the public sector participated in our research. To achieve our objective, we employed SMART PLS 3.0 software for our analysis. This software enabled us to conduct various statistical analyses, including metrological analysis, correlation analysis, multi-factor analysis, and path analysis. Through these analyses, we sought to demonstrate how the variables of personal skills, cooperation, professional knowledge, and rewards impact innovation management in our study.*

Keywords: *public sector, personal skills, cooperation, professional knowledge, and rewards.*

One. INTRODUCTION

Metrological analysis allowed us to assess the reliability and validity of our measurement instruments, ensuring that our study's variables were accurately and consistently measured. Correlation analysis enabled us to examine the relationships between the variables, providing insights into the degree of association between personal skills, cooperation, professional knowledge, rewards, and innovation management.

Multi-factor analysis helped us explore the combined effects of multiple factors on innovation management, considering the interplay between personal skills, cooperation, professional knowledge, and rewards. Path analysis, on the other hand, allowed us to analyze the direct and indirect effects of each variable on innovation management, identifying the most influential factors in driving

innovation within the Mongolian public sector.

Overall, by leveraging SMART PLS 3.0 software and employing these analytical techniques, we aimed to provide a comprehensive understanding of the factors influencing innovation management in the Mongolian public sector, ultimately contributing valuable insights for policymakers, practitioners, and researchers in the field of public administration and innovation management.

Two. Theoretical framework on innovation management

The term "creative destruction" suggests that while innovation creates new opportunities and advancements, it also dismantles or replaces existing economic structures, technologies, and products. This process is not necessarily negative, as it drives economic progress

by fostering competition, dynamism, and growth.

Innovation can be defined in various ways by different scholars, but a common thread is the creation or adoption of new ideas, products, or processes that lead to significant positive change.

Joseph Schumpeter (1942): Schumpeter, an Austrian economist, defined innovation as the "creative destruction" of existing products, processes, or markets, leading to the emergence of new ones. This idea emphasizes the role of entrepreneurs in driving economic progress through innovation.

Joseph Schumpeter, an Austrian economist, introduced the concept of "creative destruction" in his work, particularly in his book "Capitalism, Socialism and Democracy" published in 1942. This concept encapsulates the idea that innovation is not just about incremental improvements or additions to existing products, processes, or markets. Instead, it involves a more radical and transformative process where new innovations render existing ones obsolete, leading to their destruction.

Schumpeter emphasized the pivotal role of entrepreneurs in this process. Entrepreneurs are the agents of change who introduce new ideas, technologies, and business models that disrupt existing norms and create new avenues for economic activity. They are the driving force behind innovation, as they take risks and invest resources to bring about creative destruction.

Innovation management refers to the systematic process of promoting and managing innovation within an organization to drive growth, competitiveness, and sustainability.

Scholars have contributed to the understanding and development of innovation management through various theories, frameworks, and empirical studies.

Three. Scholars and their contributions:

We studied and compared framework of definitions in European and Asian countries' innovation management definitions as below:

European countries's innovation management:

Dr. Henry Chesbrough known for his concept of "open innovation," Dr. Chesbrough's work has significantly influenced innovation management practices in Europe. His ideas emphasize the importance of collaboration with external partners, including customers, suppliers, and competitors, in the innovation process.

Dr. Von Hippel's research on user innovation has had a profound impact on European innovation management. His studies highlight the role of end-users in driving innovation by developing their solutions and customizing existing products, challenging traditional notions of innovation originating solely from within organizations.

Dr. Mazzucato's work on "mission-oriented innovation" has gained traction in European policy circles. Her research emphasizes the role of government in setting ambitious goals and catalyzing innovation through targeted investments, public-private partnerships, and regulatory frameworks.

Dr. Perkmann's research on innovation ecosystems has contributed to understanding how European countries can leverage their diverse

networks of stakeholders to foster innovation. His work emphasizes the importance of collaboration between academia, industry, government, and other actors in creating conducive environments for innovation.

Dr. Salter's research on innovation management in European firms examines the strategies and practices adopted by companies to stay competitive in rapidly changing markets. His work highlights the role of organizational culture, leadership, and resource allocation in driving successful innovation outcomes.

Managing innovation in European countries involves planning, organizing, and implementing processes to encourage creativity and develop new products, services, or processes within organizations. This includes considering the different cultural, institutional, and economic factors across European nations.

Asian countries's innovation management:

Dr. Yukika Awazu argued that "Innovation Management in Japan," Dr. Awazu emphasizes the role of Japanese management practices such as kaizen, just-in-time production, and quality circles in fostering continuous improvement and innovation within Japanese organizations.

Dr. Rajesh Kumar studied that innovation management in India, Dr. Kumar explores the intersection of frugal innovation and traditional management approaches. His research sheds light on how Indian companies leverage limited resources to develop affordable and scalable innovations, especially in sectors like healthcare and agriculture.

Dr. Chen's research on innovation management in China examines the impact of government policies, cultural factors, and industry dynamics on innovation practices within Chinese firms. Her work highlights the role of guanxi (networks) and government support in shaping innovation strategies and outcomes.

Dr. Young-Woo Park - Investigating innovation management in South Korea, Dr. Park focuses on the chaebol (conglomerates) and their strategies for fostering innovation. His research delves into how South Korean firms balance hierarchical structures with entrepreneurial initiatives to drive innovation in highly competitive global markets.

Dr. Kodama's studied on innovation management in Japan have contributed to the understanding of open innovation practices and collaboration between industry, academia, and government (triple helix model). His work emphasizes the importance of ecosystem-based approaches to innovation in Japan's technology-intensive industries.

In conclusion, research on innovation management in Asian countries reveals diverse approaches tailored to each nation's unique socio-economic context. Scholars emphasized the pivotal roles of indigenous management practices, frugal innovation, government policies, corporate strategies, and collaborative frameworks in driving continuous improvement and fostering innovation.

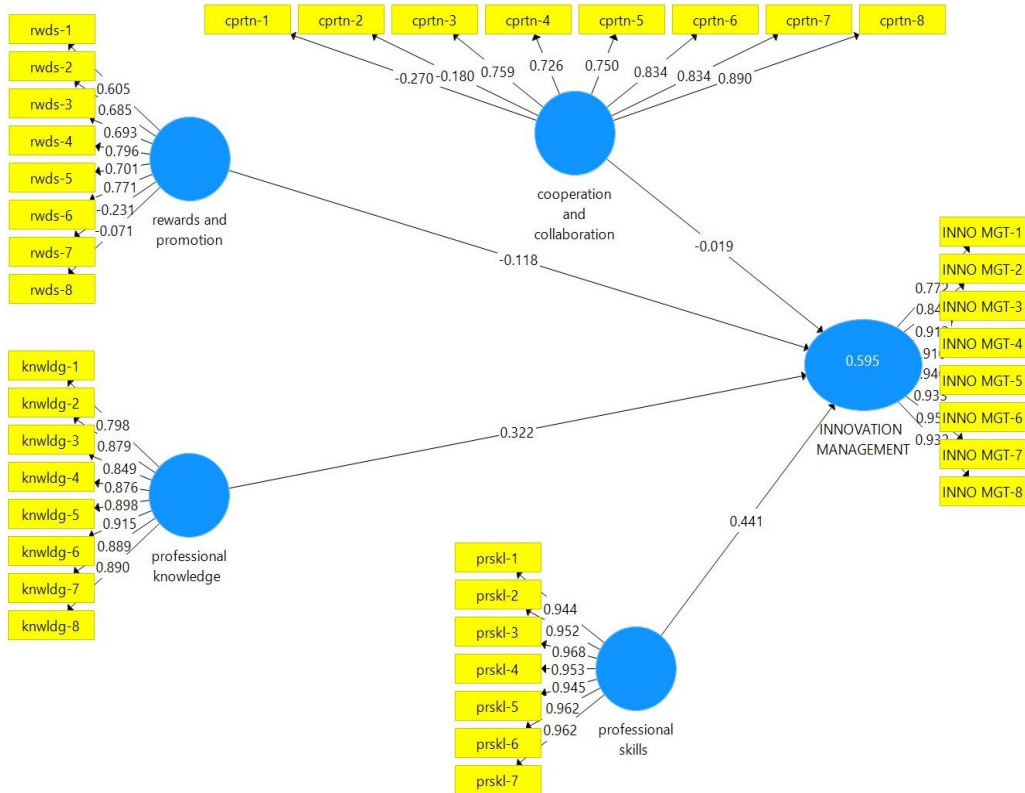
Four. Results of our study

There are shows the demographic characteristics and general information of the respondents in our study. The participants were total

649 public servants who work in public organization in Mongolia. In terms of gender 387 or 59.63 percent were male

whereas 262 and 40.37 percent were female.

Figure 2. Structure Analysis of innovation management



Noted: cprtn-cooperation, rwd- rewards, knwld- professional knowledge, prskl- personal skills, inno mgt- innovation management

Table 1. The list of items for each Construct of innovation management

| The factors of our study | Cronbach's alpha | Rho_A | Composite reliability | Average Variance Extracted |
|-------------------------------|------------------|-------|-----------------------|----------------------------|
| cooperation and collaboration | 0.839 | 0.841 | 0.823 | 0.494 |
| professional knowledge | 0.956 | 0.957 | 0.963 | 0.766 |
| professional skills | 0.984 | 0.985 | 0.987 | 0.913 |
| rewards and promotion | 0.770 | 0.741 | 0.987 | 0.387 |
| INNOVATION MANAGEMENT | 0.966 | 0.969 | 0.972 | 0.812 |

In the table 1, we have analysed the results of our research as below:

Cronbach's alpha, Rho_A, composite reliability, and Average Variance Extracted (AVE) are measures used to assess the internal consistency

and convergent validity of scales or test items in research.

Cronbach's alpha is a measure of internal consistency or reliability of a set of scale or test items. It ranges from 0 to 1, where a higher value indicates

greater internal consistency. Generally, a Cronbach's alpha of 0.7 or higher is considered acceptable.

Cooperation and collaboration (0.839) indicates a good level of internal consistency. It suggests that the items within the scale related to cooperation and collaboration are reliably measuring the same underlying construct.

Professional knowledge (0.956) is excellent, indicating very high internal consistency. It suggests that the items measuring professional knowledge are highly reliable and consistently measure the same underlying construct.

Professional skills (0.984) the internal consistency of the professional skills scale is outstanding. This means that the items within this scale demonstrate extremely high reliability, consistently measuring the same construct of professional skills.

Rewards and promotion (0.770) is on the lower side compared to the previous scales. This suggests that although the items within the scale related to rewards and promotion are somewhat reliable, there may be some variability or inconsistency in measuring the underlying construct.

Innovation management (0.966) indicated very high internal consistency within the innovation management scale. It suggests that the items reliably measure the construct of innovation management and consistently produce similar results.

In summary, these internal consistency scores provide valuable insights into the reliability of the scales used in research. They help researchers assess the consistency and dependability of their measures, enabling them to make informed decisions about the validity of their findings.

Rho_A, also known as Revelle's rho, is another measure of internal consistency similar to Cronbach's alpha. It is particularly suitable for non-normally distributed data or when there are issues with tau-equivalence (a condition required for Cronbach's alpha). Like Cronbach's alpha, Rho_A also ranges from 0 to 1, with higher values indicating greater internal consistency.

Cooperation and collaboration (0.841) is indicated good internal consistency within the scale measuring cooperation and collaboration. It suggests that the items within the scale are measuring the same underlying construct reliably. While the score is decent, there might be slight variability in responses to individual items.

Professional knowledge (0.957) is the internal consistency of the professional knowledge scale is excellent. This indicates very high reliability among the items measuring professional knowledge.

Professional skills (0.985) is represents outstanding internal consistency within the professional skills scale. It suggests that the items within the scale demonstrate extremely

high reliability, consistently measuring the construct of professional skills accurately.

Rewards and promotion (0.741) is internal consistency score for rewards and promotion is slightly lower compared to the other scales. This indicates that there may be some variability or inconsistency in responses to the items within this scale.

Innovation management (0.969) is internal consistency of the innovation management scale is excellent. This indicates very high reliability among the items measuring innovation management.

In summary, these internal consistency scores provide valuable information about the reliability of the scales used in research. They enable researchers to assess the consistency and dependability of their measures, allowing for informed decisions about the validity of their findings and potential areas for improvement in measurement instruments.

Composite reliability is another measure of internal consistency, often used in the context of structural equation modeling (SEM).

Cooperation and collaboration (0.823): suggests acceptable internal consistency within the cooperation and collaboration scale. While it falls slightly below the thresholds considered excellent, it still indicates that the items within the scale are measuring the same underlying construct with a reasonable degree of reliability.

Professional knowledge (0.963) is the internal consistency of the professional knowledge scale is excellent. This indicates very high reliability among the items measuring professional knowledge.

Professional skills (0.987) indicates outstanding internal consistency within the professional skills scale. It suggests that the items within the scale demonstrate extremely high reliability, consistently measuring the construct of professional skills accurately.

Rewards and promotion (0.987) is the internal consistency of the rewards and promotion scale is excellent. This suggests an exceptionally high level of reliability among the items measuring rewards and promotion.

Innovation management (0.972) indicates excellent internal consistency within the innovation management scale. It suggests very high reliability among the items measuring innovation management.

In summary, while the cooperation and collaboration scale demonstrates acceptable internal consistency, the other scales exhibit excellent to outstanding levels of reliability (Table 1).

CONCLUSION

Innovation can be simply defined as a "new idea, creative thoughts, and new imaginations in form of device or method" and takes place through the provision of more effective public services, processes, services,

technologies are made available to markets in public sector. Innovation management will institutionalize change through strategic planning (BerryF., 1995, 55(2)).

Our study involved 649 public servants who participated in an online questionnaire, categorized by Mongolian geographical zones. The findings of our study provide insights into the relationship between various factors and innovation management within the public service sector.

Hypothesis 1, which posited that cooperation and collaboration have a significant impact on innovation management, was not supported by the data. This implies that, among the surveyed public servants, cooperation and collaboration did not emerge as significant factors influencing innovation management.

Conversely, Hypotheses 2, 3, and 4 were supported, indicating that professional knowledge, professional skills, and rewards/promotion do have significant relationships with innovation management. Specifically, the strongest evidence was found for Hypothesis 3 (professional skills), followed by Hypothesis 2 (professional knowledge), and then Hypothesis 4 (rewards/promotion).

The findings highlight the increasing importance of innovation management in effectively delivering public services. Strategic planning is identified as a crucial driver for institutionalizing change and ensuring sustained progress within the ever-

evolving landscape of public administration.

While cooperation and collaboration may not have emerged as significant factors affecting innovation management in the surveyed public servants, the study emphasizes the pivotal role of professional knowledge, skills, and rewards/promotion in fostering innovation within the public service sector. This underscores the importance of investing in professional development and incentivizing innovation to drive positive change and improve service delivery in public administration. We are recommending our study as bellow:

- a. To study and compare factors of innovation management with another sector.
- b. To study and compare the factors with foreign scholars' study in the future more.

Finally, we will study our next research paper, need to correlation skills, behavior, job satisfaction, engagement, engagement with innovation management and etc.

Bibliography

Atallah, G. (2002). Vertical cooperation, market structure, and innovation. . *Economics of Innovation and New Technology* , 179–209.

Baumann, O. a. (2014). Rewarding Value-Creating Ideas in Organizations: The Power of Low-Powered Incentives. *Strategic Management Journal*, 358-375.

Bayasgalan Tsogtsuren, Erdenedalai Baigali, Sunduisuren Dorj,

Chuluunbat Sharkhuu. (2022). The empirical analysis of impacts on leadership: The Case of National Police agency in Mongolia. *Journal of Humanities and Social Science*, 220-227.

Becker, W. D. (2004). Resource and development cooperation and innovation activities of firms—evidence for the German manufacturing industry. . *Research Policy* 33 (2), 209–223.

Berry, F. S. (1995, 55(2)). State agencies' experience with strategic planning: Findings from a national survey. *Public Administration Review*, pp. 159-168.

Bohret. (1993). The tools of public management. *Managing Public Organizations*, Sage, London., 251-265.

Cassiman, B., Veugelers, R., . (2002). Research development cooperation and spillovers: some empirical evidence from Belgium., 1169–1184.

Eisenberger, R. a. (2003). Rewards, Intrinsic Motivation and Creativity: A Case Study of Conceptual and Methodological Isolation. . *Creativity Research*, 121-130. https://doi.org/10.1207/S15326934CRJ152&3_02.

Eisenberger, R. a. (2011). *Rewards and Creativity*. Elsevier, Amsterdam: *Encyclopedia of Creativity*, 2nd Edition.

Green, L. (2007). Skills for innovation. *Global Review of Innovation Intelligence and Policy Studies*, 36-54, DOI: 10.13140/RG.2.2.18921.62566.

Joyce, P. (1998). Management and innovaation in the public services. . *Strategic vvhange* , 19-30.

Mowery, D. O. (1998). Technological overlap and interfirm cooperation: implications for the resource-based view of the firm. *Research Policy*, 507–523.

Pedro de Faria, F. L. (2010). Cooperation in innovation activities: The importance of partners. *Research Policy* 39 Elsevier B.V. All rights reserved., 1082–1092.

Rogers, E. M. (1995). *Diffusion of innovation*. New York: Library of Congress Cataloging in Publication Data.

Roy, M. (2019). Effects of cybersecurity skills shortage worsening. *Tech Target*,.

Said Juma Al Darmak, R. O. (2019). Driving Innovation: Reviewing the Role of Rewards. *Journal of Human Resource and Sustainability Studies*, 406-415.

Tssogtsuren, B. (2016). Mongolia, Ulaanbaatar Patent No.8431.

Zaltman, G. D. (1973). *Innovation and Organizations*. New York: John Wiley,.