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THE ROLE OF INNOVATIVE WORK BEHAVIOR AS A PREDICTOR OF INDIVIDUAL PERFORMANCE: A META ANALYSIS

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A R T I C L E I N F O.

Keywords: Individual Performance, Innovative Work Behavior, Meta Analysis.

Abstract

Individual performance is a key factor in determining the success of an organization in achieving its goals. Innovative work behavior (IWB) is an essential element in enhancing employee performance through the development of creative ideas and innovative solutions. This study aims to analyze the role of IWB as a predictor of individual performance using a meta-analytic approach. Data were obtained from various empirical studies that evaluated the relationship between IWB and individual performance across different industrial and geographical contexts. The analysis results indicate that IWB has a significant positive effect on improving individual performance across various industrial sectors and geographical regions. This effect varies depending on specific industry characteristics and geographical contexts, with the Finance sector showing the highest effect, followed by the Public Service and Health sectors. Additionally, the results show that the Middle East region has the highest estimated effect, followed by South Asia, Africa, and South East Asia. This study highlights the importance of promoting IWB as an effective strategy to enhance individual performance and provides practical recommendations for developing human resource management strategies that support innovation.

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INTRODUCTION

Individual performance is a crucial aspect that determines the success of an organization in achieving its goals. In this VUCA (Volatile, Uncertain, complex and ambiguous) era, organizations must be able to improve individual performance through various HRM strategies. One effective approach is through the implementation of IWB which can increase employee productivity and work effectiveness (Atatsi, et al., 2021; Abdullah, Wahab and Shamsuddin, 2019; Tresita and Devi, 2019; Rogers, 2003). IWB is the main focus in modern HRM because of its significant role in creating work processes that are more effective and adaptive to change (Appau, Marfo-Yiadom and Kusi, 2021).

IWB is becoming increasingly relevant in facing the challenges of globalization, digitalization and demographic change. The ability to innovate is the key to maintaining competitiveness and achieving long-term sustainability (Vuong, 2023; Tresita and Devi, 2019). Innovation often starts with individuals who are able to create and implement new ideas in the context of their

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work. IWB includes the processes of problem identification, idea generation, idea promotion, and idea realization, all of which contribute to increasing operational efficiency and effectiveness (Shoaib and Waseem, 2024; Santoso, Abdinagoro and Arief, 2019). Promoting IWB not only improves individual performance but also overall organizational performance (Rahmi and Desiana, 2023; Vuong, Tushar and Hossain, 2023).

IWB influences individual performance through several mechanisms. First, IWB encourages individuals to be more proactive in finding creative solutions to problems faced in daily work (Pramezwary, et al., 2022; Harlianto and Afandy, 2018). Individuals who engage in IWB tend to have higher levels of creativity and better ability to adapt to change, which then improves their performance (Deng, et al., 2022; El-Kassar, et al., 2022). Second, IWB increases individuals' engagement and gives them a greater sense of accomplishment and job satisfaction, which positively influences their motivation and productivity (Hernaus, Cerne and Vujcic, 2023; Widianingsih, Christa and Harinie, 2024). Apart from that, IWB also facilitates better collaboration between individuals and between individuals and management, creating a more dynamic and innovative work environment (Budiprasetia and Lo, 2021; Luhgiatno and Dwiatmadja, 2020).

Furthermore, IWB allows employees to develop and implement new work methods that are more efficient and effective. This process not only improves individual performance, but can also lead to innovation at a broader organizational level, such as the development of new products or improved services (Pham, et al., 2024; Babu, Prasad and Prasad, 2024). IWB also helps individuals to be more responsive to customer needs and market changes, which ultimately improves overall organizational performance (Fitrio, Budiyanto and Agustedi, 2020; Junusi, et al., 2023). Therefore, encouraging IWB in the workplace is an important strategy for organizations seeking to achieve competitive advantage and long-term sustainability (Ba, et al., 2023; Astrama, et al., 2020).

This study aims to analyze the role of IWB as a predictor of individual performance through a meta-analysis approach. Meta-analysis allows researchers to combine results from multiple relevant studies and produce more robust and comprehensive conclusions regarding the relationship between IWB and individual performance. By integrating findings from various contexts and methodologies, this study aims to provide a deeper understanding of how IWB influences individual performance across different sectors and geographic regions. This study is expected to provide guidance for managers and organizational leaders in designing and implementing effective HRM strategies to encourage IWB. The findings of this study are also intended to contribute to the HRM literature by providing stronger empirical evidence of the relationship between IWB and individual performance, as well as sparking further research to explore other factors that may influence this relationship and identify new ways to encourage performance. via IWB.

DESIGN AND METHODS

This study uses a meta-analysis method to examine the influence of Innovative Work Behavior on Performance at the Individual level. Meta analysis is a systematic quantitative approach to provide a synthesis of results from various studies that have been conducted previously, so as to provide more comprehensive conclusions and stronger generalizations. The process of searching, filtering and selecting articles in this study follows a systematic flow, as can be seen in the following PRISMA chart:

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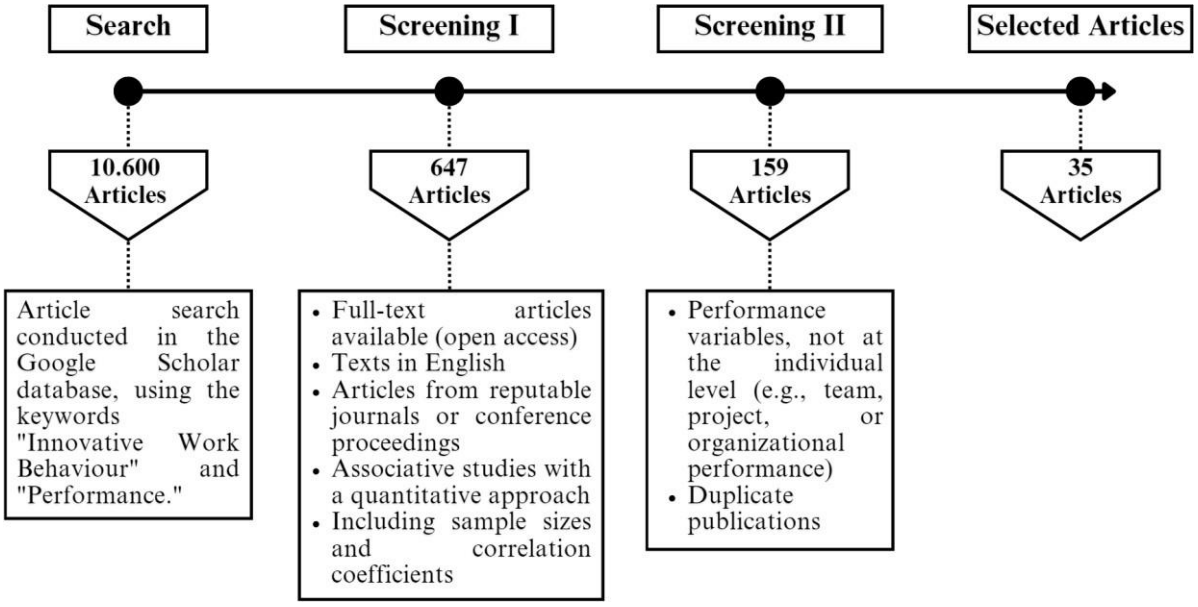

Figure 1. PRISMA Flow Chart

(Source: data processing results, 2024)

The process of searching and selecting articles in this meta-analysis began with an initial search in the Google Scholar database using the keywords "Innovative Work Behavior" and "Performance", resulting in 10,600 articles. From the search results, 647 articles were found whose titles included the words "Innovative Work Behavior" and "Performance". Phase I screening was carried out based on inclusion criteria, which included: availability of the complete manuscript (open access), article written in English, published by a trusted journal or conference, an associative study with a quantitative approach, including sample size and correlation coefficient between IWB and Performance.

From stage I screening, 159 articles were found to meet the inclusion criteria. Next, stage II screening was carried out to ensure the performance variables discussed were at the individual level and to eliminate duplicate publications. In the end, 35 articles were found that were worthy of inclusion in the meta analysis. The descriptive characteristics of the analyzed articles are summarized in the following table:

Table 1. Descriptive Characteristics of the Analyzed Studies

No	Name	Sample	Correlation	Industry	Country	Hypothesis
1	Atatsi, et al. (2021)	438	0.379	Health	Ghana	Supported
2	Al Wali, Muthuveloo andTeoh (2022)	173	0.68	Health	Iraq	Supported
3	Appau, MarfoYiadom and Kusi (2021)	209	0.468	Education	Ghana	Supported
4	Vuong (2023)	361	0.329	Public Service	Vietnamese	Supported
5	Pramezwary, et al. (2022)	66	0.29	Hospitality	Indonesia	Supported
6	Abdullah, Wahab and Shamsuddin (2019)	186	-0.143	Manufacturing	Malaysia	Unsupported
7	Tresita and Devi (2019)	180	0.81	I.T	India	Supported

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8	Pham, et al. (2024)	464	0.216	Public Service	Vietnames e	Supported
9	Babu, Prasad and Prasad (2024)	371	0.177	I.T	India	Supported
10	Deng, et al. (2022)	522	0.4	Multi	China	Supported
11	El-Kassar, et al. (2022)	285	0.477	Multi	Lebanon	Supported
12	Hernaus, Cerne and Vujcic (2023)	157	0.65	Public Service	Croatia	Supported
13	Budiprasetia andLol (2021)	76	0.027	Manufacturing	Indonesia	Unsupporte d
14	Widianingsih,Christ a and Harinie (2024)	47	0.339	Education	Indonesia	Supported
15	Sofiyan, et al. (2022)	215	0.474	Education	Indonesia	Supported
16	Harlianto andAfandy (2018)	299	0.144	Manufacturing	Indonesia	Supported
17	Nasir, et al. (2019)	230	0.254	Education	Indonesia	Supported
18	Yamin (2022)	411	0.703	SME's (Multi)	Saudi Arabia	Supported
19	Rahmi and Desiana (2023)	904	0.64	Public Service	Indonesia	Supported
20	Vuong, Tushar and Hossain (2023)	649	0.162	SME's (Multi)	Vietnames e	Supported
21	Hussain, et al. (2023)	161	0.76	F&B	Malaysia	Supported
22	Luhgiatno and Dwiatmadja (2020)	193	0.35	Education	Indonesia	Supported
23	Mufti, Pudjiarti and Darmanto (2019)	180	0.24	Public Service	Indonesia	Supported
24	Fitrio, Budiyanto and Agustedi (2020)	105	0.393	Finance	Indonesia	Supported
25	Shoaib andWaseem (2024)	305	0.148	Health	Pakistan	Supported
26	Santoso, Abdinagoro andArief (2019)	230	0.075	I.T	Indonesia	Supported
27	Ba, et al. (2023)	152	0.468	Education	Vietnames e	Supported
28	Astrama, et al. (2020)	156	0.701	Finance	Indonesia	Supported
29	Junusi, et al. (2023)	164	0.28	Education	Indonesia	Supported

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30	Mirza, Ahmad and Gogia (2023)	340	0.374	Education	Pakistan	Supported
31	Dewanto, Syarifudin And Hidayat (2024)	81	0.131	Education	Indonesia	Supported
32	Ardianto And Suharnomo (2023)	350	0.384	Public Service	Indonesia	Supported
33	Magic, Kurniawati and Rahayu (2023)	120	0.582	Poultry farming	Indonesia	Supported
34	Futri, Jimad And Life (2023)	155	0.591	Public Service	Indonesia	Supported
35	Susanto (2024)	154	0.395	Multi	Indonesia	Supported

Source: Researcher, 2024.

Meta-analysis is carried out through a series of systematic steps to ensure the accuracy and validity of the findings. The first step involved the analysis of articles that fit the inclusion criteria, where the Pearson correlation coefficient was used to evaluate the strength of the relationship between innovative work behavior (IWB) and individual performance. The correlation coefficient from each study was then converted into a Fisher's Z-score, which is useful for normalizing the distribution of existing data.

The next stage is to calculate the average effect size using a random effects model. This model was chosen for its ability to account for variability between studies, including differences in country and industry context. To measure the level of heterogeneity between studies, Q and I^2 statistics were used. Results showing significant heterogeneity indicate that the variability in effects is not solely caused by sampling error, but is influenced by other, more complex factors (Simske, 2019).

After obtaining the correlation from the meta-analysis of all articles, a subgroup analysis was carried out based on country and industry variables. The purpose of this subgroup analysis is to determine whether the particular cultural context within a region or industry influences the strength of the relationship between IWB and individual performance. Decisions regarding hypothesis testing are based on a 95% confidence interval as well as a p value < 0.05 to determine the statistical significance of the results obtained (Simske, 2019).

ANALYSIS RESULTS

Instrument Testing

The results of the heteroscedasticity test in this meta-analysis show high variability in effects between studies. The following is a table of heteroscedasticity test results carried out to evaluate the consistency of residual variance in this study:

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Table 2. Heteroscedasticity Test

you know^2	Q(df=34)	Hittite. p-Value	I^2
0.075	677,417	< 0.001	94,981

Source: data processing results, 2024.

In table. 2, a tau2 value of 0.075 is shown, indicating that there is real variation between studies. The Q value of 677.417 with degrees of freedom (df) 34 and p-value less than 0.001 indicates that heteroscedasticity exists significantly in this data. The I2 value of 94.981% indicates that most of the variability in study results can be explained by heterogeneity between studies, not by random variation. Thus, these results confirm that the heteroscedasticity assumption is met, indicating that the articles included in the meta-analysis are not homogeneous, so that the meta-analysis results can be considered accurate and representative.

Effect Size

The meta analysis results obtained show the estimated effect size using Fisher's Z. The following table presents the estimated values, lower and upper limits, standard error, and p-value to interpret the statistical significance of the effect size.

Table 3. Meta Analysis Results of Fisher Z Correlation Values

Estimate	Lower bound	Upper bound	Std. error	p-Value
0.435	0.341	0.529	0.048	< 0.001

Source: data processing results, 2024.

In table 3, it is shown that the effect size (Fisher's Z) is 0.435 with a 95% confidence interval between 0.341 and 0.529. A standard error of 0.048 indicates relatively small variation in the effect size estimates. A p-value of less than 0.001 indicates that this effect size is statistically significant, meaning that this result did not occur by chance. Thus, there is strong evidence that IWB acts as a predictor of individual performance. To support these results, the forest plot image below provides further visualization of the size of the effect.

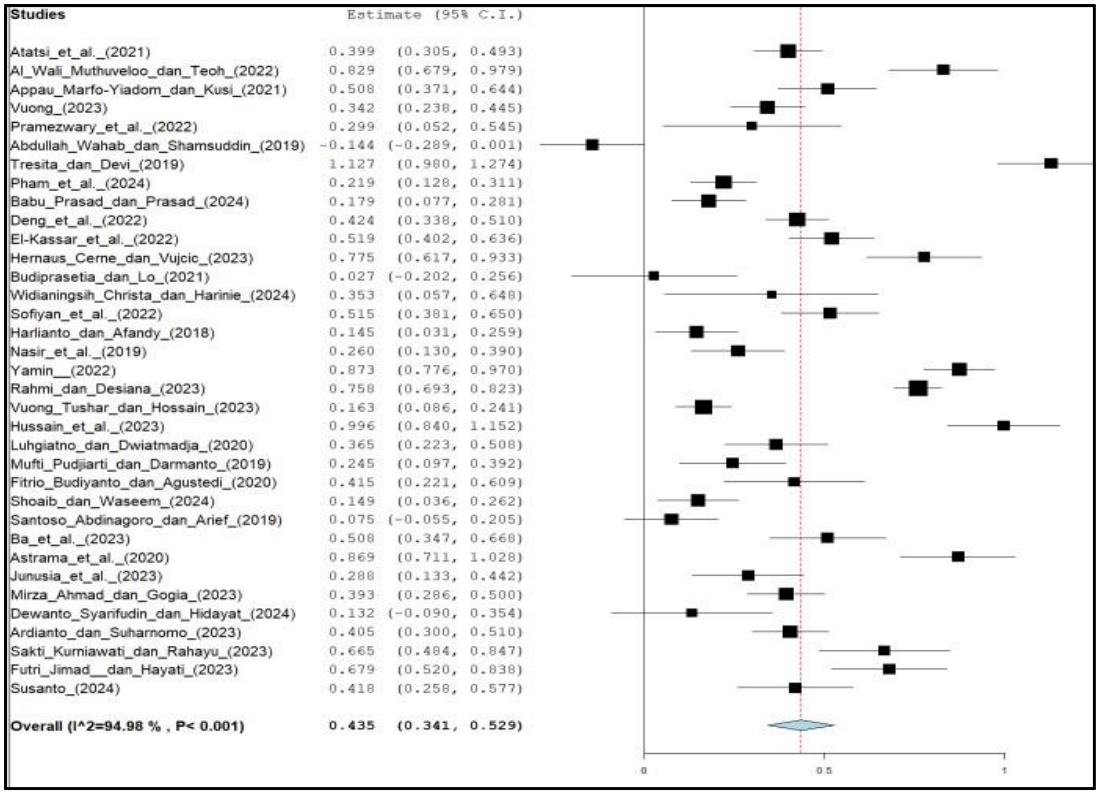

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Figure 2. Forrest Plot

(Source: data processing results, 2024)

In figure 2., it is shown that the majority of studies have positive effect size estimates with confidence intervals that do not contain zero values, indicating statistical significance consistent with the table results. The variation in effect sizes among these studies reinforces the results that IWB is consistently positively correlated with individual performance. The blue diamonds at the bottom of the plot represent the overall estimates from the meta-analysis, which are consistent with the estimates in the table. This figure shows that the majority of study results are on the positive side of the zero vertical line, indicating consistent and significant effects in relation to IWB as a predictor of individual performance. This supports the conclusion that innovative work behavior is an important factor in improving individual performance in various empirical study contexts.

Publication Bias

Publication bias analysis is an important step in meta-analysis to ensure that the results obtained are not influenced by the tendency to only include studies with significant results. The following is a funnel plot visualization:

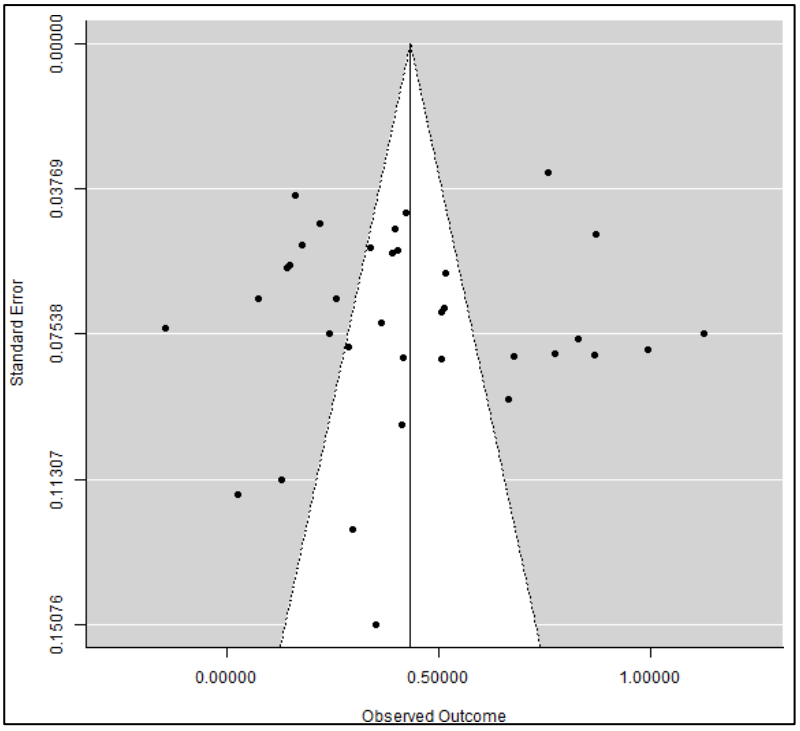

Figure 3. Funnel Plot

(Source: data processing results, 2024)

In Figure 3, it is shown that the data points are not distributed symmetrically around the center line. This indicates the potential for publication bias, because significant studies tend to be published more often than non-significant studies. However, in the context of meta-analysis, funnel plot asymmetry does not always accurately indicate publication bias. Other factors such as heterogeneity between studies and varying sample sizes can also influence the shape of the plot. Therefore, additional analyzes are needed to confirm the presence or absence of publication bias. In order to provide a clearer picture, the following table presents the results of the fail-safe N test using the Rosenthal method.

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Table 4. Safe-N Fail Test

Fail Drawer Analysis			
	Fail-safe N	**Target Significance Level**	**Observed Significance Level**
Rosenthal	19,579	0.05	<.0001

Source: data processing results, 2024.

In table 4, it is shown that the fail-safe N value is 19,579 with a target significance level of 0.05 and the observed significance level is less than 0.0001. These results indicate that at least 19,579 additional non-significant studies are needed to eliminate the significant results obtained in this meta-analysis. Thus, although the funnel plot shows asymmetry, the fail-safe N test table provides strong evidence that the results of this meta-analysis are not influenced by publication bias. This confirms that the findings regarding the role of IWB as a predictor of individual performance remain valid and reliable.

Sub-Group Analysis

Sub-group analysis was conducted to understand variations in the effects of IWB on individual performance by geographic region. The following table presents the results of subgroup analysis for various regions:

Table 5. Sub-Group Analysis: Region

Studies	K	Estimate	Lower_bound	Upper_bound	Std._error	p-Val
Africa	2	0.441	0.338	0.545	0.053	< 0.001
Middle East	3	0.74	0.51	0.971	0.118	< 0.001
South East Asia	24	0.376	0.263	0.489	0.058	< 0.001
South Asia	4	0.459	0.08	0.838	0.193	0.017
Overall	33	0.425	0.325	0.524	0.051	< 0.001

Source: data processing results, 2024.

In table 5, a subgroup analysis based on region is shown, where there are significant variations in effects in various regions. Study Deng, et al. (2022) conducted in China (East Asia) and Hernaus, Cerne and Vujcic (2023) in Croatia (Europe) were not included in this analysis because each region only had one study, so subgroup analysis was not relevant. The results show that the Middle East region has the highest effect estimate (0.74) with a significance of $p < 0.001$, followed by South Asia (0.459), Africa (0.441), and South East Asia (0.376), all significant at $p < 0.05$. This suggests that IWBs have varying impacts depending on their geographic context, with variations that can result from differences in local cultural, economic, and industrial conditions. Next, subgroup analyzes by industry were conducted to understand variations in these effects in the context of different industrial sectors.

Table 6. Sub-Group Analysis: Industry

Studies	K	Estimate	Lower_bound	Upper_bound	Std._error	p-Val
Health	3	0.455	0.117	0.793	0.172	0.008
Education	9	0.38	0.302	0.459	0.04	< 0.001
Public Service	7	0.488	0.294	0.681	0.099	< 0.001
Manufacturing	3	0.012	-0.184	0.208	0.1	0.907
I.T	3	0.459	-0.135	1,052	0.303	0.13
Finance	2	0.646	0.201	1,091	0.227	0.004
Overall	27	0.402	0.295	0.508	0.054	< 0.001

Source: data processing results, 2024.

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In table 6, a subgroup analysis based on industry is shown, where there are significant variations in effects between different industries. Study by Pramezwary, et al. (2022), Hussain, et al. (2023), and Sakti, Kurniawati and Rahayu (2023) who examined the Hospitality, F&B and Poultry farming industries were not included because there was only one study in each of these industries, so subgroup analysis was not relevant. Study Deng, et al. (2022), El-Kassar, et al. (2022), Yamin (2022), Vuong, Tushar and Hossain (2023), and Susanto (2024) were also not included because their respondents came from different industries. The results show that the Finance sector has the largest effect (0.646) with very strong significance (<0.01), followed by the Public Service sector (0.488) with very strong significance (<0.01); and Health (0.455), with very strong significance (<0.01). The Manufacturing and IT sectors did not show a significant effect, with p-values of 0.907 and 0.13 respectively. These findings indicate that the influence of IWB on individual performance can vary significantly based on industry type, with the Finance, Public Service, and Health sectors showing the greatest effects.

DISCUSSION

The results of the analysis show that IWB has a significant role in improving individual performance. Atatsi, et al. (2021) found that IWB significantly improves individual performance by improving efficiency in task completion and assisting in the effective development of organizational processes. This study is in line with the findings of Al Wali, Muthuveloo and Teoh (2022) who indicated that the relationship between IWB and work performance is strengthened by a work climate that supports innovation, especially among doctors in public hospitals. These two studies emphasize the importance of a work environment that supports innovation in improving individual performance.

Furthermore, Appau, Marfo-Yiadom and Kusi (2021) also found that IWB improves employee performance by creating an innovative work environment and assisting in more effective and efficient task completion. Employees who engage in IWB demonstrate higher productivity, which has a positive impact on work quality and work outcomes. These findings are consistent with research by Vuong (2023), which shows that IWB helps civil servants adapt to work demands and improve their work output and productivity. This study emphasizes the importance of IWB in motivating civil servants to improve their performance through coping mechanisms against heavy workloads.

Research by Pramezwary, et al. (2022) shows that employees who engage in IWB show better work performance and can adapt to changes and challenges in the workplace. Organizational support for IWB was also found to encourage increased employee performance. This study is in line with the findings of Tresita and Devi (2019), which show that IWB is positively related to individual performance, especially in increasing overall work effectiveness and employee creativity. Pham, et al. (2024) also found that IWB increases work creativity and effectiveness, and contributes to better individual performance in the public sector.

However, not all studies find a significant positive relationship between IWB and individual performance. Abdullah, Wahab and Shamsuddin (2019) did not find a direct significant relationship between IWB and individual performance, indicating that individual performance measurements often do not include innovative aspects. Budiprasetia and Lo's (2021) study also shows that IWB does not have a direct significant influence on individual performance, but employees who engage in IWB show better adaptability. These findings indicate that other factors may influence the relationship between IWB and individual performance, such as management support and a supportive work environment.

Sub-group analysis by region and industry shows that there are variations in the effects of IWB on individual performance. The Middle East region shows the highest estimated effect, which may be due to a work culture that is more supportive of innovation than other regions. These results are consistent with the study of Al Wali, Muthuveloo and Teoh (2022) which emphasizes the importance of a work climate that supports innovation in strengthening the relationship between IWB and performance. In contrast, the Manufacturing and IT sectors did not show significant effects, indicating that IWB may be

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less integrated or appreciated in the context of these industries. This is in accordance with the findings of Rahmi and Desiana (2023) who show that organizational support for IWB is very important to improve performance, especially in more traditional industries. Study by Pramezwary, et al. (2022) and others not included in the subgroup analysis point to the need for further research to understand how variations in industry type and geographic context influence the relationship between IWB and individual performance.

This study has several limitations that need to be noted. First, this study does not include certain industries and geographic regions due to the limited number of studies available. This may influence the generalizability of these findings to broader contexts. Furthermore, individual performance measurements in some studies may not cover all innovative aspects generated by IWB, as mentioned by Abdullah, Wahab and Shamsuddin (2019). Therefore, future studies should consider the development of more comprehensive and inclusive performance measurement tools.

For further study development, a more in-depth study is needed regarding the contextual factors that influence the effectiveness of IWB, including differences in organizational culture, managerial support, and a work climate that supports innovation, in relation to improving performance. In addition, it is important to conduct longitudinal studies to understand the long-term impact of IWB on individual performance with a comprehensive research model. Studies should also focus more on how organizational interventions can strengthen the relationship between IWB and performance, such as training and development programs that encourage innovation. Thus, the findings of this research can be further optimized to provide stronger practical recommendations for managers and organizational leaders in improving the performance of their organizational members through the creation and development of innovative behavior.

CONCLUSION

This study provides strong evidence that IWB has a significant role as a predictor of individual performance. Through analysis of various empirical studies, it was found that IWB is consistently positively related to improved individual performance across various industrial and geographic contexts. Sub-group analysis showed variations in the effects of IWB depending on cultural and industrial contexts, indicating the need for a tailored approach in the implementation of HRM strategies. However, the limited number of studies in some sectors and regions underscores the need for further research to broaden the generalizability of these findings. Future studies should consider more comprehensive and inclusive performance measures, as well as explore contextual factors that can capture the complexity of the associative transmission of IWB to individual performance. It is hoped that this study can practically provide input for managers in developing effective strategies to improve individual performance through IWB.

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