

The Importance of Innovative Work Behavior in Era Industrial Revolution 4.0

By Forman Halawa

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Forman Halawa¹
Ahmad Rizki Sridadi²
Yulinda Hardiana³
Anggie Sundari⁴
Ine Aleksandrina Susiva Zain⁵
Muhammad Naufal Ramadhan⁶

^{1,2,3,5}Economics and Bussiness Faculty, Universitas Airlangga, Indonesia

⁴Economics and Bussiness Faculty, Universitas Padjajaran, Indonesia

⁶School of Project Management, University of Sydney, Australia

¹Author's correspondence: forman.halawa-2022@feb.unair.ac.id

Abstract. Innovative Work Behavior (IWB) is a concept in Industrial Revolution 4.0 to encourage business growth, competitiveness, and success. Organizations that prioritize innovation and encourage creativity are expected to thrive in the current dynamic and unpredictable business environment. This study aims to provide ideas, suggestions and contributions to researchers who examine IWB variables, making it easier for researchers to determine the antecedent and consequent variables as well as the sectors to be studied. This study uses a literature review method to investigate the antecedents, consequences, and sectors that are involved in IWB by reviewing 44 articles from the Scopus database that have been reviewed. In addition, this study uses a bibliometric technique in order to find IWB's compatibility. Results indicate that IWB has 63 antecedents and can be classified into three factors: individual, organizational, and leadership. As for consequences, it shows 6 consequences which also consist of digital literacy and competitive advantages apart from performance. Sectors that engage in IWB are predominantly telecommunication and manufacturing. It is hoped that IWB could expand to all sectors especially public sectors such as public services.

Keywords: Innovative Work Behavior (IWB), Antecedences, and Consequences.

Abstrak. Guna adanya konsep innovative work behavior (IWB) di era revolusi industri 4.0 untuk mendorong pertumbuhan, daya saing, dan kesuksesan bisnis. Organisasi yang memprioritaskan inovasi dan membudayakan budaya kreativitas lebih baik posisinya untuk berkembang dalam lingkungan bisnis yang dinamis dan tidak terduga seperti sekarang ini. Studi ini bertujuan untuk memberikan ide, saran dan kontribusi kepada peneliti yang meneliti variabel IWB, sehingga memudahkan peneliti dalam menentukan variabel anteseden dan konsekuen serta sektor yang ingin diteliti. Penelitian ini menggunakan metode tinjauan literatur untuk menyelidiki anteseden, konsekuensi dan sektor yang melakukan IWB dengan mereview 44 artikel dari database Scopus yang telah ditelaah. Selain itu, teknik bibliometrik digunakan dalam penelitian ini untuk mendapatkan gambaran jelas tentang kecocokan dari IWB. Hasil dari penelitian ini menunjukkan bahwa IWB memiliki 63 anteseden dan dapat diklasifikasikan menjadi

tiga faktor yaitu individu, organisasi dan kepemimpinan. Terkait dengan konsekuensi, menunjukkan bahwa terdapat 6 konsekuensi dan selain kinerja terdapat juga digital literacy dan competitive advantage dan untuk sektor yang melakukan IWB lebih banyak pada telekomunikasi dan manufaktur namun juga perlu untuk kedepannya IWB dapat lebih meluas pada semua sektor terutama sektor publik yang memberikan pelayanan publik.

Kata kunci: Innovative Work Behavior (IWB), Anteseden, dan Konsekuensi.

BACKGROUND

In today's knowledge-based economy, maximizing the innovative potential of employees has become the highest priority in every organization (Pieterse, Knippenberg, Michaela, & Stam, 2010). New ideas and initiatives from employees offer organizations competitive advantages through product differentiation or enhanced services. More and more organizations realize that no small or large company could achieve sustainable success without employees having the skills to create new ideas in their work. Companies or organizations that sustain their success require employees who have innovative work behavior which is important and related to increasing the sustainability of organizational effectiveness (Pieterse et al., 2010).

Industrial Revolution 4.0 can be seen as a major and radical change in the way humans produce goods or services. This revolution, apart from being followed by the economic sector, is also followed by technological advances and digital ways of working. Starting in 2016, the industrial revolution has progressed and developed to date. The existence of an industrial revolution that demands everything to be digital means that it also demands innovative ways of working from individuals. Innovative work behavior or commonly referred to as IWB is an individual work behavior in an organization with the act of developing, and introducing new ideas, processes, products, or procedures for relevant adoptions in terms of providing significant benefits to other individuals, groups, and organizations (Kumar, Upadhyay, Yadav, & Goyal, 2022). This innovative work behavior is a creative behavior that can add innovation for long-term organizational progress. This is also in line with the statement by (Kaymakçı, Görener, & Toker, 2022), that IWB or innovative work behavior refers to individual activities within an organization to develop, promote, and implement beneficial innovations.

Through IWB, individuals in the organization would be able to perform difficult and complex tasks that require incentive efforts. There are also internal and external factors that directly and indirectly can affect IWB are demographic characteristics, organizational conditions, other individual characteristics, or a lack of innovative information (Li & Zheng, 2014). Furthermore, (Jong & Hartog, 2010) provides a definition related to IWB or innovative work behavior, which is the implementation of creative ideas that will produce innovation, and the trigger for this innovative work behavior comes from an opportunity to improve conditions or threats that require an appropriate response.

Therefore, in process of realizing IWB, it is necessary to know the driving factors (antecedents) and factors produced by the IWB (consequences). Apart from that, the sectors where IWB research is carried out is also a concern because IWB tends to be mostly carried out in the telecommunications and manufacturing sectors, this is in line with research conducted by (Bannay, Hadi, & Amanah, 2020), (Nguyen, Tran, Doan, & Van Nguyen, 2020), (Pradhan & Jena, 2019). Apart from the telecommunication and manufacturing sectors, research in the public services sector is also important due to various employee issues such as not being innovative at public services work. Thus, the purpose of this literature review is to provide information related to the antecedents and consequences of IWB and sectors that need to be carried out by IWB research for further studies.

THEORETICAL REVIEW

The dynamic business environment in the era of the Industrial Revolution 4.0 demands organizations to utilize innovative work behavior or commonly referred to as Innovative Work Behavior (IWB). As a result, organizations became highly dependent on employees to produce sustainable innovations in order to deal with rapid market changes and gain a competitive advantage (Andrabi & Rainayee, 2020). Jain, (2023) stated that IWB is the ability of employees to create new ideas that can simplify processes, implement new features, and enhance collaboration. Furthermore, IWB is defined as the intentional creation, introduction, and implementation of new ideas in a job role, group, or organization which consists of three stages, namely idea generation, idea promotion, and idea realization (Janssen, 2000). Those three stages show that IWB

is not only creating ideas but also realizing existing ideas. Compared to ³creativity, the concept of IWB covers a wider scope and includes not only the creation of new ideas but also the process of implementing and promoting new ideas (Liu et al., 2023).

Various IWB-related research has been studied from various dimensions, including organizational or individual-level factors. Several dimensions of IWB have been proposed by (Janssen, 2000), namely idea generation, idea promotion, and idea implementation. Idea generation focuses on creating new ideas that lead to innovation (Jain, 2023; Janssen, 2000). Idea promotion focuses on the ability of individuals to promote their ideas and convince others to support and adopt these ideas (Janssen, 2000; Liu et al., 2023). Idea implementation involves the individual's ability to transform these ideas into real action (Janssen, 2000; Liu et al., 2023). Moreover, Yasir et al., (2023) indirectly showed in their research that learning orientation is one of IWB's dimensions in which individuals have the desire to learn new experiences, share knowledge, and improve their abilities. IWB also refers to an individual's ability to take the initiative in acting proactively to identify, solve problems, and persist in efforts to improve conditions (Ahmad et al., 2021; Kuril et al., 2023; Wolsink et al., 2019) and the ability to take calculated risks (Ahmad et al., 2021; Tu et al., 2019). More proactive and innovative behaviors will be needed to achieve excellent organizational performance in the Industrial Revolution 4.0 (Ali et al., 2021). Last but not least, IWB is closely related to an individual's abilities to work collaboratively with others, share ideas, and build trust & credibility to achieve common goals (Jain, 2023).

Some organizations rely upon the innovative behavior of their workforce due to fluctuating circumstances (Yasir & Majid, 2020). Several studies also address the benefits of IWB at both the individual and organizational levels, and several others prove that implementing innovative work behavior boosts individual performance, which, in turn, may improve organizational performance (Adekanmbi & Ukpere, 2022; Al Wali, Muthuveloo, & Teoh, 2022; Al Wali, Muthuveloo, Teoh, et al., 2022). Such competencies and behaviors as collaboration, innovation, skills, and learning influence organizational performance, and good encouragement and adaptation of innovative work behavior cause an organization to achieve excellence. The innovative work behavior of organizational fellows plays an essential role in the organization's competitive advantage and long-term survival (Negassi et al., 2019). Such behavior

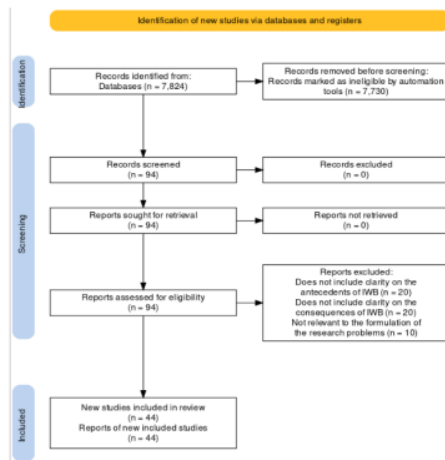
refers to the creation of new products and the shifts in practical administrative procedures or processes to improve performance efficiency and effectiveness (Janssen, 2000).

RESEARCH METHODS

This study applies to the literature review in studying the IWB concept. Literature review is a research methodology which aims to gather and extract the essence of previous research and analyze several written expert overviews within the text (Snyder, 2019). A literature review is also fundamental for various research since it results in understanding the development of knowledge and the sources of stimulus for policy making, triggers the invention of new ideas and guides research in particular fields. Firstly, the scope of the research, namely the IWB concept, must be determined. The learned IWB concept includes the sectors in which the IWB is studied, its antecedents and consequences.

Furthermore, this research finds several previous studies as a reference through online databases. This study uses a bibliometric technique assisted by VosViewer 1.6.18 software to facilitate the search. Bibliometric analysis refers to a method of global research trend understanding within a field in accordance with the details from the literature databases, which provide a broad overview of a particular research field (Guiling, Panatik, Sukor, Rusbadrol, & Cunlin, 2022). The bibliometrics maps the topics related to IWB and evaluates sectors which study IWB to be a later recommendation; thus, it can conduct the essential but rarely researched sectors of IWB research. The following PRISMA diagram illustrates the research data selection process:

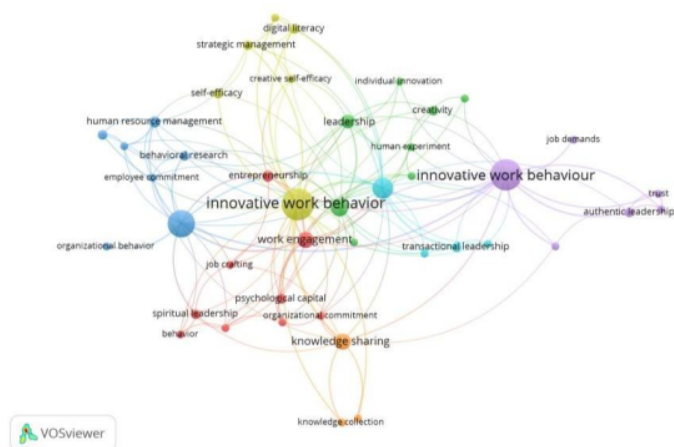
Figure 1. Diagrams of The Study Selection Process



Source: PRISMA Flow Diagram (2023)

Figure 1 shows that the Scopus database is chosen as the data source for this study as it is the largest abstract and citation database and comprises primary journals (Mongeon & Paul-Hus, 2016). Using literature identification, a literature search using the “Innovative Work Behavior” keyword on the Scopus database results in 7,824 articles. Since the results of the IWB are huge and challenging to analyze, several indicators within the Scopus database, such as the publication year of 2016-2022, specific keywords innovative work behavior, innovation, and innovative behavior and the subject areas Business, Management, and Accounting have been limited. Meanwhile, the second limitation conducted results in 94 articles; the abstract of each article is read, and 44 of 94 articles are picked as the data once the articles from the Scopus database are found. However, of 94 available articles, 50 are less relevant since they do not include clarity of antecedents and consequences of IWB and do not correspond to the research problems.

Figure 2. Topic Search Results with Bibliometrics



Source: VOS Viewer (2023)

Figure 2 reveals numerous topics related to Innovative Work Behavior or IWB, for instance, digital literacy, self-efficacy, individual innovation, creativity, leadership, work engagement, psychological capital, knowledge sharing, organizational behavior, job demands, trust, and employee commitment. These topics are to be discussed in this article afterward.

RESULTS AND DISCUSSIONS

Discussions

1. Antecedents of Innovative Work Behavior (IWB)

Referring to the previous studies and assisted by topic searches using the Vos Viewer, various factors are proven as the drivers or antecedents of IWB. Within this literature review, sixty IWB antecedents are presented in the table:

Table. 1

Innovative Work Behavior Antecedents		
No	Antecedents	Source
1	Job Stress	(Rafique et al., 2022)
2	Transformational Leadership	(Rafique et al., 2022) (Arsawan et al., 2022) (Kurniawan, Kusnayain, Aulisaina, & Hakim, 2021) (Santoso, Abdinagoro, & Arief, 2019) (Pradhan & Jena, 2019) (Amankwaa, Susomrith, & Seet, 2022) (Messmann, Evers, & Kreijns, 2022) (Grošelj, Černe, Penger, & Grah, 2020)

3	Knowledge Sharing	(Rafique et al., 2022) (Arsawan et al., 2022) (Supriyanto, Sujianto, & Ekowati, 2020) (Nguyen et al., 2020) (Nguyen, Nguyen, Do, & Nguyen, 2019)
4	Organizational Commitment	(Arsawan et al., 2022)
5	Transglobal Leadership	(Fiernaningsih, Herijanto, & Trivena, 2022)
6	Work Engagement	(Fiernaningsih et al., 2022) (Kurniawan et al., 2021) (Mansoor, Abdul Wahab, & Jahan, 2021) (Bannay et al., 2020) (Eva, Meacham, Newman, Schwarz, & Tham, 2019)
7	Self Efficacy	(Siregar, Supriadi, Pranowo, Ende, & Harahap, 2022) (Santoso, Elidjen, Abdinagoro, & Arief, 2019) (Buenaventura-Vera, 2017) (Clarke & Higgs, 2020) (Arain, Bhatti, Hameed, & Fang, 2020) (Nwanzu & Babalola, 2019) (Nguyen et al., 2019) (Newman, Tse, Schwarz, & Nielsen, 2018)
8	Exploratory Learning	(Indrawati & Muljaningsih, 2022)
9	Exploative Learning	(Indrawati & Muljaningsih, 2022)
10	Spiritual Leadership	(Alfarajat & Emeagwali, 2021) (Supriyanto et al., 2020)
11	Workplace Spirituality	(Alfarajat & Emeagwali, 2021)
12	Organizational Justice	(Kurniawan et al., 2021)
13	Inclusive Leadership	(Mansoor et al., 2021) (Bannay et al., 2020)
14	Job Autonomy	(Dixit & Upadhyay, 2021) (Dediu, Leka, & Jain, 2018)
15	Psychological Ownership	(Atatsi, Azila-Gbettor, & Mensah, 2021)
16	Innovative organizational Climate	(Sarwar, Imran, Anjum, & Zahid, 2020) (Bos-Nehles & Veenendaal, 2019)
17	Work Culture	(Sarwar et al., 2020)
18	Job Crafting	(Supriyanto et al., 2020)
19	Empowering Leadership	(Tri, Nga, & Sipko, 2019)
20	Challenge Work Environment	(Tri et al., 2019)

21	Employee Creativity	(Tri et al., 2019)
22	Spiritual Climate	(Pandey, Gupta, & Gupta, 2019)
23	Meaningful Work	(Pradhan & Jena, 2019)
24	Work Experience	(Nguy, 2019)
25	Perceived Organizational Support	(Sulistiawan, Herack, & Permatasari, 2017) (Clarke & Higgs, 2020) (Chen, Liu, Zhang, & Kwan, 2019) (Riaz, Xu, & Hussain, 2018)
26	Self Monitoring	(Sulistiawan et al., 2017)
27	Organizational Learning Capability	(Buenaventura-Vera, 2017)
28	Team Member Exchange	(Buenaventura-Vera, 2017)
29	Job Embeddedness	(Amankwaa et al., 2022)
30	Social Leader Member Exchange	(van Assen & Caniëls, 2022)
31	Economic Leader Member Exchange	(van Assen & Caniëls, 2022)
32	Paradox Mindset	(van Assen & Caniëls, 2022)
33	Advice Network Centrality	(Cangialosi, Odoardi, Battistelli, & Baldaccini, 2021)
34	Voice Behavior	(Cangialosi et al., 2021)
35	Organizational Tenure	(Cangialosi et al., 2021)
36	Political Skill	(Clarke & Higgs, 2020)
37	Organizational Change	Excel no.32 (Wynen, Boon, Kleizen, & Verhoest, 2020)
38	Openess to Experience	(Zhou & Verburg, 2020)
39	Creative Environment	(Zhou & Verburg, 2020)
40	Knowledge Hiding	(Arain et al., 2020)
41	Authentic Leadership	(Grošelj et al., 2020)
42	Psychological Empowerment	(Grošelj et al., 2020)
43	Cognitive Diversity	(Chen et al., 2019)
44	Task Reflexivity	(Chen et al., 2019)
45	Supervisor Feedback	(Eva et al., 2019)
46	Top-worker Feedback	(Eva et al., 2019)
47	Employee Ambidexterity	(Caniëls & Veld, 2019)
48	High Performance Work System	(Caniëls & Veld, 2019)
49	Employee Silence	(Maqbool, Černe, & Bortoluzzi, 2019)
50	Psychological Capital	(Nwanzu & Babalola, 2019)
51	Task Autonomy	(Nwanzu & Babalola, 2019)
52	Resilience	(Nwanzu & Babalola, 2019)
53	Trust	(Nguyen et al., 2019)
54	Perceived HR Practices	(Bos-Nehles & Veenendaal, 2019)
55	Entrepreneurial Leadership	(Newman, Neesham, Manville, & Tse,

		2018) (Newman, Tse, et al., 2018)
56	Servant Leadership	(Newman, Neesham, et al., 2018)
57	Empowering Leadership	(Günzel-Jensen, Hansen, Jakobsen, & Wulff, 2018)
58	Thriving at Work	(Riaz et al., 2018)
59	External Work Contacts	(Riaz et al., 2018)
60	Job Demands	(Dediu et al., 2018)
61	Task Complexity	(Dediu et al., 2018)
62	Job Resources	(Dediu et al., 2018)
63	Job Tenure	(Woods, Mustafa, Anderson, & Sayer, 2018)

Source: Researcher analysis (2023)

Table 1 shows that IWB is influenced by individuals, organizations, and leadership factors. Several factors are used as IWB driving factors from these antecedents, including transformational leadership, knowledge sharing, work engagement, self-efficacy, and perceived organizational support. All these five factors are commonly used as IWB drivers; thus, they develop and present such new essential factors in realizing IWB as job demand, job tenure, job resources, job embeddedness, task autonomy, task complexity, etc. Factors which are not widely used can be referenced for further research to include these driving factors to know innovative work behavior.

2. Consequences of Innovative Work Behavior (IWB)

Based on the previous studies, IWB influences several subjects, and the followings are six factors influenced by IWB.

Table. 2

Innovative Work Behavior Consequences		
No	Consequences	Source
1	Employee Performance	(Fiernaningsih et al., 2022) (Santoso, Abdinagoro, et al., 2019)
2	Competitive Advantage	(Indrawati & Muljaningsih, 2022)
3	Task Performance	(Atatsi et al., 2021)
4	Digital Literacy	(Santoso, Abdinagoro, et al., 2019)
5	Entrepreneurial Performance	(Zhou & Verburg, 2020)
6	Flow at Work	(Maqbool et al., 2019)

Source: Researcher analysis (2023)

Table 2 shows that several factors influence IWB, three of which relate to performance, and the performance affected are employee performance, task performance, and entrepreneurial performance. Furthermore, IWB also controls competitive advantage, digital literacy, and flow at work. It indicates that IWB affects performance within an organization. If an organization is able to create innovative performance behaviors for its employees, the performance within the organization will show good improvements.

3. Research Sector of Innovative Work Behavior (IWB)

In accordance to the previous studies, IWB is usually carried out or studied in several sectors, as in the following table.

Table. 3

Innovative Work Behavior Research Sector			
No	Organization	Type of Organization	Source
1	Telcommunication	Private	(Bannay et al., 2020) (Nguyen et al., 2020) (Santoso, Abdinagoro, et al., 2019) (Nguy, 2019) (Santoso, Elidjen, et al., 2019) (Nguyen et al., 2019)
2	Manufactur	Private	(Sarwar et al., 2020) (Pradhan & Jena, 2019) (Chen et al., 2019) (Maqbool et al., 2019) (Bos-Nehles & Veenendaal, 2019) (Newman, Tse, et al., 2018)
3	Multi Organization	Public and Private	(Pandey et al., 2019) (Sulistiawan et al., 2017) (Arain et al., 2020) (Riaz et al., 2018) (Dediu et al., 2018)
4	Health Service / Hospital	Public	(Atatsi et al., 2021) (Clarke & Higgs, 2020) (Nwanzu & Babalola, 2019) (Günzel-Jensen et al., 2018)

5	Banking /Financial Institution	Private	(Tri et al., 2019) (van Assen & Caniëls, 2022) (Woods et al., 2018)
6	Educational Institution	Private	(Arsawan et al., 2022) (Dixit & Upadhyay, 2021) (Puenaventura-Vera, 2017)
7	Educational Institution	Public	(Fiernaningsih et al., 2022)
			(Supriyanto et al., 2020) (Lessmann et al., 2022)
8	IT Companies	Private	(Mansoor et al., 2021) (rošelj et al., 2020)
9	Small Medium Enterprises (SME)	-	(Arsawan et al., 2022) (Siregar et al., 2022)
10	Hotel	Private	(Alfarajat & Emeagwali, 2021) (Amankwaa et al., 2022)
11	Government Public Sector	Public	(Kurniawan et al., 2021) (Wynen et al., 2020)
12	Social Institution	Public and Private	(Newman, Neesham, et al., 2018)

Sumber: Analisis peneliti (2023)

Table 3 shows the sectors usually or often carried out by research on IWB. The table above shows that IWB is most often examined in the telecommunications, manufacturing, and multi-organizational sectors with the type of organization, namely private. At the same time, in other sectors besides telecommunications and manufacturing, research on IWB can also be carried out by the health service sector, banking, educational institutions, IT companies, MSMEs, social institutions, and government agencies that provide public services. From the table above, government agencies that provide services to the community are still few in conducting research related to IWB, even though innovative work behavior of government employees is needed to provide excellent and maximum benefit to the community. Furthermore, the facts in the field related to employee work behavior, the government still needs to improve in providing services but may be constrained by bureaucracy. It is because government agencies or public sector organizations are criticized for being bureaucratic, too stable, stagnant, and conservative (Parker and Bradley, 2000). Therefore, innovation activity in these organizations is slow, more cohesive, and asynchronous (Fagerberg, 2005).

This certainly can give an understanding that the sectors often carried out by IWB research is indeed included in sectors that follow technological developments that require intense innovations. However, the table above also shows that researchers must explore other sectors besides telecommunications and manufacturing related to IWB. Since, in this era, everything is entirely digital with easy access and innovation that continues to advance and develop. As a result, this makes all sectors, including public and private, demand the individual has innovative work behavior to keep abreast of existing developments and provide good output generated from each industry.

Results

After reviewing several relevant articles in the context of IWB research, it can be found that new variables can be factored into influencing IWB and will be divided into three categories: individual, organizational, and leadership factors.

Table. 4

Research Findings

No	Individuals	Organization	Leadership
1	Job stress	Workplace spirituality	Transformational leadership
2	Knowledge sharing	Organizational Commitment	Transglobal leadership
3	Work engagement	Organizational justice	Spiritual leadership
4	Self efficacy	Innovative organizational Climate	Inclusive leadership
5	Exploratory learning	Work culture	Empowering leadership
6	Exploitative learning	Challenge work Environment	Social leader member exchange
7	Job autonomy	Percieved organizational Support	Economic Leader Member Exchange
8	Psychological ownership	Organizational learning Capability	Authentic leadership
9	Work culture	Organizational tenure	Enterpreurial leadership
10	Job crafting	Organzational change	Servant leadership
11	Employee creativity	Creative environment	Empowering leadership
12	Spiritual climate	Cognitive diversity	
13	Meaningful work		
14	Self monitoring		
15	Team member exchange		
16	Job embeddedness		

17	Paradox mindset
18	Voice behavior
19	Political skill
20	Openess to experience
21	Knowledge hiding
22	Psychological empowerment
23	Task reflexivity
24	Employee ambidexterity
25	High performance work
26	Employee silence
27	Psychological capital
28	Task autonomy
30	Resilience
31	Trust
32	Perceived HR practices
33	Thriving at work
34	Job demands
35	Task complexity
36	Job resources
37	Job tenure

Sumber: Analisis peneliti (2023)

Of the three categories, individual factors have more influence on the occurrence of IWB. This is in line with the IWB's understanding that innovative work behavior refers to the activities of individuals within an organization to develop, promote and implement practical innovations (Kaymakçı et al., 2022). In addition (Jong & Hartog, 2010) provides a definition related to IWB or innovative work behavior, which is the realization of creative ideas that will produce innovation, and triggers for this innovative work behavior can come from opportunities to improve conditions or threats that require a response. Thus, the antecedent findings of IWB show that behavioral variables tend to have more influence on IWB because the output of IWB is individual innovative work behavior in organizations.

Additionally, related to the consequences of IWB findings which are performance that encourages the greater presence of IWB, other factors are also essential to be a driving force for IWB, namely, first, competitive advantage (Indrawati & Muljaningsih, 2022). The existence of this competitive advantage will trigger how individuals in the organization try to show innovative behavior, which will bring out its advantages. The

second is digital literacy (Santoso, Abdinagoro, et al., 2019). The existence of digital literacy is the output of IWB because individuals or employees who have innovative performance traits will produce both innovations and digital literacy, which will be helpful for seeing the innovations developments in the future. The third is flow at work (Maqbool et al., 2019); when IWB can be appropriately implemented in an organization, individuals or employees who work will ready to face changes and developments that continue to exist. Thus, it will have a significant impact on the work being done. They will easily flow, enjoy working, and be motivated at work.

The final finding related to where IWB is being examined is that the private sector has been mainly chosen for research on IWB recently. Meanwhile, in the public sector, it is primarily done in healthcare institutions, and only some people are considering working in the public sector in government agencies that provide public service. Therefore, this can suggest that further research related to IWB can be carried out in government or public organizations that focus on public services. It is due to the current phenomenon that there are several state civil apparatuses or ASNs (Aparatur Sipil Negara) who are also public services do not show innovative attitudes in providing services to the public—even though their main task is to provide public services adequately. Hence, it is indispensable for employees in the government sphere, especially those who provide public services, to increase their innovative behavior since in this current era, everything deals with digital along with its easy access. So, not only improving digital products, but it is also necessary to improve the innovative work behavior of its employees.

CONCLUSIONS AND RECOMMENDATIONS

This study aims to conduct a literature review on Innovative Work Behavior. Forty-four relevant articles have become a reference, starting from 2018-2022. The literature review explores the antecedents, consequences, and sectors that IWB mostly does. As a result, several elements, including individual, organization, and leadership, became the antecedents of IWB. The consequences consist of performance, digital literacy, and competitive advantage.

Recommendations for further research are that IWB needs to be developed in a type of public organization because apart from private organizations, the public also

needs to be researched regarding the orientation of the public sector considered service to the community. Thus, it should demonstrate more innovative work behavior in dealing with developments in the current digitalization era.

DECLARATION OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this article. But only to build and contribute to subsequent readers and researchers as reading material and additional knowledge related to the topic.

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AUTHOR CONTRIBUTIONS

In writing this article, all authors contributed well and actively. There are several details of the contributions provided by the authors, which are as follows:

Idea deviser and article concept	Authors 1,2,3,4,5,6
Mentor and director	Authors 1,2
Conceptual theory deviser	Authors 1,3
Methodology	Authors 1,2,3,4
Data analysis and reference	Authors 1,4
Data validation and reference	Authors 1,5
Translation and plagiarism check	Authors 5,6
Writing layout	Authors 1,2,3,4,5,6

REFERENCES

- Adekanmbi, F. P., & Ukpere, W. I. (2022). The relational effects of perceived leadership 4.0, workplace ostracism, and innovative work behavior on organizational performance in the fourth industrial revolution (4IR). *EUREKA: Social and Humanities*, 2, 3–14. <https://doi.org/10.21303/2504-5571.2022.002317>
- Ahmad, I., Gao, Y., Su, F., & Khan, M. K. (2021). Linking ethical leadership to

- followers' innovative work behavior in Pakistan: the vital roles of psychological safety and proactive personality. *European Journal of Innovation Management*. <https://doi.org/10.1108/EJIM-11-2020-0464>
- Al Wali, J., Muthuveloo, R., & Teoh, A. P. (2022). Unravelling the nexus between creative self-efficacy, humble leadership, innovative work behaviour and job performance amongst physicians in public hospitals. *Asia-Pacific Journal of Business Administration*, 14(4), 706–726. <https://doi.org/10.1108/APJBA-05-2021-0205>
- Al Wali, J., Muthuveloo, R., Teoh, A. P., & Al Wali, W. (2022). Disentangling the relationship between employees' dynamic capabilities, innovative work behavior and job performance in public hospitals. *International Journal of Innovation Science*. <https://doi.org/10.1108/IJIS-01-2022-0012>
- Alfarajat, H. S., & Emeagwali, O. L. (2021). Antecedents of Service Innovative Behavior: The Role of Spiritual Leadership and Workplace Spirituality. *Organizacija*, 54(4), 320–333. <https://doi.org/10.2478/orga-2021-0022>
- Ali, A., Hashir, M., Memon, M. A., & Mehdi, M. Z. (2021). 360-degree feedback and innovative work behavior: A serial mediation analysis. *Proceedings of 1st International Conference on Business, Management & Social Sciences (ICBMASS)*. <https://doi.org/https://doi.org/10.2139/ssrn.3916820>
- Amankwaa, A., Susomrith, P., & Seet, P. S. (2022). Innovative behavior among service workers and the importance of leadership: evidence from an emerging economy. *Journal of Technology Transfer*, 47(2), 506–530. <https://doi.org/10.1007/s10961-021-09853-6>
- Andrabi, N. F., & Rainayee, R. A. (2020). Emotional Intelligence and Innovative Work Behaviour: A Review. *International Journal of Engineering and Management Research*, 10(4), 185–192. <https://doi.org/10.31033/ijemr.10.4.26>
- Arain, G. A., Bhatti, Z. A., Hameed, I., & Fang, Y. H. (2020). Top-down knowledge hiding and innovative work behavior (IWB): a three-way moderated-mediation analysis of self-efficacy and local/foreign status. *Journal of Knowledge Management*, 24(2), 127–149. <https://doi.org/10.1108/JKM-11-2018-0687>
- Arsawan, I. W. E., Kariati, N. M., Shchokina, Y., Prayustika, P. A., Rustiarini, N. W., & Koval, V. (2022). Invigorating Employee'S Innovative Work Behavior: Exploring the Sequential Mediating Role of Organizational Commitment and Knowledge Sharing. *Business: Theory and Practice*, 23(1), 117–130. <https://doi.org/10.3846/btp.2022.15684>
- Atatsi, E. A., Azila-Gbettor, E. M., & Mensah, C. (2021). Predicting task performance from psychological ownership and innovative work behaviour: A cross sectional study. *Cogent Business and Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1917483>
- Bannay, D. F., Hadi, M. J., & Amanah, A. A. (2020). The impact of inclusive leadership behaviors on innovative workplace behavior with an emphasis on the mediating role of work engagement. *Problems and Perspectives in Management*, 18(3), 479–491. [https://doi.org/10.21511/ppm.18\(3\).2020.39](https://doi.org/10.21511/ppm.18(3).2020.39)

- Bos-Nehles, A. C., & Veenendaal, A. A. R. (2019). Perceptions of HR practices and innovative work behavior: the moderating effect of an innovative climate. *International Journal of Human Resource Management*, 30(18), 2661–2683. <https://doi.org/10.1080/09585192.2017.1380680>
- Buenaventura-Vera, G. (2017). The impact of leader self-efficacy on the characteristics of work teams. *Intangible Capital*, 13(4), 824–849. <https://doi.org/10.3926/ic.938>
- Cangialosi, N., Odoardi, C., Battistelli, A., & Baldaccini, A. (2021). The social side of innovation: When and why advice network centrality promotes innovative work behaviours. *Creativity and Innovation Management*, 30(2), 336–347. <https://doi.org/10.1111/caim.12434>
- Caniëls, M. C. J., & Veld, M. (2019). Employee ambidexterity, high performance work systems and innovative work behaviour: How much balance do we need? *International Journal of Human Resource Management*, 30(4), 565–585. <https://doi.org/10.1080/09585192.2016.1216881>
- Chen, X., Liu, J., Zhang, H., & Kwan, H. K. (2019). Cognitive diversity and innovative work behaviour: The mediating roles of task reflexivity and relationship conflict and the moderating role of perceived support. *Journal of Occupational and Organizational Psychology*, 92(3), 671–694. <https://doi.org/10.1111/joop.12259>
- Clarke, N., & Higgs, M. (2020). Political Skill and Role Overload as Antecedents of Innovative Work Behavior in the Public Sector. *Public Personnel Management*, 49(3), 444–469. <https://doi.org/10.1177/0091026019863450>
- Dediu, V., Leka, S., & Jain, A. (2018). Job demands, job resources and innovative work behaviour: a European Union study. *European Journal of Work and Organizational Psychology*, 27(3), 310–323. <https://doi.org/10.1080/1359432X.2018.1444604>
- Dixit, A., & Upadhyay, Y. (2021). Role of JD-R model in upticking innovative work behaviour among higher education faculty. *RAUSP Management Journal*, 56(2), 156–169. <https://doi.org/10.1108/RAUSP-03-2020-0060>
- Eva, N., Meacham, H., Newman, A., Schwarz, G., & Tham, T. L. (2019). Is coworker feedback more important than supervisor feedback for increasing innovative behavior? *Human Resource Management*, 58(4), 383–396. <https://doi.org/10.1002/hrm.21960>
- Fiernaningsih, N., Herijanto, P., & Trivena, S. M. (2022). How to improve employee performance based on transglobal leadership? *Problems and Perspectives in Management*, 20(3), 400–410. [https://doi.org/10.21511/ppm.20\(3\).2022.32](https://doi.org/10.21511/ppm.20(3).2022.32)
- Grošelj, M., Černe, M., Penger, S., & Grah, B. (2020). Authentic and transformational leadership and innovative work behaviour: the moderating role of psychological empowerment. *European Journal of Innovation Management*, 24(3), 677–706. <https://doi.org/10.1108/EJIM-10-2019-0294>
- Guiling, Y., Panatik, S. A., Sukor, M. S. M., Rusbadol, N., & Cunlin, L. (2022). Bibliometric Analysis of Global Research on Organizational Citizenship Behavior From 2000 to 2019. *SAGE Open*, 12(1), 1–21. <https://doi.org/10.1177/21582440221079898>

- Günzel-Jensen, F., Hansen, J. R., Jakobsen, M. L. F., & Wulff, J. (2018). A Two-Pronged Approach? Combined Leadership Styles and Innovative Behavior. *International Journal of Public Administration*, 41(12), 957–970. <https://doi.org/10.1080/01900692.2017.1303711>
- Indrawati, N. K., & Muljaningsih, S. (2022). Achieving competitive advantage through spiritual capital, innovation work behavior, and organizational learning. *Problems and Perspectives in Management*, 20(2), 426–437. [https://doi.org/10.21511/ppm.20\(2\).2022.35](https://doi.org/10.21511/ppm.20(2).2022.35)
- Jain, P. (2023). Spiritual leadership and innovative work behavior: the mediated relationship of interpersonal trust and knowledge sharing in the hospitality sector of India. *Leadership and Organization Development Journal*, 44(1), 1–17. <https://doi.org/10.1108/LODJ-03-2022-0128>
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, 73(3), 287–302. <https://doi.org/10.1348/096317900167038>
- Jong, J. De, & Hartog, D. Den. (2010). Measuring Innovative Work Behaviour, 19(1), 23–36. <https://doi.org/10.1111/j.1467-8691.2010.00547.x>
- Kaymakçı, R., Görener, A., & Toker, K. (2022). The perceived overqualification's effect on innovative work behaviour: Do transformational leadership and turnover intention matter? *Journal Behavioral Sciences*, 3(December 2021). <https://doi.org/10.1016/j.crbeha.2022.100068>
- Kumar, D., Upadhyay, Y., Yadav, R., & Goyal, A. K. (2022). Psychological capital and innovative work behaviour: The role of mastery orientation and creative self-efficacy. *International Journal of Hospitality Management*, 102(December 2021), 103–157. <https://doi.org/10.1016/j.ijhm.2022.103157>
- Kuril, S., Maun, D., & Chand, V. S. (2023). Measuring teacher innovative behavior: a validated multidimensional inventory for use with public school teachers. *International Journal of Educational Management*. <https://doi.org/10.1108/IJEM-03-2022-0095>
- Kurniawan, D. T., Kusnayain, Y. I., Aulisaina, F. I., & Hakim, M. A. R. (2021). Exploring the Existence of Innovative Work Behavior Among Government Employee: Have Been There? *Journal of Indonesian Economy and Business*, 36(3), 272–282. <https://doi.org/10.22146/jieb.v36i3.1404>
- Li, X., & Zheng, Y. (2014). The Influential Factors of Employees ' Innovative Behavior and the Management Advices, (December), 446–450.
- Liu, X., Huang, Y., Kim, J., & Na, S. (2023). How Ethical Leadership Cultivates Innovative Work Behaviors in Employees? Psychological Safety, Work Engagement and Openness to Experience. *Sustainability (Switzerland)*, 15(4). <https://doi.org/10.3390/su15043452>
- Mansoor, A., Abdul Wahab, S., & Jahan, S. (2021). Stimulation of innovative behavior through the inclusive leaders and engaged workers. *Business: Theory and Practice*, 22(2), 249–255. <https://doi.org/10.3846/btp.2021.13363>
- Maqbool, S., Černe, M., & Bortoluzzi, G. (2019). Micro-foundations of innovation:

- Employee silence, perceived time pressure, flow and innovative work behaviour. *European Journal of Innovation Management*, 22(1), 125–145. <https://doi.org/10.1108/EJIM-01-2018-0013>
- Messmann, G., Evers, A., & Kreijns, K. (2022). The role of basic psychological needs satisfaction in the relationship between transformational leadership and innovative work behavior. *Human Resource Development Quarterly*, 33(1), 29– 45. <https://doi.org/10.1002/hrdq.21451>
- Mongeon, P., & Paul-Hus, A. (2016). The journal coverage of Web of Science and Scopus: a comparative analysis. *Scientometrics*, 106(1), 213–228. <https://doi.org/10.1007/s11192-015-1765-5>
- Negassi, S., Lhuillery, S., Sattin, J. F., Hung, T. Y., & Pralong, F. (2019). Does the relationship between innovation and competition vary across industries? Comparison of public and private research enterprises. *Economics of Innovation and New Technology*, 28(5), 465–482. <https://doi.org/10.1080/10438599.2018.1527552>
- Newman, A., Neesham, C., Manville, G., & Tse, H. H. M. (2018). Examining the influence of servant and entrepreneurial leadership on the work outcomes of employees in social enterprises. *International Journal of Human Resource Management*, 29(20), 2905–2926. <https://doi.org/10.1080/09585192.2017.1359792>
- Newman, A., Tse, H. H. M., Schwarz, G., & Nielsen, I. (2018). The effects of employees' creative self-efficacy on innovative behavior: The role of entrepreneurial leadership. *Journal of Business Research*, 89(September 2016), 1–9. <https://doi.org/10.1016/j.jbusres.2018.04.001>
- Nguy, T. P. L. (2019). Innovative work behavior of Vietnam telecommunication enterprise employees. *Management Science Letters*, 9(8), 1169–1180. <https://doi.org/10.5267/j.msl.2019.4.023>
- Nguyen, T. P. L., Nguyen, K. N., Do, T. D., & Nguyen, T. T. M. (2019). Knowledge sharing and innovative work behavior: The case of Vietnam. *Uncertain Supply Chain Management*, 7(4), 619–634. <https://doi.org/10.5267/j.uscm.2019.5.001>
- Nguyen, T. P. L., Tran, N. M., Doan, X. H., & Van Nguyen, H. (2020). The impact of knowledge sharing on innovative work behavior of Vietnam telecommunications enterprises employees. *Management Science Letters*, 10(1), 53–62. <https://doi.org/10.5267/j.msl.2019.8.016>
- Nwanzu, C. L., & Babalola, S. S. (2019). Psychological capital, task autonomy and innovative work behaviour among public organisation employees. *International Journal of Work Organisation and Emotion*, 10(4), 281–296. <https://doi.org/10.1504/IJWOE.2019.106892>
- Pandey, A., Gupta, V., & Gupta, R. K. (2019). Spirituality and innovative behaviour in teams: Examining the mediating role of team learning. *IIMB Management Review*, 31(2), 116–126. <https://doi.org/10.1016/j.iimb.2019.03.013>
- Pieterse, A. N., Knippenberg, D. Van, Michaela, S., & Stam, D. (2010). Transformational and transactional leadership and innovative behavior: the

- moderating role of psychological empowerment. *Journal of Organizational Behavior*, 60(1), 5–22. <https://doi.org/10.1002/job>
- Pradhan, S., & Jena, L. K. (2019). Does Meaningful Work Explains the Relationship Between Transformational Leadership and Innovative Work Behaviour? *Vikalpa*, 44(1), 30–40. <https://doi.org/10.1177/0256090919832434>
- Rafique, M. A., Hou, Y., Chudhery, M. A. Z., Waheed, M., Zia, T., & Chan, F. (2022). Investigating the impact of pandemic job stress and transformational leadership on innovative work behavior: The mediating and moderating role of knowledge sharing. *Journal of Innovation and Knowledge*, 7(3). <https://doi.org/10.1016/j.jik.2022.100214>
- Riaz, S., Xu, Y., & Hussain, S. (2018). Understanding employee innovative behavior and thriving at work: A chinese perspective. *Administrative Sciences*, 8(3). <https://doi.org/10.3390/admsci8030046>
- Santoso, H., Abdinagoro, S. B., & Arief, M. (2019). The Role of Digital Literacy in Supporting Performance Through Innovative Work Behavior: The Case of Indonesia's Telecommunications Industry, 10(8), 1558–1566.
- Santoso, H., Elidjen, Abdinagoro, S. B., & Arief, M. (2019). The role of creative self-efficacy, transformational leadership, and digital literacy in supporting performance through innovative work behavior: Evidence from telecommunications industry. *Management Science Letters*, 9(Special Issue 13), 2305–2314. <https://doi.org/10.5267/j.msl.2019.7.024>
- Sarwar, A., Imran, M. K., Anjum, Z. U. Z., & Zahid, U. (2020). How innovative climate leads to project success: the moderating role of gender and work culture. *Innovation and Management Review*, 17(4), 413–430. <https://doi.org/10.1108/INMR-08-2019-0096>
- Siregar, Z. M. E., Supriadi, Y. N., Pranowo, A. S., Ende, & Harahap, N. J. (2022). A multidimensional approach in examining the role of self-efficacy on innovative work behavior: Evidence from the creative industry. *Problems and Perspectives in Management*, 20(2), 588–597. [https://doi.org/10.21511/ppm.20\(2\).2022.48](https://doi.org/10.21511/ppm.20(2).2022.48)
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104(July), 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Sulistiawan, J., Herachwati, N., Permatasari, S. D., & Alfirdaus, Z. (2017). The antecedents of innovative work behavior: The roles of self-monitoring. *Problems and Perspectives in Management*, 15(4), 263–270. [https://doi.org/10.21511/ppm.15\(4-1\).2017.10](https://doi.org/10.21511/ppm.15(4-1).2017.10)
- Supriyanto, A. S., Sujianto, A. E., & Ekowati, V. M. (2020). Factors Affecting Innovative Work Behavior: Mediating Role of Knowledge Sharing and Job Crafting. *Journal of Asian Finance, Economics and Business*, 7(11), 999–1007. <https://doi.org/10.13106/jafeb.2020.vol7.no11.999>
- Tri, H. T., Nga, V. T., & Sipko, J. (2019). Predicting overall staffs' creativity and innovative work behavior in banking. *Management and Marketing*, 14(2), 188–202. <https://doi.org/10.2478/mmcks-2019-0013>

- Tu, Y., Lu, X., Choi, J. N., & Guo, W. (2019). Ethical Leadership and Team-Level Creativity: Mediation of Psychological Safety Climate and Moderation of Supervisor Support for Creativity. *Journal of Business Ethics*, 159(2), 551–565. <https://doi.org/10.1007/s10551-018-3839-9>
- Van Assen, M. F., & Caniëls, M. C. J. (2022). Economic and social LMX and innovative work behaviour: the moderating effect of paradox mindset. *European Journal of Innovation Management*, 25(6), 1057–1075. <https://doi.org/10.1108/EJIM-05-2022-0234>
- Wolsink, I., Den Hartog, D. D., Belschak, F. D., & Oosterwijk, S. (2019). Do you feel like being proactive today? Trait-proactivity moderates affective causes and consequences of proactive behavior. *PLoS ONE*, 14(8). <https://doi.org/10.1371/journal.pone.0220172>
- Woods, S. A., Mustafa, M. J., Anderson, N., & Sayer, B. (2018). Innovative work behavior and personality traits: Examining the moderating effects of organizational tenure. *Journal of Managerial Psychology*, 33(1), 29–42. <https://doi.org/10.1108/JMP-01-2017-0016>
- Wynen, J., Boon, J., Kleizen, B., & Verhoest, K. (2020). How Multiple Organizational Changes Shape Managerial Support for Innovative Work Behavior: Evidence From the Australian Public Service. *Review of Public Personnel Administration*, 40(3), 491–515. <https://doi.org/10.1177/0734371X18824388>
- Yasir, M., & Majid, A. (2020). High-involvement HRM practices and innovative work behavior among production-line workers: mediating role of employee's functional flexibility. *Employee Relations*, 42(4), 883–902. <https://doi.org/10.1108/ER-02-2018-0061>
- Yasir, M., Majid, A., Yousaf, Z., Nassani, A. A., & Haffar, M. (2023). An integrative framework of innovative work behavior for employees in SMEs linking knowledge sharing, functional flexibility and psychological empowerment. *European Journal of Innovation Management*, 26(2), 289–308. <https://doi.org/10.1108/EJIM-02-2021-0091>
- Zhou, Z., & Verburg, R. (2020). Open for business: The impact of creative team environment and innovative behaviour in technology-based start-ups. *International Small Business Journal: Researching Entrepreneurship*, 38(4), 318–336. <https://doi.org/10.1177/0266242619892793>

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