



Research article

Innovative work behavior in public organizations: A systematic literature review

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ABSTRACT

The factors that influence Innovative Work Behavior (IWB) have been widely studied. Despite that, no research has ever comprehensively mapped the factors that affect IWB, especially in public organizations. Hence, this study aims to map the factors affecting IWB in public organizations. Based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach, 57 eligible studies were selected for review, and their findings summarized. The results of this study indicate that three factors are influencing IWB in public organizations, namely personal, inter/teamwork, and organizational factors. These three factors can function as independent variables, mediation, or moderators. This research produces a comprehensive IWB framework in public organizations. Managerial can develop various ways to improve the innovative behavior of its employees starting from personal, teamwork, and organizational factors such as leadership, HRM, organizational culture, and other behaviors.

1. Introduction

Innovation is an indispensable factor for organizations as they are required to adapt to rapid environmental changes [1]. Organizations can face external challenges in regards to the innovative products that they have created. In making an innovation, employees who are involved in the creation are expected to pour new ideas towards their organizational goals. Therefore, the innovative behavior of employees needs to be developed [2]. Innovative work behavior (IWB) deals with developing, adopting, and implementing new ideas for products, technologies, and work methods by employees; this is considered as an important determinant of organizational success [3]. IWB is critical to organizational effectiveness and survival, which ultimately leads to sustainable organizational development [4].

IWB is expected to produce innovative and therefore beneficial outcomes for individuals, groups, or organizations [1]. These innovative outputs can range from the expansion and renewal of products, services, procedures, and processes to the evolution of new production methods and new management systems [5]. IWB is one of the important things that allow any groups to achieve organizational goals [6,7]. Hence, it should be carried out sustainably by profit-oriented and non-profit organizations. One of the non-profit organizations that should apply IWB is public organization. Public organizations are characterized by their numerous procedures and regulations that provide a high degree of control and a low degree of flexibility [8,9]. A typical innovative demand on public servants deals with utilizing resources to create innovative outcomes as described by the base of the organization, the political system [9].

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The effect of “training and development” on IWB in public organizations was lower than in private organizations [10]. Public employees view innovative work behavior as extra-role behavior that must be compensated for. Private employees recognize innovative work behavior as a necessary act for career advancement. In public organizations, rewards, or incentives for employees to innovate, along with competitive pressure, is still less compared to private companies [79], added up by strict institutional regulations [10]. Bos-Nehles, Bondarouk and Nijenhuis in their research on the Dutch state fire service, highlighted the formalization and control of organizations impeding IWB [1]. Organizations that adopt non-routine technology will support the innovative work behavior of their employees [3,11].

Research on the antecedents of IWB has been carried out by many researchers such as the influence of leadership on IWB, characteristics of individuals, and from organizations such as Human Resource Management (HRM) [1], but no research has comprehensively mapped out the factors that influence IWB, especially in public organizations. A literature review on IWB has also been carried out by Al-Omari, Choo, and Ali, although the objectives and methods used have not been clearly defined [12]. The results of the mapping state that there are 3 variables that support IWB, namely: leadership, organizational and individual. Conducted a review of the antecedents of IWB, where the focus of his study was on the influence of leader-member exchange, transformational leadership, and employees’ perceptions of fairness in IWB. However, this review only mentioned that the data is taken from the databases of Scopus, Web of Sciece (WoS), ProQuest, ScienceDirect, EBSCOhost, SpringerLink, and Emerald. The results of the review show that TL and LMX are directly related to IWB, that LMX is a mediator of the leadership-IWB relationship, and that perception of fairness is a moderator of the leadership-IWB relationship [13].

1.1. Objectives study

From the explanation above, the purpose of this Systematic Literature Review (SLR) is firstly to identify the development of research and secondly to determine the factors that influence on IWB in public organizations.

1.2. Research methodology

This research is literature review research. A systematic literature review aims at identifying the main theoretical aspects and main characteristics of publications to improve the quality of the review process and results by applying transparent and reproducible procedures [14]. To put it simply, the process deals with identifying and evaluating a large amount of literature. The review is done based on certain theories [15], that allow the researchers to identify gaps in the field and to build theoretical models in regards to the emerging results.

Literature search was carried out on June, 20th–August 22th, 2022. The literature review in this study is done based on the theory [15], which consists of five stages: define, search, select, analyze, and present. The first stage is to define the scope and database used. The article uses innovative work behavior as the main variable studied with public organizations being the object of study. The forms of articles used in the review are journal articles, paper reviews, and conference article, in which the full text of these articles can be obtained either from journals, research gates, or from direct authors. The language used in the article to be reviewed is English. The reviewer does not limit the years to obtain an initial overview of IWB studies in public organizations from the selected databases. This review utilizes the databases subscribed by Universitas Airlangga library in 2022 (Scopus, Web of Sciece (WoS), ProQuest, ScienceDirect, EBSCOhost, SpringerLink, and Emerald).

The second stage is the search for effective studies in the database that has been determined in the previous stage by using the

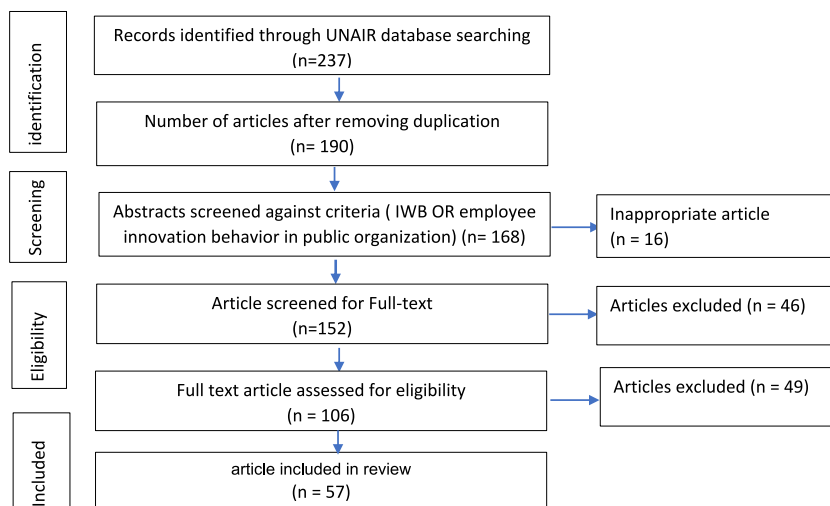


Fig. 1. Prisma flow chart visualizing the article selection process.

keywords: public “innovative work behavior”; public “innovative work behaviour”; public “employee innovative behavior”; public “innovative work behaviour” and “innovative work behavior*” public. From the search results using the keywords ko and the criteria that have been determined above, the total articles obtained are 237 articles with the following details: Scopus (57 articles), WoS (49), Jstor (29 articles), SAGE (14 articles), World Scientific (19 articles), Springer Link (31 articles), Science Direct (39 articles) and EBSCO (26 articles).

The third stage is the selection of articles to be analyzed. Three reviewers screened each record and each report retrieved. In selecting articles, the reviewer used PRISMA as shown in Fig. 1. The methods used to assess risk of bias in the included studies, Our coding approach relied on authors and the reviewers and editors who vetted the authors’ work in the review process to judge whether a measure met the standards laid out in SLR. We actively assessed whether resource measures appeared to meet the criteria described in SLR.

From the previous stage, 237 articles were identified, then it was reduced to 190 because there were 47 of the same articles. From the 190 articles, it was ensured that the titles and abstracts matched the predetermined theme, hence, the number of articles was reduced to 168. From the 168 articles, the availability of the full text was searched through the Universitas Airlangga library database, from the journal directly, from the research gate and from the direct author, in which the full text of 106 articles were obtained. The 106 articles were then read to determine whether the contents of the articles matched the theme. From the short reading, it was found that 49 articles were not appropriate. Thus, the 57 articles were included in the review.

The fourth stage is the analysis carried out in accordance with the objectives set for the review. Before the analysis was carried out, first the characteristics of the article were mapped such as year of publication, domain, place of research, methods used, research design and instruments used with results as shown in Table 1. The next step is to synthesize the content of the articles that have been selected by identifying the factors that influence the IWB as independent variables, mediating variables, moderator variables and independent variables from the results of empirical tests. From the identified variables, categorization is carried out.

The fifth stage is to present the results of the analysis to answer the problem formulation that has been determined. From the findings, the factors that influence IWB will be described thoroughly based on empirical findings, and provide an overview of further research based on the results that have been obtained.

The 57 articles were mapped to process interview data into a model that can be concluded, with the following stages [16]: 1) First Order Concept by converting raw data from interviews into easy-to-understand concept sentences; 2) Second Order Themes by creating appropriate categories from first order concepts into several themes; 3) Aggregate Dimensions by grouping second order themes into narrower dimensions. From the mapping results, it is found that the antecedents of IWB are divided into three, namely personal, organizational, and external factors as shown in Table 3 above. Both personal factors and organizational factors can be antecedents, as they can mediate and moderate in IWB, while external factors, namely family, mediate between organizational factors and IWB [17].

Table 1
Study Characteristics Data taken on December 31, 2021.

Study Characteristic	F	%
Year Publication		
2000–2005	1	1.7
2006–2010	0	0
2011–2015	7	12.3
2016–2021	49	86.0
Domain		
Public Service	14	24.6
Hospitals	14	24.6
University	10	17.5
Library	5	8.8
Local Governments	9	15.7
School	5	8.8
Origin of Study-Country		
Asia (Iran, Vietnam, Pakistan, Indonesia, Taiwan, Malaysia, Thailand, Bahrain, Korea Selatan)	24	42.1
Europe (Greece, Italy, Denmark, Norway, Sweden, Netherlands, Czech, UK)	17	29.8
America (Mexico, Brazil, Chile)	4	7.0
Australia	4	7.0
Africa (Leshoto, Nigeria, Malawi, Uganda, Ghana)	8	14.1
Research Methodology		
Quantitative	52	91.2
Qualitative	3	5.3
Mix	2	3.5
Design Method (Quantitative)		
Cross-sectional	53	92.7
Longitudinal	4	7.3
Research Instrument		
Survey	52	90.2
Interviews	3	7.3
Survey + interview	2	2.4

Table 2

Concepts and measurements of Innovative Work Behavior in public organizations (mapping results on 57 IWB articles in public organizations).

No	Author and Year	Draft	Referral	Methods	IWB sharing	Measurement	Research Results	citation
1	Scott & Bruce (1994). The first study on the measurement of IWB	individual innovative behavior; innovation begins with problem recognition and the generation of ideas or solutions, either novel or adopted.	Adoption from Kanter, 1988	Quantitative R&D company location in America Respondents 26 managers Employees' IWB is measured by their superiors and validated with employee portfolios	3 (three) stages - Recognition and generation of ideas - Sponsorship and Coalition - Innovation process	Using 6 questions from interviews with 22 managers and Kanter, 1988. IWB is measured in one dimension. Cronbach alpha 0.89.	individual innovative behavior as the outcome of four interacting systems- individual, leadership, work group, and climate for innovation	6
2	Scott & Bruce, 1998	Not specified	Kanter, 1988 Scott & Bruce (1994)	Quantitative R&D company location in America Sample 1, industrial cooperation, n = 110 Sample 2, manufacture, n = 149 Employees' IWB is measured by their superiors and validated by the innovation value given by the supervisor in 1 year		From Scott & Bruce, 1994 to 4 questions tested with 2 different samples with the results of Cronbach's alpha is .86 and .84	innovative behavior was negatively related to associative and positively related to bisociative problem-solving style, and innovative behavior was positively related to LMX.	3
3	Janssen (2000)	innovative work behavior: the intention creation, introduction and application of new ideas within a work role, group or organization, in order to benefit role performance, the group or the organization.	West and Farr (1989); Scott & Bruce (1994)	Quantitative Location of the food industry in the Netherlands. Employee, n = 170 Supervisor, n = 110 IWB is measured by supervisor (leader-reports) where the results are different	3 (three) stages - Idea generation - Idea promotion - Idea realization	From Scott & Bruce, 1994) into 9 questions which are evenly divided into 3 stages of IWB. The measurement results are 0.95 self rate and 0.96 leader rate.	The results show a positive relationship between job demands and innovative work behavior when employees perceive fairness to the effort and rewards given.	16
5	Kleysen & Street (2001)	Individual Innovation: "all individual actions directed at the generation, introduction and application of beneficial novelty at any organizational level such as the development of new product ideas or technologies, changes in administrative procedures at work	West and Farr (1989);	Qualitative Company Location in Canada. Employee, n = 225 Self rated	5 (five) stages: - Opportunity exploration (3) - Generativity (2) - Formative investigation(3) - Championing (3) - Applications (3)	The IWB measurement is based on mapping 28 articles on creativity and innovation, so that 34 questions are formed, which are then tested, with the results of 14 valid questions.	Measurements were made to test the validity and reliability of the new IWB measuring instrument. Alpha reliability to measure of intercorrelation between items .945 so that IWB is measured as one unit	1

(continued on next page)

Table 2 (continued)

No	Author and Year	Draft	Referral	Methods	IWB sharing	Measurement	Research Results	citation
6	De Jong & de Hartog (2010)	processes intended to significantly enhance their efficiency and effectiveness” Innovative Work Behavior: “individuals’ behaviors directed towards the initiation and intentional introduction (within a work role, group or organization) of new and useful ideas, processes, products or procedures”. Innovative work behaviors encompassing both the initiation and implementation of ideas	Farr & Ford, 1990	Empirical: IWB validity test by Supervisor of 81 workers in the Netherlands who are willing to participate.	4 (four) stages developed from Scott & Bruce, 1994 - exploration (2) - generations (3) - Championing (2) - Implementation (3)	Questions adopted from Scott & Bruce, 1994; Jansen, 2000; Kleysen & Street, 2001 into 17 questions and after the test it became 10 questions. Cronbach’s Alpha70	IWB is one dimensional. Decision-making and autonomy encourage employees, participatory leadership has a positive effect on IWB. Outside employment is also positively and significantly associated with IWB.	11
7	Yuan & Woodman (2010)	Employee innovative behavior: “an employee’s intentional introduction or application of new ideas, products, processes, and procedures to his or her work role, work unit, or organization”.	West and Farr (1989);	Quantitative Location 4 (four companies in America Respondents are 425 full-time employees and 96 supervisors. IWB is measured by supervisor	2 (two) stages - Generation - Implementation innovative behavior as complex behavior consisting of activities pertaining to both the generation/ introduction of new ideas (either by oneself or adopted from others) and the realization or implementation of new ideas	Questions adopted from Scott & Bruce, 1994 as many as 6 questions	Results indicate perceived organizational support for innovation, quality of supervisor relationships, job requirements for innovation, employee reputation as innovative, and individual dissatisfaction with the status quo affect IWB.	
8	Xerri (2018)	Innovative behavior in the workplace: begins by an employee identifying a work-based problem; this is followed by the development of new ideas and solutions for the problem/s. The final step in the innovative process is to develop support for the new ideas and solutions	Carmeli, 2006	Quantitative 12 head nurses 104 nurses IWB is measured by self-report	The stages are not explained explicitly. - Identification of Problem - Idea creation - Looking for support for the proposed idea	Questions adopted from Scott & Bruce, 1994 as many as 6 modified questions for nurses	The findings confirm that perceived organizational support mediates the relationship between leader-member exchange and the innovative behavior of nursing employees	2
8	De Spiegelaere 2016	employee behavior that is related to	Jansen, 2000 and for	Quantitative. 927 employees	4 (four) stages - Exploration	There are 12 IWB questions:	Individual performance-	2

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Table 2 (continued)

No	Author and Year	Draft	Referral	Methods	IWB sharing	Measurement	Research Results	citation
		identifying problems and opportunities, searching for innovative solutions, suggesting these innovations to peers and supervisors and ultimately contributing to the implementation of the innovations in the workplace	product innovations from West & Farr, 1989	from 5 (five) industries in Belgium. Self reported	- Generation - Championing - implementation	10 items from De Jong and Den Hartog (2010) and 2 items from Janssen (2000)	based pay (PRP) attenuates important positive relationships of task-level job resources such as learning opportunities at IWB. The combination of individual and collective PRP, on the other hand, strengthens positive relationships between organizational resources such as upward communication and IWB	

2. Results

The data in Table 1 provide an overview of the scope of research that has been carried on innovative behavior in public organizations. From the results of data processing, studies on innovative behavior continue to develop and are increasingly becoming a topic of interest, this data shows that in 2016–2021 there are 86% of public action on the topic. The research began in 2005 in the Netherlands government to examine the relationship between employee job design, HRM activities and IWB [18]. The organizations which serve as the object of the research contain research samples from the most part of public services [19–21], such as nurses [17,22,23], educators [24]. As well as librarians [25–28]. Likewise, the geographical locations of the research conducted vary from several continents, with the most research being conducted on the Asian continent (42.1%). The most widely used method is quantitative research with survey instruments as much as 91.2%, while qualitative [1, 25, 26] and mixed methods are quite rarely used [29].

Based on Table 2 above, the terms used in the researchers on Innovative Work Behavior revolve around individual innovative behavior [11], individual innovation [30], employees' innovative behavior [3,31] and Innovative Work Behavior [32,33]. To refer to the innovative behavior carried out by employees, this review specifically uses the term *Innovative Work Behavior* (IWB).

Innovative behavior is a deliberate behavior in the innovation-making process in the workplace [3,32]. The process here starts from identifying problems, finding solutions [31], developing ideas [23], seeking support [23,31], participating in the implementation of innovations in the workplace [31] and introduce the innovation to others. The innovation referred to here is not only in the form of new technologies or products, but can also be changes in useful administrative procedures or processes [11,32] that significantly increasing work efficiency and effectiveness [11].

The concepts of IWB that are most widely used as references are stated by West and Farr [34] and Kanter [35]. IWB according to West and Farr [34] is the intentional introduction and application within a role or a group, or the organization of a new idea, process, product, or procedure to the relevant unit of adoption, designed to significantly benefit an individual, group, organization or wider society. Kanter [35] explains that there are four main innovation tasks, which are roughly, but not the same as the logic of the innovation process that unfolds over time and this process is obtained by using empirical data about the history of certain innovations from existing studies. The four tasks are: (a) idea creation and activation of innovation drivers (“entrepreneurs” or “innovators”); (b) the formation of coalitions and the acquisition of the necessary strength to project ideas into reality; (c) idea realization and innovation production, turning ideas into useable product-models or plans or prototypes; (d) transfer or diffusion, spread of model-commercialization of products, adoption of ideas.

2.1. IWB antecedents

2.1.1. Personal factors

Personal Factor is a factor that comes from within a person which includes attitudes, instincts, skills, motives, personality, cognitive systems that make up the self. This study has identified 7 personal factors that can influence IWB in public organizations. Personal Competency, Personal characteristics, Personal traits, Psychological, Well-being, motivation, commitment, and Job embedded. Personal factors in IWB research can be antecedents, mediators, or moderators.

Personal factors that become antecedents of IWB are personal competencies such as Organizing and Leading, Strategic competency [36], Knowledge about innovation [29], and Intellectual capital [37]. Personality traits include Feeling of concerns and mastery of

Table 3
Analysis of IWB antecedents in public organizations (mapping 57 articles).

First order	Second order	Aggregate
Organizing and Leading Strategic competency Knowledge about innovation Intellectual Capital managerial position	Personal Competency	Personal factors Mediation (M) Moderation (Z)
Gender of the Proactive personality Feel concern for and ownership of the problems Teaching creativity perceived creative self-efficacy Polychronicity Resistant to change work engagement Mood Condition Empowerment Thriving Role identity	Personal characteristics Personality traits Psychological	
Intrinsic Motivation Affective commitment Job embedded Leadership transformational leader LMX Ethical leadership Organizational citizenship behavior Organizational Culture Openness Multiple organizational changes task conflict Trust in leader Organizational justice Well-being Organizational empowerment Behavioral courage manager Satisfaction in teamwork Creative collective efficacy Supervisor, coworker support HRM practice Perceptions of Performance Appraisal Quality (PPAQ) Knowledge management Training opportunities Training and development Decentralization Verbal Reward Work-to-family enrichment Social support	Motivation. Commitment Job embedded Leadership OCB Organization Culture Organizational climate Management Family	Organizational Factor External Factor

problems [18], Teaching creativity [38], perceived creative self-efficacy [22,39], Polychronicity [40], Resistant to change [41], Work engagement [42], and Mood Condition [43].

There are also personal factors that mediate such as Thriving [44], Role identity, Intrinsic Motivation [45], Affective commitment [19,46] and Job embedded [40] which can affect the strength of the relationship between IWB and other antecedent factors. Love of money also has relation to IWB [47]. Personal factors that mediate the relationship between IWB and its antecedent variables (moderators) regards personal character, such as Managerial position [21], Gender [48], Proactive personality [49], and also personal psychology: Empowerment [17].

2.1.2. Organizational Factor

Organizational Factor comes from the organizational environment. Organizational factors include task demands, role demands, interpersonal demands, and organizational structure. This research has identified 5 (five) organizational factors that can influence IWB in public organizations, namely: Leadership, Organizational behavior, Organizational Culture, Organizational climate, and Management. Like personal factors, organizational factors can also be antecedents, mediates and moderators in IWB research.

Factors that directly influence IWB are leadership which includes transformational leadership [19,40,70,71], Leadership member exchange [64], ethical leadership [37], as well as Organizational citizenship behavior also have a positive effect on IWB. Organizational culture can be a factor that directly affects IWB in a positive way [29,72]. Organizational climates that have a direct effect on IWB include: multiple organizational changes [20], Organizational justice [19], Organizational empowerment [38], Satisfaction in teamwork [23], Creative collective efficacy [22]. HRM practice [18], Perceptions of Performance Appraisal Quality (PPAQ) [6], Knowledge Management [38,73], Training opportunity [23], along with Training and development [36] are parts of management that have a direct positive effect on IWB.

Organizational factors that have an indirect effect on IWB are organizational climate such as: Task conflict [74], Trust in leader [46, 75], and Well-being [23] can be factors that can strengthen or weaken the relationship between antecedents and IWB. The job

embedded [40,76] in organizational culture is also a factor that strengthens transformational leadership with IWB [77], while Openness [78] is a factor that strengthens the relationship between organizational climate and IWB [40]. Leadership, apart from having a direct effect, also mediates between knowledge sharing and IWB [70], as well as organizational climate such as supervisors and coworker support which are moderating factors between Boundary integration and IWB [17]. Decentralization is part of management as a moderating factor between Polychronicity and IWB [40], as well as Verbal Rewards, moderating transformational leadership with IWB [65].

2.1.3. External factor

In IWB research in public organizations, it was found that external factors originating from outside the organization also influenced IWB indirectly, namely family, and social support. Social Support, which can compensate for irregular working conditions such as extra workloads and unpredictable working hours that create problems in managing their family's needs [49]. This is a factor that may strengthen or weaken the task characteristics with IWB. Family is an external factor that will moderate the relationship between Boundary integration and IWB [17].

2.2. Theoretical implications

The purpose of this paper is to look at the factors that influence IWB in public organizations. The systematic review here provides a comprehensive theoretical contribution to the IWB factor. Based on Scoot & Bruce, 1994 the factors that affect IWB are grouped into three, namely leadership, workgroup, and individual attributes where the same thing [12]. From the results of this study, the factors that influence IWB were developed into 3, namely Personal, Work Group/team and Organization, where leadership is included in the organizational category.

The results reconfirm that personal factors have an influence on IWB, where in this paper personal factors are not only independent variables but also function as mediators. Employee competence is shown to have the most influence on IWB [29,36,37] and mediates between independent variables and IWB [42,62–64]. A person's perception also has an influence on IWB [21,37,48] and can also serve as moderators [40,65]. This paper also shows that personal traits have an influence on IWB in public organizations, one of which is polychrony [6], a condition where someone can work multitasking. Polychrony is evidence that someone will innovate for their work effectiveness because the workload is too heavy [34].

Research on trust in leadership has not been done much, from the results of this study it is known that trust in leader is a factor that influences IWB both as an independent variable [23] and mediation [23,63] as well as moderator [40]. Team works support also serves as a moderator for IWB in public organizations [17,66], which means that support from colleagues will strengthen IWB.

Leadership is a factor that has been widely studied for its influence on IWB, and the results of this study also provide additional evidence that leadership also affects IWB in public organizations, especially transformational leadership [40,42,49,63,67]. The results of this study also show that organizational change has a negative effect on IWB [20] where uncertain conditions will usually make someone more innovative, so suggestions for further research can be proposed. HRM is also the most studied organizational factor in IWB research to find out which HRM practices best support IWB. Task autonomy is an HRM practice that is widely studied in public organizations [29,68] which will have a positive influence on IWB. Role overload also has a positive influence on IWB [69] and this is related to the personal polychrony factor [6]. This is very interesting because role overload is one of the things that shows that HRM has not been able to divide the work evenly.

2.3. Managerial implications

From the results of this study, managers of public organizations can find out comprehensively about the factors that can influence employees to work innovatively which will ultimately improve organizational performance. One of them is a direct leader who has an influence on IWB. The leader is expected to be a role model for his employees so that employees will feel comfortable at work, and if they must work innovative, they will not object. For public employees, working innovatively is perceived as an additional role that must be paid more [10].

Managers can also provide additional employee selection criteria because personal factors have a major influence on IWB such as the multitasking ability of prospective employees, the employees' personality, and others. Personal factors such as competence are also very influential on IWB so managers need to train their employees to have competencies that can improve innovation behavior, where training from research results also influences IWB [62].

2.4. Further research

The topic of IWB is very interesting to study, based on the results of the analysis that has been done, there are still many aspects related to IWB that have not been widely studied in public organizations, such as external organizational factors that also affect IWB. The research conducted by Zhang, Liu & Yang [50] examined the External Antecedents of IWB. These external factors come from government support embodied in a future development policy. The government's move influences employee IWB. Government is one of the most important factors influencing organizations and individuals to achieve innovation [51,52]. The results are like the research conducted by Yunus, Bustaman & Rushdi [48], which focuses on local government policies that affect the IWB of local government employees. Local governments are given the authority to plan, develop, and regulate the business world in the regions within their jurisdictions which play an important role in creating a conducive environment for businesses to grow and develop.

Organizational climate has been shown to influence the IWB of employees in public organizations. There is research that examines the spiritual climate that can affect employee IWB [53], but this has never been studied in public organizations. A spiritual climate characterized by self-transcendence and a sense of community motivates employees to engage in work that helps them find greater meaning in their work and tends to be more creative [54]. Similar research was also conducted by Bantha & Nayak [55] that workplace spirituality can affect IWB of organizational employees. Workplace spirituality makes it possible to express employee creativity comprehensively [56]. Spirituality empowers people, enabling them to display creativity in an organizational context [57]. Spirituality can foster creativity in different workplace contexts in today's business [58].

So far, IWB studies in public organizations place IWB as a dependent variable that has antecedents from the organizational environment. Studies that place IWB as an independent variable have never been conducted in public organizations. As research conducted by Leong & Rasli [59] and Dörner, Gassmann and Morhart [60] examined the effect of IWB on work role performance. Individuals who exhibit innovative work behavior can affect their performance in the organization. IWB also influences employee career success, as research conducted by Dan et al. [61] that the career success of nurses is determined by IWB. The more innovative nurses behave, the more successful the nurse's career will be.

From the research characteristic data in Table 1, the research is cross sectional, hence, it cannot see causality. Thus, further research is expected to be carried out longitudinally with combined methods to be able to understand cognitive, emotional, and other relevant aspects that may be needed in the workplace. Further research can also be done by comparing countries with different cultures. The results of the study indicate that organizational culture influences IWB [29,43].

From the framework that has been described, this model needs to be tested to obtain empirical evidence, besides that further research can conduct factor analysis to determine the most influential factors on IWB in certain organizations. Qualitative research is also needed to see how each variable, whether dependent, mediating, or moderating, influences each other and why.

3. Conclusion

This systematic literature review concluded that there are 57 researchers on IWB in public organizations starting from 2000 to 2021, with the most research domains being in educational organizations (32%) such as universities and mostly located in Asia (48%). Most research methods are quantitative (99%) with cross sectional design (100%). This paper uses 57 articles that meet predetermined criteria and produces a framework about factors that affect IWB in public organizations. The results of the review show that there are three domains that influence employees in public organizations in innovative behavior, namely: 1) personal, 2) organizational, and 3) external. The third domain can be an influential factor or can also be a reinforcing or inhibiting factor for someone in innovative behavior.

This research has limitations, one of which is the limitation in accessing the full text of all articles, so not all articles related to public IWB organizations are included in this study. Follow-up research can add to the scope of the year as well as additional articles so that more comprehensive results can be obtained. Qualitative research can be one of the methods used for further research to understand how innovative employees behave in the workplace in various situations. In addition, longitudinal research also needs to be carried out to see causality with combined methods so that they can understand the cognitive, emotional, and other relevant aspects that may be needed in the workplace.

Author contribution statement

Dyah Puspitasari Srirahayu: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data, Wrote the paper.

Dian Ekowati: Performed the experiments; Analyzed and interpreted the data.

Ahmad Rizki Sridadi: Conceived and designed the experiments; Analyzed and interpreted the data.

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Data availability statement

The data can be found at Airlangga University Library Database.

Additional information

Supplementary content related to this article has been published online at [URL].

Declaration of interest's statement

The authors declare no conflict of interest.

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