

Determinants of innovative behavior from the perspective of individual factors: A conceptual framework

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Abstract

Purpose: This study outlines the structured dimensions of innovative work behavior (IWB). It interprets and associates the underlying characteristics found in the existing literature to develop a conceptual framework, which provides a comprehensive overview of IWB from the perspective of individual factors. This study also identifies the cognitive and behavioral determinants of individual innovative behavior and the most related management theories. Furthermore, it investigates the quantitative modeling methods used to explore this phenomenon and recommends practical managerial applications to promote employees' innovative behavior.

Design/methodology/approach: The conceptual framework was developed through a systematic literature review, following three fundamental stages: 1) planning, 2) development, and 3) synthesis of the review. We retrieved 637 documents, spanning a 5-year time frame, from both Scopus and Web of Science academic information indexing and retrieval systems. Subsequently, seven inclusion and exclusion criteria were applied to determine the eligibility of the studies, incorporating the guidelines from the PRISMA statement. The final sample consisted of 49 scientific articles that answered five guiding questions, leading to the integration of the framework.

Findings: This study examines the dimensions of IWB—that is, the generation, introduction, and realization of ideas—by analyzing the fundamental properties mentioned by the authors of the selected documentary sample. It further identifies 48 determinants of IWB, categorized under three organizational management theories: personality traits, self-determination, and social exchange theories. This study also analyzes the applied quantitative research methods, business sectors, and countries investigated, identifying the most commonly used methods and most frequently investigated sectors and countries. Additionally, it highlights the current research agenda for promoting IWB as an enabler of competitive organizational development. Finally, we present a conceptual framework that provides a theoretical structure for understanding individual IWB.

Practical implications: We clarify the current research landscape of IWB in an organizational context. We also help identify the level of academic interest in this subject for future studies. Furthermore, we compile valuable recommendations for business managers aiming to enhance the competencies of their workforce in managing innovative processes.

Originality/value: We introduce a new conceptual framework for IWB that considers its primary strategic purposes. Therefore, this study is a reference point for future empirical innovation management studies. It provides a classification of individual-level determinants with a cognitive and behavioral focus, incorporating constructs such as spirituality, altruism, ethical and empathic behaviors, and resilience.

Keywords: Innovative work behavior, Individual innovation, Determinants of innovative behavior, Innovation, Conceptual framework, Literature review.

Jel Codes: M12, M19

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1. Introduction

Thriving in the ever-evolving business landscape demands that organizations boldly embrace innovation, relentlessly reinvent themselves, and navigate the complexities of a digitally interconnected world to secure a lasting competitive edge (Nöhammer & Stichlberger, 2019). From this perspective, the relevant literature has demonstrated that innovation at work is a key factor in organizational performance and effectiveness (Colombelli, Haned & Le Bas, 2013; Wang, Gao & Panaccio, 2021). Innovations in products, services, and business and industrial concepts allow organizations to differentiate themselves from their competitors (Almulhim, 2020). Furthermore, process and organizational innovations increase operational efficiency, reduce costs, and enhance profitability (Alnajjar & Hashim, 2020; Thornhill, 2006). To obtain these benefits, it is essential to leverage the innovative potential of teams and individuals within organizations (Agarwal, 2014; Chen & Huang, 2009; Migdadi, 2022).

However, despite the growing awareness of the importance of this phenomenon, most research has focused on traditional approaches, overlooking a crucial aspect: the individual is a fundamental driver of innovation in the workplace (Lee, Pak, Kim & Li, 2019; Mariz-Perez, Teijeiro-Alvarez & Garcia-Alvarez, 2012; Tajeddini & Martin, 2020). This study delves into the underexplored territory of the individual factors that drive Innovative Work Behavior (IWB) and presents a conceptual framework that aims to highlight this critical dimension.

Individual-level IWB is represented by an employee's intention to introduce or apply new ideas, products, processes, and procedures to their work roles (Yuan & Woodman, 2010). It is also framed as critical thinking, which enables the recognition of potential problems and the exploration of opportunities and solutions to create value (Alessa & Durugbo, 2021). According to the literature, research into the determinants of IWB has explored three types of factors: (a) individual factors including attitudes and cognitive abilities; (b) job-related factors that encompass job characteristics, such as job complexity; and (c) contextual factors, such as organizational climate (Hammond, Neff, Farr, Schwall & Zhao, 2011).

Several literature reviews have focused on the individual-, contextual-, and organizational-level determinants of IWB (Anderson, Potočnik & Zhou, 2014; Crossan & Apaydın, 2010). Recommendations have also been made in research on individual innovation based on teamwork (Hülshager, Anderson & Salgado, 2009). Prior systematic reviews have addressed the impact of learning behaviors in work teams on innovative behavior, arguing that learning and innovation are mutually dependent (Widmann, Messmann & Mulder, 2016). The link between human resource practices and employee IWB has also been investigated (Bos-Nehles, Renkema & Janssen, 2017). Pérez-Peñalver, Aznar-Mas and Montero-Fleta (2018) evaluated individual innovation performance in organizations by presenting an innovation model that integrates idea generation and implementation with creativity, critical thinking, initiative, teamwork, and networking. Alessa and Durugbo (2021) provided an overview of existing knowledge on management concepts and contributions to IWB research from 2000 to 2019.

Despite the continuous evolution of the literature on factors affecting innovative work behavior, there is a need to expand, analyze, consolidate, and integrate the results of previous research focusing on the determinants influencing employees' IWB (Alessa & Durugbo, 2021; Anser, Yousaf, Yasir, Sharif, Nasir, Rasheed et al., 2022; Bos-Nehles & Veenendaal, 2017). This review adds value and originality by providing a theoretical framework

that enhances the understanding of the concepts, dimensions, properties, and determinants associated with individual-level IWB, analyzing research from 2017 to 2022. To fulfill this objective, a systematic literature review serves as the primary input of this study. Through this approach, the research offers several theoretical contributions and clarifies five specific research questions.

- Q1. What are the key concepts of IWB, its dimensions, and properties?
- Q2. What individual-level determinants have the greatest influence on employees' IWB?
- Q3. What are the main economic sectors addressed by this research topic?
- Q4. What are the most commonly used quantitative modeling techniques for the study of IWB?
- Q5. What research gaps are evident in the literature on employee IWB, based on individual factors?

The conceptual framework is presented by analyzing and synthesizing different theoretical approaches in management, empirical research, and practical applications. This research not only fills an evident gap in the existing literature, but also provides organizations with an evidence-based roadmap to foster innovation in their workforce. In the competitive landscape of business, where innovation is a key differentiating element, such studies are perceived as useful and necessary for the advancement and survival of organizations and institutions.

The remainder of this manuscript is structured as follows: Section two describes the methodology. Section three synthesizes the results and classifies the general concepts of IWB, followed by analysis. Section four presents the conceptual framework of the study. Section five discusses the findings. Finally, conclusions are presented in section six.

2. Methodology

Constructing a conceptual framework involves creating a structure of complex relationships that encompass concepts, theories, practices, and criteria for a specific topic (Díaz, Demissew, Carabias, Joly, Lonsdale, Ash et al., 2015). This approach allows for a clear and concise interpretation through the systematic review approach proposed by Tranfield, Denyer and Smart (2003). Following Moher, Liberati, Tetzlaff, Altman, Altman, Antes et al. (2009), this systematic review provides a comprehensive literature overview. It establishes connections among existing knowledge through a comprehensive strategy that enables the identification, evaluation, and synthesis of reliable information. Additionally, the recognition that a systematic literature review can contribute to framework development is widely acknowledged, as evidenced by its application in numerous studies (Alessa & Durugbo, 2021; Crossan & Apaydin, 2010).

Subsequently, adopting a conceptual framework in this study provides a structure for organizing the literature related to IWB from the perspective of individual factors. This framework not only facilitates understanding of the dimensions of IWB but also allows the identification and association of underlying properties in the existing literature, thereby contributing to the consolidation of a global view of this phenomenon and the coherent integration of related management theories. Ultimately, this theoretical approach not only helps fill a gap in existing research, but also has practical applications, offering organizations a valuable reference framework for understanding and promoting the innovative behavior of employees more effectively. The systematic review approach of Tranfield et al. (2003) consists of three stages: 1). Planning - establishing the objective and search strategy; 2) review development - describing how data are identified, selected, and evaluated using the PRISMA flowchart to represent the number of reviewed studies; and 3) synthesis and analysis of information. In this final stage, the bibliometric analysis process is a preliminary step in the development of the guiding questions used to examine the profile and research structure (i.e., distribution, knowledge areas, main sources of publication, frequent words, and co-citation network of authors) of the sample obtained on the study topic (Kostoff, Tshiteya, Pfeil, Humenik & Karypis, 2005).

In addition, the content analysis process addresses the five guiding questions. These include the theories, concepts, properties, determinants, methods, countries, and sectors studied in previous research on IWB. The result is the integration of a conceptual framework that simplifies the complex innovation interactions experienced by employees in their work environment.

2.1. Stage 1: Planning

The objective of the first stage was to evaluate the research profiles of the selected studies. This stage included analyzing publication trends, author productivity, geographic scope, predominant research designs, and the quantitative techniques used. Additionally, a search strategy and protocol were developed to identify relevant databases and key terms for the search equation to find matches in article titles, abstracts, and content, along with the inclusion and exclusion criteria for selecting the study sample. Following similar guidelines to literature reviews focused on innovation management and current selection time frames (Betancur, Pardo del Val & Martínez-Pérez, 2022; Idris & Durmuşoğlu, 2021), the systematic literature review was conducted for academic products found between January 1, 2017, and September 9, 2021. Details of the strategies used are presented in Table 1.

Strategy	Description
Search Engine	The study utilized academic information indexing and retrieval systems Scopus and Web of Science (WoS). This decision was based on criteria of availability, information accessibility, precise filtering, and being renowned references for academic quality, indexing peer-reviewed publications across multiple domains and research topics (Wilt & Fink, 2007).
Key Terms	A preliminary retrospective search defined logical operators and tested various keywords by iterating alternative equations. The best results were obtained with an equation focused on the terms: “Individual Predictors of Innovative Behavior” OR “Determinants of Innovative Behavior” OR “Innovative work behavior”.
Inclusion criteria	<ul style="list-style-type: none"> • Publications between 2017 and 2021. • Document type: Scientific articles published in peer-reviewed journals. • Language: English. • Study design: Quantitative empirical studies. • Results demonstrating the influence of individual factors on innovative behavior.
Exclusion criteria	<ul style="list-style-type: none"> • Document type: Proceedings, book chapters, books, or other. • Study design: Qualitative studies. • Studies not presenting empirical research on individual innovative behavior

Table 1. Development of the search strategy

2.2. Stage 2: Review Development

During this stage, the PRISMA flowchart, a tool that facilitates the organized graphical representation of a process in four phases (identification, screening, eligibility, and final inclusion of the selected sample), was employed (Moher et al., 2009). In the identification phase, 552 and 157 studies were collected from Scopus and WoS, respectively, resulting in 709 documents. Upon review, 72 duplicates were removed, resulting in a final selection of 637 studies from the period between 2017 and September 9, 2021.

Following the guidelines of Botha and Steyn (2020), the inclusion and exclusion criteria based on the period, publication in English, and type of document (scientific article) were applied in the screening phase. Consequently, the number of documents was reduced to 473. In the eligibility phase, a joint review of the remaining 379 documents was conducted by evaluating the titles, abstracts, and objectives of each article to ensure correspondence with the established quality protocol. We verified that there were no discrepancies in the selection of impact or experimental studies that included questionnaires on IWB. This joint review identified 85 relevant studies and excluded 294.

Finally, the document sample was organized and stored using the Mendeley reference manager in the inclusion phase. At this stage, an individual content analysis of the selected studies was conducted, resulting in the exclusion of 36 articles that were not closely related. This process yielded a final sample of 49 documents. Figure 1 illustrates this process.

2.3. Stage 3: Information Analysis

The selected document sample was processed through bibliometric analysis using the Bibliometrix package in RStudio and Scopus software, as described in the results section. This analysis allows for the assessment of the impact of scientific activity in specific periods (Arbeláez & Onrubia, 2014). Subsequently, an analysis was

conducted by thoroughly reading the 49 selected articles, individually identifying and classifying information corresponding to the five guiding questions. The following section presents the results of the bibliometric and content analyses.

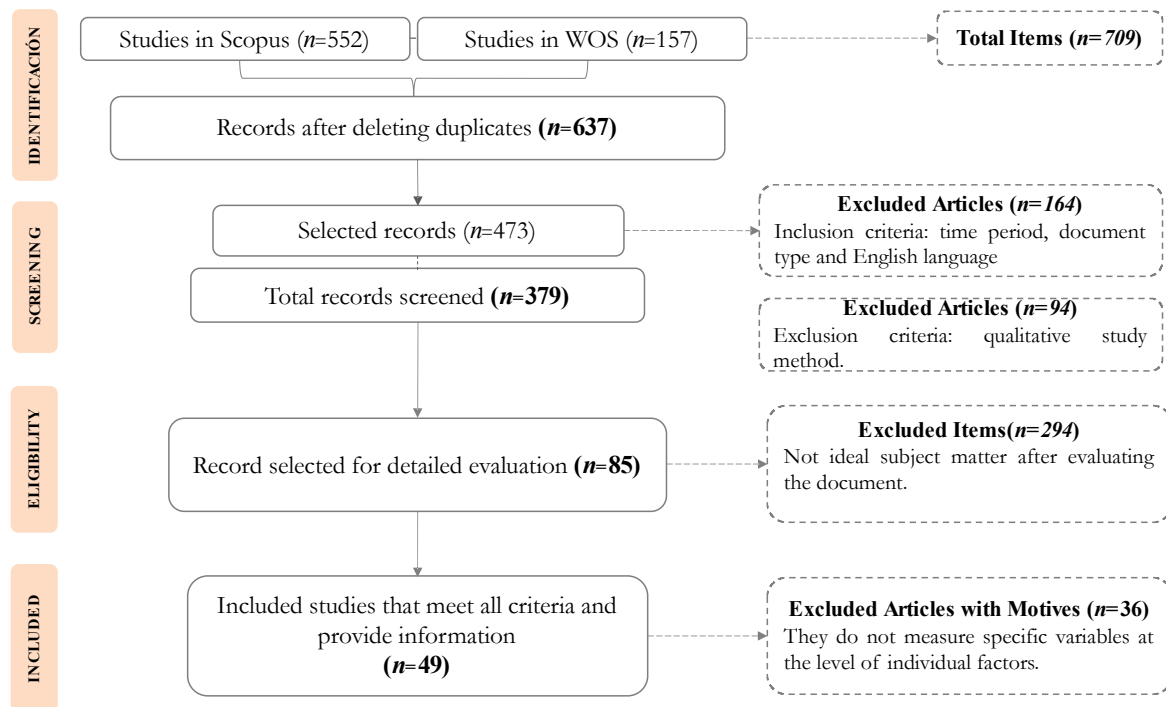


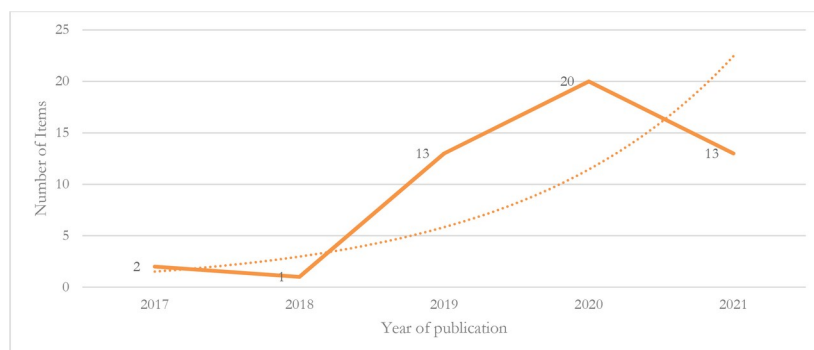
Figure 1. Study selection flowchart, according to PRISMA guidelines (Moher et al., 2009)

3. Results

In this section, we present the bibliometric analysis. It includes the distribution of the selected IWB sample by year, the study areas of greatest interest, the main research sources, associated terms, researchers, and the co-citation network. Subsequently, answers to the five guiding questions are presented (AR1, AR2, AR3, AR4, and AR5), shedding light on the theoretical framework of IWB.

3.1. Bibliometric Analysis of Information

The results of the bibliometric analysis suggest significant growth in research on IWB during the analyzed production period (see Figure 2). This trend supports claims from previous studies, highlighting a marked research interest and active agenda, with opportunities to continue exploring how IWB emerges from individual factors (Alessa & Durugbo, 2021; Bos-Nehles & Veenendaal, 2017).



Note: Data consulted with a cut-off date of September 9, 2021

Figure 2. Distribution of annual production (Scopus, 2021)

The identified areas of study with the highest interest in this topic include Management, Business, and Accounting ($n = 29$), Social Sciences ($n = 16$), and Psychology ($n = 7$). This observation reinforces the existing research interconnection between analyzing phenomena related to organizational behavior and business contexts linked to information technologies, as suggested by Nöhhammer and Stichlberger (2019).

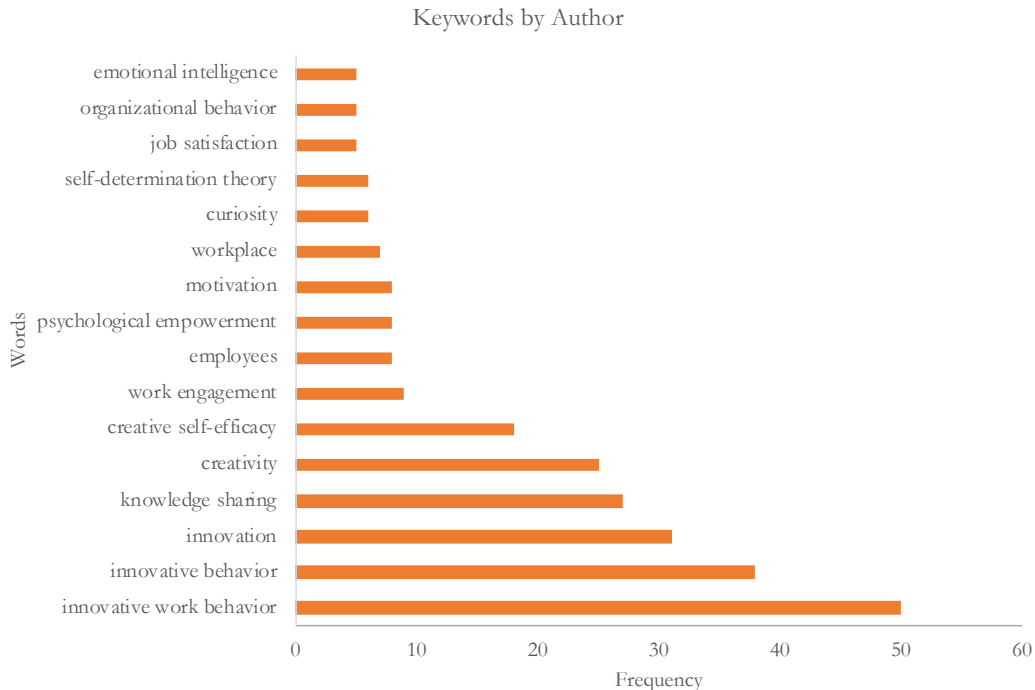


Figure 3. Frequency of keywords indexed by author (Bibliometrix)

Regarding the main publication sources, the leading journal in terms of the number of publications was the *European Journal of Management (EJM)* ($n = 6$) from the Academy of Business & Economics, followed by the *International Journal of Innovation Management* ($n = 4$) from the International Society for Professional Innovation Management (ISPIM), which is a globally renowned entity in this research field. Additionally, the most frequently used keywords per author were identified to understand the intellectual structure better (see Figure 3).

Regarding the leading researchers in IWB research during the evaluation period, prominent figures included Professor Bilar Afsar, PhD. in Leadership and Innovation Management (Asian Institute of Technology, Bangkok, Thailand) ($n = 4$) and Professor Yousaf Zahid, PhD. in Management Sciences (Hazara University, Pakistan) ($n = 3$). The authors' co-citation networks were also analyzed to gain a more comprehensive view of the sample's structure and knowledge connections. This network was generated from the data processed in Bibliometrix using bibliographic coupling and the number of shared references between two documents to measure similarity. The greater the overlap in bibliographies, the stronger the connection. The node size reflects the author's impact, and the link thickness represents the co-citation relationships. Figure 4 presents a co-citation network illustrating the intellectual structure.

In general, the network consists of five groups differentiated by color, although collaborative work is reflected among them. The purple group includes 11 authors, highlighting Scott and Bruce's (1994) dominant position and its focus on integrating research streams into the antecedents of innovation and developing a model of individual innovative behavior. The blue group comprises 13 authors, led by Yuan and Woodman (2010), whose research focuses on IWB. The orange group features positions equivalent to those of the 11 authors, and Amabile (1988) is a prominent figure exploring creativity and innovation management in depth. The green group connects ten authors with Hammond (2011) and De Jong and Den-Hartog (2010) in key roles. Finally, the red group includes four authors.

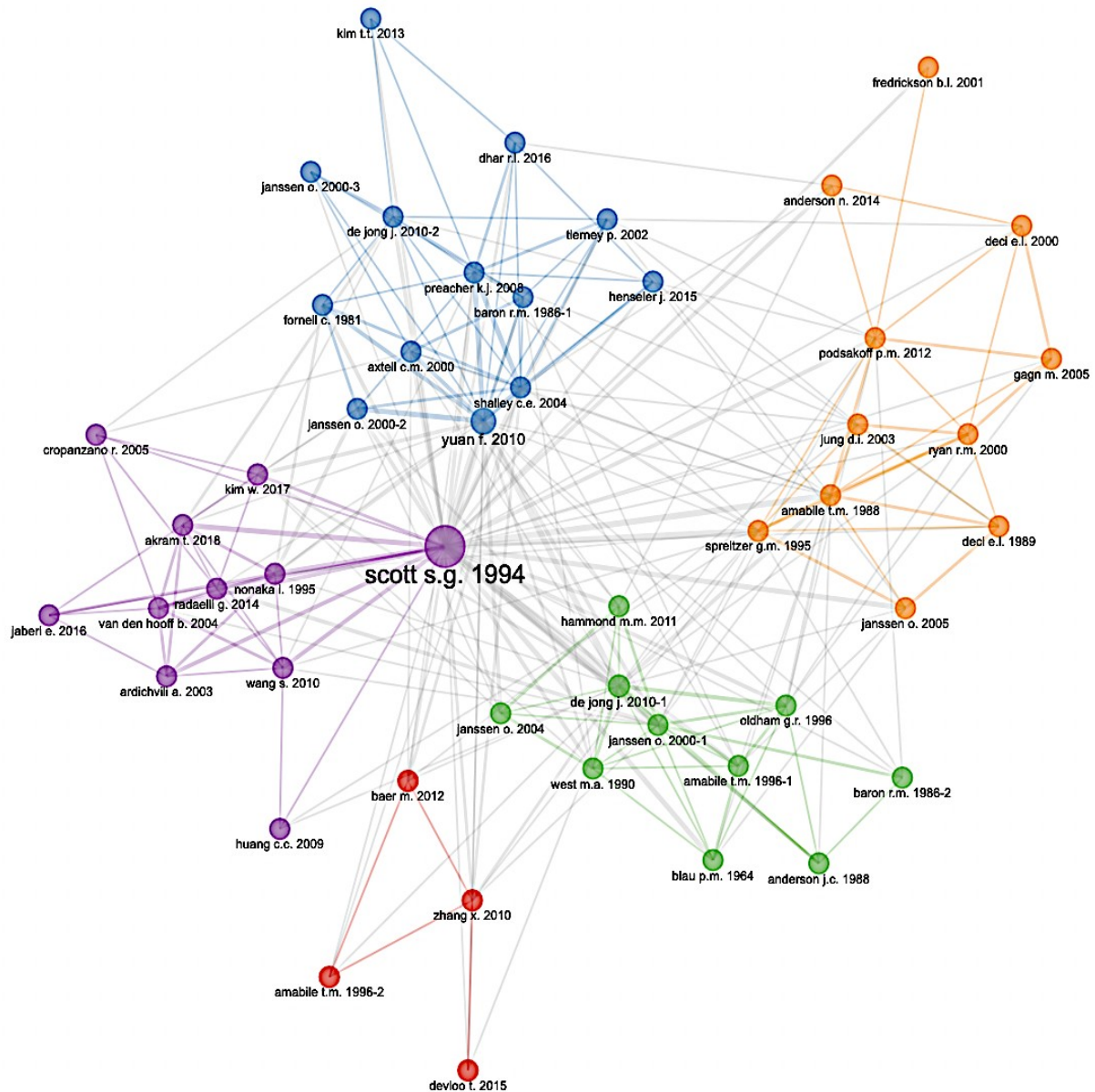


Figure 4. Co-citation network intellectual structure (Bibliometrix)

3.2. Guiding Questions Results

This section introduces the key concepts of individual-level IWB, as presented by various authors. The dimensions of IWB are identified and related, along with the properties discussed in the selected literature. Following a sequential perspective to develop the corresponding conceptual framework, each article is categorized into a distinct group during the systematic review process. This allows the determinants of IWB to be grouped according to three theoretical approaches (personality traits and individual attributes, self-determination, and social exchange).

Furthermore, we present the analysis results regarding the quantitative techniques used, the countries studied, and the economic sectors addressed. Finally, we identify gaps that suggest future research directions in this field. Thus, the study answers the guiding questions (AQ1, AQ2, AQ3, AQ4, and AQ5), allowing for the construction of the corresponding framework.

AQ1. What are the key concepts of innovative behavior, its dimensions, and its properties?

a) Key concepts about employee IWB:

Academic literature has explored the characteristics and indicators of innovative people in the workplace, focusing on individual-level IWB (Scott & Bruce, 1994; Yuan & Woodman, 2010). During the analysis process,

the key IWB concepts proposed by the sample authors (eight documents) were identified and labeled based on their research (see Table 2). Additionally, three fundamental concepts were incorporated (Kanter, 1988; Scott & Bruce, 1994; West & Farr, 1989) and are present in many of the 49 selected studies. It is important to highlight that not all the studies had the main objective of establishing a specific definition of IWB.

Research on individual-level innovative behavior has demonstrated continual growth. Specific interpretations range from employees generating ideas outside the traditional context (Kanter, 1988) to complex processes culminating in the commercialization of real products or services (Bos-Nehles et al., 2017; Janssen, 2000; Scott & Bruce, 1994). In this context, this study conceptualizes IWB as complex employee attitudes and behavior, involving a multistage process including generating, creating, developing, applying, promoting, and launching novel ideas. This is to achieve internal and external benefits for the organization, thus ensuring competitive advantage.

Definition	Author and year
A complex and non-routine behavior in which employees defend their new ideas while avoiding traditional thinking.	Kanter, 1988
The sum of individual actions for the creation, introduction, and intentional application of new ideas, which could benefit performance within a work role, group, or organization.	West & Farr, 1989
The generation, promotion, and realization of ideas.	Scott & Bruce, 1994
A series of individual behaviors and actions aimed at the generation and introduction of a new idea that is important and useful, intending to enhance organizational performance through its development and implementation.	De Jong & Den Hartog, 2010
It refers to intentional behavior to generate, process, and develop new ideas in a complex and iterative process.	Ummi, Razali, Zuraini, Amlus, & Razak, 2019
It is multi-stage behavior that attempts to improve processes, products, or procedures and ultimately culminates in implementing a new idea in a work role, group, or organization.	Saether, 2019
It is related to proactivity in generating, searching, communicating, and implementing novel ideas.	Bin & Kassim, 2019
The generation, exploration, defense, and application of ideas and opportunities that lead to novel products.	Asurakkody & Kim, 2020
It is the ability to work actively to generate ideas, produce new products, and find new markets and processes.	Linh, Tran, Doan, Van Nguyen, 2020
It is the generation, production, processing, and application of new ideas to improve efficiency and organizational processes.	Abukhait, Bani-Melhem & Mohd-Shamsudin, 2020
All individual actions aimed at generating, introducing, and applying novel ideas are beneficial at any organizational level.	Hosseini & Haghighi, 2021

Table 2. Grouping of concepts on individual innovative work behavior

b) Dimensions and identification of properties:

The literature on IWB has identified this concept as a multidimensional global construct that captures employee performance and behavior to contribute to the innovation process (De Jong & Den Hartog, 2010). Although some authors have suggested that IWB consists of only two dimensions (Yuan & Woodman, 2010), the majority conceptualize it as encompassing three dimensions: idea generation, introduction, and realization (Scott & Bruce, 1994). In this study, the authors who expressed their positions regarding the theoretical dimensions of IWB are labeled. However, only 22% of the documents analyzed provided interpretations regarding IWB dimensions.

The first stage corresponds to idea generation, where employees identify problems and opportunities and develop novel and useful ideas to address everyday challenges at work, thus optimizing the existing capabilities of the organization (Hosseini & Haghighi, 2021; Linh et al., 2020). The second stage involves the introduction or promotion of the ideas. It addresses employees' ability to establish connections with individuals who can provide the necessary support to launch ideas (Ummi et al., 2019). The third stage is idea realization, which refers to

producing products or services that can be implemented and utilized within a work role, group, or organization. The view of IWB dimensions is based on the concept described by Scott and Bruce (1994), as this perspective provides a more complete and broader approach to understanding individual innovation.

Accordingly, we categorized the descriptive properties associated with the generation, promotion, and realization of ideas. Descriptive properties are the different elements that influence and qualitatively characterize a profile, group, community, object, or process subjected to analysis to deepen and provide a greater understanding of the phenomenon under study (Hernández, Fernández & Baptista, 2014). In the first review, all observable data that presented similarities were grouped according to the conceptual descriptions proposed by the authors of the selected sample. Items that showed similar behaviors were included only once. However, the authors who supported these properties at the process level were related. Table 3 shows the classification of the properties of the idea generation dimension, as argued by the authors, corresponding to 22% of the selected sample.

Regarding the introduction of ideas, only 24% of the authors addressed the properties described in Table 4.

Generation of Ideas Dimension	
Properties	Fountain
Creative ideas that vary daily are presented and influenced by personal and situational factors.	Helmy, Adawiyah & Setyawati, 2020; Kustanto, Hamidah, Eliyana, Santri-Mumpuni & Gunawan, 2020; Laguna, Mielniczuk & Gorgievski, 2021; Liu, Xu & Zhang, 2020; Obeidat, 2021
Critical thinking is introduced to develop “outside the box” ideas that go beyond expectations.	Derin, Toker & Gorener, 2021; Kustanto et al., 2020
A complex and proactive behavior is presented to generate practical, realistic, and feasible ideas.	Afsar, Al-Ghazali, Cheema & Javed, 2020; Hafeez, Panatik, Rahman, Rajab, Abu-Bakar & Norazman, 2019
Internal and external knowledge is recombined in new patterns.	Işık, Aydın, Dogru, Rehman, Alvarado, Ahmad et al., 2021
It incorporates searching for existing information, technologies, or materials to develop and generate new approaches, methods, and work techniques.	Bibi & Afsar, 2020; Bin-Saeed, Afsar, Shahjehan & Imad-Shah, 2019

Table 3. Properties of the idea generation dimension

Introduction of Ideas Dimension	
Properties	Fountain
Interactions between colleagues and supervisors facilitate information and support the management of new ideas.	Afsar et al., 2020; Arsawan, Rajiani, Wirga & Suryantini, 2020; Clarke & Higgs, 2020; Derin et al., 2021
Common expectations, knowledge, experience, and timely information about the new idea or problem solution are shared with stakeholders.	Bin & Kassim, 2019; Helmy et al., 2020; Işık et al., 2021; Kustanto et al., 2020; Wang et al., 2021
The advantages and disadvantages of creative solutions to problems involving substantial deviations are evaluated.	Abukhait et al., 2020; Ren, Zhang & Wei, 2021
Strategic alliances and financial support are identified to consolidate the idea and benefit the team and organization.	Liu et al., 2020
Agreements are developed, and appropriate stakeholders with the power to make decisions are recognized.	Abdullah, Ahmad, Ahmad, Mohd Khatijah, Fazida et al., 2019

Table 4. Properties of the idea introduction dimension

Regarding the realization of ideas, only 6% clarified and described its characteristics, as shown in Table 5.

Realization of Ideas Dimension	
Properties	Fountain
It occurs through cooperation and the contribution of employees' resources, knowledge, and skills.	Kmiecik, 2020
A proactive behavior is developed, focusing on enthusiasm, consistency, and persistence in applying the idea.	Alnajjar & Hashim, 2020
An action-based approach is used to develop goals, gather information, plan, and execute ideas.	Hafeez et al., 2019

Table 5. Properties of the idea realization dimension

AQ2. What are the individual-level determinants that have the greatest influence on employees' IWB?

Toward a classification of determinants influencing employees' IWB and its practical implications

This study reviews the spectrum of theoretical lenses used (highly cited articles) during the content analysis process. In this process, each article was labeled under three categories related to management theories addressed by the authors of the sample. The first category was associated with personality traits and individual attributes, accounting for 39% of the selected articles, equivalent to 19 studies. The second category, concerning self-determination theory, comprised 31% of the documentary sample, equivalent to 15 studies. The third category, at 26% (13 studies), was related to knowledge management and social exchange theories. The remaining 2% included two studies corresponding to theory categories one and three. The influential determinants of IWB that were positively evaluated in these studies were then classified. Similarly, the most relevant practical implications presented by the authors to strengthen and develop employees' competencies and skills were included. It is important to note that some studies are simultaneously related to two theories. The groupings are presented below, and the findings are summarized in Tables 6, 7, and 8.

Category 1. Theory of Personality Traits and Individual Attributes

Personality trait theory suggests that certain specific traits and attributes influence how a person chooses, adapts to, and shapes their surrounding environment (Tett & Burnett, 2003). Trait theory has demonstrated how and why employees vary in their ability to generate innovative behaviors at work (Afsar et al., 2020; Hammond et al., 2011; Mustafa, Coetzer, Ramos & Fuhrer, 2021; Woods, Mustafa, Anderson & Sayer, 2018).

The studies reviewed in this work explored the effects of personality (Umami et al., 2019), emotional intelligence (Hafeez et al., 2019; Malik, 2021), altruism (Alnajjar & Hashim, 2020), positive affect (Laguna et al., 2021); work commitment and cultural Intelligence (Afsar et al., 2020; Hosseini & Haghighi, 2021); awareness and openness to experience (Abdullah et al., 2019; Mustafa et al., 2021; Sabahattin, 2020); multiple personality traits (Stock, Groß & Xin, 2019); adaptability, work curiosity, and resilience.

Determinants	Description	Strategies	Author and year
Personality Traits (PT), Conscientiousness (CO), Openness to Experience (OE), Job Satisfaction (JS).	JS (internal state expressed by the affective and/or cognitive evaluation of work experience) was positively related to the generation, introduction, and realization of ideas. OE (the level of individuals' curiosity, imagination, and openness to new ideas) and CO (associated with superior task performance - conscientious employees tend to be hardworking, persistent, and goal-oriented by nature) moderated the relationships between JS and IWB.	Managers and owners of small and medium-sized businesses in the manufacturing sector might consider using personality tests during the hiring phase. Doing so can be beneficial in identifying and selecting employees who are likely to demonstrate a propensity to engage in innovative behaviors. Likewise, to take advantage of employees' strengths, assigning them roles/tasks that best suit their personality characteristics is recommended.	Mustafa et al., 2021
The Big Five PT (5-T), JS, Organizational Citizenship Behavior (OCB).	OCB (beneficial and favorable attitudes of employees) plays a mediating role in the relationship between the 5-PT (OE, CO, extraversion, agreeableness, neuroticism) and JS, directly affecting IWB.		Sabahattin, 2020

Determinants	Description	Strategies	Author and year
OE.	The authors stated that OE is a significant determinant of IWB, as it accounts for employees' intelligence and high curiosity in a wide range of creative areas and levels of analysis.	Managers in the banking sector are recommended to submit candidates to work personality adjustment tests during the recruitment and selection process to identify appropriate profiles for organizational innovation.	Abdullah et al., 2019
Personality.	Personality (external and internal aspects of an individual's character) positively affects individual IWB.	The employer must promote the training and development of skills that strengthen employees' personality and improve the organizational culture.	Umami et al., 2019
Hyper-core Self-Evaluations (Hyper-CSE)	Hyper-CSE (a multifaceted personality trait that subsumes the notions of locus of control, self-esteem, and self-efficacy) positively affects innovative thinking in senior executives.	Those responsible for recruiting professionals for management-level positions must implement tests evaluating personality and performance aspects.	Stock et al., 2019
Political Skills (PS), Self-Efficacy (SE).	PS (skills that an individual uses to observe and interpret the actions of the social environment and propose influential strategies) is positively associated with IWB through SE in the breadth of the role (the perceived ability of an employee to carry out a broader work task proactively).	Developing programs for public sector employees that increase PS through practical workshops is recommended.	Clarke & Higgs, 2020
Knowledge Self-Efficacy (KSE), Altruism.	Personal factors such as KSE (an individual's judgment of his or her ability to organize and execute successful performance in everyday tasks) and altruism (voluntary behavior that seeks to increase the well-being of others) positively impact thinking innovatively.	Managers are recommended to provide beneficial feedback to improve employees' knowledge and SE.	Nguyen, Nguyen, Do & Nguyen, 2019; Phung, Hawryszkiewicz, Chandran & Ha, 2019b*
Work Commitment (WC)	WC is defined as the ability of a person to become aware of and invest all their skills in a work role. The authors mention that WC drives innovation and positively influences creativity.	To promote WC, it is important to provide employees with an environment that encourages continuous learning through teamwork and participatory and shared decision-making; this, in turn, can drive organizational innovation.	Hosseini & Haghghi, 2021; Koroglu & Ozmen, 2021
WC, Employee Voice (EV).	EV has a positive effect on IWB in the pharmaceutical sector. The WC of the employees has a mediating role between them.		Sifatu, Sjahrudin, Fajriah, Dwijendra & Santoso, 2020
JS, WC.	Both JS and WC positively effect IWB.		Arsawan et al., 2020*
Flow, Employee Silence (ES).	The highest levels of innovative behavior occur when the flow level (the mental state in which employees enjoy doing their motivated work with an optimal level of performance and maximum utilization of skills) is high and the silence level of the employees are low, allowing them to exchange ideas and obtain the necessary support and resources.	Managers must establish an organizational, supportive, independent, and ethical climate and design job descriptions in ways that encourage employees' intrinsic motivations. Companies can also overcome ES by countering an unfavorable reward system, role stress, and job insecurity.	Maqbool, Černe & Bortoluzzi, 2019

Determinants	Description	Strategies	Author and year
Behavioral Courage (BC).	BC, understood as the attitude of courage and disposition of character to achieve objectives in the face of external or internal opposition, was positively associated with IWB.	The authors recommend that hospitality industry managers cultivate WRC among their staff by welcoming questions, discussion, and knowledge sharing. They also propose implementing training programs focusing on the development of ER.	Bibi & Afsar, 2020
Career Adaptability (CA), Work Related Curiosity (WRC), Employee Resilience (ER).	CA is how a person views their ability to cope with and capitalize on change in new job responsibilities. WRC is a personality construct defined as the desire to seek knowledge. ER is understood as a set of individual skills that allow employees to act in times of uncertainty and adapt quickly to changes. These personality constructs are significant in the promotion and realization of innovative ideas.		Abukhait et al., 2020
Emotional Intelligence (EI).	EI is defined as the ability to use one's own emotions and those of others to develop relationships. This study demonstrated that EI positively impacts employees' IWB, enhancing the ability to generate ideas and solve problems.	Organizations can promote the level of EI in employees through training programs on emotion management.	Malik, 2021
Emotional Intelligence (EI), Ambidextrous Leadership (AL).	EI (the ability to understand one's and other's emotions) mediates the relationship between AL behavior (the ability to encourage exploratory and exploitative behaviors in subordinates by increasing the generation of ideas and problem recognition) and the IWB.	Authors recommend that human resources directors promote leadership practices and implement exercises to control employees' emotions through training.	Hafeez et al., 2019
Altruism, Transformational Leadership (LT).	The authors identified the mediating role of altruism in the relationship between TL (social process based on mutual trust between leaders and their followers) and IWB.		Alnajjar & Hashim, 2020
Ethical Behaviors (EB).	EB (individual attitudes in line with acting correctly according to the ethical duties, policies, rules, and norms of organizations) significantly affect IWB.	The authors suggest constantly encouraging EB of public sector employees, promoting teamwork, and fostering a friendly environment.	Khorakian, Mohammadi-Shahroodi, Jahangir & Nikkhah-Farkhani, 2019)
Cultural Intelligence (CUI), Work Engagement (WE), and Interpersonal Trust (IC).	CUI (an employee's ability to function and manage effectively in culturally diverse situations and environments) can significantly impact employees' innovative work. Furthermore, WE (a situation in which employees find work meaningful) and IT (the extent to which a person trusts and is willing to act on the words, actions, and decisions of another) partially mediate the effect of CUI on IWB.	In multinational organizations, human resources departments can design training programs to promote cultural awareness through didactic and experiential exercises to deeply understand other cultures directly related to the company's stakeholders.	Afsar et al., 2020
Positive Affect (PA).	PA refers to consciously accessible feelings (emotions and moods) that are unstable and depend on events and situations in the work context. Enthusiasm and comfort, as high arousal effects, can endow a person with vigor, allowing engagement in work tasks and stimulating creativity to implement new ideas.	Learning to regulate work-related effects and building good social relationships may be a goal for instructors, coaches, and counselors working with small business owners and managers.	Laguna et al., 2021

Note: (*) signifies determinants associated with the theory of social exchange presented in Group 3.

Table 6. Determinants and strategies associated with the theory of personality traits and individual attributes.

These studies demonstrate the positive impact and connections of traits and abilities that increase work productivity and drive innovation in organizations (Umami et al., 2019). Table 6 describes the determinants of IWB associated with this theory and presents some of the main strategies proposed by the authors of the selected subsample.

Category 2. Self-Determination Theory

Deci and Ryan's (2000) self-determination theory is a motivational framework in which individuals have an innate desire for personal growth and initiative. The authors maintain that understanding human motivation requires consideration of the natural psychological needs for competence, autonomy, and relatedness (Deci & Ryan, 2000). Consequently, different researchers have studied parallel psychological processes such as harmonious passion (Jan & Zainal, 2020), creative self-efficacy (Jan, Zainal & Lata, 2021), the paradox mentality (Liu et al., 2020), autonomy (Saether, 2019), and motivation. Several authors, such as Wang et al. (2021), argue that employees who experience high motivation have a high sense of agency and congruence between their work-related activities and their own identity and interests in working by choice. However, according to Ren et al. (2021), external factors such as financial stress can affect an employee's autonomous motivation that generates innovative behavior. Saether (2019) and Bawuro, Shamsuddin, Wahab and Usman (2019) allude to the fact that work-style and the synchronicity that an employee may have with their work activities generate motivation to execute their work, thereby increasing the generation of ideas. Bin and Kassim (2019) mentioned that the creative process generated in a motivated employee requires intellectual stimuli that strengthen the individual's rationality to find novel solutions to problems.

In recent research, person-organization fit has been tested as a trigger for autonomous work motivation, which generates greater innovative behavior (Bawuro et al., 2019; Saether, 2019). From another perspective, some authors emphasize the variables that strengthen the effects of an employee's motivation to remain involved in creative and innovative work processes. Specifically, psychological empowerment and its dimensions are discussed: meaning, competence, self-determination, impact (Bin & Kassim, 2019), and leadership attitudes that influence and motivate others toward innovative behavior (Kustanto et al., 2020). Table 7 describes the determinants of this theory and the strategies proposed by the authors of the subsample.

Determinants	Description	Strategies	Author and year
Autonomous Motivation (AM)	The authors mention that autonomous motivation (when people who engage in a work activity have a full sense of disposition) has a positive relationship with IWB.	Better salary guarantees can help improve employees' AM and improve job performance significantly.	Ren et al., 2021
Autonomous Motivation (AM), Autonomy (A), Competence (COM), and Relationship (R).	The satisfaction of the basic psychological needs of autonomy, competence, and relatedness (the nutrients essential for individual growth, integrity, and well-being) was positively associated with employees' IWB through AM.	Implementing management processes and practices that support leadership, autonomy, and flexible work processes can facilitate innovative performance outcomes at both the individual and organizational levels.	Wang et al., 2021
Person Organization Fit (POF), Autonomous Motivation (AM).	Employees with higher levels of POF (refers to the correspondence between a person's characteristics and their environment) have higher levels of AM. Autonomously motivated employees engage in IWB more frequently. Autonomous forms of motivation mediate the relationship of person-environment fit with IWB.	Managers can consider the fit between R&D employees' values and the organization during the hiring process and throughout their tenure with the company.	Saether, 2019

Determinants	Description	Strategies	Author and year
Autonomy.	There is a positive relationship between employee autonomy and IWB. The authors argue that more motivated employees may feel more committed to their organizations, showing a greater willingness to exhibit innovative behavior at work.	Authors suggest implementing special training programs for managers that promote attitudes such as WC and autonomy.	Obeidat, 2021; Siregar, Sujana, Pranowo & Supriadi, 2021; Swaroop & Dixit, 2018
Intrinsic Motivation (IM), Meaningful Work (MW).	Meaningful work (a subjective experience of 'meaning' resulting from the 'fit' between the person and the job) mediates the relationship between intrinsic motivation (the extent to which an individual experiences pleasure and interest in performing a work task without being controlled by external contingencies, such as rewards and punishments) and the IWB.	For the educational sector, authors recommend, formulating policies for creating jobs that allow a high degree of labor autonomy. This practice can promote IM and a sense of meaning at work, increasing innovative behavior.	Bawuro et al., 2019
Intellectual stimulation (IS), Intrinsic motivation (IM).	Intellectual stimulation (the leader's ability to promote intelligence, careful problem-solving, and rationality) and IM are significant determinants of IWB.	Providing a trusting and open work environment to share knowledge and continually develop organizational strategies to reinforce employee IM can lead to greater IWB.	Bin & Kassim, 2019
Harmonious Passion (HAP).	Harmonious passion (a type of passion for an activity in harmony with other aspects of life, resulting from the autonomous internalization of a favorite activity into one's identity) influences IWB.	Authors recommend designing and implementing discussion and training programs that engage employees in their roles.	Jan & Zainal, 2020
Paradox mentality (PM).	Adopting a paradox mindset (a mental attitude in which actors recognize and accept the persistent inconsistencies of contradictory forces) satisfies the basic psychological needs of employees, promoting their IWB.	Organizations can reinforce employee awareness of applying paradoxical frameworks through experiential learning activities and applied training.	Liu et al., 2020
Spirituality (S), Person Organization Fit (POF), Psychological Empowerment (PE).	Workplace spirituality (an employee's attempt to find meaning and purpose in their work and strengthen their interconnectedness) and POF (general match of an individual's values with the overall values of an organization) positively influenced IWB. There is also a substantial effect of S on psychological empowerment. When S is promoted, employees feel empowered and show autonomy and competence in their efforts, resulting in IWB.	The authors recommend hospitality managers create forums for open discussion about spirituality, values, and employee rights and integrate organizational and personal goals to increase idea generation. Likewise, different workshops on incorporating spirituality in the workplace should be conducted, allowing a healthy culture to promote innovation.	Afsar & Badir, 2017
Creative self-efficacy (CSE) Servant leadership (SL).	Creative self-efficacy (confidence to achieve novel proposed results) significantly mediates the relationship between servant leadership (attitude to help and encourage others) and IWB.	To improve CSE and IWB in managers in the hotel industry, it is recommended that activities that contribute to the development of SL qualities be implemented.	Jan et al., 2021

Determinants	Description	Strategies	Author and year
Transformational Leadership (TL), Intrinsic Motivation (IM), Creative Process Engagement (CPE), Roles of Psychological Empowerment (RPE).	Transformational leadership has a stronger positive relationship with IWB when employees have high levels of intrinsic motivation and psychological empowerment (four types of feelings: meaning, competence, self-determination, and impact). Furthermore, the study proved that creative process engagement (employee participation in creativity processes) mediates the effect of these relationships.	The authors recommend the implementation of flexible and participatory management systems where employees feel safe and are not afraid to share the work lessons learned.	Bin-Saeed et al., 2019
Transformational Leadership (TL), Psychological Empowerment (PE).	When the PE is positive, TL (leadership's ability to influence and motivate subordinates to meet the goals and interests of the organization beyond expectations) occurs, affecting the IWB. This phenomenon occurs when employees feel safe and perceive their work as meaningful.	Implementing practices for developing cognitive skills at the professional level and incentives for good work performance can increase innovative work behaviors.	Helmy, Rabiatul & Banani, 2019; Kustanto et al., 2020

Table 7. Determinants and strategies associated with the self-determination theory.

Category 3. Social Exchange Theory

Social exchange theory is widely used in organizational research to understand employee behavior in the workplace (Cropanzano, Anthony, Daniels & Hall, 2017). This theory postulates that knowledge occurs in a social framework with dynamic and reciprocal relationships between the individual, environment, and behavior (Almulhim, 2020). Social exchange refers to transactions or relationships between two or more parties (e.g., employees, supervisors, or managers) that involve the process of exchanging mutual resources (e.g., experiences and knowledge) (Kim & Park, 2017). Some scholars have used this theory to explain knowledge-sharing behavior, highlighting its significance as influenced by personal attitudes and motivations, necessitating substantial social interaction (Işık et al., 2021), functional flexibility mechanisms (Yasir, Majid, Yousaf, Nassani & Haffar, 2021), economic reward systems (Anser, Yousaf, Khan & Usman, 2020), and knowledge management (Aldabbas, Pinnington & Lahrech, 2021). This assertion is due to the influence of knowledge exchange on innovative behavior (Asurakkody & Kim, 2020; Derin et al., 2021; Nguyen et al., 2019). Table 8 describes the determinants of this theory and strategies proposed by the authors of the subsample (See Table 8).

Determinants	Description	Strategies	Author and year
Knowledge Sharing (KS) Innovative Work Behavior (IWB).	Knowledge sharing (attitude of sharing and receiving information or experiences) is an important determinant of IWB. The use of information and communication technologies significantly influences the processes of knowledge donation and collection. Employees' willingness to donate and collect knowledge allows them to improve IWB.	The authors recommend designing systems that allow employees to record the knowledge obtained to formulate strategies that improve processes and efficiency in developing new employees' tasks. The authors also mention that implementing training sessions that promote psychological empowerment will lead to a higher level of KS and, in turn, will allow increasing innovative behavior among employees. Likewise, they propose encouraging employees to generate new ideas and share knowledge related to their management challenges through suggestion boxes, virtual platforms, software systems, and social networks, among others, which allow for the resolution of problems and the creation of worth.	Almulhim, 2020; Arsawan et al., 2020; Asurakkody & Kim, 2020; Bin & Kassim, 2019; Helmy et al., 2019; Işık et al., 2021; Jan et al., 2021; Kim & Park, 2017; Kmieciak, 2020; Linh et al., 2020; Phung, Hawryszkiewicz & Chandran, 2019a*

Determinants	Description	Strategies	Author and year
Knowledge Sharing (KS), Ethical Climate (EC).	The ethical climate (comprising perceptions of selfishness, benevolence, and principles for ethically correct behavior) mediates the positive relationship between KS and IWB.	Authors suggest organizations invest in sustainable systems for the IWB and develop management procedures that encourage benevolent behavior based on principles and low levels of selfishness.	Derin et al., 2021
Knowledge Sharing (KS), Workplace Friendship (WF).	Workplace friendship (a non-exclusive relationship at work involving mutual trust, commitment, liking, and shared interests and values) influences IWB through knowledge gathering.	Authors recommend that hotel industry managers implement social activities that improve collective intelligence by strengthening interpersonal trust and emotional connection between workers.	Helmy et al., 2020
Knowledge Sharing (KS), Functional Flexibility (FF).	Knowledge sharing and functional flexibility (individual ability to perform multiple tasks in various jobs) significantly affect workers' innovative behavior.	Authors suggest that managers incorporate performance-based learning and development practices. They also suggest the design of flexible work models that encourage employee participation.	Anser et al., 2020, 2022
Knowledge Sharing (KS), Psychological Empowerment (PE).	The authors proved that KS (proactive and responsive knowledge-sharing behavior) leads to IWB. However, this relationship is mediated by PE (motivational exercise that aims to improve employee performance by involving them in decision-making processes.).	Authors suggest that companies provide employees with necessary training, resources, and tools, including access to information such as organizational plans, policies, financial positions, and objectives. These forms of structural empowerment give employees meaning in what they do in their work role in addition to supporting their IWB competencies.	Aldabbas et al., 2021

Note: (*) signifies determinants related to the theories presented in group 1.

Table 8. Determinants and strategies associated with the theory of knowledge management and social sharing.

AQ3. Countries and economic sectors where this research topic have been addressed.

Regarding the geographical scope of the research on individual-level innovative behavior in the selected sample, there is a notable prevalence in Asian countries, such as China ($n = 6$), Pakistan ($n = 6$), and Malaysia ($n = 4$). The participation of European countries, such as Spain, Italy, and Switzerland, also stands out, followed by North America. However, there is little research on the impact of IWB in the context of developing countries, specifically in Latin America.

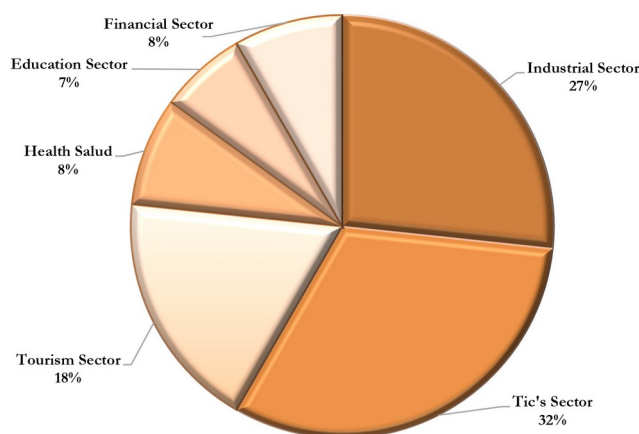


Figure 5. Economic sectors of study addressed in IWB research

Figure 5 shows that the economic sectors most addressed were the information and communications technologies sector, corresponding to 32% of the documentary sample, followed by the industrial sector, corresponding to 27%, linking manufacturing, metallurgical, robotics, automotive, pharmaceutical companies, among others.

AQ4. Quantitative Research Methods

In the analysis of the selected sample, it was evident that the quantitative method most used by academics to study individual constructs that influence innovative behavior is Structural Equation Modeling (SEM), which is consistent with the objective of this multivariate technique, which tests causal relationships between observable and latent variables (Hair, Hult, Ringle & Sarstedt, 2017). The authors argued that modeling using the Partial Least Squares (PLS-SEM) technique allows for effectively handling small sample sizes and complex models. Regarding study design, cross-sectional research dominates (Helmy et al., 2019; Koroglu & Ozmen, 2021; Wang et al., 2021), employing probabilistic sample types such as simple random, stratified, and non-probabilistic samples chosen for convenience and intention. Likewise, it was found that self-administered questionnaires—online and in-person—were the measurement instrument most commonly used by the authors. Table 9 details the techniques, methods, and sample sizes selected by the authors.

n	Author and Year	Quantitative Technique										Sampling Method						Size
		Multigroup Confirmatory Factor Analysis	Confirmatory factor analysis (CFA)	Exploratory Factor Analysis (EFA)	Hierarchical Regression Analysis	Multilevel Analysis	Stepwise Multiple Regression	Linear Regression Analysis	Partial Least Squares (PLS-SEM)	Structural equation modeling (AMOS)	Stratified Sampling	Convenience Sampling	Intentional Sampling	Judgment Sampling	Saturation Sampling	Simple Random Sampling	Probability Sampling	
1	Laguna et al., 2021	✓				✓							✓					796
2	Ren et al., 2021				✓							✓						245
3	Işık et al., 2021							✓				✓						360
4	Wang et al., 2021		✓					✓				✓						284
5	Siregar et al., 2021									✓		✓						209
6	Aldabbas et al., 2021	✓	✓							✓	✓							340
7	Yasir et al., 2021		✓							✓		✓						769
8	Koroglu & Ozmen, 2021		✓							✓		✓						416
9	Jan et al., 2021							✓	✓			✓						257
10	Mustafa et al., 2021				✓								✓					125
11	Malik, 2021								✓				✓					171
12	Derin et al., 2021			✓	✓							✓						400
13	Hosseini & Haghghi, 2021				✓							✓						232
14	Obeidat, 2021								✓			✓						150
15	Abukhait et al., 2020								✓			✓						313

n	Author and Year	Quantitative Technique									Sampling Method						Size
		Multigroup Confirmatory Factor Analysis	Confirmatory factor analysis (CFA)	Exploratory Factor Analysis (EFA)	Hierarchical Regression Analysis	Multilevel Analysis	Stepwise Multiple Regression	Linear Regression Analysis	Partial Least Squares (PLS-SEM)	Structural equation modeling (AMOS)	Stratified Sampling	Convenience Sampling	Intentional Sampling	Judgment Sampling	Saturation Sampling	Simple Random Sampling	
16	Kustanto et al., 2020							✓							✓		53
17	Liu et al., 2020		✓			✓						✓					459
18	Clarke & Higgs, 2020								✓			✓					249
19	Helmy et al., 2020							✓			✓						163
20	Sifatu et al., 2020			✓					✓		✓						306
21	Sabahattin, 2020		✓						✓		✓						150
22	Jan & Zainal, 2020							✓					✓				257
23	Alnajjar & Hashim, 2020			✓					✓			✓					298
24	Bantha & Nayak, 2020							✓			✓						340
25	Anser, M. K et al., 2022						✓									✓	751
26	Kmieciak, 2020							✓				✓					252
27	Almulhim, 2020							✓			✓						324
28	Arsawan et al., 2020			✓				✓							✓		311
29	Afsar et al., 2020								✓			✓					381
30	Anser et al., 2020		✓						✓		✓						825
31	Bibi & Afsar, 2020				✓						✓						273
32	Asurakkody & Kim, 2020					✓					✓						159
33	Linh et al., 2020			✓			✓				✓						396
34	Bin & Kassim, 2019							✓				✓					148
35	Saether, 2019		✓					✓			✓						235
36	Saraih, Wei, Razali, Zuraini, Amlus & Abd-Razak, 2019						✓					✓					189
37	Hafeez et al., 2019						✓					✓					130

n	Author and Year	Quantitative Technique									Sampling Method						Size
		Multigroup Confirmatory Factor Analysis	Confirmatory factor analysis (CFA)	Exploratory Factor Analysis (EFA)	Hierarchical Regression Analysis	Multilevel Analysis	Stepwise Multiple Regression	Linear Regression Analysis	Partial Least Squares (PLS-SEM)	Structural equation modeling (AMOS)	Stratified Sampling	Convenience Sampling	Intentional Sampling	Judgment Sampling	Saturation Sampling	Simple Random Sampling	
38	Bawuro et al., 2019							✓				✓					309
39	Khorakian et al., 2019							✓		✓		✓					266
40	Maqbool et al., 2019							✓				✓					608
41	Abdullah et al., 2019							✓				✓					397
42	Helmy et al., 2019								✓			✓					360
43	Phung et al., 2019a									✓		✓					236
44	Nguyen et al., 2019									✓		✓					396
45	Bin-Saeed et al., 2019				✓							✓					347
46	Stock et al., 2019		✓										✓				861
47	Swaroop & Dixit, 2018				✓								✓				267
48	Afsar & Badir, 2017								✓			✓					493
49	Kim & Park, 2017									✓		✓					400
Total		2	9	5	7	2	1	9	17	14	1	25	19	1	1	1	1

Table 9. Methods and techniques in the study of individual-level Innovative Work Behavior (IWB).

AQ5. Identifying gaps for future research on employees' innovative behavior based on individual factors.

This section highlights the gaps revealed by the sample authors as opportunities for future research. Future studies could investigate the different multifaceted perspectives of personality and their relationship with IWB according to different working conditions (Bibi & Afsar, 2020; Laguna et al., 2021; Sabahattin, 2020). Abdullah et al. (2019) pointed out that it is important to analyze the link between personality and individual innovation from a religious point of view. There is also discussion about replicating the relationship between altruism and IWB in sectors other than commercial operations (Alnajjar & Hashim, 2020). Hafeez. et al. (2019) and Malik (2021) indicated that although there is a link between emotional intelligence and IWB in high-tech, knowledge-intensive organizations, they should be explored in other business contexts and cultures.

Research is then directed toward emphasizing the impact of cognitive, motivational, and behavioral components on individual performance and innovation. For example, Phung et al. (2019) considered it pertinent to investigate the differences between the roles or disciplines of personnel (e.g., division, department, and organizational leaders, or personnel from social and technical areas) and their innovative behaviors. Other authors, such as Stock et al. (2019), note a gap in the literature, suggesting a need to examine whether individual upper-echelon characteristics (i.e., selfishness, overconfidence, and hyper-CSE) have varying effects on IWB dimensions, such as idea generation or implementation.

Some authors believe that because of the cross-sectional self-reported data in their studies, it is essential to replicate the research using other methods and longitudinal data. This reduces the potential for bias by using different sources for predictor and criterion variables (Saether, 2019). Kim and Park (2017) suggested employing stratified (for example, gender, age, industry, or work area) and random sampling methods. This would facilitate more precise results and increase the generalizability of findings related to the study of attitudes and personal characteristics (e.g., ethical leadership, compassion, empathic attitudes, and knowledge-sharing behaviors) as determinants of IWB.

Similarly, Almulhim (2020) added that various social variables can affect the relationship between IWB, knowledge sharing, and moderating variables such as personal growth, workload, and emotional exhaustion. Therefore, in future studies, models could be implemented that involve variables related to the moods of employees that allow the design of new work styles. Additionally, some academics have proposed analyses of the influence of the workplace (hybrid or remote work) on IWB performance at both the individual and organizational levels (Arsawan et al., 2020; Kim & Park, 2017; Linh et al., 2020; Nguyen et al., 2019; Phung et al., 2019a). From this perspective, creative work environments and methodologies can be examined in more exploratory studies on autonomy, resilience, empathy, transfer, and knowledge exchange in IWB.

Within the IWB workspace, constant motivation exists to replicate current research models in various settings (e.g., European and American countries), as well as exploring the similarities and differences that may exist between the results of these studies in different business contexts. This work suggests studying knowledge exchange in two ways: donation and collection of knowledge. In addition, researchers could focus their studies on deepening vertical knowledge sharing between hierarchical organizational levels.

4. Theoretical Framework

A theoretical framework is defined as a description of key components and their relationships within a field of knowledge (Díaz et al., 2015). In this context, the framework was developed through a systematic literature review, analyzing information sequentially by addressing the five guiding questions of the study. We began with the conceptualization of IWB based on its dimensions. Some authors argue that IWB is a two-dimensional process related to the phases of the innovation process (De Jong & Den Hartog, 2010; Yuan & Woodman, 2010). However, Scott and Bruce (1994) advocated for a three-dimensional view, involving generation, introduction, and realization of ideas. This approach has generated great relevance and impact in current research (Aldabbas et al., 2021; Işık et al., 2021; Koroglu & Ozmen, 2021; Laguna et al., 2021) and is used as a model for the development of this framework.

In this context, a three-dimensional employee innovation process is presented, along with its associated properties. Next, the three theoretical lines outlined by the authors of the selected literature were connected, acting as a guide for understanding, describing, and explaining the causal relationships between the constructs that impact IWB. Using the theories of personality traits, individual attributes, social exchange, and self-determination, the determinants of IWB were grouped and consolidated. Subsequently, quantitative methods aimed at investigating phenomena such as the development of individual innovation were explored, given that these methods contribute to reducing subjectivity and bias in interpreting the results.

During the analysis, we identified that the authors widely employed SEM, arguing that this technique offers a deeper understanding when modeling latent variables. Finally, the managerial contributions of the selected studies were compiled to enrich the employee innovation process.

The conceptual framework in Figure 6 comprises four panels that respond to the guiding questions. The panel corresponding to AQ1, “Dimensions of IWB”, is organized as a process, leading to the properties of the generation, introduction, and realization of ideas. On the left side, the panel corresponding to AQ4, “Quantitative Techniques”, brings together the most frequently used methodologies to guide the investigation of the relationships and antecedents of IWB. The central panel AQ2, “Theories”, shows the themes that support the investigation of the determinants identified in the literature review. Finally, the lower panel, corresponding to AQ5, highlights the managerial implications proposed by the authors of the sample. The four panels are linked by thick numerical arrows (1), (2), and (3), indicating the order and influential sequence suggested for understanding IWB.

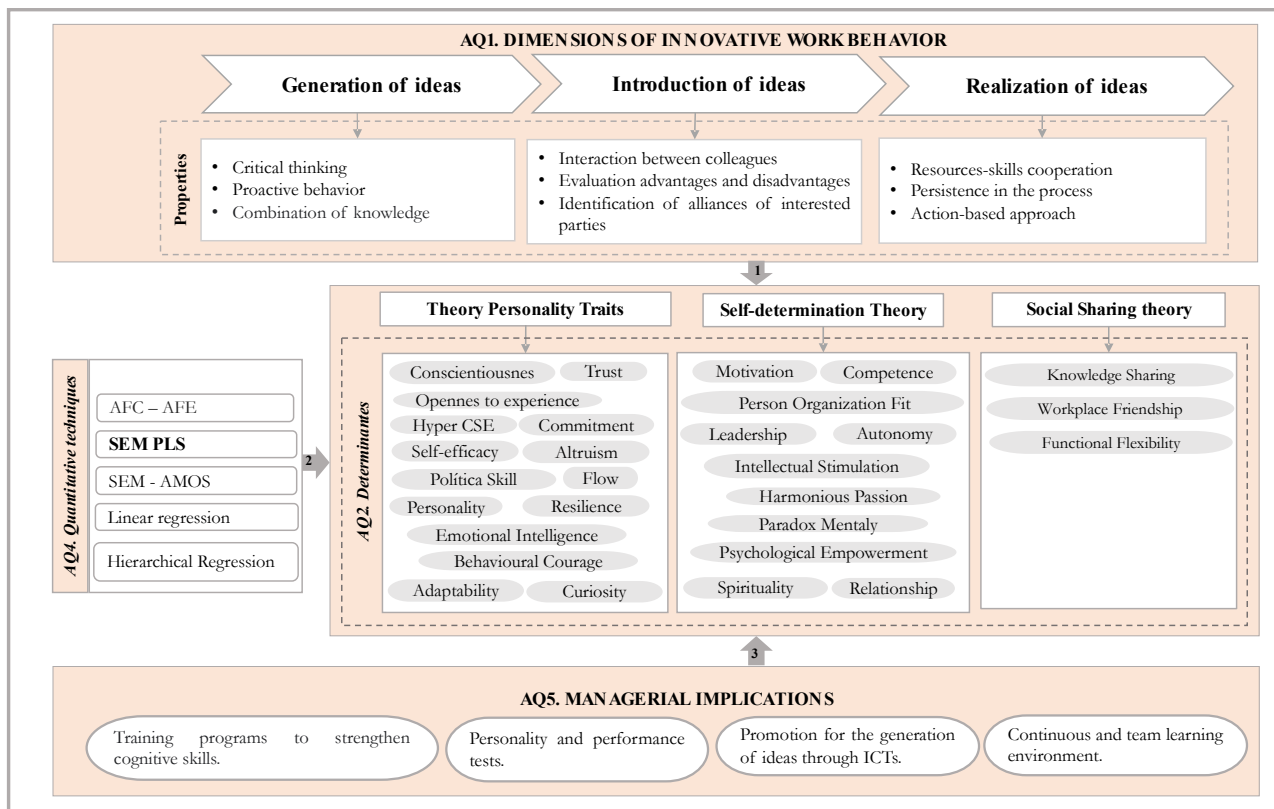


Figure 6. Individual-level IWB integrative framework

5. Discussion

This study developed a conceptual framework that consolidates various elements of IWB among employees, starting with the proposed dimensional significance to address this phenomenon. While there is no clear consensus on the dimensions of individual innovative behavior, they predominantly emerge as the generation, introduction, and realization of ideas (Koroglu & Ozmen, 2021; Scott & Bruce, 1994). These dimensions encompass the capacity to transform creative thoughts into brilliant products or services that attract consumer attention, are useful, and penetrate the market (Hafeez et al., 2019; Malik, 2021).

The literature posits that generating ideas is typical of critical thinking and creative behavior (Pérez-Peñalver et al., 2018). However, combining knowledge and social interaction is essential to consolidate this dimension of IWB, considering the inherently social nature of human beings (Derin et al., 2021; Helmy et al., 2020). The second dimension includes the interactions between colleagues and stakeholders, which allow the sharing of experiences learned in the workplace and the emergence of novel ideas (Aldabbas et al., 2021; Asurakkody & Kim, 2020; Phung et al., 2019b). The third dimension, the realization of ideas, is considered a decisive step in the development of agreements, identification of strategic alliances, and evaluation of ideas (Aldabbas et al., 2021; Wang et al., 2021). However, in addition to the creative component, factors such as persistence, competence, and action-based approaches, which are fundamental to successful innovation processes, are required.

This conceptual framework organizes research on individual-level innovative behavior by grouping and classifying the determinants into three theoretical bases: personality trait theory (personal attributes), self-determination theory (employees' ability to make decisions and adjust to the organization), and social exchange theory (employees' ability to socialize with coworkers). These determinants are fundamental to a person's job performance in generating, introducing, and carrying out an idea until it becomes a commercial transaction. Emotional intelligence and friendships in the workplace can influence how one person differs from another in terms of overcoming challenges and finding alternatives to creative processes.

Employee attitudes, such as empathy and altruism, have gained greater importance in recent studies (Alnajjar & Hashim, 2020). Organizations seek to strengthen strategies that allow knowledge interaction between giving and

receiving. This interaction leads to the generation of ideas from employees through understanding and the ability to communicate with and understand others. Other determinants such as flow (Maqbool et al., 2019), harmonious passion (Jan & Zainal, 2020), and resilience (Abukhait et al., 2020) are also prominently featured in research because of the adaptive competencies that companies increasingly require in dynamic environments. Although creative self-efficacy has been determined (Jan et al., 2021), meaningful work and knowledge sharing (Arsawan et al., 2020), as attitudes that affect IWB, must be encouraged, and organizations must support these behaviors in their workforce to guarantee the innovation process. Academics have consistently emphasized practical implications based on training to strengthen skills, implementing flexible work programs, fair salary treatment, and an ethical work environment.

Regarding quantitative methods for measuring the determinants of IWB, the authors mostly used SEM using the PLS-SEM technique (Helmy et al., 2020; Işık et al., 2021; Kustanto et al., 2020; Malik, 2021; Obeidat, 2021), arguing that it does not require assumptions about the multivariate normality of the data and efficiently works with complex models with small sample sizes. Nevertheless, some authors consider it important to use large sample sizes to avoid biased results (Almulhim, 2020; Arsawan et al., 2020), which aligns with Hair's (2017) recommendation about sample sizes for PLS-SEM.

This study has some limitations that must be acknowledged. The selection of academic products was limited to a specific time range and filtering conditions, potentially excluding relevant work beyond these parameters and overlooking recent developments in the field of IWB. Furthermore, the cultural and economic diversity of the contexts studied limits the generalizability of the results to other environments. The complexity of the interactions among the identified factors is also a limitation. Furthermore, the preference for quantitative rather than qualitative approaches may have influenced the perspectives presented in this study.

The field of IWB presents itself as a constantly evolving research area with numerous promising future directions. Given that IWB is influenced by significant cultural and economic differences, in line with what was proposed by authors such as Afsar et al. (2020), it is essential to recognize the need for additional research that explores its applicability in various work environments. Furthermore, appealing to the replication proposed by Anser et al. (2020, 2022), future research should focus on innovative behavior in virtual and remote work contexts, considering the impact of personality traits, information and communication technologies, and applications of artificial intelligence and automation on employees' creativity. Finally, it would be pertinent to direct this research toward exploring diversity and inclusion in the workplace, innovative leadership, and organizational climates. Together, these various lines of research hold promise in advancing the understanding and promotion of IWB in the constantly changing and developing world of work.

6. Conclusions

The data obtained in this study provide a comprehensive perspective of the research agenda concerning individual-level IWB, presented through a conceptual framework. First, the concept of IWB is depicted as a complex and multidimensional attitude that drives the process of materializing innovative ideas, ensuring competitive advantage at the organizational level. Additionally, the dimensions of IWB—namely idea generation, introduction, and execution—are outlined, along with their distinctive characteristics.

Second, 48 determinants of innovative behavior studied by the selected authors were identified, related to management theories, such as personality traits, self-determination, and social interaction. These theories are linked to the study of individuals, exploring how and why their capabilities, motivational aspirations, skills, and work behaviors may vary.

Third, the geographical scope of the selected sample was examined, evidencing a marked prevalence in the Asian continent, with greater research interest in the information and communications technology sector. However, research opportunities have opened up on the American continent with a focus on emerging countries.

Fourth, the PLS-SEM technique has emerged as the most prevalent quantitative method. Likewise, cross-sectional studies and the utilization of questionnaires, both online and physical, stand out as commonly employed practices among academics for data collection. However, there is a notable gap calling for longitudinal research and studies into probabilistic aspects within this domain.

Fifth, the practical implications derived from the selected studies are summarized at the managerial level. While these implications are not explicitly generalizable, they express ideas with potential business applications to encourage individual-level innovative behaviors in the work environment. These include the creation of continuous learning environments; the implementation of training programs focused on strengthening cognitive skills and emotional management; the promotion of leadership practices, teamwork, and social interaction; and the establishment of labor guarantees and systems for the collection of ideas and the dissemination of lessons learned.

Finally, we acknowledge the limitations and present potential avenues for future research. First, it is important to mention that the heterogeneity of the business sectors studied does not allow generalization of the results or the practices recommended by the sampled authors. Additionally, the preference for studies with cross-sectional self-report measures limits the causality of the IWB determinants. Future research should focus on longitudinal data to establish the directionality and causal order of the different relationships proposed for studying these constructs. On the other hand, the need for greater exploration of the factors related to employees' emotional intelligence and their influence on the generation, introduction, and materialization of innovative ideas that translate into concrete products should be emphasized. In addition to the above, in line with some of the analyzed authors' suggestions, we propose involving various variables in IWB research, such as knowledge exchange (Aldabbas et al., 2021), personality (Sabahattin, 2020), as well as transactional leadership and cultural intelligence (Işık et al., 2021), among other cognitive determinants. Finally, guiding research efforts toward diversity and inclusion in the workplace and studies in teleworking, remote, virtual, and home-work contexts, would be valuable. These investigations can consider the impact of personality traits, information, and communication technologies on employee creativity. Collectively, these suggestions offer promising avenues for advancing the understanding and promotion of IWB in the constantly evolving landscape of work.

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