



Universitetet
i Stavanger

**UNIVERSITY OF STAVANGER BUSINESS SCHOOL
MASTER'S THESIS**

STUDY PROGRAMME:

**Master of Science in Business
Administration**

THIS THESIS HAS BEEN WRITTEN WITHIN THE
FOLLOWING FIELD OF SPECIALISATION:

Strategic Innovation Management

IS THE THESIS CONFIDENTIAL?
No.

TITLE:

**The Impact of Role Clarity and Role Conflict on Employee Innovative
Work Behaviour: The Mediating Role of Innovation Climate**

AUTHOR

Candidate number:

9068
.....

Name:

Emmeline Pare
.....

SUPERVISORS:

**Dr. Marte Cecilie
Wilhelmsen Solheim
Dr. Espen Olsen**

ABSTRACT

Employees play a crucial role in attaining innovation making them most vulnerable to its complex and uncertain nature. Consequently, employees must deal with either clear or conflicting roles resulting from rapidly evolving roles and poorly defined job descriptions. Since studies exploring the impact of these role characteristics on employee innovative work behaviour (IWB) are still scarce, this study aims to investigate the direct and indirect impact of role clarity and role conflict on employee IWB through innovation climate. We test the hypothesis by using cross-sectional design utilizing three datasets collected from a large sample representing the Norwegian working population. These data were taken at three different time intervals from September 2021 (T1=1,511), March 2022 (T2=1,527) and September 2022 (T3=1,531) which was a period of uncertainty and instability. T1 was gathered during the COVID-19 lockdown, while T2 and T3 were collected after the lockdown restrictions were lifted. The results showed consistent findings across three samples. The findings revealed that role clarity significantly influences innovation climate; however, it does not directly foster employee IWB. Role conflict was found to have a dual effect – simultaneously improving employee IWB while negatively impacting innovation climate. The mediation results demonstrated that innovation climate enhances the effect of role clarity and suppresses the positive impact of role conflict on employee IWB. Theoretical and practical implications are discussed.

INTRODUCTION

In today's rapidly changing and highly competitive global business environment, innovation has undoubtedly become the lifeblood of organizations to thrive or survive. However, taking the path of innovation entails a significant level of risk (Yuan & Woodman, 2010), complexity and uncertainty (He et al., 2019). Kanter (1988) cautioned about the "wild side" of innovation when she characterized its processes as unpredictable, vulnerable, and involving conflicting courses of action and unexpected collaborations (p. 168). Although the organizations' main goal is to gain benefit from innovation, performing innovative activities may lead to unintended drawbacks particularly for individual innovators (Janssen et al., 2004). Employees are one of the important sources of innovation in organizations (He et al., 2019; Kanter, 1988), thus, their ability to work and behave innovatively is considered one of the crucial factor to realize and sustain innovation (De Jong, 2006; De Jong & Den Hartog, 2010, 2007; He et al., 2019; Jada et al., 2019; Janssen, 2000; Shanker et al., 2017).

The critical role that employees play to achieve innovation has made them most vulnerable to the impact of turbulent technological advancements and rapidly evolving market demands (Tubre & Collins, 2000). As a consequence, employees encounter rapidly changing roles (Kundu et al., 2020), poorly defined job characteristics, job descriptions and boundaries between departments (De Jong, 2006; Emirbayer & Mische, 1998; Maden-Eyiusta, 2021; Tubre & Collins, 2000; S. Wang et al., 2011). He et al. (2019) claim that employees who engage in innovative behaviours face varying problems and risks that results to ambiguous outcomes. The emergence of employee innovative work behaviour (IWB) as a critical element for organizations to attain competitive advantage and secure long-term viability (Jada et al., 2019; Janssen, 2000; Jose & Mampilly, 2016) intensifies the need to figure out ways not just to stimulate but to also ensure that these behaviours flourish even in the midst of uncertainties and ever-changing work environments (Deng et al., 2022; Newman et al., 2020).

Over the years, researchers have sought and identified numerous factors that encourage and facilitate employee IWB including leadership, organizational culture and climate, individual characteristics, and job characteristics (e.g., Jada et al., 2019; Janssen, 2000; Ng & Feldman, 2013; Scott & Bruce, 1994). While there are several research studies that examined the impact of job characteristics such as job complexity, job requirements, task conflict, job demands or stressors, on employee IWB (e.g., Al-Ghazali & Afsar, 2021; Hernaus et al., 2019; Janssen, 2000; Ren &

Zhang, 2015), studies that explore how role characteristics such as role clarity and role conflict affect employee IWB are still scarce. Role clarity and role conflict in extant literatures have been recognized as an important predictor or moderator of various employee and organizational outcomes (e.g., Hassan, 2013; Jada et al., 2019; Karkkola et al., 2019; Lynn & Kalay, 2015; Newman et al., 2015; Wang et al., 2011) but only few researchers have examined their direct and indirect impact on employee IWB (e.g., Kundu et al., 2020; Maden-Eyiusta, 2021). Many of the studies were based on small samples sizes and were conducted before the COVID-19 pandemic limiting its generalizability and applicability in today's organizational landscape. Also, the findings of these studies were inconsistent and inconclusive which could be attributed to the overlooked roles of possible and important mediators.

This study intends to fill this gap by providing a deeper understanding on how role clarity and role conflict affect employee IWB in organizations. Additionally, the present study also extends the research on mediating role of innovation climate. Innovation climate has been given significant attention as an essential antecedent in improving employee IWB. Various studies found innovation climate to be positively related to employee IWB (Hammond et al., 2011; Scott & Bruce, 1994; Shanker et al., 2017; You et al., 2022); however, its mediating effect in the relation between role clarity and employee IWB and between role conflict and employee IWB have not been empirically tested yet and thus is not fully understood. The aim of the current study is to examine the influence role clarity and role conflict have directly on employee IWB, and indirectly via innovation climate. This research also seeks to respond to the call in the innovation literature (Shalley & Gilson, 2004) to further examine other contextual features of the work environment that are more or less conducive to employees' innovative behaviours. This study benefits from purposely built datasets carried out over three different points in time from September 2021 to September 2022 representing the Norwegian working population during and after the COVID-19 pandemic – a period characterized by uncertainty and instability. We make a valuable contribution by imparting new and relevant insights on the implications of having clear and conflicting roles on employee IWB and innovation climate. Organizations can benefit from this study by leveraging these role characteristics in their pursuit for innovation.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Innovative work behaviour

Following the notion that innovation is a multifaceted, multistage and intricate process (Kanter, 1988; Reuvers et al., 2008; Scott & Bruce, 1994), IWB is also viewed as a complex and multidimensional construct (Amir, 2015; De Jong & Den Hartog, 2010; Janssen, 2000; West & Farr, 1989, 1990). Janssen (2003) defined IWB as “the intentional generation, promotion and realization of new ideas within a work role, work group or organization, in order to benefit role performance, the group or the organization” (p. 348). This definition captures the three interrelated dimensions (Reuvers et al., 2008) of employee IWB construct with each aspect requiring different activities and behaviours (Scott & Bruce, 1994). But since innovation processes are characterized by non-sequential activities (Kanter, 1988; Schroeder et al., 1989), “individuals can be expected to be involved in any combination of these behaviours at any one time” (Scott & Bruce, 1994, p. 582). For this reason, although theoretically regarded as multi-dimensional construct, the employed measures of IWB are still mostly unidimensional (e.g., Janssen, 2000; Reuvers et al., 2008; Scott & Bruce, 1994).

Innovation begins with individuals, also called “idea generators”, initiating a process of challenging the status quo (Kanter, 1988). Hence, the first dimension of IWB is idea generation (Janssen, 2000; Scott & Bruce, 1994). Being the starting point, idea generation is being referred to as the same as creativity (Baer, 2012) or closely associated to creativity (Janssen et al., 2004; Scott & Bruce, 1994; Yuan & Woodman, 2010) and is described as the production of novel and useful ideas that benefits the organization (Amabile, 1988; Woodman et al., 1993). This action is often the result of finding an opportunity to improve the routines or systems, to create new products or ways of doings or fulfilling a need, or to solve identified problems or inconsistencies (Drucker, 1985; Kanter, 1988).

Idea promotion, the second dimension of IWB, is the process engaging in social activities to seek supporters, sponsors or potential allies that will help promote the ideas and overcome any potential resistance or hurdles (Kanter, 1988; Scott & Bruce, 1994). Regardless of how justifiable and useful the ideas are, some ideas may encounter rejection or disapproval due to lack of resources, uncertainties and mismatch with the current products, processes or systems (De Jong & Den Hartog, 2010; Kanter, 1988). Idea promotion, also called as idea championing in some

research (e.g., De Jong & Den Hartog, 2010) stems from Kanter's (1988) concept of coalition building which plays a major role to acquire the power necessary to push the idea forward.

The third dimension, considered as the final task of innovation process is the idea realization which is also known as idea implementation (e.g., De Jong & Den Hartog, 2010). In this stage, the idea is completed and turned into reality by creating a prototype or model that can be touched and experienced and eventually be transferred, produced, or applied in the products, processes and systems in the organization (Kanter, 1988).

Role clarity, employee IWB and innovation climate

Role clarity refers to the degree to which employees clearly understand their job responsibilities, comprehend the purpose of their work and are provided with adequate information to achieve their goals and perform what is expected of them (Adil et al., 2021; Kelly & Hise, 1980; Rizzo et al., 1970; Sawyer, 1992). Studies have shown that role clarity provides employees with appropriate amount of pressure (Gilboa et al., 2008), high psychological empowerment (Hall, 2008), increased citizenship behaviour (Adil et al., 2021), job satisfaction, supervisor commitment (Panaccio & Vandenberghe, 2011) and organizational commitment (Mukherjee & Malhotra, 2006; Panaccio & Vandenberghe, 2011) which are considered essential factors to accomplish their job and perform it efficiently. Research findings showed that higher levels of role clarity have positive effects on employee job performance (Fried et al., 2003) and job efficiency (Samie et al., 2015). Panaccio & Vandenberghe (2011) also found that role clarity reduces turnover intentions by mitigating the effects of uncertain situations.

According to Wang et al. (2022b), “employees’ cognition of their roles, that is, their role clarity, may play the same critical role as contextual factors in their innovativeness” (p. 3). Since employee IWB is considered a cognitive and motivational process (Afsar et al., 2018), a clear understanding of the core aspects of the job contributes to employee adjustment, engagement (Adil et al., 2021), and empowerment (Sitepu et al., 2020) and also enhances intrinsic motivation and job involvement (Kundu et al., 2020). As a result, employees tend to do more than what is expected of them and perform extra-role behaviours (Adil et al., 2021; Alge et al., 2006; Kundu et al., 2020) which include employee IWB (Janssen, 2000). Afsar et al. (2015) found in their study that employee engagement is positively associated with employee IWB. Several studies found positive and direct associations between role clarity and individual creativity (e.g., Frare & Beuren, 2021; Sitepu et al., 2020). Further, a novel study conducted by Kundu et al. (2020) revealed not just a

direct positive relationship between perceived role clarity and employee IWB but also a partially and serially mediated impact through intrinsic motivation and job involvement. These studies suggest that role clarity could both encourage and support the circumstances that leads employees to engage in behaviours that fosters creativity and innovation. Thus, the following hypothesis is proposed:

H1: Role clarity positively impacts employee IWB.

Role acts as a link that connects the employees and the organization and establishes boundaries, desires and expectations between them (Adil et al., 2021). Since the individual-level outcomes of having role clarity are functional on employees as well as to the organization as a whole (Lynn & Kalay, 2015), the effects of role clarity on employees could also manifest to their work environment where innovation climate is forged. Scott & Bruce (1994) assert that innovation climate “represents signals individuals receive concerning organizational expectations for behaviour and potential outcomes of behaviour” (p. 582). Employees could only understand and comprehend these organizational expectations, which come from their managers or leaders, when they have a clear understanding of their roles (X. Wang et al., 2022a, 2022b). Having clear roles enables them to identify the methods and processes they should adopt and to communicate effectively to achieve their individual, team and organizational goals (X. Wang et al., 2022a, 2022b). As representatives of the organization, supervisors, managers and leaders are considered the primary source of role clarity due to their influence to the many aspects of the employees’ role such as objectives, duties, and behavioural expectations (Panaccio & Vandenberghe, 2011; Stinglhamber & Vandenberghe, 2004). Scott & Bruce (1994) found that high quality relationships between superiors and employees characterized by high levels trust, support and autonomy positively influence the employee’s perception of innovation climate. Role clarity ignites a greater sense of responsibility and cooperation among the employees to reciprocate the support provided to them by their superiors (Newman et al., 2015). As a result, employee and supervisor relationship are nurtured enhancing communication and encouraging collaboration which in turn shapes the innovation climate. Ren & Zhang (2015) state that innovation climate “includes elements such as team collaboration, superior support, autonomy, and sufficient resources” (p.18). Thus, the following hypothesis is proposed:

H2: Role clarity positively impacts innovation climate.

Role conflict, employee IWB and innovation climate

Drawing from the definition of Kelly & Hise (1980), Rizzo et al. (1970), Wong et al. (2007), and Karkkola et al. (2019) role conflict occurs when there are incompatibilities and inconsistencies of expectations, standards, resources, values and roles placed upon an employee by a single (e.g., supervisor) or multiple individuals (e.g. supervisors, colleagues or clients). Role conflict is a job demand that could be considered a hindrance that prevents employees' growth, learning and attainment of goals, or a challenge that fosters learning, mastery, problem-solving, and positive emotions such as eagerness and excitement (Crawford et al., 2010) or simultaneously as both (Schepers et al., 2016; Webster et al., 2011). A hindrance demand such as role conflict may provoke negative emotions and cognitions that could lead to decreased employee engagement (Crawford et al., 2010; Van den Broeck et al., 2010) which in turn may negatively affect employee job performance (Maden-Eyiusta, 2021). Hindrance demands were found to negatively affect employees' creative self-efficacy and were also found to have negative direct and indirect associations with employees' sustained innovation behaviour (He et al., 2019). Unguren & Arslan (2021), in their study, revealed that role conflict causes employees to encounter job dissatisfaction which in turn leads to poor job performance. However, Gilboa et al. (2008) argue that role conflict has a challenge component as employees are urged to solve problems and negotiate the schemes, schedules, and prioritization to complete their tasks. A challenge demand may stimulate positive emotions and cognitions which could increase employee engagement (Crawford et al., 2010; Van den Broeck et al., 2010) and could lead to positive work outcomes including IWB. Janssen (2000) claims that higher job demands trigger employee IWB "by generating, promoting and realizing ideas for modifying oneself or the work environment" as a form of "problem-focused coping strategy" (p. 289). Challenge demands were found to have positive influence on employees' creative self-efficacy and were also found to have positive direct and indirect relationship with employees' sustained innovation behaviour (He et al., 2019). Albort-Morant et al. (2020) argued that work-related stress such as job demands do not always result in negative outcomes but rather "contribute to enhance or drive employees' level of innovativeness at the workplace" (p. 9-10). Studies conducted by Tang & Chang (2010) revealed that role conflict has positive direct and indirect associations with employee creativity despite the negative effects of role conflict on self-efficacy and job satisfaction. Findings by Maden-Eyiusta (2021) revealed that employees who encounter role conflict are less likely to show proactive behaviours but may continue to engage in

innovative behaviours. Although Schepers et al. (2016) found role conflict to be negatively associated with employee efficiency and quality performance, they also found it to positively influence the employees' ideas for improvement – a unique cognitive structure related to employee IWB. These studies show that despite the role conflict's positive and negative effects on employee-related outcomes, it may still stimulate IWB as it encourages employees to cope with challenging situations and to develop creative solutions to address the incompatibilities and inconsistencies they encounter. Thus, the following hypothesis is proposed:

H3: Role conflict positively impacts employee IWB.

Scott & Bruce (1994) characterized innovation climate as “psychological climate” which explains how employees cognitively respond or interpret an organizational situation. Several studies revealed that when employees face work-related stress or job demand such as role conflict, they tend to respond by generating ideas to adapt themselves or modify the work environment (e.g., Albort-Morant et al., 2020; Janssen, 2000; King et al., 2007). Schepers et al. (2016) utilize situational strength theory to describe role conflict as a weak situation or “a work condition that is open to different interpretations of appropriate response because of inconsistent cues regarding work-related responsibilities” (p. 798). This condition creates uncertainties which activate employees' motivation to solve issues by developing new ideas for improvement and by thinking outside of the box (Schepers et al., 2016). In doing so, both the organization and employees create a work environment that facilitates consistent flow of ideas and insights not only to solve the existing problems but also to challenge the status quo. Development of new ideas, insights and solutions is considered one of the essential characteristics of innovation climate (Newman et al., 2020). Therefore, although mostly considered a threat, role conflict has the ability to positively influence innovation climate by stimulating production of ideas, insights, and solutions among employees to tackle uncertainties. Hence, the following hypothesis is proposed:

H4: Role conflict positively impacts innovation climate.

Mediating role of innovation climate

Several studies acknowledge the crucial role that innovation climate plays in promoting employee IWB (e.g., Hammond et al., 2011; Scott & Bruce, 1994; Shanker et al., 2017; You et al., 2022). That is, employees tend to engage in innovative behaviours when they perceive the climate to be conducive and supportive of innovation (Afsar et al., 2018; DiLiello & Houghton, 2006; He et al., 2019). Thus, the positive influence of innovation climate in fostering employee IWB is strongly supported in the literature. In terms of its role as mediator, studies found that innovation climate mediates in the relationship between leadership behaviours and employee innovative behaviours (Černe et al., 2013; Jaiswal & Dhar, 2015; Scott & Bruce, 1994; P. Wang et al., 2013) as well as organization innovation performance (Diesel & Scheepers, 2019; Zuraik & Kelly, 2019). You et al. (2022) posits that “employee innovation is task-relevant and, thus, is inseparable from the interaction of organizational environment and job characteristics” (p. 2). This makes innovation climate a possible mechanism that links role clarity and role conflict with employee IWB.

This present study draws from the perspective of social information processing theory (SIPT) to explain how innovation climate serves as a guide that fosters employee IWB (Newman et al., 2020). Social information processing theory was developed by Salancik & Pfeffer (1978) under the premise that individuals are adaptive by nature and thus adapt their attitudes, behaviours and beliefs according to the social environment and according to their experiences and situations. In line with this, the concept of climate is described as the shared understanding or perception of appropriate attitudes and needs, the shared definitions of job roles and work environments, and expectations for how individuals should interact with their environment (Salancik & Pfeffer, 1978). Employees determine the appropriate behaviours that they should adapt through the cues and information from the social environment as well as through their assessment of the characteristics of the job and its environment (Salancik & Pfeffer, 1978). This interaction involves “cognitive processing of information” between the characteristics of the job and its environment (Salancik & Pfeffer, 1978, p. 230). He et al. (2019) assert that the codes of conduct and information that exist in the social environment influence the employees’ cognition and behaviour through personal perception, experience, and evaluation. On this basis, according to Newman et al. (2020), innovation climate acts “as a source of information which guides employees as to what constitutes appropriate behaviour in the team or organizational context, especially in relation to the development and implementation of new ideas in the workplace” (p. 96-97).

Innovation climate, thus, plays an important part – to influence the way employees fulfil their roles and to shape their attitudes and behaviours which in turn stimulates employee innovative behaviours. This suggest that while the employees’ attitudes and behaviours towards clear or conflicting roles affect innovation climate, innovation climate in turn acts as a guide and source of information that influence employees’ actions, beliefs and attitudes which urge them to engage in innovative behaviours. Thus, the following hypotheses are proposed:

H5: Innovation climate mediates the relationship between (a) role clarity and employee IWB and (b) role conflict and employee IWB.

Theoretical framework

Taken together, we hypothesize that both role clarity and role conflict have direct and indirect associations with employee IWB. Specifically, we hypothesize that both role clarity and role conflict are positively related to innovation climate and to employee IWB and that innovation climate plays a mediating role in the relationship between role clarity and employee IWB and between role conflict and employee IWB. The predicted full model is shown in Figure 1.

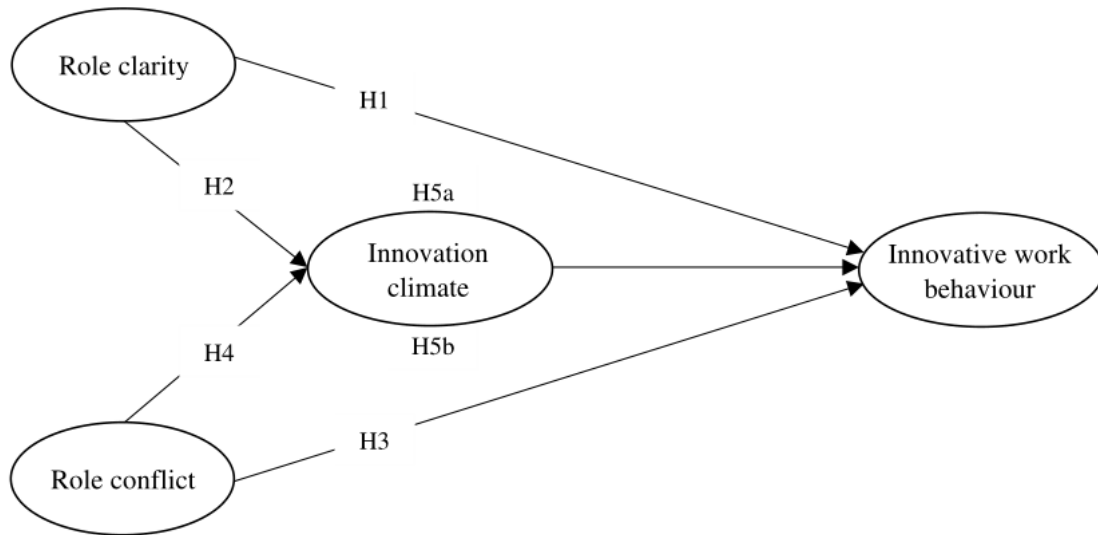


Figure 1 Research model

METHODOLOGY

Sample and data collection

Data were gathered by Norstat Norway using an electronic questionnaire that was administered in three six-month time intervals from September 2021 to September 2022. Norstat Norway (www.norstat.no) is one of Europe's leading data collectors for market research and has Norway's largest consumer panel. From their consumer panel of 85,000 active participants, there were 1,511 respondents in the first period, 1,527 respondents in the second, and 1,531 respondents in the third. The sample collected is considered representative of the Norwegian working population as per the sociodemographic structure described by Statistics Norway (*Statistics Norway, 2022*).

The respondents were informed about the purpose of the study and about the use of data for research purposes only. They were also notified of their right to withdraw at any time and their right to ask questions to the project leader. They were further granted anonymity through a two-step procedure. Although Norstat retained their identities for future follow-up studies, no identity information was shared with the researcher.

Norstat functions within the Directive 95/46/EC General Data Protection Regulation and complies with Norwegian laws for data protection as well as the main research standards and guidelines described in ICC/ESOMAR and the Quality Management System ISO9001:2015. The Norwegian Centre for Research Data (NSD) approved the research plan with no further comments about its ethical aspects. An anonymized complete data file was then made available for the research group.

Measures

Role clarity

Role clarity was measured using Pahkin et al.'s (2008) three-item scale. Role clarity items measured the degree to which the respondents have clear understanding of their responsibilities including the expectations, goals, objectives of the job (e.g., "Have clear, planned goals and objectives been defined for your job?"). The three items use a five-point scale (1=Very seldom or never, 5=Very often or always). Cronbach's alpha was 0.79.

Role conflict

Role conflict consists of three items developed by Pahkin et al. (2008). The role conflict scale assesses the extent to which the respondents have experience being given contradictory tasks, inadequate resources, and incompatible demands in the workplace (e.g., “Do you receive incompatible requests from two or more people?”). The items use a five-point scale (1=Very seldom or never, 5 = Very often or always). Cronbach’s alpha was 0.76.

Innovation climate

Six items were used to measure innovation climate which were adapted from Patterson et al.'s (2005) scale that focused on the organization climates’ flexibility and support towards new ideas and new ways of doing things. Sample items include “New ideas are readily accepted here” and “Assistance in developing new ideas is readily available.” The six items use a five-point scale (1=Disagree, 5=Agree). Cronbach’s alpha was 0.89.

Innovative work behaviour

Innovative work behaviour was using Janssen's (2001) nine-item scale of individual innovative behaviour in the workplace. The scale was derived from Kanter's (1988) work on the stages of innovation. Three items represent idea generation (e.g., “Generating original solutions to problems”), three items depict idea promotion (e.g., “Mobilizing support for innovative ideas”), and three items refer to idea realization (e.g., “Transforming innovative ideas into useful applications”). The items use a five-point scale (1=Never, 5=Very often).

Control variables

Age and gender were included as control variables in the structural equation model and correlation matrix.

Data validation and analysis

Univariate and bivariate statistics were performed in SPSS 28.0, while the remaining assessments was performed using AMOS 28.0. A two-step approach to structural equation modeling (SEM) as suggested by Anderson & Gerbing (1988) was performed using Amos. First, was testing the measurement model using CFA to investigate model fit, validity and reliability of the constructs. Three separate CFAs were conducted for the samples at T1, T2, and T3 to assess the replicability

of the factor structure. The reliability and validity of the measurement model were evaluated based on the acceptable criteria of the following indicators determined by Hu & Bentler (1999): composite reliability ($CR > 0.07$), Cronbach's alpha (> 0.07) and convergent validity ($AVE > 0.05$).

After preliminary assessment validating the measurement model, the structural model and its hypothetical relations were assessed based on path analysis (Hoyle, 2011). The mediating role of innovation climate and indirect effects were examined by employing bootstrap procedure that uses 5,000 resamples and 95% bias-corrected confidence intervals (CI) (Hayes, 2013). According to Preacher & Hayes (2008), bootstrapping provides the most robust and logical test for mediation analysis. SEM was also conducted separately for the three samples. To evaluate the fit of the proposed model, multiple indices were used including the comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR). Sufficiency of model fit for both CFA and SEM was determined by following the threshold recommended by Hu & Bentler (1999): CFI (≥ 0.95), RMSEA (< 0.06), and SRMR ($< .08$).

To cross-validate the findings and increase the robustness of the study, both the measurement model and all hypothesized relationships were tested using a sub-sample strategy. Hence, assessments are conducted in T1, T2, and T3 separately.

RESULTS

Sample

The response rates, sample size and demographic profiles of the participants are shown in Table 1. The response rates for the samples were 30%, 41% and 35%, respectively. Among the respondents, over 50% were male, over 60% were 40-74 years old, over 70% worked up to 40 hours a week and did not have managerial responsibilities. Moreover, over 50% had been in their job for more than 5 years, and over 80% were full time employees.

Table 1 Demographic details of the participants

		T1	T2	T3
Response period		Sep 2021	Mar 2022	Sep 2022
Response rate		30%	41%	35%
N		1,511	1,527	1,531

General information	Scale details	N	%	N	%	N	%
Age group	20-24	114	7.5	117	7.7	85	5.6
	25-39	488	32.3	484	31.7	517	33.8
	40-54	486	32.2	490	32.1	548	35.8
	55-66	285	18.9	288	18.9	303	19.8
	67-74	138	9.1	148	9.7	78	5.1
Gender	Male	823	54.5	834	54.6	800	52.3
	Female	688	45.5	693	45.4	731	47.7
Working hours per week	20 or less	119	7.9	110	7.2	99	6.5
	21-40	1,053	69.7	1,090	71.4	1,105	72.2
	41-60	308	20.4	297	19.4	304	19.9
	61 or more	31	2.1	30	2.0	23	1.5
Managerial responsibility	No	1,076	71.8	1,103	73.1	1,125	74.2
	Yes	423	28.2	406	26.9	391	25.8
Tenure (years)	5 or less	707	46.8	688	45.1	687	44.9
	6-10	292	19.3	280	18.3	301	19.7
	11-20	281	18.6	325	21.3	327	21.4
	21 or more	231	15.3	234	15.3	216	14.1
Employment type	Full time	1,262	83.5	1,295	84.8	1,319	86.2
	Part time	243	16.1	230	15.1	209	13.7
	Laid off	6	0.4	2	0.1	3	0.2

Descriptive statistics and correlation analysis

Descriptive statistics (Table 2) shows the mean and standard deviation of each of the variables for each of the samples. The Pearson correlation explains the relation between variables as well as the significance of their relation. Based on the results of the total sample shown in Table 3, the correlations among predictor and outcome variables were found to be significant ($p < 0.01$, $p < 0.05$) to indicate the theorized relationships. The correlations between some of the control and outcome variables were also found to be significant ($p < 0.01$, $p < 0.05$). Correlations between age and IWB, and between gender and role conflict, role clarity and innovation climate were found to be insignificant.

Table 2 Descriptive statistics

Construct	T1		T2		T3	
	Mean	SD	Mean	SD	Mean	SD
Age	45.57	13.88	45.81	13.94	45.82	12.97
Gender	1.46	0.50	1.45	0.50	1.48	0.50
Role conflict	2.71	0.86	2.71	0.83	2.70	0.81
Role clarity	4.27	0.68	4.24	0.69	4.23	0.69
Innovation climate	3.44	0.87	3.44	0.87	3.40	0.88
Innovative work behaviour	3.22	0.75	3.21	0.74	3.22	0.73

Notes: Gender: 1 = man, 2 = woman.

Table 3 Pearson correlation between measurement constructs (T1)

Construct	No. of items	1	2	3	4	5	6
Age	1						
Gender	1	-0.10**					
Role conflict	3	-0.19**	0.03				
Role clarity	3	0.18**	0.02	-0.03**			
Innovation climate	6	0.05*	-0.02	-0.36**	0.27**		
Innovative work behaviour	9	0.01	-0.11**	0.06*	0.07**	0.40**	

Notes: ** $p < 0.01$.

* $p < 0.05$. Gender: 1 = man, 2 = woman.

Preliminary confirmatory factor analysis assessing IWB

A preliminary comparison of different measurement models reflecting IWB (Table 4) was first assessed using CFA. The common factor has the lowest model fit, while the first-order factor with three dimensions and the second-order factor models both had a very strong and equal model fit. Moreover, chi-square difference test did not indicate a significant difference between the first-order three-dimensional model and the second-order factor with three first-order factors. Based on these results, and an overall assessment, the second-order three-factor model was selected since the results clearly indicate a strong influence from the second-order factor on the three first-order factors. Moreover, this measurement model also has support from previous research on IWB (e.g., Amir, 2015; van Zyl et al., 2021). Cronbach's alpha was 0.93 for the second-order dimension, 0.84 for idea generation, 0.89 for idea promotion, and 0.88 for idea realization.

Table 4 Fit indices of alternative IWB measurement models

	Period	X ²	df	CFI	RMSEA	SRMR
Common factor	T1	970.99	27	0.90	0.15	0.06
	T2	833.32	27	0.92	0.14	0.05
	T3	896.04	27	0.91	0.15	0.06
First-order factor	T1	269.63	24	0.98	0.08	0.03
	T2	173.75	24	0.99	0.06	0.02
	T3	182.50	24	0.98	0.07	0.02
Second-order factor	T1	269.63	24	0.98	0.08	0.03
	T2	173.75	24	0.99	0.06	0.02
	T3	182.50	24	0.98	0.07	0.02

Chi-square difference test			
Comparison	X ²	df	Sig level
First-order factor vs. Common factor (T1)	701.37	3	0.001
First-order factor vs. Common factor (T2)	659.58	3	0.001
First-order factor vs. Common factor (T3)	713.54	3	0.001
Second-order factor vs. First-order factor (T1)	0.00	0	n.s.
Second-order factor vs. First-order factor (T2)	0.00	0	n.s.
Second-order factor vs. First-order factor (T3)	0.00	0	n.s.

Note: n.s. = not significant. The second-order factor solution loads on the three primary factors.

Validity and reliability

Next, the reliability and validity of all the included latent factors were next assessed (Table 5-6). The composite reliability (CR) coefficients for all constructs was above 0.70 (Fornell & Larcker, 1981) and Cronbach's alpha scores were all greater than 0.70 being adequate (Nunnally, 1978).

The average variance extracted (AVE) values for most constructs were higher than the 0.50 threshold recommended by Fornell & Larcker (1981). The exception was Role conflict, which was slightly below the benchmark for T2 and T3 samples. According to Fornell & Larcker (1981), AVE is a strict measure of convergent validity. Thus, considering the CR alone could establish that the convergent validity of the construct is adequate even if more than 50% of the variance is due to error (Fornell & Larcker, 1981).

CFA reflected that model fit indices (Table 6) were consistently within recommended thresholds at T1-T3. Hence, the overall results supported the reliability and validity of the measurement model.

Table 5 Reliability and average variance explained

Measurement Item	CR			AVE			Alpha		
	T1	T2	T3	T1	T2	T3	T1	T2	T3
Role conflict	0.77	0.75	0.72	0.52	0.50	0.46	0.76	0.74	0.72
Role clarity	0.81	0.79	0.80	0.58	0.55	0.58	0.79	0.77	0.79
Innovation climate	0.89	0.89	0.89	0.57	0.58	0.58	0.89	0.89	0.89
Innovative work behaviour	0.94	0.94	0.94	0.83	0.83	0.83	0.93	0.93	0.93
<i>Idea generation</i>	0.84	0.83	0.84	0.64	0.62	0.64	0.84	0.83	0.84
<i>Idea promotion</i>	0.89	0.90	0.88	0.73	0.74	0.71	0.89	0.90	0.88
<i>Idea realization</i>	0.88	0.89	0.89	0.72	0.73	0.72	0.88	0.89	0.89

Notes: CR = composite reliability; AVE = average variance explained; Alpha = Cronbach's alpha.

Table 6 Confirmatory factor analysis

Fit indices	T1	T2	T3
RMSEA	0.05	0.05	0.04
SRMR	0.04	0.03	0.03
CFI	0.96	0.97	0.97
χ^2	965.04	730.12	712.10
df	180	180	180

Structural equation modeling

The hypothesized structural model (Figure 2) with the control variables, was then assessed. The SEM results indicated satisfactory model fit across all samples (T1-T3). Findings for the hypothesized linkages and model fit indices are shown in Table 7. The model generated consistent patterns across samples. All the path beta coefficients between these variables are highly significant except for the relation between role clarity and IWB which shows a positive but not significant result (T1: $\beta = 0.02$, n.s.; T2: $\beta = 0.03$, n.s.; T3: $\beta = 0.01$, n.s.) rejecting H1. The effect of role clarity on innovation climate was positive and significant (T1: $\beta = 0.16$, $p < 0.001$; T2: $\beta = 0.17$, $p < 0.001$; T3: $\beta = 0.21$, $p < 0.001$) supporting H2 while the effect of role conflict on innovation climate was negative and significant (T1: $\beta = -0.38$, $p < 0.001$; T2: $\beta = -0.38$, $p < 0.001$; T3: $\beta = -0.36$, $p < 0.001$) rejecting H4. Moreover, role conflict was found to be positively and significantly related to IWB (T1: $\beta = 0.34$, $p < 0.001$; T2: $\beta = 0.36$, $p < 0.001$; T3: $\beta = 0.33$, $p < 0.001$), supporting H3. The structural model for the three samples explained 21-23% of the variance related to innovation climate and 32-34% of the variance related to IWB, reflecting a strong explanatory power of the research model.

The control variables had varying effects. Age was negatively and significantly related to innovation climate for samples T1 ($\beta = -0.07$, $p < 0.05$) and T3 ($\beta = -0.10$, $p < 0.001$), and was positively and significantly related to IWB for all the three samples (T1: $\beta = 0.05$, $p < 0.05$; T2: $\beta = 0.06$, $p < 0.05$; T3: $\beta = 0.08$, $p < 0.01$). Gender, on the other hand, was negatively and significantly related to IWB (T1: $\beta = -0.10$, $p < 0.001$; T2: $\beta = -0.05$, $p < 0.05$; T3: $\beta = -0.06$, $p < 0.05$), indicating that men engage in IWB more than women.

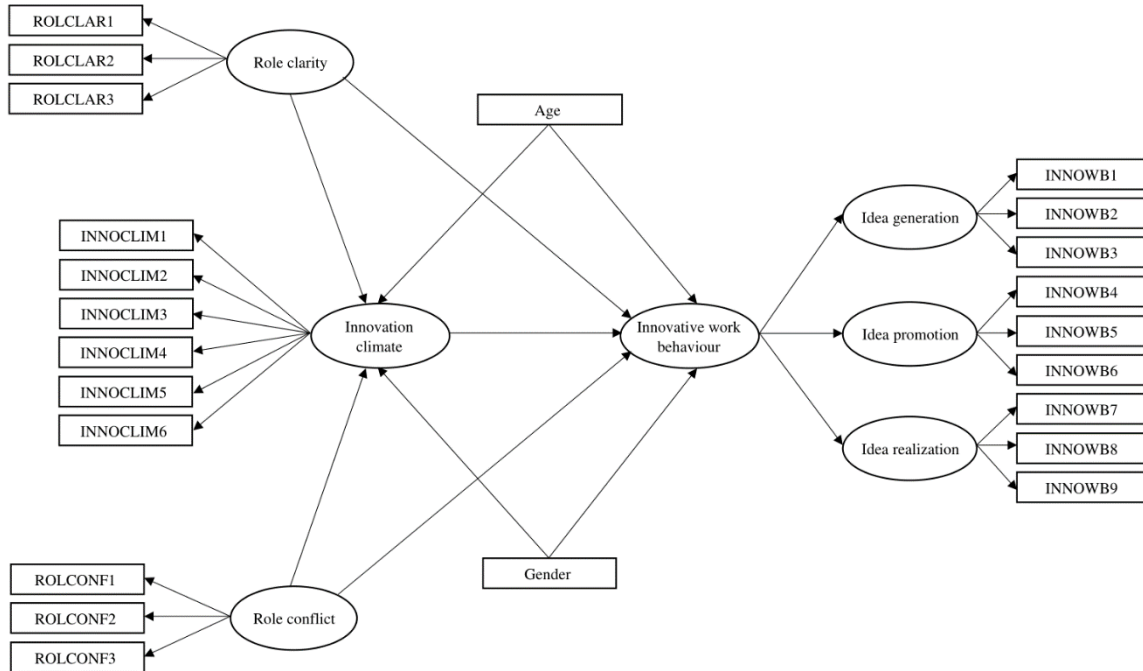


Figure 2 Estimated structural model

Table 7 Results of the structural equation modeling

Hypotheses (Direct effect)	T1	T2	T3
(H1) Role clarity→Innovative work behaviour	0.02	0.03	0.01
(H2) Role clarity→Innovation climate	0.16***	0.17***	0.21***
(H3) Role conflict→Innovative work behaviour	0.34***	0.36***	0.33***
(H4) Role conflict→Innovation climate	-0.38***	-0.38***	-0.36***
Age→Innovation climate	-0.07*	-0.03	-0.10***
Gender→Innovation climate	-0.02	0.03	-0.03
Age→Innovative work behaviour	0.05*	0.06*	0.08**
Gender→Innovative work behaviour	-0.10***	-0.05*	-0.06*
Fit indices			
RMSEA	0.05	0.04	0.04
SRMR	0.04	0.03	0.03
CFI	0.95	0.97	0.97
X ²	1,075.58	839.71	815.62
Df	214	214	214
N	1511	1527	1531

Notes: * $p < 0.05$,

** $p < 0.01$,

*** $p < 0.001$. Gender: 1 = man, 2 = woman.

Mediating role of innovation climate

The mediation hypotheses were tested with the help of bootstrap procedure. The results of the analysis presented in Table 8 revealed that the theorized mediation effects of innovation climate were supported for all the three samples. Hypothesis 5a role clarity → innovation climate → innovative work behaviour indicates full mediation (T1: standardized indirect effect = 0.10, $p < 0.001$, 95% CI = 0.06, 0.14; T2: standardized indirect effect = 0.11, $p < 0.001$, 95% CI = 0.06, 0.15; T3: standardized indirect effect = 0.13, $p < 0.001$, 95% CI = 0.09, 0.18). Moreover, hypothesis 5b role conflict → innovation climate → innovative work behaviour signifies partial mediation (T1: standardized indirect effect = -0.23, $p < 0.001$, 95% CI = -0.28, -0.18; T2: standardized indirect effect = -0.24, $p < 0.001$, 95% CI = -0.30, -0.19; T3: standardized indirect effect = -0.23, $p < 0.001$, 95% CI = -0.29, -0.18).

Table 8 Specific indirect effects

Hypotheses (Indirect effect)	T1	T2	T3
(H5a) Role clarity→Innovation climate→Innovative work behaviour	0.10***	0.11***	0.13***
(H5b) Role conflict→Innovation climate→Innovative work behaviour	-0.23***	-0.24***	-0.23***

Notes: *** $p < .001$. Bootstrap procedure using 5,000 resamples.

DISCUSSION

The quest for innovation is often marked by unpredictability and complexity impacting one of its important sources – the employees. During and in the aftermath of the COVID-19 restrictions, the challenge to innovate became even tougher due to increased uncertainty and instability. Now more than ever, employees must deal with rapidly evolving roles and less rigidly defined job descriptions. The present study examined the impact of role clarity and role conflict on employee IWB including the mediating effects of innovation climate. To the best of the authors' knowledge, this study is the first to explore these relationships through a theoretical model that simultaneously includes all factors. Role clarity and role conflict are found to be crucial factors that could influence innovation climate and employee IWB. Innovation climate, on the other hand, are found to mediate these relationships. The results revealed similar and consistent findings across all three samples. The datasets used in this study were collected from a large sample of the Norwegian working population during and after the COVID-19 restrictions making the findings of this study particularly relevant and applicable to the current post-COVID-19 organizational landscape. Overall, the findings showed contrasting but interesting results. Firstly, while we did not find any significant direct association between role clarity and employee IWB, we found that role clarity is positively related to innovation climate. Secondly, the findings are contrasting in relation to role conflict; role conflict is positively related to employee IWB but negatively related to innovation climate. Lastly, innovation climate acted as a full mediator in the relationship between role clarity and employee IWB, while it played a partial mediating role in the relationship between role conflict and employee IWB. The results are discussed in the following.

Role clarity and employee IWB and innovation climate

Contrary to the existing literature, this study found no direct significant relationship between role clarity and employee IWB, rejecting H1. This result may be surprising given the positive effects of role clarity on employee job involvement and motivation which are the factors that encourage employees to engage in innovative behaviours (Adil et al., 2021; Kundu et al., 2020). However, this finding confirms notion that the association between role clarity and employee IWB is not that straightforward (Kundu et al., 2020). Research studies that examined the direct relationship between role clarity and employee IWB are still lacking. However, some related studies investigating different outcomes show similar results. One study is that of Lynn & Kalay (2015) which confirms that role clarity is a rather complex subject when they found no significant

association between role clarity and team performance. Karkkola et al. (2019) also found no direct significant relationship between role clarity and vitality at work but further tests showed indirect and significant associations upon taking mediators into consideration. These results show that although role clarity foster certain employee behaviours, it is not a sufficient condition to stimulate innovative behaviours. Wang et al. (2011) emphasized that a moderate level of role ambiguity could be the most conducive to creativity as compared to no ambiguity at all. Given the null effects of role clarity on employee IWB, role clarity was found to be positively and significantly related to innovation climate, supporting H2. This is in line with the findings that role clarity instigates employees' sense of responsibility, cooperation, and willingness to reciprocate the support they received from their superiors (Newman et al., 2015). As a result, relationships between employees and supervisors are nurtured facilitating communication and promoting collaboration which is among the essential elements of innovation climate (Ren & Zhang, 2015). These findings show how role clarity is an important antecedent in shaping the environment that supports innovation, but not in fostering the behaviours that promote innovation. Role clarity facilitate employee outcomes that positively influence innovation climate; however, these outcomes are not sufficient condition that encourage employees to engage in IWB.

Role conflict, employee IWB, and innovation climate

In line with the existing literature (e.g., Maden-Eyiusta, 2021; Schepers et al., 2016; Tang & Chang, 2010), we found a positive and significant association between role conflict and employee IWB, supporting H3. This finding supports the notion that role conflict, despite its potential negative effects on employee-related outcomes, can foster employee IWB. This result is consistent with other studies which observed that employees who face job demands such as role conflict tend to respond by generating ideas to adapt themselves and modify their work environment (e.g., Albort-Morant et al., 2020; Janssen, 2000; King et al., 2007). Role conflict provides a situation that triggers employees to formulate a coping strategy and stimulates them to develop novel solutions to tackle the challenges brought about by inconsistent and incompatible roles (Janssen, 2000). We, however, found a negative and significant association between role conflict and innovation climate. This finding contradicts the predicted relationship discussed in the literature, thus rejecting H4. Prior studies that investigate this subject are still lacking except for the exploratory analysis conducted by King et al. (2007) which showed a negative relationship between work demands and climate for innovation. Their study suggests that employees who face

more work demands and challenges from the organization are less likely to be supportive of innovation (King et al., 2007). Taken together, the above results are both crucial and interesting. Role conflict seems to act as a double-edged sword for organizations striving to innovate. At one end, role conflict could facilitate employees' IWB, while at other end, it could impede the development and advancement of the climate necessary to support employee IWB. King et al.'s (2007) rightly expressed their idea about the distinction between innovative behaviours and innovation climate by highlighting that "their relationship with work demands may not be identical or even parallel" (p. 635).

Mediating role of innovation climate

To deepen the understanding about the role of innovation climate, this study also examined its mediating effects. The results revealed that innovation climate fully mediates the relationship between role clarity and employee IWB and partially mediates the relationship between role conflict and employee IWB, supporting H5a and H5b. Innovation climate wholly explains the association between role clarity and employee IWB. However, innovation climate suppresses the positive influence of role conflict on employee IWB. These results confirm the idea that while climate for innovation promotes innovative behaviours, the outcomes may vary depending on specific contextual factors (Ren & Zhang, 2015). These contextual conditions may be the presence of role clarity and role conflict. Both mediation results are important and compelling. Firstly, it indicates that role clarity could only function as antecedent of employee IWB in the presence of supportive climate that values innovation. Secondly, it demonstrates that role conflict's positive influence on employee IWB could not be fully maximized with innovation climate in the picture. This signifies that role conflict and innovation climate are not a good match for organizations aiming to innovate. Thus, promoting role clarity and reducing role conflict while developing innovation climate would best support and encourage employees' IWB.

CONCLUSION

The results revealed consistent findings and general support of the developed research model across three large samples. Role clarity consistently has no direct influence on IWB, but positively influences IWB through innovation climate. However, role conflict consistently negatively influences innovation climate but positively influences IWB. Hence, role conflict acts as a double-edged sword, reflecting the complex dynamics of building innovative capabilities across organisations. The current study illustrates innovative organisations must both tolerate and handle some levels of role conflict to support IWB, and simultaneously maintain innovation climate by supporting and developing role clarity. Role conflict must probably also be carefully observed in order to be sustainable over time, for instance in relation to innovation in general, but also in relation to other concepts not included in this study, such as worker health.

Theoretical implications

This present study makes a valuable and novel contribution by establishing theoretical framework that underscores the direct and indirect effects of role clarity and role conflict on employee IWB through innovation climate. This framework has not been examined in the previous studies thus enriching the academic literature concerning role clarity, role conflict and innovation climate and employee IWB. Moreover, this study is particularly significant and relevant to the current post COVID-19 organizational landscape which is based on datasets collected from a large sample of Norwegian employees during and after the COVID-19 restrictions.

In contrast to the results of the previous studies, this study found no significant association between role clarity and employee IWB but rather found significant association between role clarity and innovation climate which implies that the employee outcomes derived from having clear roles only directly and significantly influence the climate and not the employee behaviour that encourages and supports innovation. This study also reveals that role conflict function as a double-edged sword capable of enhancing employee IWB while undermining organization's climate for innovation at the same time. Furthermore, this study found that innovation climate acts in two ways – enhancing the effects of role clarity and suppressing the positive effects of role conflict on employee IWB. This finding confirms the notion that impact of innovation climate on employee IWB may vary depending on the specific contextual conditions.

Practical implications

These findings have practical implications for organizations and managers aiming to enhance their employees' IWB. First, this study shows that role clarity is only beneficial in fostering employees' IWB in the presence of climate supportive of innovation. Thus, managers and leaders are not just expected to establish clearly defined and communicated roles for the employees (Jada et al., 2019) but also to complement this by creating and nourishing an organizational environment that supports and nurtures IWB. According to Mukherjee & Malhotra (2006), supportive teams reinforce role clarity by sharing valuable information about job-related issues that are inexplicitly communicated and by serving as a platform for employees to exchange experiences, insights and learnings. Managers should work on establishing clear innovation goals and creating an open environment to motivate employees to take ownership of their tasks and engage in innovative behaviours (You et al., 2022).

Secondly, this study draws managers' attention to the positive and negative influence of role conflict on employee IWB and innovation climate, respectively. These mixed effects imply that managers can leverage role conflict to stimulate employee IWB, however, they should do it with extreme caution as role conflict could also impair the climate where these innovative behaviours are nurtured. Tidd & Friedman (2002) suggest that managers should consider that employees respond differently when faced with conflicting roles and thus should encourage them to adopt an active conflict management style. They added that an active way of dealing with role conflict allows employees to effectively manage its negative impacts by being more adaptable and expressive of their needs and concerns (Tidd & Friedman, 2002). Hence, managers should work on different interventions to develop the employees' active coping mechanisms which may involve trainings and workshops about resilience, counselling and coaching, employee assistance programs, corporate induction programs, and health and wellbeing programs. For HR practitioners, this study implicates that selection of new employee should include assessment of applicants' conflict management style which can be done using interviews or personality surveys.

Finally, organizations aiming strengthen their innovation climate to foster employees' IWB could benefit from this study by understanding the enhancing and suppressing effects of innovation climate on employee IWB. While many studies confirm that innovation climate is an antecedent of employee IWB, the outcomes derived from innovation climate still vary depending on the specific contextual conditions. Increasing role clarity while reducing role conflict among the

employees should be of primary concern for managers and leaders who intend to form and shape innovation climate to stimulate employee IWB. This can be done by building clear lines of communication between management and employees as well as by establishing clear objectives and directions (Hassan, 2013). Having a clear strategy has the most significant impact on employee IWB as it serves as a compass which helps them identify their roles in driving innovative performance in organizations (Tran, 2021). As organizations are exposed to a highly dynamic and competitive business environment where employees roles rapidly change and evolve, managers should ensure that employees are well-informed of the updates and provided with timely feedback (Kundu et al., 2020; Tran, 2021). Maintaining role clarity in these organizations are thus essential to sustain the supportive climate that stimulates employees' IWB.

Limitations and future research

This study offers several valuable insights; however, some limitations should be considered that could unlock opportunities for future research. First, although one of the strengths of this study is the use of three datasets representing Norwegian workers taken in three different time intervals during and after the COVID-19 restrictions, the cross-sectional research design limits the possibility establishing causality among the study variables. Future studies can overcome this limitation by employing longitudinal research design to further explore the causal relationship between the study variables as well as the direction of causality.

The second limitation of this study is the use of self-reported measures, which although considered the most valid and useful tool for appraising individual perceptions and behaviours (Spector, 1994), may introduce common method variance (Glick et al., 1986). To minimize this, we employed several measures such as CFA, AVE, and CR in order to control the validity and objectivity of the results. Future research should incorporate more objective measures or utilize a multi-method approach to reduce the bias and increase the reliability of results.

As the participants of these study were Norwegian employees, the generalizability of findings should be interpreted with a degree of caution. Replication of this study in different settings such as other types of work organizations or within occupations, or even other locations could help generalize and supplement our findings.

In an actual working environment, role clarity and role conflict may coexist. As this study did not examine their association, future research could explore the how these two variables are correlated including their joint effects on the outcome variables. Moreover, this study only focuses

on the linear relationship between the predictor and outcome variables. Thus, future studies should also explore the potential existence of curvilinear relations between the variables of the model.

BIBLIOGRAPHY

- Adil, A., Kausar, S., Ameer, S., Ghayas, S., & Shujja, S. (2021). Impact of organizational socialization on organizational citizenship behavior: mediating role of knowledge sharing and role clarity. *Current Psychology*. <https://doi.org/10.1007/s12144-021-01899-x>
- Afsar, B., Badir, Y., & Khan, M. M. (2015). Person–job fit, person–organization fit and innovative work behavior: The mediating role of innovation trust. *The Journal of High Technology Management Research*, 26(2), 105–116. <https://doi.org/https://doi.org/10.1016/j.hitech.2015.09.001>
- Afsar, B., Cheema, S., & Bin Saeed, B. (2018). Do nurses display innovative work behavior when their values match with hospitals' values? *European Journal of Innovation Management*, 21(1), 157–171. <https://doi.org/10.1108/EJIM-01-2017-0007>
- Al-Ghazali, B. M., & Afsar, B. (2021). Investigating the mechanism linking task conflict with employees' innovative work behavior. *International Journal of Conflict Management*, 32(4), 599–625. <https://doi.org/https://doi.org/10.1108/IJCMA-07-2020-0119>
- Albort-Morant, G., Ariza-Montes, A., Leal-Rodríguez, A., & Giorgi, G. (2020). How Does Positive Work-Related Stress Affect the Degree of Innovation Development? In *International Journal of Environmental Research and Public Health* (Vol. 17, Issue 2). <https://doi.org/10.3390/ijerph17020520>
- Alge, B. J., Ballinger, G. A., Tangirala, S., & Oakley, J. L. (2006). Information Privacy in Organizations: Empowering Creative and Extrarole Performance. *Journal of Applied Psychology*, 91(1), 221–232. <https://doi.org/10.1037/0021-9010.91.1.221>
- Amabile, T. M. (1988). A model of creativity and innovation in organizations. *Research in Organizational Behavior*, 10(1), 123–167.
- Amir, M. T. (2015). Validation of innovative behavior as a multidimensional construct. *Jurnal Manajemen Teknologi*, 14(01), 66–80.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. In *Psychological Bulletin* (Vol. 103, pp. 411–423). American Psychological Association. <https://doi.org/10.1037/0033-2909.103.3.411>
- Baer, M. (2012). Putting Creativity to Work: The Implementation of Creative Ideas in Organizations. *Academy of Management Journal*, 55(5), 1102–1119. <https://doi.org/10.5465/amj.2009.0470>
- Černe, M., Jaklič, M., & Škerlavaj, M. (2013). Authentic leadership, creativity, and innovation: A multilevel perspective. *Leadership*, 9(1), 63–85. <https://doi.org/10.1177/1742715012455130>

- Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: A theoretical extension and meta-analytic test. In *Journal of Applied Psychology* (Vol. 95, pp. 834–848). American Psychological Association. <https://doi.org/10.1037/a0019364>
- De Jong, J. (2006). Individual Innovation: The Connection Between Leadership and Employees' Innovative Work Behavior. *EIM Business and Policy Research, Scales Research Reports*.
- De Jong, J., & Den Hartog, D. (2010). Measuring Innovative Work Behaviour. *Creativity and Innovation Management*, 19(1), 23–36. <https://doi.org/https://doi.org/10.1111/j.1467-8691.2010.00547.x>
- De Jong, J., & Den Hartog, D. N. (2007). How leaders influence employees' innovative behaviour. *European Journal of Innovation Management*, 10(1), 41–64. <https://doi.org/10.1108/14601060710720546>
- Deng, B., Cao, J., Huang, J., & Wu, J. (2022). The Influence of Innovation Climate on Creative Role Identity: The Mediating Role of Flow. In *Frontiers in Psychology* (Vol. 13). <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.866464>
- Diesel, R., & Scheepers, C. B. (2019). Innovation climate mediating complexity leadership and ambidexterity. *Personnel Review*, 48(7), 1782–1808. <https://doi.org/10.1108/PR-11-2018-0445>
- DiLiello, T. C., & Houghton, J. D. (2006). Maximizing organizational leadership capacity for the future: Toward a model of self-leadership, innovation and creativity. *Journal of Managerial Psychology, Suppl. Self-Leadership*, 21(4), 319–337. <https://doi.org/https://doi.org/10.1108/02683940610663114>
- Drucker, P. F. (1985). *Innovation and Entrepreneurship*: Harper & Row. <https://books.google.no/books?id=y8VjugEACAAJ>
- Emirbayer, M., & Mische, A. (1998). What Is Agency? *American Journal of Sociology*, 103(4), 962–1023. <https://doi.org/10.1086/231294>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Frare, A. B., & Beuren, I. M. (2021). Fostering individual creativity in start-ups: comprehensive performance measurement systems, role clarity and strategic flexibility. *European Business Review*, 33(6), 869–891. <https://doi.org/10.1108/EBR-11-2020-0262>

- Fried, Y., Slowik, L. H., Shperling, Z., Franz, C., & Al, E. (2003). The moderating effect of job security on the relation between role clarity and job performance: A longitudinal field study. *Human Relations, 56*(7), 787–805.
<http://ezproxy.uis.no/login?url=https://www.proquest.com/scholarly-journals/moderating-effect-job-security-on-relation/docview/231488756/se-2?accountid=136945>
- Gilboa, S., Shirom, A., Fried, Y., & Copper, C. (2008). A meta-analysis of work demand stressors and job performance: examining main and moderating effects. *Personnel Psychology, 61*(2), 227–271. <https://doi.org/10.1111/j.1744-6570.2008.00113.x>
- Glick, W. H., Jenkins Jr, G. D., & Gupta, N. (1986). Method versus substance: How strong are underlying relationships between job characteristics and attitudinal outcomes? *Academy of Management Journal, 29*(3), 441–464.
- Hall, M. (2008). The effect of comprehensive performance measurement systems on role clarity, psychological empowerment and managerial performance. *Accounting, Organizations and Society, 33*(2), 141–163. <https://doi.org/https://doi.org/10.1016/j.aos.2007.02.004>
- Hammond, M. M., Neff, N. L., Farr, J. L., Schwall, A. R., & Zhao, X. (2011). Predictors of individual-level innovation at work: A meta-analysis. In *Psychology of Aesthetics, Creativity, and the Arts* (Vol. 5, pp. 90–105). Educational Publishing Foundation.
<https://doi.org/10.1037/a0018556>
- Hassan, S. (2013). The Importance of Role Clarification in Workgroups: Effects on Perceived Role Clarity, Work Satisfaction, and Turnover Rates. *Public Administration Review, 73*(5), 716–725. <https://doi.org/https://doi.org/10.1111/puar.12100>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: a regression-based approach* (T. D. Little (ed.)). Guilford Press.
- He, P. X., Wu, T. J., Zhao, H. D., & Yang, Y. (2019). How to Motivate Employees for Sustained Innovation Behavior in Job Stressors? A Cross-Level Analysis of Organizational Innovation Climate. *International Journal of Environmental Research and Public Health, 16*(23).
<https://doi.org/10.3390/ijerph16234608>
- Hernaus, T., Maric, M., & Černe, M. (2019). Age-sensitive job design antecedents of innovative work behavior. *Journal of Managerial Psychology, 34*(5), 368–382.
<https://doi.org/10.1108/JMP-10-2018-0478>
- Hoyle, R. K. (2011). Structural equation modeling for social and personality psychology. *Structural Equation Modeling for Social and Personality Psychology, 1*–120.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. <https://doi.org/10.1080/10705519909540118>

- Jada, U. R., Mukhopadhyay, S., & Titiyal, R. (2019). Empowering leadership and innovative work behavior: a moderated mediation examination. *Journal of Knowledge Management*, 23(5), 915–930. <https://doi.org/https://doi.org/10.1108/JKM-08-2018-0533>
- Jaiswal, N. K., & Dhar, R. L. (2015). Transformational leadership, innovation climate, creative self-efficacy and employee creativity: A multilevel study. *International Journal of Hospitality Management*, 51, 30–41. <https://doi.org/https://doi.org/10.1016/j.ijhm.2015.07.002>
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, 73, 287–302. <http://ezproxy.uis.no/login?url=https://www.proquest.com/scholarly-journals/job-demands-perceptions-effort-reward-fairness/docview/199295318/se-2?accountid=136945>
- Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships between job demands, and job performance and job satisfaction. *Academy of Management Journal*, 44(5), 1039–1050. <http://ezproxy.uis.no/login?url=https://www.proquest.com/scholarly-journals/fairness-perceptions-as-moderator-curvilinear/docview/199823958/se-2?accountid=136945>
- Janssen, O. (2003). Innovative behaviour and job involvement at the price of conflict and less satisfactory relations with co-workers. *Journal of Occupational and Organizational Psychology*, 76(3), 347–364. <https://doi.org/https://doi.org/10.1348/096317903769647210>
- Janssen, O., van de Vliert, E., & West, M. (2004). The bright and dark sides of individual and group innovation: a Special Issue introduction. *Journal of Organizational Behavior*, 25(2), 129–145. <https://doi.org/https://doi.org/10.1002/job.242>
- Jose, S., & Mampilly, S. R. (2016). Innovative Work Behaviour: Propositions on Influence from Within and Without an Individual in the Organisational Context. *Asia-Pacific Journal of Management Research and Innovation*, 12(3–4), 232–237. <https://doi.org/10.1177/2319510X17696649>
- Kanter, R. M. (1988). When a thousand flowers bloom: Structural, collective and social conditions for innovation in organization. *Research in Organizational Behavior*, Eds. Staw BM and Cummings LL, 10, 169–211.
- Karkkola, P., Kuittinen, M., & Hintsa, T. (2019). Role clarity, role conflict, and vitality at work: The role of the basic needs. *Scandinavian Journal of Psychology*, 60(5), 456–463. <https://doi.org/https://doi.org/10.1111/sjop.12550>
- Kelly, J. P., & Hise, R. T. (1980). Role conflict, role clarity, job tension and job satisfaction in the brand manager position. *Journal of the Academy of Marketing Science*, 8(1), 120–137. <https://doi.org/10.1007/BF02721978>

- King, E. B., De Chermont, K., West, M., Dawson, J. F., & Hebl, M. R. (2007). How innovation can alleviate negative consequences of demanding work contexts: The influence of climate for innovation on organizational outcomes. *Journal of Occupational and Organizational Psychology*, *80*(4), 631–645. <https://doi.org/10.1348/096317906X171145>
- Kundu, S. C., Kumar, S., & Lata, K. (2020). Effects of perceived role clarity on innovative work behavior: a multiple mediation model. *RAUSP Management Journal*, *55*(4), 457–472. <https://doi.org/10.1108/RAUSP-04-2019-0056>
- Lynn, G., & Kalay, F. (2015). The effect of vision and role clarity on team performance. *Journal of Business Economics and Finance*, *4*(3), 473–499.
- Maden-Eyiusta, C. (2021). Role conflict, role ambiguity, and proactive behaviors: does flexible role orientation moderate the mediating impact of engagement? *The International Journal of Human Resource Management*, *32*(13), 2829–2855. <https://doi.org/10.1080/09585192.2019.1616590>
- Mukherjee, A., & Malhotra, N. (2006). Does role clarity explain employee-perceived service quality? *International Journal of Service Industry Management*, *17*(5), 444–473. <https://doi.org/10.1108/09564230610689777>
- Newman, A., Allen, B., & Miao, Q. (2015). I can see clearly now The moderating effects of role clarity on subordinate responses to ethical leadership. *Personnel Review*, *44*(4), 611–628. <https://doi.org/10.1108/PR-11-2013-0200>
- Newman, A., Round, H., Wang, S., & Mount, M. (2020). Innovation climate: A systematic review of the literature and agenda for future research. *Journal of Occupational and Organizational Psychology*, *93*(1), 73–109. <https://doi.org/10.1111/joop.12283>
- Ng, T. W. H., & Feldman, D. C. (2013). Age and innovation-related behavior: The joint moderating effects of supervisor undermining and proactive personality. *Journal of Organizational Behavior*, *34*(5), 583–606. <http://10.0.3.234/job.1802>
- Nunnally, J. C. (1978). *Psychometric Theory* (Second). McGraw-Hill New York.
- Pahkin, K., Björklund, C., Mykletyn, R. J., Furunes, T., Gard, G., & Lindström, K. (2008). *User's guide for the QPSNordic-ADW*.
- Panaccio, A., & Vandenberghe, C. (2011). The Relationships of Role Clarity and Organization-Based Self-Esteem to Commitment to Supervisors and Organizations and Turnover Intentions. *Journal of Applied Social Psychology*, *41*(6), 1455–1485. <https://doi.org/10.1111/j.1559-1816.2011.00764.x>

- Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., Robinson, D. L., & Wallace, A. M. (2005). Validating the organizational climate measure: links to managerial practices, productivity and innovation. *Journal of Organizational Behavior*, 26(4), 379–408. <https://doi.org/10.1002/job.312>
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- Ren, F., & Zhang, J. (2015). Job Stressors, Organizational Innovation Climate, and Employees' Innovative Behavior. *Creativity Research Journal*, 27(1), 16–23. <https://doi.org/10.1080/10400419.2015.992659>
- Reuvers, M., Van Engen, M. L., Vinkenburg, C. J., & Wilson-Evered, E. (2008). Transformational leadership and innovative work behaviour: Exploring the relevance of gender differences. *Creativity and Innovation Management*, 17(3), 227–244.
- Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role Conflict and Ambiguity in Complex Organizations. *Administrative Science Quarterly*, 15(2), 150–163. <http://10.0.9.3/2391486>
- Salancik, G. R., & Pfeffer, J. (1978). A Social Information Processing Approach to Job Attitudes and Task Design. *Administrative Science Quarterly*, 23(2), 224–253. <http://10.0.9.3/2392563>
- Samie, F., Riahi, L., & Tabibi, S. (2015). The Relationship between Role Clarity and Efficiency of Employees in Management & Resource Development Department of Ministry of Health and Medical Education of I.R.Iran, 2014. *Biosciences, Biotechnology Research Asia*, 12, 2803–2812. <https://doi.org/10.13005/bbra/1964>
- Sawyer, J. E. (1992). Goal and Process Clarity: Specification of Multiple Constructs of Role Ambiguity and a Structural Equation Model of Their Antecedents and Consequences. *Journal of Applied Psychology*, 77(2), 130–142. <https://doi.org/10.1037/0021-9010.77.2.130>
- Schepers, J. J. L., Nijssen, E. J., & van der Heijden, G. A. H. (2016). Innovation in the frontline: Exploring the relationship between role conflict, ideas for improvement, and employee service performance. *International Journal of Research in Marketing*, 33(4), 797–817. <https://doi.org/10.1016/j.ijresmar.2016.01.004>
- Schroeder, R. G., Van de Ven, A. H., Scudder, G. D., & Polley, D. (1989). The development of innovation ideas. In *Research on the management of innovation: The Minnesota studies*. Harper & Row.
- Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580. <http://ezproxy.uis.no/login?url=https://www.proquest.com/scholarly-journals/determinants-innovative-behavior-path-model/docview/199780436/se-2?accountid=136945>

- Shalley, C. E., & Gilson, L. L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *The Leadership Quarterly*, *15*(1), 33–53. <https://doi.org/https://doi.org/10.1016/j.leaqua.2003.12.004>
- Shanker, R., Bhanugopan, R., van der Heijden, B. I. J. M., & Farrell, M. (2017). Organizational climate for innovation and organizational performance: The mediating effect of innovative work behavior. *Journal of Vocational Behavior*, *100*, 67–77. <https://doi.org/https://doi.org/10.1016/j.jvb.2017.02.004>
- Sitepu, E. M. P., Appuhami, R., & Su, S. (2020). How does interactive use of budgets affect creativity? *Pacific Accounting Review*, *32*(2), 197–215. <https://doi.org/10.1108/PAR-05-2019-0054>
- Spector, P. E. (1994). Using self-report questionnaires in OB research: A comment on the use of a controversial method. *Journal of Organizational Behavior*, 385–392.
- Statistics Norway. (2022). Employment, Register-Based. <https://www.ssb.no/statbank/table/12540/tableViewLayout1>
- Stinglhamber, F., & Vandenberghe, C. (2004). Favorable Job Conditions and Perceived Support: The Role of Organizations and Supervisors. *Journal of Applied Social Psychology*, *34*(7), 1470–1493. <https://doi.org/https://doi.org/10.1111/j.1559-1816.2004.tb02015.x>
- Tang, Y.-T., & Chang, C.-H. (2010). Impact of role ambiguity and role conflict on employee creativity. *African Journal of Business Management*, *4*, 869–881.
- Tidd, S. T., & Friedman, R. A. (2002). Conflict Style and Coping with Role Conflict: An Extension of the Uncertainty Model of Work Stress. *International Journal of Conflict Management*, *13*(3), 236. <http://10.0.4.84/eb022875>
- Tran, T. (2021). *Innovative work behavior (IWB)*. <https://www.linkedin.com/pulse/innovative-work-behavior-iwb-thu-tran/>
- Tubre, T. C., & Collins, J. M. (2000). Jackson and Schuler (1985) Revisited: A Meta-Analysis of the Relationships Between Role Ambiguity, Role Conflict, and Job Performance. *Journal of Management*, *26*(1), 155–169. <https://doi.org/10.1177/014920630002600104>
- Unguren, E., & Arslan, S. (2021). The effect of role ambiguity and role conflict on job performance in the hotel industry: the mediating effect of job satisfaction. *O Efeito Da Relação Entre Ambiguidade e Conflito de Funções Na Indústria Hoteleira: O Efeito Mediador Da Satisfação Do Trabalho.*, *17*(1), 45–58. <http://10.0.70.169/tms.2021.170104>

- Van den Broeck, A., De Cuyper, N., De Witte, H., & Vansteenkiste, M. (2010). Not all job demands are equal: Differentiating job hindrances and job challenges in the Job Demands–Resources model. *European Journal of Work and Organizational Psychology, 19*(6), 735–759. <https://doi.org/10.1080/13594320903223839>
- van Zyl, L. E., van Oort, A., Rispens, S., & Olckers, C. (2021). Work engagement and task performance within a global Dutch ICT-consulting firm: The mediating role of innovative work behaviors. *Current Psychology, 40*(8), 4012–4023. <https://doi.org/10.1007/s12144-019-00339-1>
- Wang, P., Rode, J. C., Shi, K., Luo, Z., & Chen, W. (2013). A Workgroup Climate Perspective on the Relationships Among Transformational Leadership, Workgroup Diversity, and Employee Creativity. *Group & Organization Management, 38*(3), 334–360. <https://doi.org/10.1177/1059601113488163>
- Wang, S., Zhang, X., & Martocchio, J. (2011). Thinking Outside of the Box When the Box Is Missing: Role Ambiguity and Its Linkage to Creativity. *Creativity Research Journal, 23*(3), 211–221. <http://10.0.4.56/10400419.2011.595661>
- Wang, X., Wang, M., & Xu, F. (2022a). The role of synergistic interplay among proactive personality, leader creativity expectations, and role clarity in stimulating employee creativity. *Frontiers in Psychology, 13*, 699411. <https://doi.org/10.3389/fpsyg.2022.699411>
- Wang, X., Wang, M., & Xu, F. (2022b). Domain knowledge and role clarity moderate the relationship between proactive personality and employee radical creativity. *Social Behavior & Personality: An International Journal, 50*(7), 1–11. <http://10.0.8.176/sbp.11570>
- Webster, J. R., Beehr, T. A., & Love, K. (2011). Extending the challenge-hindrane model of occupational stress: The role of appraisal. *Journal of Vocational Behavior, 79*(2), 505–516. <https://doi.org/https://doi.org/10.1016/j.jvb.2011.02.001>
- West, M. A., & Farr, J. L. (1989). Innovation at work: Psychological perspectives. *Social Behaviour*.
- West, M. A., & Farr, J. L. (1990). *Innovation at work*. John Wiley & Sons.
- Wong, S.-S., DeSanctis, G., & Staudenmayer, N. (2007). The Relationship Between Task Interdependency and Role Stress: A Revisit of the Job Demands–Control Model*. *Journal of Management Studies, 44*(2), 284–303. <https://doi.org/https://doi.org/10.1111/j.1467-6486.2007.00689.x>
- Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management. The Academy of Management Review, 18*(2), 293. <http://ezproxy.uis.no/login?url=https://www.proquest.com/scholarly-journals/toward-theory-organizational-creativity/docview/210967202/se-2?accountid=136945>

- You, Y., Hu, Z., Li, J., Wang, Y., & Xu, M. (2022). The Effect of Organizational Innovation Climate on Employee Innovative Behavior: The Role of Psychological Ownership and Task Interdependence. *Frontiers in Psychology, 13*, 856407. <https://doi.org/10.3389/fpsyg.2022.856407>
- Yuan, F., & Woodman, R. W. (2010). Innovative behavior in the workplace: The role of performance and image outcome expectations. *Academy of Management Journal, 53*(2), 323–342. <http://10.0.21.89/AMJ.2010.49388995>
- Zuraik, A., & Kelly, L. (2019). The role of CEO transformational leadership and innovation climate in exploration and exploitation. *European Journal of Innovation Management, 22*(1), 84–104. <https://doi.org/10.1108/EJIM-10-2017-0142>