

Improving Public Sector Performance Through Innovative Behavior: The Effect of Creative Self- Efficacy, Innovation Climate and Moderating Role of Entrepreneurial Leadership

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Abstract. The main purpose of innovation in the private sector is to gain competitive advantage and organization's performance, likewise in public sector is to achieve performance that impact stakeholder's satisfaction. There have been many studies that prove the role of innovative behavior in shaping the innovation climate in organizations. This study tries to contribute in improving public sector performance comprehensively through innovative behavior shaped by individual beliefs and support from the internal environment of the organization, as well as the role of entrepreneurial leadership. The purpose of this study was to analyze whether innovative behavior is influenced by creative self-efficacy and innovation climate, as well as moderating role of entrepreneurial leadership, which will affect the organizational performance of the public sector. The study conducted in one of public organization in Indonesia. The respondent of this study is 162 middle-level managers and analyze using PLS-SEM approach. The results show that innovative behavior affects organizational performance, and innovative behavior is influenced by creative self-efficacy and innovation climate. This study, however, didn't reveal a moderating effect of entrepreneurial leadership in the relationship between creative self-efficacy and innovative behavior.

Keyword: Public Sector Performance, Innovative Behavior, Innovation Climate, Entrepreneurial Leadership, Creative Self- Efficacy

1 Introduction

Innovation has a primary role to maintain long-term viability of the organization and competitiveness in the face of a constantly changing business environment [1]. There have been many previous studies on creating innovative organizations or changing stagnant organizations to become more innovative. Although they have different goals, public sector organizations also face the same imperative as private organizations to innovate [2]. Innovation in private organizations is carried out to achieve competitive advantage and profit. Public sector innovation has a more altruistic motivation, for example, public value creation and accountability [3].

There are several obstacles that make it difficult for public service institutions to innovate. Firstly, public sector are rely on budget than performance. Secondly, the public sector relies on many various stakeholder groups and must satisfy all of them. Thirdly, the existence of public sector is motivated by a good intention, instead of by economic concerns [4].

The importance of public sector to innovate is to increase efficiency and reduce costs to provide benefit to the society [2]. In addition, public sector innovation will significantly effect overall economic growth. Furthermore, the public sector serves as a regulator for private-sector innovation [5].

Based on background above, researchers consider the need for public sector innovation, therefore they have several barriers to doing so. From the results of this study, researchers expect that it can be a recommendation for the public sector, to find ways to improve its performance.

2 Conceptual Model

This research model combines variables in Newman et al. [6], which examines the moderating role of entrepreneurial leadership in relationship between creative self-efficacy to innovative behaviour with. To produce a comprehensive model, we combine it with research from Shanker et al. [7], examining relationship between innovation climate variables, innovative behaviour, and their influence on performance at the organizational level.

Thus, we developed a research model to improve public sector performance.

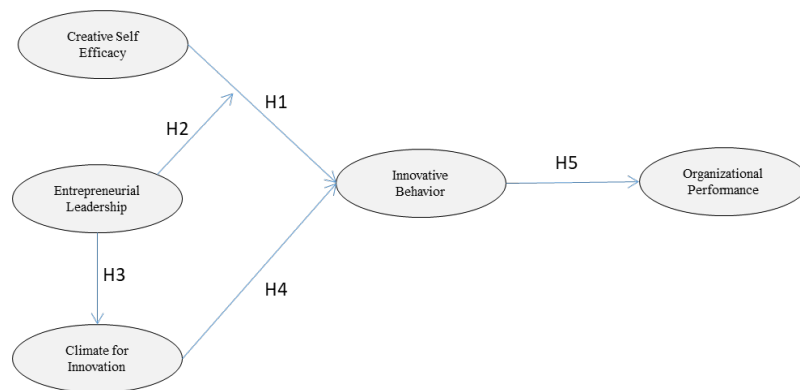


Fig. 1. Research model

One way to improve organizational performance is to develop innovative behaviour [7], such as employees' competences to create and implement creativity [8]. Creative self-efficacy of individuals strongly influences the formation of innovative behaviour in organization. Previous research explains that the employee with strong creative self-efficacy has a tendency to involve in innovative behaviour. The employees believe that knowledges and skills can produce and implement the ideas in the workplace [9]. In addition, entrepreneurial leadership moderates the relationship between creative self-efficacy with innovative behaviour and the innovation climate with innovative behaviour [7][6].

2.1 Creative Self-Efficacy and Innovative Behavior

Creative self-efficacy is defined as a belief in a person that he can produce creativity [10]. Innovative behaviour is a discretionary behaviour and, as a rule, that is not stated in an employee's job description or is not an explicit regulation [11]. This relationship has been investigated by previous researchers who found that someone with high creative self-efficacy

will have a positive influence on employee creativity [12][13][14]. Creative self-efficacy will lead to highly innovative behaviour for two reasons. The first reason is that individuals with high creative self-efficacy will choose to engage in innovative behaviour because they are confident in their knowledge and skills to generate ideas and apply them in their work [9]. Second, someone with high creative self-efficacy will feel better prepared to face the challenges and uncertainties encountered in developing and implementing new ideas in the workplace [15]. Compared to individuals with low creative self-efficacy, those with high creative self-efficacy will tend to perceive challenges as opportunities and persist when faced with setbacks [6].

H1: Creative self-efficacy has a positive effect on innovative behaviour.

2.2 Entrepreneurial Leadership as Moderating Role of Creative Self-Efficacy toward Innovative Behavior

Entrepreneurial leadership is one of the leadership styles which influences and directs performance of followers to achieve organizational goals by identifying and exploiting entrepreneurial opportunities [16]. There are two roles of entrepreneurial leaders. First, leaders encourage the employees to be innovative, challenge status quo, and take advantage of business opportunities. Second, as entrepreneurial actors, leaders participate and encourage employees to do entrepreneurial activities [16].

Employees with high creative self-efficacy will respond more positively to entrepreneurial leadership than employees with low creative self-efficacy. First, employees with leaders who focus on developing an entrepreneurial behaviour environment, tend to be more comfortable in the workplace rather than employees with low creative self-efficacy [6].

H2: The relationship between creative self-efficacy and innovative behaviour is moderated by entrepreneurial leadership.

2.3 Entrepreneurial Leadership and Innovation Climate

The internal environment of an organization that fosters innovation is referred to the innovation climate [7]. An innovation climate is demonstrated by creating an environment that encourages risk taking, allocates sufficient resources for innovation and creativity activities, provides challenges, and facilitates innovation and creativity [8]. For this reason, the formation of a climate of innovation in the organization depends on how the leader's attitude in creating an internal environment gives freedom to individuals to take risks and take advantage of entrepreneurial opportunities. Previous studies have proven influence of leadership on the innovation climate [17][18].

H3: Entrepreneurial leadership has a positive effect on the innovation climate

2.4 Innovation Climate and Innovative Behavior

De Jong and Vermeulen [19], through in-depth research on leaders in knowledge-intensive service companies, suggesting innovation climate as an antecedent variable of innovative behaviour [19]. Then, various previous studies primarily examine influence of innovation climate on innovation at the organizational and team levels, while its effect at individual level is still rare [7], one of the studies that have examined influence of the innovation climate on innovative behaviour at individual level was carried out by Scott and Bruce [8] which shows a positive relationship. This relationship was then examined again by Shanker et al. [7] and

proved a significant and positive relationship between innovation climate and innovative behaviour of individuals in organizations. For this reason, researchers feel the need to continue research using these variables in this study.

H4: Innovation climate has a positive effect on innovative behaviour.

2.5 Innovative Behavior and Organizational Performance

The application of innovation must improve organizational performance [20]. Further research found that organizational value is indirectly influenced by employee innovation; this influence is seen in the market and financial position [21]. The effect of employee innovation can also be seen from the growth of market share, which will ultimately increase revenue and profits [22]; this causes the need for capabilities, resources, and technology in implementing innovations to prevent competitors from imitating so that organizations gain sustainable competitive advantages and gain organizational performance improvements [23]. The relationship between individual innovative behaviour on performance at the organizational level has been investigated and proven to be a significant and positive relationship [7].

H5: Innovative behaviour has a positive effect on organizational performance.

3 Method

This study uses a quantitative method. Based on the time of data collection, this study used a cross-sectional approach, namely data taken at one time [24]. The survey was conducted by distributing questionnaires to all middle managers. Data collection was carried out between January to May 2021.

Sample is part of the population taken with a particular technique or method for research which is considered to represent the population as a whole. The sample in this study was 162 middle-level managers taken from a population of 271 person. Sampling method in this study was *probability sampling*, which is when the elements of population are known, and the method used is *simple random sampling*, where each sample has the equal opportunity to become a research subject [25].

Measurements in this study use a 5-point Likert scale that explains level of respondents' agreement with each indicator question given. A value of 1 for answers strongly disagree to a value of 5 for answers strongly agree. For measurement items in this study using research items developed by previous researchers. The creative self-efficacy variable is measured using research indicators developed by Tierney and Farmer [10], the entrepreneurial leadership variable uses indicators from Renko et al. [16], the variables of innovation climate and innovative behaviour were measured using Scott and Bruce [8] indicators. And for organizational performance variables measured using organizational key performance indicators (KPI) consisting of financial and non-financial aspects.

The data analysis technique used in this research is Structural Equation Modelling with Partial Least Square (PLS-SEM) approach. The method used is a two-step method, such as submitting the measurement model and structural model; this method is recommended for research using SEM analysis techniques [26].

4 Results and Discussion

Respondents in this study consisted of 80.2% men and 19.8% women. Based on the current position, 5.6% is level 2, 30.2% is level 3, and the most is the lowest position level 4, 64.2%. Based on the tenure in the current position, 65.3% have served under five years, 32.7% have served between 6 to 10 years, while the remaining 4.9% have served above 11 years (see table 1).

Table 1. Respondent profile

Type	Group	Total	Percentage
Gender	Male	130	80.2%
	Female	32	19.8%
Position	Manager level 2	9	5.6%
	Manager level 3	49	30.2%
	Manager level 4	104	64.2%
Educational background	Associate's	1	0.6%
	Bachelor	127	78.4%
	Undergraduate	34	21.0%
Age	< 30 years old	3	1.85%
	31 – 40 years old	37	22.84%
	41 – 50 years old	89	54.94%
	> 50 years old	33	20.37%
Tenure (In the current position)	< 5 years	101	62.35%
	6 – 10 years	53	32.72%
	> 11 years	8	4.94%

(Authors (2021))

All indicators are valid from the measurement model analysis results because each has a *loading factor* >0.5. The measurement results showed that each variable has good convergent validity and reliability (see table 2).

Table 2. Measurement Model

Variable	Code	LF > 0,5	AVE > 0,5	CA > 0,6	CR > 0,7
Creative Self-Efficacy	CSE1	0.887	0.716	0.800	0.883
	CSE2	0.796			
	CSE3	0.853			
Entrepreneurial Leadership	EL1	0.722	0.542	0.879	0.904
	EL2	0.728			
	EL3	0.665			
	EL4	0.789			
	EL5	0.723			
	EL6	0.755			
	EL7	0.743			
	EL8	0.760			
Innovation Climate	CI1	0.870	0.682	0.921	0.937
	CI2	0.864			
	CI3	0.705			

Variable	Code	LF > 0,5	AVE > 0,5	CA > 0,6	CR > 0,7
	CI4	0.784			
	CI5	0.819			
	CI6	0.857			
	CI7	0.867			
Innovative Behaviour	IB1	0.871	0.768	0.940	0.952
	IB2	0.867			
	IB3	0.846			
	IB4	0.888			
	IB5	0.883			
	IB6	0.902			
Organizational Performance	OP1	0.597	0.651	0.820	0.880
	OP2	0.831			
	OP3	0.889			
	OP4	0.875			

(SmartPLS output 2021 (Authors))

This research has sufficed the requirements of discriminant validity using the Fornell-Larcker criterion (see table 3).

Table 3. Fornell – Larcker Criterion

	CI	CSE	EL	IB	OP
CI	0.826				
CSE	0.541	0.846			
EL	0.702	0.514	0.736		
IB	0.816	0.554	0.667	0.876	
OP	0.647	0.395	0.428	0.648	0.807

(SmartPLS output, 2021 (Authors))

From the structural model analysis, the output can be translated into path analysis. Figure 2 shows that the path with the highest value is the path that starts from an entrepreneurial leadership to innovation climate to innovative behaviour and finally to organizational performance.

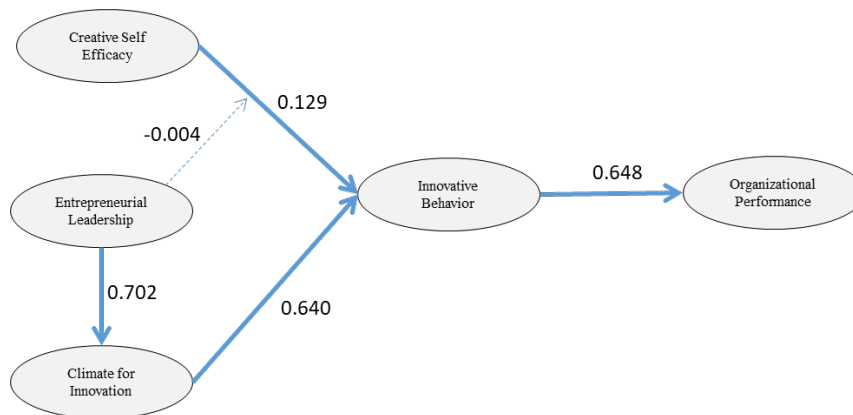


Fig. 2. Inner (Structural) Model

Table 4. Hypotheses testing

Hypotheses	Original Sample	T Value > 1,96	P Value ≤ 0,05
H1: Creative self-efficacy has a positive effect on innovative behaviour	0.129	2.780	0.006
H2: Entrepreneurial Leadership Moderates the Relationship of Creative Self-Efficacy and Innovative Behaviour	-0.004	0.098	0.922
H3: Entrepreneurial leadership has a positive effect on the innovation climate	0.702	14.697	0.000
H4: innovation climate has a positive effect on innovative behaviour.	0.640	6.992	0.000
H5: Innovative behaviour has a positive effect on organizational performance.	0.648	16.206	0.000

4.1 Creative self-efficacy has a positive effect on innovative behavior (supported)

The first hypothesis shows the t-value of the effect of creative self-efficacy on innovative behaviour of $2.780 > 1.96$ and p-value of $0.006 \leq 0.05$. The original sample value of 0.129 has a positive value indicating this relationship is positive, so the higher the creative self – efficacy will affect increasing innovative behaviour, hypothesis 1 is supported. This means that individuals who believe that they are capable of producing creativity will support the creation of innovative behaviour in which individuals can identify and apply creative ideas in the workplace. The findings in this study support previous research by Newman et al. [6].

If we look at the loading factor on the creative self-efficacy variable, the indicator that has the lowest value is belief that they will have the expertise to develop other people's ideas. Then this can be a priority in the implementation of creativity training where creativity is not

only produced by oneself. Training should conduct that creativity is also about how to take advantage of other people's ideas that are developed to be more useful in work.

4.2 Entrepreneurial Leadership moderates Creative Self-Efficacy to Innovative Behavior (not supported)

The second hypothesis shows that the t-value is $0.098 < 1.96$. p-value is $0.922 > 0.05$. In contrast with previous research by Newman et al. [6], entrepreneurial leadership has no significant moderating effect in the relationship between creative self-efficacy and innovative behaviour. The presence or absence of entrepreneurial leadership will not weaken or strengthen the influence of creative self-efficacy on innovative behaviour. Hypothesis 2 is rejected.

To get final result of positive behaviour as expected, it requires a fit leader-follower relationship, which applies to various types of leadership. So that leadership can affect the behaviour of subordinates requires a certain period. Research conducted by Thao and Kang [27], which examined servant leadership and its effect on forming organizational citizenship behaviour, found that the longer the time leader and subordinate are together, the stronger the influence of leadership. The less duration of leader-subordinate time can cause the effect of leadership to be weaker or even insignificant [27].

According to this, the lack of a moderating effect of entrepreneurial leadership in the relationship between creative self-efficacy and innovative behaviour may be due to a lack of time between superiors and subordinates. The organization we research, from 2016 to 2019 has undergone five times changes of leader [28]. Also, changes in the organizational structure that occurred in 2020 are accompanied by promotions and position transfers [29]; this is also reflected in the demographics of respondents where 62.35% are respondents who hold their current position for under five years.

4.3 Entrepreneurial leadership has a positive effect on the innovation climate (supported)

The third hypothesis shows that the t-value of entrepreneurial leadership on the innovation climate is $14,697 > 1.96$ and a p-value of $0.000 < 0.05$. The original sample value of 0.702 has a positive value indicating this relationship is positive, so entrepreneurial leadership has a significant and positive influence on the innovation climate. Hypothesis 3 is supported. This means that the higher the entrepreneurial leadership will increase the organization's internal support for innovation.

Indicator in entrepreneurial leadership, "My leader dares to take risks", get the lowest loading factor; this is very understandable in the context of this research in the public sector. However, entrepreneurial opportunities need to be utilized to improve organizational performance, especially in terms of adding new sources of income, resulting in increased organizational performance, especially in terms of finance.

4.4 Innovation Climate on Innovative Behavior (supported)

The fourth hypothesis shows that the t-value of entrepreneurial leadership on the innovation climate is $6.992 > 1.96$ and a p-value of $0.000 < 0.05$. The original sample value of 0.640 has a positive value indicating this relationship is positive. The innovation climate has a significant and positive influence on innovative behaviour. Hypothesis 4 is supported. This means that when the organization's internal support for innovation increases, it will increase

individuals' ability to identify and implement the ideas in their work environment. This result supports the findings of previous research conducted by Shanker et al. [7].

If we look at the indicator that have the lowest loading factor, then organization needs to give more freedom to employees to solve the same problems in different ways, which means giving them opportunity to find new ways that are more effective and efficient.

4.5 Innovative Behavior on Organizational Performance (supported)

The fifth hypothesis shows that the t-value of entrepreneurial leadership on the innovation climate is $16,206 > 1.96$ and a p-value of $0.000 < 0.05$. the original sample value of 0.648 has a positive value indicating this relationship is positive. The impact of innovative behaviour on organizational performance is significant and positive. Hypothesis 5 is supported. This means that high innovative behaviour will improve organizational performance. This finding supported previous research conducted by Shanker et al. [7].

The lowest factor loading in this variable indicates a need for improvement from employees in promoting their ideas to others. The idea originated from an individual will become an organizational innovation that will eventually impact improving organizational performance.

5 Conclusion

The main conclusion of this research is “to improve organizational performance, organizations can develop innovative behaviour, meanwhile to shape innovative behaviour can be done by increasing individual creative self-efficacy, and creating an internal environment that supports innovation driven by entrepreneurial leadership”.

In more detail, the study results found that to improve organizational performance, organizations could improve innovative behaviour. Previous research even estimated that 80% of innovation derived from employee/individual ideas [30]. Developing innovative behaviour can be done by increasing individual creative self-efficacy. Ohly, Plückthun and Kissel [31] found that individual creative self-efficacy can be increased through creativity training.

Innovative behaviour also can be formed by creating an internal environment that supports innovation or an innovation climate. To create an innovative climate, organizations can place superiors or managers with entrepreneurial leadership types. Entrepreneurial-type leaders will influence and exploit their members to realize and exploit entrepreneurial opportunities so that the formation of an innovation climate in the organization is very dependent on how the leader's attitude in creating an internal environment provides freedom for individuals to take risks and take advantage of entrepreneurial opportunities.

However, entrepreneurial leadership has not been shown to moderate the relationship between creative self-efficacy and innovative behaviour, so there are differences in the findings of this study from previous studies. From the study context, the frequent changes of top organizational leaders and position transfer due to changes in organizational structure that were carried out sometime before the research were considered the cause of this unproven relationship. This was due to the importance of compatibility or alignment of superior-subordinate relationships, and to achieve This match requires a duration, less time will cause the influence of leadership to decrease or even become insignificant, and this, according to previous research, will increase for the better over time [27].

Limitations in this study, first is there are other variables that can influence or have a moderating role but are not included in this research. Other type of leadership can moderate the relation between creative self – efficacy and innovative behaviour. Second, because this is a cross-sectional study, the researchers could not see the difference in the influence of leadership at different times so that this research would be difficult to generalize.

The findings of this study can be further refined by re-exploring the same research model with other public sector or other context to provide more general research results, including other type of leadership variable, and measure dyadic duration as control variable.

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