



The Impact of Temporal and Transformational Leadership on Innovation Performance: A Mediation Analysis of Self-Efficacy

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ABSTRACT

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Introduction/Main Objectives: Current business growth cannot be optimal if it is not accompanied by innovation performance. This study explores the relationship between innovation performance, temporal leadership, and transformational leadership involving an intervening variable of self-efficacy. **Background Problems:** The process of transforming management from manual to digital requires leaders to be temporal and transformational to support direct and indirect atmosphere of innovation performance through employees' self-efficacy. **Novelty:** Temporal and transformational leadership are like two complementary currency coins in the process of changing from manual management to a digital system. Furthermore, this research has never been carried out, therefore validation is needed. **Research Methods:** The nonprobability sampling method of the study using saturated sampling involved 85 respondents of the employees of distributor company. The hypotheses were tested using SmartPLS. **Finding/Results:** The results showed that temporal leadership has a direct significant positive impact on innovation performance and self-efficacy. Additionally, transformational leadership also shows a direct significant positive impact on innovation performance and self-efficacy. This study argues that self-efficacy also shows a significant positive impact on innovation performance. In addition, self-efficacy intervened the impact of temporal and transformational leadership on innovation performance. **Conclusion:** Temporal and transformational leadership have a beneficial effect in increasing innovation performance and self-efficacy is proven to be a mediation. The practical implication is the need to strengthen leaders to maintain a positive attitude towards employee self-efficacy to carry out innovative performance.

1. Introduction

Quality Human Resources (HR) is a valuable asset in achieving organizational goals. However, quality alone is not enough if they are unable to compete in a very innovative dynamic competitive environment. This is a challenge for HR management to strive in creating an environment of continuous innovation performance since it faces the speed of competitive information in terms of products, processes, and input aspects, and all of them cannot be separated from the right timing so that leaders are highly demanded in time management at the right moment (M. Li & Ye, 2021a).

One of the characteristics of a leader who always prioritizes the right timing is usually called temporal leadership where the leader always prepares employees to meet proposed deadlines, monitors the progress of team members' tasks, and provides time resources distribution properly. According to Zhang et al. (2020), temporal leadership is the characteristic of a leader in structuring, coordinating, and adjusting the speed of completion of tasks within the team to achieve company goals.

Temporal leadership is static, which is useful for stabilizing the duration of work time tempo, work, and work procedures so that static rhythms can continue. It is more towards utilizing behavior oriented towards static task completion. Zhang et al. (2020) concluded that temporal leadership gave a positive impact on the innovation performance of the company. A very innovative competitive environment is not enough to rely solely on a static temporal leadership style but must have a dynamic leadership style to be able to transform opportunities and threats into innovative performance ideas in a transformational way

and still have the right tempo. Moreover, increasing pressure on speed is a consumer need so that the timing of innovative performance is a priority (Acar et al., 2019). Therefore, the role of the temporal leader can help employees adjust to these demands and improve their innovative work performance within a certain time (Khaola & Coldwell, 2019).

Transformational leadership style focuses on how a group of people can work together to change a company and influence the culture of the organization (Wan et al., 2021). This leadership style has the potential to motivate those who follow it to make big changes because leaders not only care about and are involved in the process but give their employees more space to develop so that they are more creative, solutive, future-oriented, and adaptable quickly. According to Almaududi Ausat et al. (2022), transformational leadership gives each employee freedom to make judgments and act as needed so that levels of satisfaction, commitment, and a sense of ownership are high. Ting et al. (2021) confirmed that transformational leadership has a positive impact on corporate innovation performance. In addition, workers' innovative performance at work raises their motivation as leaders encourage them to be involved sustainably in innovation performance (Hadi, 2022; Hadi, Pebrianti, et al., 2023; Zhang et al., 2020).

An interesting phenomenon from the subject of this research is the leadership management process at an organization which is a distributor company providing PVC and mild steel ceilings located in five regions in Indonesia. The digital transformation process digitizes the management system to facilitate the process of carrying out its business which cannot

escape the impact of the leadership style in the distributor company.

The leadership process at the distributor company has a static or temporal tempo. Zhang et al. (2020) inspired the need for transformational leadership to support management processes that are still transitioning toward major changes. These changes are not easy to do without involving the role of employees' self-efficacy to achieve these big goals. Furthermore, a substantial number of studies show that self-efficacy affects employees' performance (Hadi, Wahyuningtyas, et al., 2023; M. Li & Ye, 2021). It requires teamwork and willingness on duty to bridge between temporal and transformational leadership towards increasing innovation performance at distributor company.

Self-efficacy is regarded as an employee's belief in completing work and is more likely to succeed when an employee has a high self-efficacy. It usually influences how they make decisions to achieve a goal or to take advantage of opportunities that will be available in the future. Employees with high self-efficacy are more likely to persist in facing tough tasks because they are more confident in their ability to learn and complete tasks successfully (Teng et al., 2019). Similarly, Sarwat & Abbas (2021) stated that self-efficacy has a positive impact on innovation performance.

From the explanation above, the researchers conclude that the leadership style that must be adopted to support the innovation performance is by using temporal and transformational leadership. It is also a solution to the gap that occurs in the management transformation process from manual to digital. In addition, changes will not occur properly and sustainably when employees' self-efficacy is minimal, therefore

it is very important to conduct a study on "The impact of temporal and transformational leadership on innovation performance: a mediation analysis of self-efficacy".

2. Literature Review

In 1991, McGrath developed Time, Interaction, and Performance theory (TIP) which is also known as the theory of time, interaction, and performance which is the basis of this research explanation, prediction, and control performance influenced by leaders' interaction and mediated by self-efficacy. Leaders' behavior in the process of structuring, coordinating, and managing the speed at which tasks are accomplished in teams are classified as temporal leadership which emphasizes temporality. Some of the examples are by reminding deadlines for team members, coordinating the team to complete their work according to the deadlines, and allowing various possibilities and challenges in tasks distributed (Zhang et al., 2020). This time-related leadership technique, according to TIP theory allows employees to deal with three temporal problems: conflicting temporal interests and requirements, temporal ambiguity, and limited temporal resources.

2.1 Innovation Performance

Employee innovative performance is widely recognized as an important aspect to assist companies in building a sustainable competitive strength. Innovative performance is related to the degree to which an employee creates and applies new and powerful ideas at work. Research shows that 80% of an organization's new insights come from its employees (Hidayati et al., 2022; Sarwat et al., 2021). It proves that the innovative performance of employees plays an essential aspect in driving the progress of

the company. As an output of increasing competition, globalization, and the speed of technological transformation, leaders are under a lot of pressure to find ways to increase the innovation performance of their employees. Therefore, innovation performance is seen as a key product, process, and management innovations which have an impact on improving quality and efficiency. Leadership, as an integral aspect of an organization, plays an important aspect in encouraging and promoting innovative work practices through supportive behaviors (Ullah et al., 2021). Measuring employees' innovation performance can be undertaken by the following indicators:

- (a) Work effectiveness: the ability to work according to schedule and effectiveness in managing time when completing tasks.
- (b) Quality of work: the ability to work accurately while adhering to the company's business standards.
- (c) Quantity of work: each employee has the amount of work following the job description and completes more work.
- (d) Independence: the ability to complete tasks given by leaders without asking for help from others.
- (e) Production time: the ability to complete tasks on time and meet work deadlines.
- (f) Commitment to work: always giving their best when carrying out professional obligations and having a real desire to succeed.

2.2 Temporal Leadership

Temporal leadership consists of techniques to enable leaders to distribute time properly, to organize, and to coordinate activities, schedules, and duties. It can also help employees make better use of their time and improve their own or their team's

performance as well as reducing employees' bad behavior at work because of its effectiveness in time management. According to M. Li & Ye (2021), time urgency, time planning, time scheduling, and the allocation of time resources are all important aspects of temporal leadership. Researchers have paid great attention to temporal leadership as it is a relatively new idea (Wan et al., 2021). It can be measured by the following indicators:

- (a) Time urgency: temporal leadership is a set of time management behaviors that managers use to assist employees in utilizing their time efficiently while carrying out their obligations to enhance employee innovative performance in time-constrained work situations. Time urgency is often associated with employees, behavioral characteristics, employees who work with certain deadlines tend to be able to provide fast and positive results in completing tasks (Najam et al., 2018).
- (b) Time perspective: according to the perspective of Najam et al. (2018), there are three types of time perspectives, namely past, present, and future. While temporal leadership only focuses on two categories of present and future dimensions. The current time perspective is more inclined to take bigger risks and develop plans with shorter durations. In contrast to the future time perspective, it is more goal-oriented, and planning for the future.
- (c) Working speed: the concept of working speed is derived from the assumption that everyone has explicit expectations and preferences regarding the development of events and activities over time. Working speed is synonymous with work deadlines. Employees will produce higher work output

when their temporal cycles are aligned with external speed because they have an inherent tendency to synchronize their steps with others (S. H. Oh et al., 2020).

2.3 Transformational leadership

Ting et al. (2021) stated that leadership is a person's ability to visualize, think strategically anticipate, maintain flexibility, and collaborate with others to bring about change assuring the long-term survival of the organization. Transformational leadership is concerned with the process of transforming a company into a new vision, resulting in the evolution of a categorical corporate culture of individual consideration, intellectual simulation, inspirational motivation, and idealized influence. Employees in a company are an important factor in developing productivity, therefore leaders must foster employee loyalty. Additionally, self-efficacy can increase, which in turn ultimately increases innovation performance and reduces absenteeism (Almaududi Ausat et al., 2022). Ting et al. (2021) in his research added that ideal influence, inspiration, personal consideration, and intellectual stimulation are some of the most common qualities of transformational leadership which can be measured by the following indicators:

- (a) Idealized influence: leaders demonstrate conviction, accentuate trustworthiness, tackle difficult problems, articulate important principles, and stress essential purposes, commitment, and the decisions of ethical consequences. Leaders must set a good example for their employees to follow so that they respect and believe in their leaders.
- (b) Inspirational motivation: leaders articulate compelling visions of the

future, challenge their members to high standards, communicate optimism and enthusiasm, and offer motivation and meaning for the work to be done.

- (c) Intellectual stimulation: Leaders must be able to motivate their subordinates and provide opportunities for their employees to become problem solvers and provide innovations under their supervision to generate new ideas and thoughts.
- (d) Individual consideration: leaders must pay attention to employee complaints and understand their demands.

2.4 Self-Efficacy

Self-efficacy is knowledge or self-awareness that has an impact on a person's daily life which can be seen from the aspects of magnitude (level of task difficulty), generality (broad area of behavior), and strength (degree of belief or expectation) (Mukti & Tentama, 2020). Self-efficacy is a motivating factor that influences persistence, targets, activity choices, and personal performance in various situations. Self-efficacy is a concept generally used to characterize entrepreneurial motivation and behavior (Najib et al., 2020). Teng et al. (2019) argued that transformational leadership and self-efficacy have a positive connection. Employees with higher levels of self-efficacy will improve the level of a company as a whole. Sarwat & Abbas (2021) in their research stated that personality is proven to influence innovative performance. When people believe they have the capacity or capability to complete a task, they are more motivated to do so, thus they can come up with and implement innovative ideas at work. In measuring self-efficacy, the following indicators can be applied as used by Mukti & Tentama (2020), namely:

- (a) Magnitude (the degree of difficulty of the task). It is an analysis of choices of behavior to carry out, adapt and deal with difficult tasks, and avoid situations and behavior beyond the limits.
- (b) Generality (broad field of behavior). Beliefs that spread across multiple areas of behavior.
- (c) Strength (Degree of confidence). A strong belief persists in his efforts and has confidence in the success of what he is doing.

3. Development of Hypotheses

3.1 Temporal leadership influences innovation performance

Temporal leadership according to the TIP (theory of Time, Interaction, and Performance) allows employees to deal with three temporal problems: conflicting temporal requirements and interests, temporal ambiguity, and lack of temporal resources. Today's dynamic changes require that a temporal leader can manage employees in response to temporal needs. Furthermore, adaptive performance, which includes creative problem-solving, is a common way of assessing employee flexibility in the workplace. Given that solving problems creatively requires implementing new ideas, temporal leadership can assist employees to be more innovative in time-constrained scenarios (Zhang et al., 2020). Besides that, Liu et al. (2021) stated that individuals who have more skills are more able to survive so that positive work behavior (such as inventive behavior) can only be implemented if someone has good skills.

Temporal leadership can help team members retain sufficient resources to execute innovative behavior by taking on

time planning and time management responsibilities reasonably. Meanwhile, through supervision, temporal leadership can encourage employees to use the resources to engage in new things. Najam et al. (2018) stated under the influence of the leader, employees can learn how to optimize time and make members more comfortable and have the opportunity to convey innovative ideas. Through effective transformation, employees can carry out innovative behavior more easily. Zhang et al. (2020) stated temporal leadership has a positive impact on employees' performance. Temporal leadership is related to the management of time, such as measuring, planning, and monitoring the use of employee time at work. Therefore, the hypothesis is as follows:

Hypothesis 1. Temporal leadership has a positive impact on innovation performance.

3.2 Transformational leadership influences innovation performance

Given that transformational leadership has a role as a trainer, motivator, teacher, and developer in the organization, these leaders encourage and motivate their members to foster innovation and individual abilities through learning to achieve innovative employee and company performance. Majali et al. (2022) stated that transformational leadership has a significant positive impact on innovation performance. Similarly, Zhao & Huang (2022) stated that transformational leadership has a positive influence on performance in companies in China. Nasir et al. (2022) also added that transformational leadership shows a positive impact on innovation-oriented performance. Companies can easily obtain feedback information, new markets, and the business

environment using information technology which can be used as an important component of a knowledge resource (Ting et al., 2021). The ideal effect of this nature and behavior encourages employees to create creative and innovative ideas within work systems and focus on providing services to customers, which have an impact on improving quality and efficiency. From the review of several previous related studies, it can be concluded that transformational leadership has a positive impact on employees' innovation and creativity. Therefore, the hypothesis is as follows:

Hypothesis 2. Transformational leadership has a positive impact on innovation performance.

3.3 Temporal leadership influences self-efficacy

Therefore, the Employees benefit from temporal leadership as they can arrange their tasks and coordinate their work completion, which in turn increases their focus on tasks. In addition to the impact that occurs, an employee will be more involved in the work process from planning to the evaluation stage so that they understand more comprehensive information about work, which will help their mastery experience and increase their self-efficacy (M. Li & Ye, 2021). Research undertaken by Kayani (2021) reported that temporal leadership helps in creating work models for employees in companies, which is a source of employee self-efficacy. In addition, M. Li & Ye, (2021) argued that temporal leadership has a positive influence on self-efficacy, besides that self-efficacy can also mediate relationships with bootlegging behavior. Employees with temporal leadership have been shown to inspire the ways how employees work. The leader acts as a

command and controls the entire team when carrying out business processes at work. This also reinforces the function of a leader as a role model for employees in increasing their self-efficacy and improving employee performance. Therefore, the hypothesis is as follows:

Hypothesis 3. Temporal leadership has a positive impact on self-efficacy.

3.4 Transformational leadership influences self-efficacy

Transformational leadership is a relevant cross-level predictor of each employee's self-efficacy over time (Salanova et al., 2022). Transformational leaders help their members create self-confidence by providing open opportunities for employees to be able to do creative work by providing a view of the company's vision to the entire team within the organization (Afsar & Masood, 2018). Chen et al. (2022) demonstrated that transformational leadership has a significant positive impact on self-efficacy and it can intervene in human resource development. Likewise, research conducted by Choi & Kang (2021) confirms that transformational leadership has a positive impact on self-efficacy. Individuals who are motivated by vision will have a positive effect on adjustments and engage in continuing goal-oriented actions. Therefore, transformational leaders influence and drive employees to deal with current issues, challenge the status quo, recommend creative solutions to deal with problems encountered, handle complex situations, minimize risk and uncertainty, and goals and competencies that are not well organized. Therefore, it can be concluded that:

Hypothesis 4. Transformational leadership has a positive impact on self-efficacy.

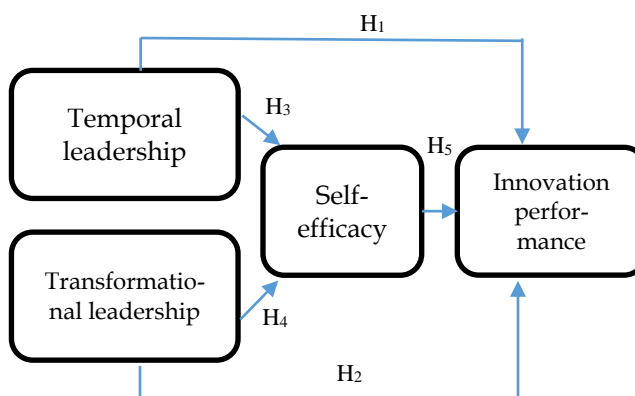
3.5 Self-efficacy influences innovation performance

Previous studies have shown that several personality characteristics influence innovation performance. For example, research shows that psychological capital and a proactive personality fuel creative behavior at work (Abbas et al., 2018). Alshebami (2023) also shows that self-efficacy has a positive impact on innovation and organizational performance using a Resource Based View (RBV) study. Meanwhile, Mumtaz & Parahoo (2019) strengthened the significant positive relationship between the effects of self-efficacy (effort), self-efficacy (persistence), and self-efficacy (initiative) on innovation performance. Individual creative self-efficacy is one of the characteristics associated with creativity. Employees with high creative self-efficacy have strong beliefs in their ability to create new concepts. An employee is more motivated on a particular job when they understand to have the potential or ability needed to carry out the task. Employees who have high creative self-efficacy have strong confidence in their ability to carry out innovative tasks, such as research from Najib et al. (2020). His research showed that self-efficacy was proven to influence innovative performance/activities. Therefore, the hypothesis is as follows:

Hypothesis 5. Self-efficacy has an impact on innovation performance.

From the exploration of the formulation of the hypotheses above, the proposed research framework is as follows:

Figure 1. Research Framework



4. Method, Data, and Analysis

4.1 Data collection

This study involved employees who work at organization in the five major regions in Java, Indonesia. The research data were gathered through a questionnaire survey using the philosophy of positivism. Sampling was carried out using non-probability sampling, saturated sampling (census), where the members of the population are used as samples. Therefore, saturated sampling (census) is selected as the population size is only 85. The distribution of respondents is divided into five regions in Java. The data analysis is quantitative to test the established hypotheses.

4.2 Research model and measurement variable

This present research focuses on exploring the role of temporal and transformational leadership on innovation performance intervened by self-efficacy at organization. Based on the literature review and the proposed hypotheses, an initial research model is developed as shown in Figure 1. Indicators of measurement variables were developed based on the literature. However, the researchers modified each measurement or statement item to meet the condition of the

respondents. All statement items were distributed to respondents. The questionnaire uses a Likert scale (1 = strongly disagree, 5 = strongly agree). Variable indicators and statement items are presented in Table 1.

4.2.1 Innovation performance

Innovation performance of this present study is measured using six aspects adopted from Mukti & Tentama (2020), namely work effectiveness, work quality, work quantity, independence, production time, and work commitment. These six indicators are explained in twelve statements.

4.2.2 Temporal Leadership

The measurement of temporal leadership in this present study was measured using three aspects adopted from M. Li & Ye (2021), namely urgency of time, perspective of time, and speed of work. These three indicators are explained in ten statements.

4.2.3 Transformational leadership

Transformational leadership was measured using four aspects adopted from Ting et al. (2021), namely inspirational motivation, idealized influence, individual consideration, and intellectual stimulation. These four indicators are explained in eight statements.

4.2.4 Self-Efficacy

Self-efficacy measurement was measured using three aspects adapted from Mukti & Tentama (2020), namely: 1) Magnitude, 2) Generality, and 3) Strength. These three indicators are explained in six statements.

Table 1. Statement Items

| Temporal Leadership | |
|------------------------------------|---|
| Time urgency | I often do a lot of things fast. |
| | I often work at a slow tempo. |
| | I often feel pressured by working hours. |
| Time perspective | I've always been reminded by the leaders of work deadlines. |
| | Convenience is a major factor in making decisions. |
| | I tend to be out of the box in making decisions. |
| working speed | I always make levels of priority at work. |
| | I always finish work long before deadlines. |
| | I often complete my work when the deadline is approaching. |
| | I avoid the risk of being late when completing my work. |
| Transformational Leadership | |
| Idealized influence | Leaders motivate me to work better. |
| | Leaders grow my confidence in doing the work. |
| Intellectual stimulation | The leadership gave me confidence that the company's goals would be achieved. |
| | Leaders arouse my enthusiasm to do the job. |
| Inspirational motivation | Leaders are my role models in the company. |
| | The leader gives instructions on how to complete a job. |
| Individual consideration | My boss encourages me to use creativity to get the job done. |
| | My boss is always eager to listen to my ideas. |
| Self-efficacy | |
| Magnitude | I like work that challenges new ideas to emerge. |
| | I do not avoid the work given by the leaders. |
| Generality | I always take the initiative to find the best steps. |
| | Conflicts with co-workers affect my concentration at work. |
| Strength | I have a positive response to criticism. |

| | |
|-------------------------------|--|
| | I have a high sense of optimism to achieve something |
| Innovation Performance | |
| work effectiveness | I can work according to plan. |
| | I can make good use of working hours. |
| Work quality | I am able to work according to the work procedures. |
| | I am able to complete work accurately. |
| Working quantity | I do the work according to my duties. |
| | I can complete the work maximally. |
| Independence | I can complete my work alone without the help of others. |
| | I am able to carry out other work assigned by the leaders. |
| Production time | I can finish work on time. |
| | I can meet the work targets given by the leaders. |
| Work commitment | I have a strong commitment to my work. |
| | I am responsible for the work given by the leaders. |

4.3 Research model and measurement variable

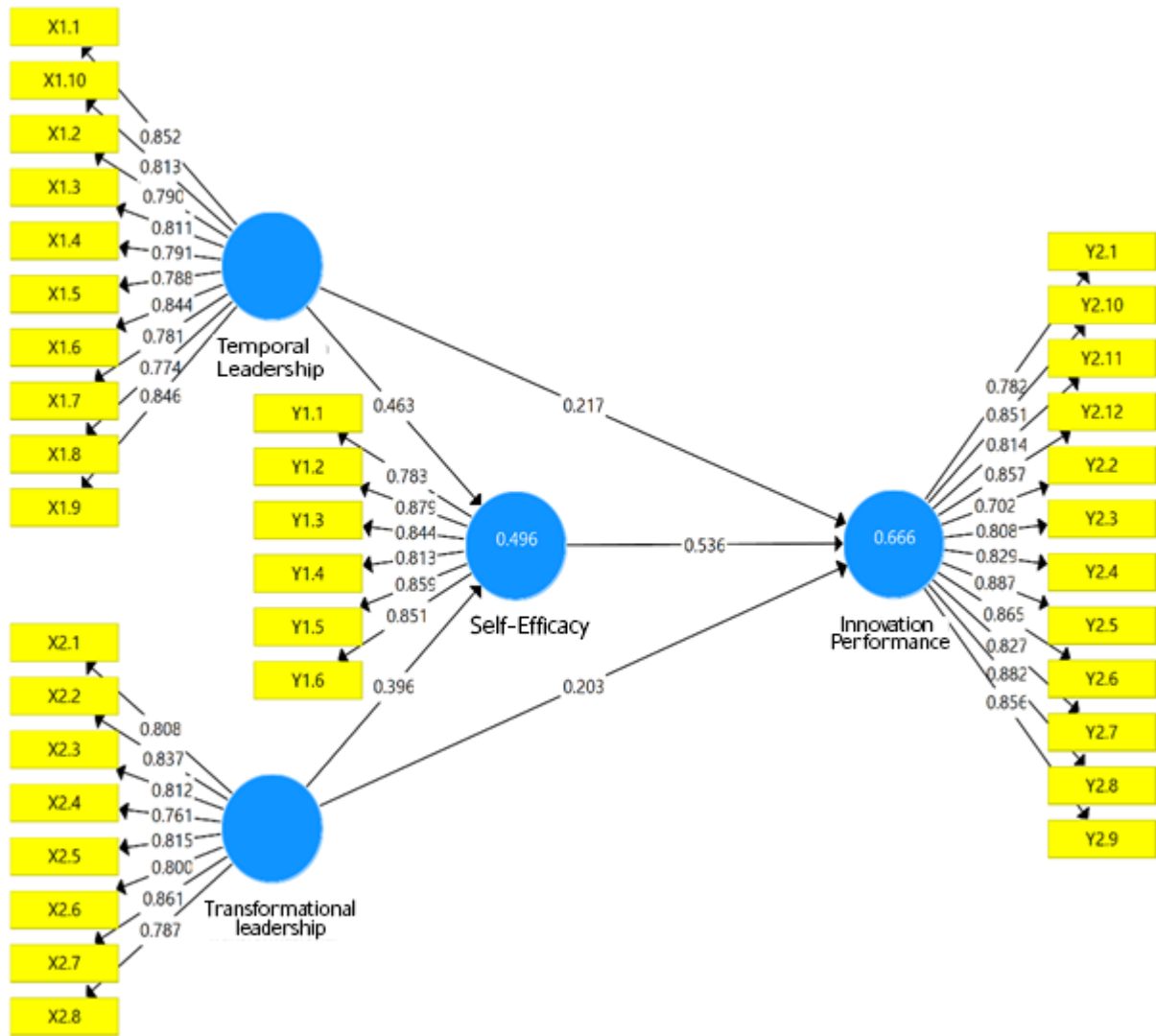
We performed descriptive, inferential, and Structural Equation Model (SEM) to examine the data. The analytical tool used is Partial Least Square (PLS), namely SEM-based variance, using SmartPLS software. SEM is a powerful statistical tool for directly examining indicator variables, measurement error, and latent variables. In addition, it shows the direct and indirect impacts of recursive and non-recursive complex variables simultaneously to obtain a comprehensive model overview (Wiyono, 2020).

5. Result

5.1 Validity and reliability

Test indicators or instrument quality is done by measuring the criteria for loading factor (convergent validity), discriminant validity, composite reliability, and average variance extracted using the SmartPLS structural model presented in Figure 2.

Figure 2. SmartPLS structural model



5.1.1 Loading Factor (Convergent Validity)

Convergent validity is measured using outer loading parameter or loading factor. Size convergent validity is expressed well when value factor loading > 0.70. Therefore, the manifest variable must be excluded from the model. Table 2 presents the values of the outer loading of each indicator.

Table 2. Results of Convergent Validity

| Item | Tem. Lead. | Tran. Lead. | Self Effic. | Inno. Perf. | Infor. |
|-------|------------|-------------|-------------|-------------|--------|
| X-1.1 | 0.852 | | | | √ |
| X-1.2 | 0.790 | | | | √ |
| X-1.3 | 0.811 | | | | √ |

| | | | | | |
|--------|-------|-------|-------|--|---|
| X-1.4 | 0.791 | | | | √ |
| X-1.5 | 0.788 | | | | √ |
| X-1.6 | 0.844 | | | | √ |
| X-1.7 | 0.781 | | | | √ |
| X-1.8 | 0.774 | | | | √ |
| X-1.9 | 0.846 | | | | √ |
| X-1.10 | 0.813 | | | | √ |
| X-2.1 | | 0.808 | | | √ |
| X-2.2 | | 0.837 | | | √ |
| X-2.3 | | 0.812 | | | √ |
| X-2.4 | | 0.761 | | | √ |
| X-2.5 | | 0.815 | | | √ |
| X-2.6 | | 0.800 | | | √ |
| X-2.7 | | 0.861 | | | √ |
| X-2.8 | | 0.787 | | | √ |
| Y-1.1 | | | 0.783 | | √ |

| | | | | | |
|--------|--|--|-------|-------|---|
| Y-1.2 | | | 0.879 | | √ |
| Y-1.3 | | | 0.844 | | √ |
| Y-1.4 | | | 0.813 | | √ |
| Y-1.5 | | | 0.859 | | √ |
| Y-1.6 | | | 0.851 | | √ |
| Y-2.1 | | | | 0.782 | √ |
| Y-2.2 | | | | 0.702 | √ |
| Y-2.3 | | | | 0.808 | √ |
| Y-2.4 | | | | 0.829 | √ |
| Y-2.5 | | | | 0.887 | √ |
| Y-2.6 | | | | 0.865 | √ |
| Y-2.7 | | | | 0.827 | √ |
| Y-2.8 | | | | 0.882 | √ |
| Y-2.9 | | | | 0.856 | √ |
| Y-2.10 | | | | 0.851 | √ |
| Y-2.11 | | | | 0.814 | √ |
| Y-2.12 | | | | 0.857 | √ |

Note: √: Valid – I: Invalid

Table 2 shows that all indicators on the research variables fit convergent validity as the value outer loading is above 0.70.

5.1.2 Discriminant Validity

Discriminant validity is applied for testing the validity of the developed model. Discriminant validity is seen through value cross-loading which shows the magnitude of the correlation between constructs with their indicators and indicators from other constructs. The default value used for cross-loading must be greater than 0.7.

Table 3. Results of Discriminant Validity

| Item | Tem. Lead. | Tran. Lead. | Self Effic. | Inno. Perf | Infor. |
|-------|--------------|-------------|-------------|------------|--------|
| X-1.1 | 0.852 | 0.353 | 0.528 | 0.437 | √ |
| X-1.2 | 0.790 | 0.311 | 0.503 | 0.495 | √ |
| X-1.3 | 0.811 | 0.397 | 0.440 | 0.498 | √ |
| X-1.4 | 0.791 | 0.233 | 0.465 | 0.455 | √ |
| X-1.5 | 0.788 | 0.242 | 0.457 | 0.517 | √ |
| X-1.6 | 0.844 | 0.267 | 0.521 | 0.581 | √ |
| X-1.7 | 0.781 | 0.144 | 0.486 | 0.471 | √ |

| | | | | | |
|--------|--------------|--------------|--------------|--------------|---|
| X-1.8 | 0.774 | 0.150 | 0.482 | 0.488 | √ |
| X-1.9 | 0.846 | 0.391 | 0.465 | 0.458 | √ |
| X-1.10 | 0.813 | 0.301 | 0.489 | 0.503 | √ |
| X-2.1 | 0.324 | 0.808 | 0.483 | 0.463 | √ |
| X-2.2 | 0.306 | 0.837 | 0.471 | 0.490 | √ |
| X-2.3 | 0.246 | 0.812 | 0.365 | 0.425 | √ |
| X-2.4 | 0.225 | 0.761 | 0.392 | 0.451 | √ |
| X-2.5 | 0.245 | 0.815 | 0.532 | 0.490 | √ |
| X-2.6 | 0.352 | 0.800 | 0.483 | 0.510 | √ |
| X-2.7 | 0.228 | 0.861 | 0.477 | 0.472 | √ |
| X-2.8 | 0.296 | 0.787 | 0.349 | 0.409 | √ |
| Y-1.1 | 0.462 | 0.387 | 0.783 | 0.579 | √ |
| Y-1.2 | 0.529 | 0.467 | 0.879 | 0.675 | √ |
| Y-1.3 | 0.526 | 0.445 | 0.844 | 0.675 | √ |
| Y-1.4 | 0.425 | 0.445 | 0.813 | 0.669 | √ |
| Y-1.5 | 0.487 | 0.591 | 0.859 | 0.674 | √ |
| Y-1.6 | 0.581 | 0.442 | 0.851 | 0.643 | √ |
| Y-2.1 | 0.436 | 0.416 | 0.673 | 0.782 | √ |
| Y-2.2 | 0.392 | 0.502 | 0.542 | 0.702 | √ |
| Y-2.3 | 0.595 | 0.449 | 0.667 | 0.808 | √ |
| Y-2.4 | 0.559 | 0.485 | 0.732 | 0.829 | √ |
| Y-2.5 | 0.481 | 0.470 | 0.682 | 0.887 | √ |
| Y-2.6 | 0.528 | 0.525 | 0.624 | 0.865 | √ |
| Y-2.7 | 0.513 | 0.382 | 0.655 | 0.827 | √ |
| Y-2.8 | 0.522 | 0.457 | 0.658 | 0.882 | √ |
| Y-2.9 | 0.530 | 0.586 | 0.633 | 0.856 | √ |
| Y-2.10 | 0.529 | 0.449 | 0.591 | 0.851 | √ |
| Y-2.11 | 0.486 | 0.465 | 0.650 | 0.814 | √ |
| Y-2.12 | 0.470 | 0.547 | 0.639 | 0.857 | √ |

Note: √: Valid – I: Invalid

Table 3 shows that the value of each cross-loading is > 0.70, and each item has a greater value associated with its latent variable compared to associated with other latent variables. This shows that each manifest variable in this study correctly explains the latent variable and proves that discriminant validity all items are valid.

5.1.3 Composite Reliability and Average Variance extracted

Examining the value of the factor loading for each construct as a validity test, the measurement model is also tested for its reliability to prove the consistency, and accuracy of the instrument in measuring a construct. In PLS - SEM using SmartPLS, to measure the reliability of a construct can be done in two ways, namely with Cronbach's Alpha and Composite reliability. However, using Cronbach's Alpha to test the reliability of a construct will give a lower value (underestimate) so that it is more advisable to use Composite Reliability.

Table 4. Results of Composite Reliability and Average Variance extracted

| Variable | CA | CR | AVE | Infor. |
|-----------------------------|-------|-------|-------|----------|
| Temporal Leadership | 0.941 | 0.950 | 0.655 | Reliable |
| Transformational leadership | 0.925 | 0.939 | 0.657 | Reliable |
| Self-Efficacy | 0.915 | 0.934 | 0.704 | Reliable |
| Innovation Performance | 0.959 | 0.964 | 0.691 | Reliable |

Note: CA: Cronbach's Alpha, CR: Composite Reliability, AVE: Average Variance Extracted

Table 4 shows that the values of all variables in the reliability test using either Cronbach's Alpha or Composite reliability are > 0.70, and validity testing using Average Variance Extracted has a value of > 0.50. So, it can be concluded that the variables tested are valid and also reliable so that it can be continued to test the structural model.

5.2 Characteristics of Respondents

Based on the characteristics of the respondents, the majority of participants in this study was male, 79 people (93%), while

female participants were 6 people (7%). The length of work less than 1 year involved 43 people (50.5%). Participants who worked for 1-2 years were 32 people (37.7%), and respondents who had worked for more than 2 years were 10 people (11.8%).

5.3 Goodness Of Fit

Model fit testing is carried out by looking at the estimated output of SmartPLS compared to the criteria as explained in the following table.

Table 5. Goodness of Fit Results

| Fit Summary | Cut off | Estimation | Explanation |
|-------------------|--------------------------|------------------|-------------|
| SRMR | < 0.10 | 0.064 | Good |
| Chi-Square | $\chi^2_{Sta.} < \chi^2$ | 107.52 > 973.531 | Not good |
| NFI | Approaching value 1 | 0.703 | Good |
| RMS Theta | < 0.12 | 0.142 | Not good |

From the output above, it can be seen that the SRMR value is 0.064 so that the model is appropriate or meets the goodness of fit model criteria. This can also be seen in the NFI value which is close to 1 indicating that the model is appropriate or meets the goodness of fit model criteria.

5.4 Hypothesis testing

Hypothesis testing using SmartPLS can be done by using the approach of Bootstrapping. The proposed hypothesis is accepted or rejected based on the significance value (P Value) and the t-table value. In the SmartPLS, the significance value can be analyzed by observing the parameter coefficient values and the t statistical significance values. The criterion for accepting or rejecting the hypothesis is if the t-statistical significance value is > 1.96 and or the p-value is < 0.05 at a significance level of

5% (α 5%) then H_a is accepted and H_o is rejected, otherwise if the t-value is < 1.96 or the p-value -value > 0.05 at a significance level of 5% (α 5%) then H_a is rejected and H_o is accepted. The following results of hypothesis testing can be seen in Figure 3 and an explanation in Table 6.

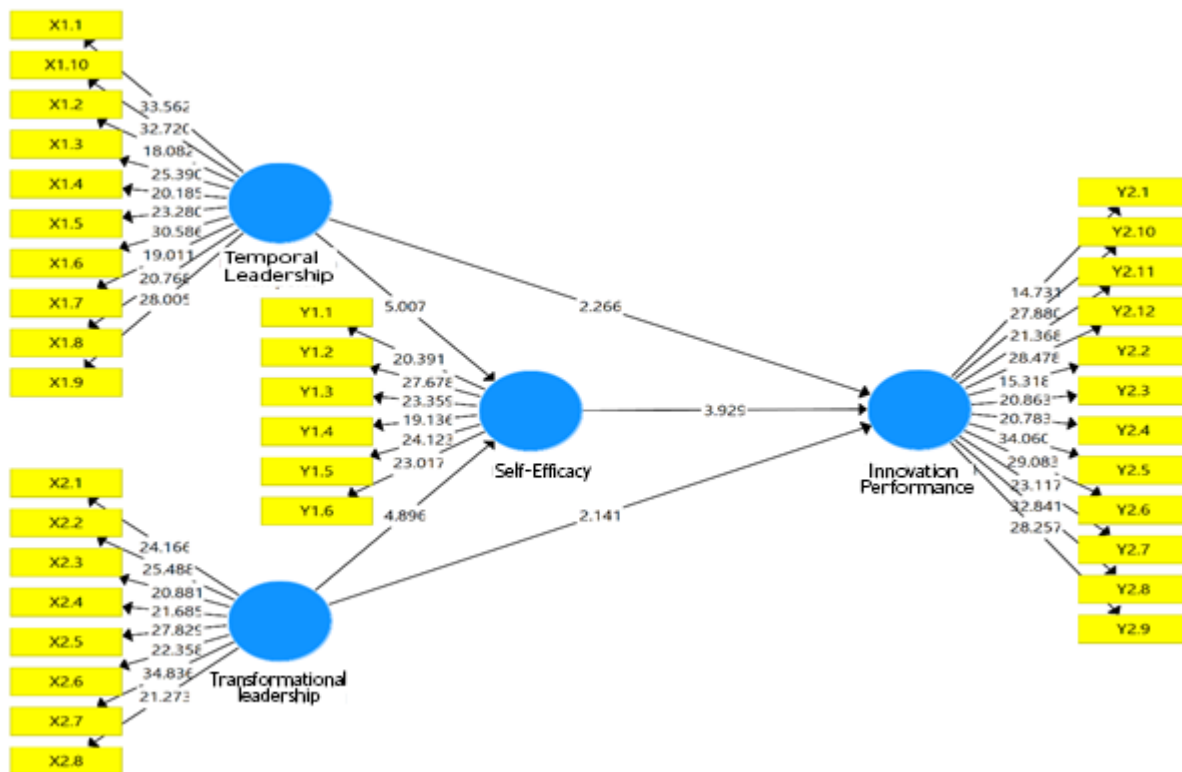
Table 6. Hypothesis Testing

| Hypothesis | O | T Stat. | P Value | Information | |
|--|---|---------|---------|-------------|--------|
| Temporal Leadership → innovation performance | + | 0.217 | 2.266 | 0.024 | Proven |

| | | | | | |
|--|---|-------|-------|-------|--------|
| Temporal Leadership → self-efficacy | + | 0.463 | 5.007 | 0.000 | Proven |
| Transformational leadership → innovation performance | + | 0.203 | 2.141 | 0.033 | Proven |
| Transformational leadership → self-efficacy | + | 0.396 | 4.896 | 0.000 | Proven |
| self-efficacy → innovation performance | + | 0.536 | 3.929 | 0.000 | Proven |

Note. O: Original Sample

Figure 3. Research Model



5.4.1 Analysis of the direct effects

Based on the results of the hypotheses testing, it can be elaborated further as follows:

- a) Coefficient original sample testing the effect of temporal leadership on

innovation performance shows an estimated value of 0.217 and a t-statistic value of $2.266 > 1.96$, with a p-value of $0.024 < 0.05$. It can be concluded that there is a positive and significant influence of temporal leadership on innovation performance. Thus,

hypothesis 1, which states "Temporal leadership has a positive impact on innovation performance", is accepted.

- b) Coefficient of the original sample testing the effect of temporal leadership on self-efficacy shows an estimated value of 0.463 and a t-statistic value of 5.007 > 1.96, with a p-value of 0.000 < 0.05. It can be concluded that there is a positive and significant impact of temporal leadership on self-efficacy. Thus, hypothesis 2 which states "temporal leadership has a positive impact on self-efficacy", is accepted.
- c) Coefficient of the original sample testing the effect of transformational leadership on innovation performance shows an estimated value of 0.203 and a t-statistic value of 2.141 > 1.96, with a p-value of 0.033 < 0.05. It can be concluded that there is a positive and significant influence of transformational leadership on innovation performance. Thus, hypothesis 3 which states "transformational leadership has positive impact on innovation performance", is accepted.
- d) Coefficient of original sample testing the effect of transformational leadership on Self-Efficacy shows an estimated value of 0.203 and a t-statistic value of 4.896 > 1.96, with a p-value of 0.000 < 0.05. It can be concluded that there is a positive and significant influence of transformational leadership on self-efficacy. Thus, hypothesis 4 states "transformational leadership has an impact on self-efficacy", is accepted.

Coefficient of the original sample testing the effect of self-efficacy on innovation performance shows an estimated value of 0.536 and a t-statistic value of 3.929 > 1.96, with a p-value of 0.000 < 0.05. It can be

concluded that there is a positive and significant effect of self-efficacy on innovation performance. Thus, hypothesis 5 which states "self-efficacy has an impact on innovation performance", is accepted.

5.4.2 Analysis of the indirect effects

An analysis of the indirect effect between the variables of temporal leadership, transformational leadership, and innovation performance intervened by the intermediary variable of self-efficacy is presented in Table 7.

Table 7. Test Results for the Effect of Mediating Variables

| Influence relationship | O | T-test | P Value | Information |
|--|-------|--------|---------|-------------|
| Temporal Leadership → self-efficacy → innovation performance | 0.248 | 3.390 | 0.001 | Mediating |
| Transformational leadership → self-efficacy → innovation performance | 0.212 | 3.511 | 0.000 | Mediating |

Note. O: Original Sample

Table 7 shows the coefficients of the original sample testing the effect of temporal leadership on innovation performance mediated by self-efficacy shows an estimated value of 0.248 and a t-statistic value of 3.390 > 1.96, with a p-value of 0.001 < 0.05. Thus, it can be concluded that there is a positive and significant influence between temporal leadership on innovation performance mediated by self-efficacy, or temporal leadership indirectly influences innovation performance through self-efficacy. While the coefficient of the original sample testing the effect of transformational leadership on innovation performance mediated by self-efficacy shows an estimated value of 0.212 and a t-statistic value of 3.511 > 1.96, with a p-value of 0.000 < 0.05. Thus, it can be

concluded that there is a positive and significant impact of transformational leadership on innovation performance mediated by self-efficacy, or transformational leadership indirectly influences innovation performance through self-efficacy.

6. Discussion

6.1 Temporal Leadership on Innovation Performance

The findings of this present study show that temporal leadership has a positive significant impact on the innovation performance at distributor company employees with a p-value of $0.024 < 0.05$. Therefore, the better the implementation of temporal leadership, the innovation performance of employees will increase. It is in line with research conducted by Najam et al. (2018) and Zhang et al. (2020) who stated that temporal leadership has a positive influence on innovation performance.

Temporal leadership is a style or characteristic in distributing time properly, as well as organizing and coordinating work activities, plans, and tempo. Temporal leadership can help employees to make better use of their time and improve their performance. According to S. Oh et al. (2020), individuals will produce maximum work outputs when their work speed routine or temporal cycle is aligned with the speed of others because they have an inherent tendency to synchronize their steps with others. In addition, under the influence of the temporal leader, employees are able to learn how to optimize time and make members more comfortable to have the opportunity to convey innovative ideas. Through effective transformation they get, teamwork can carry out innovative behavior more easily. Additionally, according to descriptive data,

employees always prioritize work and will finish their duties before the deadline so there is very minimal risk of being late in completing the task.

6.2 Impact of Transformational Leadership on Innovation Performance

The findings of this present study demonstrate that transformational leadership has a positive and significant effect on the innovation performance of distributor company employees with a p-value of $0.033 < 0.05$. Therefore, the better the implementation of transformational leadership, the more it will improve employee innovation performance. It is supported by Majali et al. (2022) who stated that green transformational leadership has a significant positive effect on Green Product Innovation. The research results of Zhao & Huang (2022) stated that green transformational leadership has a positive impact on sustainable business performance. Nasir et al. (2022), Abdi & Rohmah (2020), and L. Li et al. (2018) also added that transformational leadership has a positive impact on innovation-oriented performance.

According to Gaviria-Marin et al. (2019) transformational leadership functions as a trainer, motivator, teacher, and developer in an organization that can encourage and motivate organizational members to be able to achieve performance. Leaders can influence behavior by creating group needs, organizational systems and processes according to individual needs, and organizational needs. A good leader is expected to be able to direct and set an example for employees in carrying out their job responsibilities. By setting an example and directing employees, leaders will be able to encourage employees to think more

creatively to come up with new creative ideas and improve innovation performance. The descriptive data of this study can also be concluded that transformational leadership is a role model for employees in the distributor company who can provide instructions on how to complete a job. Leaders who can give confidence to employees and generate enthusiasm for employees to do work will find it easier to achieve company goals.

6.3 The Effect of Temporal Leadership on Self-Efficacy

This present study shows that temporal leadership has a positive and significant impact on the self-efficacy of distributor company employees with a p-value of $0.000 < 0.05$. It shows that the better the implementation of temporal leadership, the employee's self-efficacy will increase. It is in line with the result of research done by M. Li & Ye (2021) stating that temporal leadership has a positive influence on self-efficacy, and also Liu et al. (2021) confirmed that temporal leadership has a positive influence on employee self-efficacy. Temporal leadership can inspire employees to become good role models to increase their self-efficacy within the company.

Temporal leadership has important aspects such as time urgency, time management, time scheduling, and time resource allocation. This makes temporal leadership able to assist employees in planning work steps and coordinating the rhythm of work completion to increase employee concentration on tasks so that employee involvement is quite high in their tasks and work. A high intensity of involvement, according to M. Li & Ye (2021) allows employees to understand more about productivity to increase employees' self-

efficacy. From descriptive data on the impact of temporal leadership on employees' self-efficacy. It can be concluded that employees will like challenging tasks and create new ideas and provide the best initiatives to be more productive and have a high sense of optimism in achieving the company's vision.

6.4 The Effect of Transformational Leadership on Self-Efficacy

Present study shows that transformational leadership has a positive effect on employee self-efficacy at distributor company with a p-value of $0.000 < 0.05$. It shows that the better application of transformational leadership will increase employee self-efficacy. In line with the research results of Chen et al. (2022), transformational leadership has a significant positive effect on self-efficacy and self-efficacy to mediate human resource development. Likewise, research conducted by Choi & Kang (2021) and Afsar & Masood (2018) confirmed that transformational leadership influences an employee's self-efficacy. Transformational leadership can inspire and motivate employees to believe in their abilities to carry out tasks according to goals.

Salanova et al. (2022) stated that transformational leadership is a cross-level predictor that is relevant to individual self-efficacy from time to time because self-efficacy is a person's belief in abilities, and talents possessed within oneself in carrying out certain tasks to achieve organizational goals and challenges. Transformational leadership inspires and motivates employees to solve the work problems they face. Thus, their confidence in their abilities and competence will increase. Better direction from the leadership will be able to encourage the self-efficacy of employees and participate

in creating new ideas for the distributor company. Descriptive data also support that leaders can motivate employees to work better and foster employee confidence in doing work. Leaders are also able to encourage employees to use creativity in completing work and are always eager to listen to ideas from their employees.

6.5 Self-Efficacy on Innovation Performance

The findings of this present study prove that self-efficacy has a positive and significant impact on the employees' innovation performance at distributor company with a p-value of $0.000 < 0.05$. It shows that better employees with higher self-efficacy will increase their innovation performance which is supported by a research undertaken by Alshebami (2023) which showed that self-efficacy has a positive impact on innovation and organizational performance using a Resource Based View (RBV) study. In addition, Najib et al. (2020), Sarwat & Abbas (2021), and Abbas et al. (2018) show that self-efficacy is proven to influence innovation performance/activity. The results of Mumtaz & Parahoo (2019) use 3 self-efficacy, namely self-efficacy (effort), self-efficacy (persistence), and self-efficacy (initiative) which have a significant positive effect on innovation performance.

Self-efficacy is a concept often used to characterize entrepreneurial motivation and behavior. Employees with high levels of self-efficacy trust their capacity and ability to come up with new ideas. When employees believe they can complete tasks, they are more motivated to do well. An employee with high creative self-efficacy has a strong belief in their capacity to complete new tasks. Therefore, the higher self-efficacy of

employees, they will tend to come up with and implement innovative ideas in the workplace. Descriptive data also shows that employees work according to work SOPs and possess a high sense of optimism to achieve the company's vision.

6.6 Self-Efficacy Mediates Temporal Leadership and Transformational Leadership on Innovation Performance

This study indicates that temporal leadership indirectly influences innovation performance through self-efficacy with a p-value of $0.001 < 0.05$. Likewise, transformational leadership indirectly influences innovation performance through self-efficacy with a p-value of $0.000 < 0.05$. It can be concluded that self-efficacy mediates the influence of temporal and transformational leadership on improving innovation performance. These results are in line with M. Li & Ye (2021) which made self-efficacy mediate the influence of the relationship between temporal leadership and bootlegging behavior in four companies located in China. In addition, this research is also supported by Lin et al. (2022) who stated that self-efficacy is also able to mediate the influence between transformational leadership and the performance development of teachers.

Temporal leadership has important aspects in the form of time urgency, time planning, time scheduling, and time resource allocation, while transformational leadership can inspire and motivate employees to solve work problems faced by these two leadership styles can complement each other to create organizational performance, but back to employee self-efficacy whether they have high or low self-efficacy so that the demands of a leader are how to convince and direct

employees on their abilities and competencies. Better direction from leaders will encourage employees' self-efficacy and participate in creating new ideas for the distributor company so that the organization's business processes continue to develop along with environmental changes, as research conducted by M. Li & Ye (2021) states that productivity will increase when employees have good self-efficacy. Organizations that wish to improve innovation performance are indirectly influenced by employee self-efficacy which needs to be supported by a leadership style that is both temporal and transformational.

7. Conclusion and Suggestion

7.1 Conclusion and managerial implication

This research has made several essential contributions in examining the impact of the temporal and transformational leadership on innovation performance intervened by self-efficacy. This study answers the need to reveal the phenomenon of organizational management transformation from manual to digital and the limitations of a previous study conducted by Zhang et al. (2020). regarding the need for a transformational leadership style to support the temporal management process leading to major changes (from manual to digital). These changes are not easy to do without involving the role of employee self-efficacy to achieve the big goals of the organization. The findings of the study are: a) increasing temporal leadership will increase innovation performance, b) increasing temporal leadership will increase self-efficacy, c) increasing transformational leadership will increase innovation performance, d)

increasing transformational leadership will increase efficacy self-efficacy, e) increasing self-efficacy will increase innovation performance, f) temporal leadership and transformational leadership indirectly affect innovation performance through self-efficacy.

The implications for companies the need to maintain a positive attitude towards employee self-efficacy so that they have the potential or ability needed to carry out innovative tasks in their work environment, besides continuing to maintain a rhythm and ways of working in the distributor company so that employees complete their work on time, avoid the risk of being late in completing their work, and continuously encourage employees to deal with current problems and propose creative solutions for existing problems.

7.2 Limitations and future research

This study involved 85 employees of distributor company. Therefore, further studies involving a greater number of participants are recommended. The method of obtaining data uses questionnaires that allow the filling of the questionnaire which is not in actual conditions. Therefore, it is necessary to carry out an in-depth interview. In addition, future studies are recommended to expand their studies by paying attention to additional factors such as organizational culture, organizational commitment, and performance benefits that affect the innovative performance of employees to gain better research findings. Despite all the limitations, this research provides new insights into the variables that influence innovation performance such as the role of temporal and transformational leadership and the effect of self-efficacy as a mediation.

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