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Agile Leadership and Digital Transformation in Savings Cooperative Limited: Impact on Sustainable Performance Amidst COVID-19

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Abstract

Savings Cooperative Limited in Thailand is a financial institution that operates under strict legal regulations and self-imposed limitations to mitigate potential risks arising from its business activities. During the COVID-19 pandemic, the adoption of agile leadership within the organization becomes crucial in reducing inertia and facilitating the digital transformation process, leading to sustainable financial and non-financial performance. This research aims to investigate the direct and indirect effects of agile leadership and organizational inertia on sustainable financial and non-financial performance, with digital information playing a significant role. The study comprised 100 managers or deputies from Savings Cooperative Limited in Thailand, selected through purposeful sampling to meet specific criteria. Data collection involved a questionnaire based on concepts and theories, administered via email, phone, and mail. Subsequently, the collected data underwent analysis using structural equation modelling (SEM) to yield results. The findings of this study demonstrate a positive relationship between agile leadership and digital transformation, as well as sustainable financial and non-financial performance. Furthermore, organizational inertia was found to have a negative impact on digital transformation. However, the relationships between other variables were not statistically significant. These results contribute to a better understanding of the definition of agile leadership, highlighting its inability to eliminate the influence of external factors such as legal constraints. Therefore, it is recommended that authorities responsible for enforcing laws consider providing leniency during crisis conditions, allowing Savings Cooperative Limited to employ agile leadership in practical ways. Any leaders within Savings Cooperative Limited in Thailand aiming to implement digital transformation and achieve success should prioritize the selection of agile leadership based on these findings.

Keywords: Agile Leadership; Organizational Inertia; Digital Transformation; Financial Performance; Non-Financial Performance; Sustainable Performance; Savings Cooperative.

1. Introduction

The prevailing circumstances of the COVID-19 pandemic highlight the presence of volatility, uncertainty, complexity, and ambiguity (VUCA) [1], exposing enterprises to various types of risks. Even when efforts are made to respond to the situation, the outcome is often unpredictable, making it challenging to maintain the continuity of established structures. Consequently, feelings of anxiety, non-linearity, and incomprehensibility arise, which can be

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collectively referred to as BANI [2]. Many corporations have unfortunately succumbed to these challenges and had to cease operations. However, a few forward thinking enterprises have adopted a different mind-set by harnessing digital technologies to create innovative business models and offer novel value propositions.

The COVID-19 pandemic imposes physical constraints on businesses, but digital transformation enables them to tap into customer needs. Enhancing enterprise capabilities not only reduces performance costs and enhances effectiveness [3], but it also fosters competitive advantages [4]. However, in practice, businesses face potential risks inherent in the dynamic processes of change [5]. Moreover, businesses must allocate investment resources to adequately develop their user base [6]. Therefore, it is imperative for businesses to create a sense of urgency and overcome resistance to change, as successful digital transformation is instrumental in improving organizational performance [7]. Recognizing that digital technology users are pivotal to the success of digital transformation, this study proposes that an organization's overall capability, as well as its competencies in effectively developing digital technology users, significantly impact appropriate utilization and investment efficiency, ultimately influencing sustainable financial and non-financial performance. This study places significant emphasis on broadening the understanding of the interconnections among agile leadership, organizational inertia, digital transformation, and sustainable financial and non-financial performance. The primary objectives are to contribute to academic knowledge, offer recommendations for law enforcement authorities, and provide practical guidelines to cooperatives for effective adaptation.

2. Literature Review

2.1. Concepts about Cooperative

A cooperative is a collective of individuals who collaborate for the economic and social welfare of their members, all of whom are Thai citizens. They assist one another and work towards shared goals. The registration process for cooperatives, as stipulated by the Cooperatives Act, includes eight distinct types: agricultural cooperatives, fishery cooperatives, colony cooperatives, outlet cooperatives, service cooperatives, Savings Cooperatives, Credit Union Cooperatives, and other cooperatives as determined by Ministerial Regulations. Each type of cooperative differs in terms of occupational characteristics, geographical location, member relationships, objectives, and operational practices.

In Thailand, the establishment of cooperatives is governed by the Cooperatives Act, B.E. 2542, which has undergone subsequent amendments. The supervision of cooperative activities is carried out by the Cooperative Promotion Department, while the Cooperative Auditing Department oversees operational control. Additionally, the government sector has enhanced regulatory stringency by issuing ministerial regulations, such as the Performance and Supervision of Savings Cooperative Limited and Credit Union Cooperative B.E. 2564. These regulations monitor the qualifications and restrictions imposed on committees and managers, broaden the authority of cooperative committees to participate in managerial administration, and intensify oversight of good governance practices. These measures aim to foster stability within cooperatives, but they can also increase operational complexities [8-12].

Savings Cooperatives and Credit Union Cooperatives exhibit differences in terms of occupation, geographical location, and the composition of their member base. Although the Registrar allows cooperatives to admit associate members by granting them the authority to establish qualification criteria, the Savings Cooperative Limited primarily consists of regular employees within an organization, facilitating easier control and supervision. On the other hand, Credit Union Cooperatives comprise members engaged in various professions, making control and oversight more challenging. In this study, the researcher recognizes that the Savings Cooperative Limited operates under stringent rules and regulations, necessitating increased monitoring. This heightened level of regulation introduces operational complexities that require agility to navigate. The study finds this particular population type intriguing and worthy of further investigation.

2.2. Agile Leadership (AL)

The trait approach to leadership posits that leaders possess distinctive and observable characteristics that differentiate them from non-leaders. However, this approach may lack the necessary adaptability to effectively navigate different situations and may not be sufficient to generate positive outcomes for followers. The skills approach, on the other hand, places emphasis on leadership competencies while also considering individual traits, their application in diverse contexts, and the validation of effective leadership outcomes. In contrast, the behavioral approach centers on work-related behaviors and leader-member relationships but falls short in providing clear insights into the relationship between these behaviors and other outcomes. Additionally, it lacks consistency in behavior patterns and may not adequately support novel ideas when task and relationship orientations are highly valued. The situational approach highlights the importance of tailoring leadership styles to different situational factors, yet it can significantly impact followers when leaders change their leadership styles abruptly. The Path-goal theory elucidates how leaders motivate followers to attain specific goals. Furthermore, there are various other theories that seek to explain leadership, followership, and their dynamic interactions, each with a distinct focus [13].

Agility is a multidimensional concept that places paramount importance on customer satisfaction with an organization's products and services. It centers on human interaction, the authenticity of products and services, collaborative engagement with customers, and embracing transformative processes [14]. Within this framework, the researcher conceptualizes agility in several facets, including its role as a guiding principle for efficient production and the effective delivery of value to consumers. Furthermore, agility encompasses the ability to swiftly and effectively respond to changes in the environment as well as the capacity to actively embrace and learn from transformative experiences to enhance customer value [15]. It can significantly augment the organization's capacity to swiftly adapt to environmental changes. Thus, it becomes imperative for the organization to proactively cultivate agility at all levels by fostering agile leaders and establishing a culture of agility [16, 17]. An agile leader is characterized as one who is adept at forging connections [18]. Furthermore, such leaders play a pivotal role in articulating, disseminating, and supporting the team's vision while consistently influencing their behaviors [19]. Additionally, agile leaders empower their followers to discern task objectives and adapt adeptly to future prospects [20].

Agile leadership encompasses the capability to effectively navigate organizational change and adaptation, providing autonomy in problem-solving while being considerate of team stakeholders. It involves embracing stress as a means to facilitate team adjustment, leveraging self-management within the team, and promptly responding to challenges while removing obstacles to enhance the team's likelihood of achieving its goals [19, 21]. Agile leadership aligns closely with connected leadership, which links enhanced decision-making and success to collaboration, adaptability, purpose, orientation, and authenticity [22]. However, agile leadership places particular emphasis on the ability to perceive stakeholder needs and adapt to their evolving requirements. Therefore, this study defines agile leadership as a competency that emphasizes investigating and comprehending stakeholder demands, removing impediments, fostering organizational success, and timely responsiveness to stakeholder needs [21–26]. The constituent components are as follows:

- Stakeholder engagement (SE) serves as a valuable approach for the exchange of information with customers, shareholders, and members within the organization, facilitating a deeper understanding of their evolving needs and expectations [23–26].
- Connected leadership (CL) encompasses leadership behaviors characterized by the provision of clarity and conviction, establishing trustworthiness, and fostering positive organizational cultures. It involves the cultivation of transparent relationships between leaders and followers, instilling confidence in followers, and involving them by delegating decision-making authority when appropriate to enhance customer engagement. CL promotes collaboration within the organization, including acts of assistance towards others, while fostering agility in response to transformations through the consistent cultivation of a learning and development-oriented culture [22].
- Adaptability (AD) refers to the capacity to flexibly adjust and leverage technologies and competencies to create solutions that effectively cater to evolving needs [27].

2.3. Organizational Inertia (OI)

Organizational inertia is characterized by a resistance to change, whereby changes may be made but yield ineffective results. Robbins and Judge [28] recognized that structural inertia contributes to this resistance, enabling organizations to persist even in the face of transformation. Pardo del Val and Martínez Fuentes [29] viewed organizational inertia as a force that avoids change, while change resistance hinders the change process. However, both factors fail to initiate change. Contrarily, Daviy & Shakina [30] argued that inertia obstructs change but does not imply an organization will remain unchanged indefinitely. Zantvoort [31] described organizational inertia as the difficulty in undergoing transformation while the organization remains stagnant. Schwarz et al. [32] concurred that organizational inertia encompasses both unchanged and changing conditions but does not effectively align with authentic environmental changes. Näslund & Perner [33] proposed that organizations with inertia employ sensemaking to limit or alleviate transformation. Similarly, Godkin & Allcorn [34] acknowledged that organizational inertia lacks awareness or understanding of environmental changes, stress, or concerns until it reaches a state of immutability, or it may change but fail to keep pace with the surrounding changes, leading to loss of benefits for the organization.

Organizational inertia is a persistent phenomenon that arises when an organization confronts new environmental changes. Simultaneously, the organization faces resource limitations that impede its ability to enact change [35], including mental resource constraints that result in ineffective change efforts [34]. Moreover, such organizations impose self-imposed limitations as they seek to preserve the benefits derived from previous successes [36]. Additionally, they exhibit a propensity to resist change [37]. These tendencies are particularly evident when an organization reaches a state of full growth. Consequently, such organizations adhere to familiar performance patterns, leading to rigidity and a lack of adaptability [9]. As a result, organizational adaptation becomes progressively constrained during the development process, making change difficult and ultimately inhibiting responsiveness to environmental shifts [8]. The effectiveness of transformation is compromised when the pace of change surpasses the organization's capacity to derive benefits from the opportunities presented. These issues stem from internal factors, such as the ability to recognize threats, decision-

making effectiveness within resource constraints, perfecting beneficial outcomes, and behavioral activity models. External factors, including legal constraints, barriers to business performance, established relationships with other organizations, and the inequity of transformative arrangements, further contribute to these challenges [34-36].

Previous research has underscored the need to elucidate the phenomenon of organizational inertia, specifically its manifestation as a consequence of resource limitations and self-imposed constraints that hinder effective change or result in no change. However, these studies have failed to delineate the underlying objectives of these contrasting organizational behaviors. In this study, the researcher posits that the authentic objectives of inertia, characterized by the mentioned attributes, are to prevent damages arising from stagnation (negative impact risks) and to avert the risks of ineffective change leading to missed opportunities. This proposition draws upon the concept of Organizational Sensemaking, encompassing Enactment (recognizing and responding to change), Selection (interpreting change through chosen lenses), and Retention (capturing and utilizing experiential knowledge) [38]. This conceptual framework retains the focus on organizational inertia while acknowledging its limitations in keeping pace with environmental transformations. Accordingly, organizational inertia can be defined as the capability to shield organizations from detrimental consequences resulting from environmental change. The constituent components are as follows:

- Environmental Understandability (EU) is the ability to understand the transformation of opportunity and obstruction that affects the organization [9, 39] from the perspective of the consumers' changing requirements and use knowledge and experiences to transform ideas and behaviors.
- Method Selection Ability (SA) is the competency to select methods according to the objectives and readiness of resources [32, 34] without considering environmental change.
- Slow Response Ability (RA) is the competence of responding but not catching up with the change [36, 40] because of not realizing the necessity, only considering self-readiness as the main concern, and a worry about the potential failure of making a change.

2.4. Digital Transformation (DX)

When examining the relationship between digital transformation and the utilization of information technology for organizational change, it becomes apparent that while they share similarities, they are not identical. Nonetheless, they are intricately interconnected and mutually reinforcing [41]. Both digital transformation and the use of information technology for organizational change involve leveraging digital technologies. Additionally, they both foster cultures that prioritize customer-centricity and adopt a digital mindset. However, their distinction lies in their outcomes: digital transformation engenders new value propositions and organizational identities, whereas information technology facilitates organizational changes, supports value propositions, and enhances overall organizational performance [7, 42]. It is worth noting that the employment of information technology to effect organizational change constitutes a vital aspect of digital transformation.

Digital transformation entails the conversion of analog information into a digital format, known as digitization, along with the utilization of digital information for various advantages, referred to as digital technology. Subsequently, digital technology has been harnessed to enhance organizational operations and yield commercial benefits, which we term as digitalization. Digital transformation occurs when an organization possesses the competence to effectively leverage digital technology to augment its performance [6]. The current research aligns with the viewpoints of Kraus et al. [43], which underscore the utilization of digital technology, and Songkajorn et al. [7], which emphasizes the amplification of successful opportunities throughout the digital transformation process. Moreover, the researcher introduces the concept of cultivating a digital mindset and enhancing the proficiency of digital technology users to enhance the likelihood of success in digital transformation, thereby warranting the investment. Consequently, the researcher defines digital transformation as an organizational change process facilitated by the adoption of digital technology [6]. This process aims to generate novel value propositions and forge a distinctive organizational identity to foster organizational improvement [5]. The constituent components are as follows:

- Digital technology (DT) encompasses a suite of devices that organizations acquire or develop for utilization in their business operations. These technologies include but are not limited to big data, data mining analysis, mobile technology, cloud computing, the internet, and wireless communications [8, 44]. In the context of this study, digital technology refers to an internal operational system encompassing share capital, savings, credit, and related functions, as well as a website, automated systems such as bots, machines, and equipment controlled by digital systems (e.g., Automatic Teller Machine: ATM, Cash Deposit Machine: CDM, and Passbook Automatic Machine: PAM), and digital platforms such as mobile applications.
- Digital Capability (DC) pertains to an organization's adoption of a digital mindset, which encompasses cognitive, operational, and managerial aspects that shape their attitudes and responses towards the external environment, encompassing opportunities and obstacles [45-47]. It involves leveraging digital technologies, which can be categorized into fixed mindset (hindering development), growth mindset (facilitating development) [48], and

paradoxical mindset (characterized by anxiety and concern about acquiring new competencies, resulting in slower development) [49, 50]. Furthermore, DC encompasses the organization's capacity to employ digital technologies through the expertise of specialists to enhance the requisite competencies of employees [12], while fostering a readiness among members to utilize digital technologies to enhance organizational performance.

- Appropriate Usage (AU) refers to the judicious utilization of digital technology in various business activities. It entails selecting digital technologies that have the potential to enhance the organization's capabilities and yield a favorable return on investment [11].

2.5. Sustainable Financial and Non-Financial Performance (SF & NFP)

Sustainable financial and non-financial performance embodies the achievement of positive outcomes and the mitigation of negative impacts resulting from business activities across economic, social, and environmental dimensions [51]. From an economic perspective, the organization prioritizes profitability by enhancing revenue generation and minimizing expenses [52], while concurrently addressing poverty alleviation, fostering frugal innovation [53], and promoting equitable wealth distribution [54]. In the social realm, the organization places emphasis on enhancing workplace safety and well-being [55], mitigating the adverse societal effects of its products and services [51], and enhancing the overall quality of life for the surrounding community [56]. Within the environmental domain, the organization is committed to preserving and renewing ecological systems, with a focus on reducing the adverse environmental impacts associated with its business activities [57].

This research takes a stakeholder-centric approach to examining sustainable financial and non-financial performance within the context of cooperatives. The study does not consider the environmental impacts due to limitations in measuring the energy consumption associated with the quantity of technology employed. The researcher defines sustainable financial and non-financial performance as the achievement of equilibrium in operational contributions [57], striking a balance between profitability competence [54] and the benefits accrued by various stakeholders, including employees, shareholders, customers (members), the community [12], and even competitors. The objective is to enable the organization to operate in a sustainable manner. The key components encompassed in this definition are as follows:

- Organizational Profitability (OP) entails achieving sustained growth in revenue circulation while maintaining reasonable expenses, resulting in a favorable net profit measured by return on investment (ROI) and return on assets (ROA) [58, 59].
- Employee Support (ES) encompasses the cultivation of employees' skills and abilities to enhance their operational proficiency [60]. It also entails establishing safe working environments and enhancing employees' quality of life through the provision of welfare measures [58].
- Member Support (MS) pertains to the provision of assistance to both shareholders and customers within the same organization. The organization emphasizes achieving a delicate equilibrium between augmenting dividend rates [61] and effectively managing the risks associated with business activities or credit [62].
- Community Support (CS) refers to the financial assistance provided by an organization to the community in which it is situated, with the aim of addressing any deficiencies and fostering the improvement of positive aspects [12].
- Collaboration with Competitors (CC) entails engaging in cooperative endeavors across various facets or the entirety of business activities, aimed at shared objectives and mitigating the intensity of competitive dynamics. This collaboration can manifest in areas such as post-service support, knowledge sharing, research and development, and innovative creation [63].

2.6. Agile Leadership and Organizational Inertia

Agile leadership plays a crucial role in enabling organizations to effectively discern and respond to evolving customer needs. It involves challenging behaviors that perpetuate the maintenance of previous organizational states and prioritizes risk avoidance, while also advocating for less formalized management structures and the cultivation of adaptability [18, 23]. Additionally, agile leadership fosters organizational effectiveness by fostering a readiness for technological utilization [27]. The findings of AlKayid et al. [9] further substantiate that leaders' visions have a negative correlation with organizational inertia, thus diminishing its efficacy. Based on these premises, the study posits the following hypotheses:

H1: Agile leadership has a negative relationship with organizational inertia.

2.7. Agile Leadership and Digital Transformation

Leadership is an ability that expresses attitudes, skills, and behaviours affecting the digital transformation process [64]. Sow & Aborbie [65] viewed transformational leadership as enhancing the building of digital transformation.

Furthermore, AlNuaimi et al. [66] studied and found that digital transformational leadership positively relates to digital transformation. However, resistance within an organisation usually blocks such a digital transformation process. Hence, Hayward [22] considered that agile leadership allows for the creation of clarity and reliability for the members within the organisation and helps others respond well to the transformation through continuous learning and development. For these reasons, the researcher determines the hypothesis that:

H2: Agile leadership has a positive relationship with digital transformation.

2.8. Organizational Inertia and Digital Transformation

Organizations that fail to understand environmental changes will be unable to perceive how rapidly changing marketing trends impact their operations. Such organizations may worry that using digital technologies can put their success at risk. The issue lies with users who are not prepared and do not realize the importance of applying suitable digital technologies to support the potential of organizations and cope with the changes happening. Although organizations do not want to encounter the risks of opportunity loss, they must face the laws impeding them. This supports technological users insisting on a fixed mindset by increasing resistance to using digital technologies as a substitution. On the other hand, it will affect some employees upholding a growth mindset. When lacking positive enhancement, these employees tend to have contrary ideas as a negative paradox, making it hard to reach transformation until it cannot catch up with such changes. Zhen et al. [8] studied and found that organizational inertia had a negative relationship with findings and using information technology. Thus, the researcher sets the hypothesis that:

H3: Organizational inertia has a negative relationship with digital transformation.

2.9. Agile Leadership and Digital Transformation through Organizational Inertia

Organizational inertia is a significant factor that contributes to the challenges and limited efficacy of organizational transformation [35]. The outcome of such a scenario is the failure of the organization in its digital transformation endeavors. However, it is important to note that the visions of leaders have the potential to mitigate the impact of organizational inertia [9]. Agile leadership acknowledges the dynamic nature of customers' needs, facilitates organizational change by removing barriers, and facilitates the digital transformation process to achieve potential success [18]. Due to this rationale, the researcher postulates that:

H4: Agile leadership has a positive relationship with digital transformation through organizational inertia.

2.10. Digital Transformation and Sustainable Financial and Non-Financial Performance

Digital transformation leverages digital technologies to meet the requirements of stakeholders in their respective services. The implementation of digital technologies aids in the enhancement of essential skills among employees and members, enabling them to effectively utilize and appropriately apply these technologies in various business activities. The outcome entails the organization achieving its full business potential and effectively engaging with service users, thereby enhancing long-term prospects for profitability, stakeholder backing, and collaborative competition. The research conducted revealed that there exists an inverse correlation between digital transformation and financial performance in the immediate period, while a positive correlation is observed in the long run [5, 67, 68]. According to Kongrode et al. [69], economic performance is perceived to enhance when there is a consistent demand in the market. The environmental performance is contingent upon the distribution of marketing needs in a bell curve shape. The study conducted by Belhadi et al. [56] demonstrated a positive correlation between digital business transformation and sustainable performance across economic, environmental, and social aspects. Acosta-Prado and Tafur-Mendoza [54] have asserted that there exists a positive correlation between information technology and communication, and sustainable performance in terms of customer expansion and employee satisfaction, encompassing aspects such as product and service quality. Based on the aforementioned justifications, the researcher postulates that:

H5: Digital transformation has a positive relationship with sustainable financial and non-financial performance.

2.11. Agile Leadership and Sustainable Financial and Non-Financial Performance

Agile leadership positively affects organizational performance [23]. It is concordant with the study of Khaw et al. [70], which identified that digital leadership has a positive relationship with sustainable performance. Kafetzopoulos & Gotzamani [71] found that transformational leadership positively relates to sustainable performance in the economy, society, and environment. Entrepreneurial leadership positively relates to sustainable performance in the economy and environmental aspects. Also, transactional leadership has a positive relationship with sustainable performance in society and the environment. Furthermore, Rakthai et al. [10] revealed that leadership emphasis is positively relevant to business performance (finance, internal processes, employee, and consumer). For the reasons mentioned above, the researcher set the hypothesis as follows:

H6: Agile leadership has a positive relationship with sustainable financial and non-financial performance.

2.12. Agile Leadership and Sustainable Financial and Non-Financial Performance through Digital Transformation

Digital transformation enhances an organization's financial and non-financial performance [56]. Agile leadership recognizes customers' changeable needs and internal change by supporting the digital transformation process to reach more possibilities of success [18] and responding to the customer's change well [14]. It impacts profitability in the long term and has sufficient resources to generate sustainable non-financial performance. For these reasons, the researcher assumes that:

H7: Agile leadership has a positive relationship with sustainable financial and non-financial performance through digital transformation.

2.13. Organizational Inertia and Sustainable Financial and Non-Financial Performance

An organization with inertia tends to not perceive environmental change well enough. Hence, it cannot respond well to the customers' changing needs. It affects profitability until the organization does not have sufficient resources to construct non-financial performance effectively. Organizational inertia has a negative relationship with financial and non-financial performance in supporting members within the organization [72, 73]. For non-financial performance on members' support (customer and shareholder), community enhancement, and cooperation with competitors, the researcher views that it is essential because it is the nature of the sample group to identify organizational sustainability, although no research result supports the case. For these reasons, the researcher determines the hypothesis:

H8: Organizational inertia has a negative relationship with sustainable financial and non-financial performance

2.14. Organizational Inertia and Sustainable Financial and Non-Financial Performance through Digital Transformation

Digital transformation can help an organization reach sustainable financial and non-financial performance [56]. However, the organization with inertia insufficiently perceives the environmental change in the customers' changeable needs. Hence, digital transformation happens more slowly than it should. Furthermore, it is not yet ready for resources because the investment funds are down with digital technology, while compensations from such investments and digital technology give slow results. Therefore, the consequence is that there have not been sufficient resources to support the stakeholders and cooperate with the rivals. The non-financial performance also decreases. For these reasons, the researcher supposes that:

H9: Organizational inertia has a negative relationship with sustainable financial performance and non-financial performance through digital transformation.

The conceptual research framework, as depicted in Figure 1, is constructed based on the literature review and the proposed research assumptions.

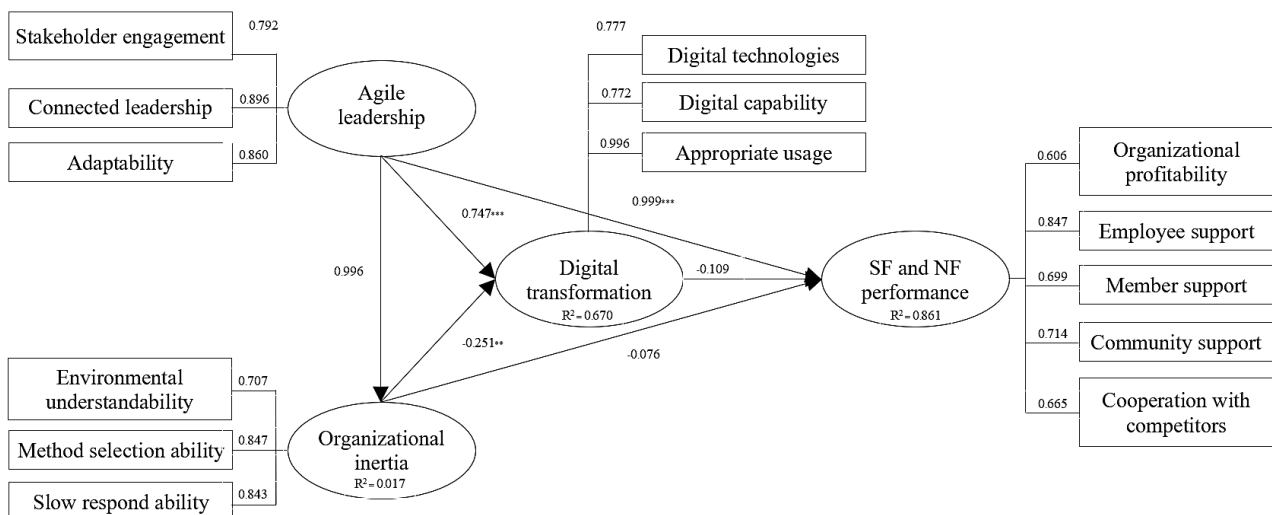


Figure 1. Research Framework and Structural model

3. Research Methods

The present study made use of data and information pertaining to cooperatives obtained from the Cooperative Promotion Department, which was active until December 31, 2021. The dataset included a total of 6,520 cooperative organizations [74]. Furthermore, due to the observed escalation of organizational inertia, the researcher opted to exclusively focus on cooperatives that have demonstrated a sustained performance of their duties over a significant

period of time. The Cooperative Promotion Department employed specific criteria to classify the duration of the cooperatives' work period, selecting a time frame of ten years or more. Therefore, the sample population consisted of 5,456 organizations, encompassing cooperatives beyond the agricultural sector, specifically those operating under a savings model. This cooperative type was subject to rigorous performance constraints. Subsequently, the number of targets remained consistent at 1,247 organizations.

Following that, the researcher selected cooperatives that had incorporated digital technologies into their business activities, either partially or comprehensively, within a maximum timeframe of five years. This duration was deemed pertinent due to the COVID-19 situation, which emerged towards the end of 2019, and the subsequent adoption of digital technologies by cooperatives in response to the prevailing circumstances. The contents of this research focus on the organizational study. Therefore, they relate to the targeted populations at the organizational level. The data collection is from the organization's representatives who have the authority to determine orientations and generate a transformation for the organization, which are Cooperative Managers or Deputies. The population consisted of cooperatives registered under the Cooperatives Act, B.E. 2542, as amended, totaling 6,520 (Information Technology and Communication Technology Center, 2021) [74]. A purposive sampling method was employed based on the following criteria: 1) Non-agricultural cooperatives; 2) Savings cooperatives; 3) Not classified as cooperative unions; 4) Operational for at least 10 years; 5) Currently operating; and 6) Utilizing digital technology since the emergence of the COVID-19 situation (late 2019). The sample group consisted of 400 savings cooperatives, with the cooperative manager or representative providing the data.

Questionnaires were used to collect data. The seven measurement levels were used in all question items for each variable. Each level substituted opinions, beginning with mostly disagreed and progressing to mostly agreed. The researcher conducted a literature study until the question items relevant to the researched variables were identified. The question items were constructed as a questionnaire and tested with the populations, not the sample group, a total of 30 samples [75] via Google Form and telephone. The result meets the criterion, with a Cronbach's alpha coefficient greater than 0.70 [76]. Between November 2022 and March 2023, the researcher administered a questionnaire to collect data. The questionnaire was distributed through various channels, including Google Form, email, postal mail, and phone. The response rate achieved was 25.00%, resulting in a total of 100 participants. Frequency, percentage, mean, correlation analysis, confirmatory factor analysis (CFA), and structural equation modelling (SEM) were used in the data analysis.

The data analysis was conducted using IBM SPSS AMOS 29 software. The analysis of the overall data involved the utilization of frequency and percentage, whereas the examination of the opinion data pertaining to the variables under investigation was subjected to Confirmatory Factor Analysis (CFA). The adequacy of the model's fit was assessed by employing various statistical measures, including the chi-square test, degrees of freedom, p-value, CMIN/df, GFI, AGFI, CFI, IFI, TLI, NFI, and RMSEA. The measurement of construct reliability was assessed through the utilization of two statistical indices, namely Cronbach's alpha coefficient (CA) and Composite Reliability (CR). The assessment of convergent validity involved the examination of factor loadings (FL) and the evaluation of Average Variance Extracted (AVE). On the other hand, discriminant validity was determined through the application of the Fornell-Larcker Criterion and the Heterotrait-Monotrait (HTMT) Ratio. The researchers utilized Structural Equation Modelling (SEM) to analyze the data, and the adequacy of the model was evaluated through various statistical measures including the chi-square test, degrees of freedom, p-value, CMIN/df, GFI, AGFI, CFI, IFI, TLI, NFI, and RMSEA. Furthermore, the relationships were examined for indirect effects utilizing the Bootstrap technique with 5,000 samples at a 95% confidence level. The outcomes are presented in Tables 1 to 6. The application of the Bootstrap method was not feasible due to the software's constraints on small sample sizes. Consequently, this study only presents the estimates.

4. Results

4.1. Demographic and Descriptive Statistics

The subjects in the study had a wide range of operational experience, with 68% having been operating for 41 years or more, 16% having been operating for 21-30 years, 10% having been operating for 10-20 years, and 6% having been operating for 31-40 years. The respondents consisted of managers (74%) and acting managers (26%). In terms of working experience, 66% of the respondents had 16 years or more of experience, 16% had 5-10 years of experience, 10% had under 5 years of experience, and 8% had 11-15 years of experience, as seen in Table 1.

Table 1. Characteristic of sample

Constructs Variables	Description	Frequency	Percentage
Operation period	10 - 20 years	10	10.00%
	21 - 30 years	16	16.00%
	31 - 40 years	6	6.00%
	41 years and above	68	68.00%

Respondents	Manager	74	74.00%
	Acting manager	26	26.00%
Respondent working experiences	Under 5 years	10	10.00%
	5 - 10 years	16	16.00%
	11 - 15 years	8	8.00%
	16 years and above	66	66.00%

4.2. Measurement Model

A Confirmatory Factor Analysis (CFA) was performed to evaluate the measurement model, focusing solely on assessing the relationships between observed variables and latent variables. The results indicated that the measurement model demonstrated a satisfactory overall fit based on the established criteria. However, the limited sample size had an impact on certain criteria, including the chi-square value with a p-value below 0.05 and the AGFI value failing to meet the prescribed thresholds. Consequently, multiple criteria were jointly considered to ensure confidence in the CFA results, mitigating potential decision-making errors arising from sample size variations. The findings of the analysis are as follows: Chi-square = 80.354, df = 58, p = 0.028, CMIN/df = 1.385, GFI = 0.905, AGFI = 0.827, CFI = 0.977, IFI = 0.978, TLI = 0.964, NFI = 0.924, RMSEA = 0.062. Additionally, to evaluate the discriminant validity of the measurement model, the criteria established by Fornell and Larcker were utilized. These criteria involve examining the relationship values within and across rows and columns, as well as employing the Heterotrait-Monotrait (HTMT) ratio. The results indicated that all values surpassed the threshold of 1, thereby confirming the satisfactory discriminant validity of the measurement model. With the fulfillment of the necessary prerequisites, the analysis proceeded to the assessment of the structural equation model. Detailed information can be found in Tables 2 and 3 below.

Table 2. Measurement model

Constructs	Factor loading	CA	CR	AVE
Agile leadership		0.886	0.887	0.723
Stakeholder engagement	0.792			
Connected leadership	0.896			
Adaptability	0.860			
Organizational inertia		0.827	0.843	0.643
Environmental understandability	0.707			
Method selection ability	0.847			
Slow respond ability	0.843			
Digital transformation		0.871	0.889	0.731
Digital technologies	0.777			
Digital Capability	0.772			
Appropriate usage	0.996			
Sustainable financial and non-financial performance		0.827	0.840	0.505
Organizational profitability	0.606			
Employee support	0.847			
Member support	0.699			
Community support	0.714			
Cooperation with competitors	0.665			

CA: Cronbach's alpha, CR: Composite reliability, AVE: Average variance extracted evaluation.

Table 3. Discriminant Validity

Constructs	Fornell-Larcker Criterion				Heterotrait-Monotrait (HTMT) Ratio			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
(1) AL	0.850							
(2) OI	-0.098	0.802			-0.148			
(3) DX	0.686	-0.257	0.855		0.795	-0.387		
(4) SFP & SNFP	0.779	-0.160	0.571	0.711	0.903	-0.217	0.676	

4.3. Structural Model

The Structural Equation Model (SEM) is an evaluative tool employed to depict the comprehensive framework of a model. Unlike the Confirmatory Factor Analysis (CFA) test, SEM concurrently scrutinizes the interrelationships among latent variables utilizing the same dataset. Contrary to the results obtained through Confirmatory Factor Analysis, the outcomes of SEM analysis revealed that the measurement model exhibited an acceptable overall fit according to the established criteria. Nevertheless, certain criteria were affected by the limited sample size, for instance, the Chi-square value with a p-value below 0.05, and the GFI and AGFI values failing to meet the prescribed thresholds. Therefore, multiple criteria were collectively considered to ensure the validity and reliability of the Structural Equation Model results, thereby averting potential decision-making errors arising from sample size discrepancies. The findings of the analysis are presented as follows: Chi-square = 93.629, df = 59, $p = .003$, CMIN/df = 1.385, GFI = 0.890, AGFI = 0.805, CFI = 0.964, IFI = 0.965, TLI = 0.944, NFI = 0.911, RMSEA = 0.077.

The examination outcome pertaining to the influence of Predictor Variables is presented in Table 4. Upon careful analysis of Figure 1, it was evident that the variable of agile leadership exhibited a notable reduction of 1.70% in the effects of organizational inertia. The interplay between agile leadership and organizational inertia, in the context of digital transformation, culminated in a significant impact of 67.00%. Furthermore, the interrelationships among agile leadership, organizational inertia, and digital transformation collectively contributed to a substantial effect of 86.10% on sustainable financial and non-financial performance.

Table 4. R square

Constructs	R square
Organizational inertia	0.017
Digital transformation	0.670
Sustainable financial and non-financial performance	0.861

The examination of the direct relationship aspects, as outlined in Hypotheses 1, 2, 3, 5, 6, and 8, can be inferred from the combined analysis of Tables 1 and 5. The findings indicated that agile leadership (AL) exhibited a negative relationship with organizational inertia (OI), while OI demonstrated a negative relationship with sustainable financial and non-financial performance (SF & NFP) that lacked statistical significance. Consequently, Hypotheses 1 and 8 were rejected. On the other hand, AL demonstrated a positive relationship with digital transformation (DX) and SF & NFP, with statistical significance indicated by β values of 0.747 and 0.999, respectively ($p < 0.001$). Therefore, Hypotheses 2 and 6 were accepted. Additionally, OI displayed a negative relationship with DX, which held statistical significance with a β value of -0.251 ($p < 0.001$). Thus, Hypothesis 3 was deemed acceptable. Conversely, the relationship between digital transformation (DT) and SF and NFP was negative based on the combined analysis, leading to the rejection of Hypothesis 5. Moving on to the indirect relationship aspects presented in Hypotheses 4, 7, and 9, the bootstrap method employing 5,000 samples with a 95% interval was utilized. Table 6 elucidates that AL exhibits a positive relationship with DX through OI, as well as a positive relationship with SF and NFP through DX, both of which lack statistical significance. OI, in turn, demonstrated a negative relationship with SF & NFP through DX, again lacking statistical significance. The Lower Limit and Upper Limit of all three relationships were within the 0 bracket. Consequently, Hypotheses 4, 7, and 9 were rejected.

Table 5. Direct Effect results

Hypothesis	Relationships	Effects	Standardized Estimate	Estimate	S.E.	C.R.	p-value	Predicted sign	Results
H1	AL » OI	Direct	-0.131	-0.162	0.141	-1.151	0.250	-	Not support
H2	AL » DX	Direct	0.747***	0.973	0.112	8.651	0.000	+	Support
H3	OI » DX	Direct	-0.251**	-0.262	0.080	-3.291	0.001	-	Support
H5	DX » SF&NFP	Direct	-0.109	-0.029	0.037	-0.79	0.430	+	Not support
H6	AL » SF&NFP	Direct	0.999***	0.353	0.068	5.166	0.000	+	Support
H8	OI » SF&NFP	Direct	-0.076	-0.021	0.022	-0.981	0.327	-	Not support

Note: * $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$, two-tailed test

Table 6. Mediation results (Bootstrapping)

Hypothesis	Relationships	Effects	Estimate	S.E.	p-value	95% CI		Predicted sign	Results
						Lower Limit	Upper Limit		
H4	AL » DX	Direct	0.973	0.172	0.000	0.691	1.373	+	Not support
	AL » OI » DX	Indirect	0.043	0.040	0.093	-0.009	0.168		
		Total	1.015	0.171	0.000	0.748	1.434		
H7	AL » SF&NFP	Direct	0.353	0.140	0.025	0.103	0.532	+	Not support
	AL » DX » SF&NFP	Indirect	-0.026	0.127	0.512	-0.137	0.224		
		Total	0.326	0.051	0.000	0.239	0.441		
H9	OI » SF&NFP	Direct	-0.021	0.031	0.361	-0.097	0.027	-	Not support
	OI » DX » SF&NFP	Indirect	0.008	0.015	0.409	-0.012	0.045		
		Total	-0.014	0.022	0.462	-0.063	0.026		

Note: *p < 0.05, **p < 0.01, and ***p < 0.001, two-tailed test., 95% CI: Bias-corrected bootstrap 95% confidence interval.

5. Discussions

The primary objective of this study was to examine the direct and indirect impacts of agile leadership and organizational inertia on both sustainable financial and non-financial performance, with a particular emphasis on the influential role of digital information. The outcomes of the nine examined hypotheses are discussed below in the context of extant scholarly contributions in the field. These analyses serve to augment the broader discourse, aligning the current findings with prior research and providing a deeper understanding of the intricate dynamics at play.

The study initially reveals a non-statistically significant negative correlation between agile leadership and organizational inertia, a finding that somewhat aligns with the insights gleaned from AlKayid et al. [9]. They discerned that leaders possessing a visionary orientation showed a negative relationship with organizational inertia. Principally, the perception of threats, as distinguished from environmental changes, constituted a significant impediment to organizational adaptation [19, 36]. Within the scope of this study, the perception of threats was construed as the capability to comprehend the dynamic needs of stakeholders, such as shareholders and customers. Cooperative leaders embodying agile leadership traits demonstrated an acuity for recognizing these shifting stakeholder needs. Nonetheless, they encountered obstacles in initiating prompt internal transformations owing to their limited influence in effecting change, a consequence of legal limitations. This factor engendered a degree of organizational inertia.

Subsequently, the study unveils a positive association between agile leadership and digital transformation, reinforcing the research hypothesis. This result aligns with the findings of Henderikx & Stoffers [64], who asserted that leadership plays a pivotal role in molding the attitudes, competencies, and behaviors propelling the digital transformation journey. Additionally, this finding partially corresponds with AlNuaimi et al. [66]. They identified a positive relationship between leaders spearheading digital transformation and the concrete implementation of said transformation. However, the research undertaken by AlNuaimi et al. [66] deviates from the current investigation in terms of the leadership style employed to effectuate change. In this study, cooperative leaders, exhibiting agile leadership attributes, display a proficiency in discerning and addressing the evolving demands of stakeholders, efficaciously exploiting digital technologies to instigate change. These leaders concentrate not merely on resistance mitigation, but also actively advocate for and support transformation. This contrasts with previous research, which primarily underscores the indispensability of change within the organization and advocates for transformational support, without specifically focusing on the agile leadership approach.

Moreover, the analytical outcomes reveal a negative correlation between organizational inertia and digital transformation, thereby corroborating the hypothesis. Cooperatives frequently encounter hurdles due to a restricted comprehension of environmental shifts and a scarcity of resources. Consequently, they exhibit trepidation and an elevated risk of failure when making substantial investments in digital technology. Furthermore, cooperatives often fall back on historical digital technology practices or effectuate minor adjustments when faced with novel challenges [77]. This mindset, resistant to and impeding change, emanates from members' incomplete appreciation of the advantages conferred by transformation, fostering behaviors that obstruct the process. Moreover, organizations may lack the necessary support for learning and capacity development required to efficaciously leverage digital technology for stakeholders. The considerable costs associated with digital transformation often compel organizations to operate within their existing readiness levels, resulting in inefficient utilization of digital technologies. These findings resonate with Vial's [78] conclusions, identifying organizational inertia as a significant impediment to the digital transformation journey. They also share partial concordance with Zhen et al.'s research [8], demonstrating that organizational inertia curtails the capacity to identify and effectively deploy information technologies within an organization. Even if an organization harbors adequate competencies for transformation, the ensuing change may lack efficacy [35]. The study

conducted by Zhen et al. [8] accentuates the organization's resistance to change, its hesitation in investing in new technologies, and its dependency on existing technologies in the face of fluctuating environmental conditions, culminating in suboptimal utilization of digital technologies. This research underlines not just the internal resistance to change among members but also the limitations in harnessing the power to instigate internal change.

The research outcomes further revealed a statistically insignificant relationship between agile leadership and digital transformation, mediated by organizational inertia. This finding can be attributed to laws and regulations aimed at enhancing the standard of internal performance, which inadvertently instigate inertia [79, 80] and curtail the authority of cooperative leaders. As a result, they are unable to effectively implement agile leadership strategies, consequently failing to accomplish successful digital transformation. Nonetheless, Hayward [18] posited that agile leadership possesses the capacity to challenge and modify existing rules and regulations, thereby establishing standardized internal performance to eliminate resistance [23]. Despite this assertion, there currently exists a dearth of academic research corroborating the findings in this scenario, resulting in a scholarly lacuna. The researcher has strived to bridge this gap by undertaking experimental investigations to unearth potential factors that may diminish the influence of inertia.

Then, the empirical exploration of digital transformation reveals a complex, albeit not statistically significant, negative correlation with both financial and non-financial dimensions of performance. This relationship is primarily attributable to the substantial financial commitment demanded by digital adoption within cooperative organizations. The development and nurturing of digital competencies among key stakeholders, including employees and members, necessitate considerable outlay, often exceeding initial projections before yielding anticipated outcomes [81]. Interestingly, as non-profit entities, cooperatives inherently prioritize non-financial outcomes over pecuniary gains. A significant portion of their resource allocation is geared towards fostering employee welfare, member support, and community development, a strategy that might ostensibly result in diminished financial profit. However, it concurrently enhances non-financial remunerations, thereby demonstrating the complex interplay of digital transformation within such organizations. Cooperatives often also participate in cooperative community partnerships with competitors, underpinning mutual assistance and driving long-term productivity. This observation is congruent with Guo & Xu's [67] investigation, which proposed a U-shaped trajectory of the relationship between digital transformation and financial performance contingent on the level of digital usage. Paralleling this finding, Teng et al.'s [68] study revealed an analogous relationship, though the statistical significance was constrained by the limited sample size. In a similar vein, Zhai et al. [5] asserted that despite the absence of a statistically significant positive correlation between digital transformation and various non-financial performance metrics, digital transformation, when adequately utilized, has the potential to augment financial performance in the long term. The lack of initial significant impact is attributed primarily to the limited technological application during the early stages of digital transformation.

The study delineates a positive correlation between agile leadership and sustainable financial and non-financial performance, corroborating the initial hypothesis. Cooperative leaders manifesting agile qualities play an indispensable role in perceiving the dynamic requirements of their members, evolving internal operations, mitigating organizational resistance, and fostering innovative capabilities. Such leaders, by ensuring seamless business processes, engender enhanced profitability. Moreover, these agile leaders prioritize support for employees, members, the wider community, and even competitors, with the objective of minimizing resistance and nurturing collaborative relationships among stakeholders. This cooperative approach is instrumental in achieving sustainable performance outcomes, aligning with the insights of Akkaya & Sever [23], who underline the beneficial influence of agile leadership on organizational performance. In parallel, an array of studies corroborates positive correlations between different leadership styles, such as digital, transformational, entrepreneurial, and exchange leadership, and sustainable financial performance, albeit in disparate contexts [71, 70]. Furthermore, Rakthai et al. [10] assert the positive association between leadership emphasis and business performance across multifaceted dimensions, including finance, internal operations, employee satisfaction, and customer relations. However, the focus of the present research is distinctly on agile leadership, incorporating a wider purview that integrates competitors. Despite the difference in emphasis, the findings of both studies converge, establishing a similar relationship between agile leadership and improved business performance.

Furthermore, the study posits a positive correlation between agile leadership and sustainable financial and non-financial performance, mediated by digital transformation. However, the relationship with sustainable financial performance, while positive, is not statistically significant. This is primarily because agile leaders often face a difficult balancing act: they must choose to accept the inherent risks associated with digital transformation, which entails significant capital investments in technology and expenditure on stakeholder development until digital proficiency becomes commonplace. Consequently, these organizations may find their resources strained, leading to an insufficient allocation for stakeholder support, thus influencing non-financial performance. This particular aspect of the study, namely the impact of agile leadership on sustainable performance through digital transformation, is a novel area of exploration and remains under-studied. As such, it represents an intriguing gap in the current body of research, warranting further investigation.

The research findings also elucidate a negative correlation between organizational inertia and both sustainable financial and non-financial performance. Although this relationship lacks statistical significance, it demonstrates a

critical concern for cooperatives that fail to adequately adapt to environmental shifts and remain bound to traditional methods. Particularly as stakeholder needs evolve, such organizations may mistakenly perceive a continuity of old needs, leading to an outdated operational approach. This persistent adherence to past practices can result in an inability to meet demand for requisite products and services, thereby diminishing market presence and impairing investment worthiness. Therefore, these organizations may suffer from reduced profitability, which subsequently depletes the resources available for stakeholder support and competitive collaboration. This scenario further impinges on non-financial performance, exacerbating the overall negative impact. These findings concur with the study by Hongdiyanto et al. [72], which similarly indicates a non-statistically significant negative relationship between organizational inertia and financial performance. Furthermore, Teofilus et al. [73] established a negative correlation between organizational inertia and sustainable performance concerning profits, intra-organizational member enhancement, and business succession, albeit without statistical significance for non-financial performance. However, the effect of organizational inertia on intra-organizational member enhancement remains an under-researched area, presenting an intriguing gap in the current study that invites further investigation.

Finally, the study illuminates a negative correlation between organizational inertia and sustainable financial and non-financial performance, mediated through digital transformation. This relationship, while not achieving statistical significance, underscores a key challenge for cooperatives that insufficiently perceive environmental changes and harbor apprehensions regarding potential risks, leading to resistance within the organization. Such inertia slows the pace of digital transformation, rendering these cooperatives ill-prepared to dedicate the necessary resources to it. Consequently, substantial investment capital becomes tied to digital technology, while returns from such investments trickle in at a languid pace. This situation invariably results in a resource deficit, hampering initiatives to foster cooperation among stakeholders and competitors, thereby diminishing non-financial performance. This particular facet of the study examining the impact of organizational inertia on sustainable performance through the lens of digital transformation is an under-explored area, and the absence of corroborating research results represents a noteworthy gap in the existing literature. This invites further investigation to deepen our understanding of these complex interrelationships.

6. Conclusions

This research investigates the influence of agile leadership and organizational inertia on sustainable financial and non-financial performance, as well as the roles of digital transformation within the Savings Cooperative Limited in Thailand. The study not only corroborates earlier findings but also broadens the understanding of the specified variables. Specifically, it provides an expanded perspective on agile leadership in relation to digital transformation, organizational inertia's influence on digital transformation, and the impact of agile leadership on sustainable financial and non-financial performance.

The research findings have implications for lawmakers who constrain the executive authority of leaders within the Savings Cooperative Limited in Thailand with the intention of averting potential detriment. The fresh insights generated on organizational inertia in this study highlight the drawbacks arising from legally curtailing leaders' power. Specifically, the study underlines the adverse consequences of hindering digital transformation efforts, which are essential for organizations to adapt to environmental changes. Moreover, the study indicates that members may experience indirect harm from these limitations. For instance, the adoption of an electronic transaction system could mitigate issues related to arrears. Members' arrears can negatively impact profitability; however, the law-induced inertia, which curbs leaders' power in implementing digital transformation, deprives cooperatives of the benefits that such a transformation can offer. Considering these findings, lawmakers should reconsider their stance on power restrictions, particularly during crisis situations, for leaders operating within the Savings Cooperative Limited in Thailand. By allowing a degree of managerial latitude, they can help shield the organization from potential harm and promote a more effective adaptation to environmental shifts.

The findings of this study provide useful insights for cooperatives, particularly the Savings Cooperative Limited in Thailand, undergoing digital transformation. Leaders can leverage agile leadership to enhance the probability of successful digital transformation, being mindful of the pitfalls of organizational inertia that could impede or diminish the effectiveness of such transformation. It is crucial to anticipate and guard against these obstacles to ensure the smooth execution of the digital transformation process. Moreover, the employment of agile leadership can aid in forecasting sustainable financial and non-financial performance. By cultivating an environment that fosters agility and adaptability, leaders can better prepare their organizations for the challenges and opportunities of digital transformation. As a result, these insights can inform strategic decisions and actions, driving more sustainable outcomes and fostering a more resilient organization in the face of change.

The limitations of this research stem primarily from the specificity of the sample group, which was chosen to align with the conceptual framework of the study. This approach resulted in a relatively small sample size, potentially impacting the study outcomes, and limiting their generalizability to the broader population within the Savings Cooperative Limited in Thailand. Future research could benefit from a more randomized sample selection, free from

stringent conditions, to better represent the overall population of the cooperative. It would be advantageous to explore this subject further, including samples both within and outside the limitations imposed by inertia. In addition, future studies should consider investigating the adverse effects arising from legislation related to power limitations on cooperative managers. Such insights would contribute to a deeper understanding of the implications of these constraints on organizational performance and digital transformation efforts.

7. Declarations

7.1. Author Contributions

Conceptualization, A.E. and S.A.; methodology, A.E. and S.A.; software, S.S., N.K., and N.I.; validation, S.A. and N.K.; formal analysis, A.E., S.A., N.K., and N.I.; investigation, S.A.; resources, S.A. and N.K.; writing—original draft preparation, A.E. and S.A.; writing—review and editing, S.A., N.K., and N.I.; visualization, A.E. and N.I.; supervision, S.A.; project administration, S.A. All authors have read and agreed to the published version of the manuscript.

7.2. Data Availability Statement

The data presented in this study are available in the article.

7.3. Funding and Acknowledgements

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7.4. Institutional Review Board Statement

This research was approved by the Institutional Review Board (IRB) of the human research ethics committee of Nakhon Ratchasima College (NMCEC-0009/2565), Thailand.

7.5. Declaration of Competing Interest

The authors declare that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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