# The Relevance of Solidarity Entrepreneurial Ecosystem, Digital Transformation and Modern Cooperatives: An Empirical Research

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## ABSTRACT

This research aimed to explain the influence of solidarity entrepreneurial ecosystem (SEE) on modern cooperatives (MC) through digital transformation (TD) in the Purwakarta Regency, West Java, Indonesia. An explanatory survey method was adopted with a quantitative approach and inferential hypotheses were verified using structural equation modelling (SEM). Data processing and analysis were also carried out by checking the outer and inner models' discriminant validity as well as composite reliability. Subsequently, hypothesis testing was conducted using a bootstrapping process to produce a calculated T value. This research included 69 active and certified cooperatives in the Purwakarta Regency area, as respondents. The results showed that SEE significantly influenced MC through TD. Suggestions from this research were primarily aimed at actors in the SEE, namely managers, government, and academics. Moreover, the actors supported the success of TD, specifically in terms of implementation, policy, innovation, and technology. This was achieved by developing a collaborative program to create MC by strengthening ecosystem network. The results contributed to the development of literature regarding SEE, TD, and MC by producing a theoretical framework used as a reference for further research.

Keywords: Solidarity Entrepreneurial Ecosystem, Modern Cooperative, Digital Transformation, Cooperative.

## 1. INTRODUCTION

Digital age is known to play an essential role in modern society through rapid global communication and networking (Miah & Omar, 2012). In this context, the paradigm shift in the world of Internet, telecommunications, and mobile technology has dramatically affected business (Karakas, 2009). Subsequently, the era was known as the Industry 4.0 revolution, which was triggered by the development of information and communication technology (Xu *et al*., 2018; Jeanne Ellyawati & Ardhiel Junico A. K, 2024) to provide the groundwork for increased digitization (P. O. SKobelev & Borovik, 2017). This digital transformation (TD) era was developed as an important phenomenon in strategic research (Matt *et al*., 2015; Vial, 2019). Currently, digital technology is integral to the world's society and economy (Andersson & Mattsson, 2018; Gimpel *et al*., 2018; Bumann &

Peter, 2019), pressuring the management across the industry to make TD a strategic priority and accept different opportunities (Horlacher & Hess, 2016; Zavolokina *et al*., 2016).

TD is defined as the use of new technologies to enable significant business improvements, such as enhancing customer experience, streamlining operations, or creating new business models (Fitzgerald *et al*., 2013). According to McKinsey, this process includes redesigning technologies and business models to ensure new value for customers and employees in a constantly changing and expanding digital economy (Ulas, 2019).

The phenomenon of TD affects SMEs and cooperatives (Morais & Bacic, 2020). In several countries, cooperatives have long been recognized as the backbone. In 2022, West Java was reported as the province with the most significant number of cooperatives, totaling 16.15, and this was followed by East and Central Java, with a total number of 14.777 and 12.829, respectively (Santika, 2023). Furthermore, cooperatives have become one of the social movements proven to be able to move the society's economy and support the growth of the region (Purbasari & Raharja, 2021). These organizations play an essential role in eradicating poverty, creating jobs, as well as driving economic growth and social transformation (International Co-operative Alliance, 2016; A. E. Okem, 2016). The International Cooperative Alliance (ICA) defines cooperatives as "the autonomous association of society who voluntarily unite to meet the needs and aspirations of the common economic, social, and cultural society through jointly owned and democratically controlled efforts." (International Co-operative Alliance, 2016).

TD is crucial because organizations must conduct the process to become modern cooperatives (MC) (Hambani & Harefa, 2019; Purbasari & Raharja, 2021). Meanwhile, MC have become an essential need for managers to remain sustainable and competitive (Purbasari & Raharja, 2022; Purbasari & Raharja, 2023). Modern forms of cooperatives were developed in Britain in response to the harsh economic conditions caused by the Industrial Revolution (Kokkinidis, 2011). As a social organization, cooperatives are assumed to participate in more sharing systems comparable to societies in which economic and power disparities grow and the need to compete for resources increases market influence (Bolton, 2019; Wijers, 2019). The processes form ICIS (International Cooperative Identity Statement), which represents and upholds universal values such as self-reliance, shared responsibility, democracy, equality, justice, and solidarity (Faedlulloh, 2015; International Co-operative Alliance, 2016). However, cooperatives often need help to survive, design, implement, and successfully digitize strategic models and organizations. This is because the organizations need more resources, a gap in cognitive assets, and a lack of capabilities (Li *et al*., 2018; Garzoni *et al*., 2020). Additionally, the low use of technology in business activities is a problem experienced (Tru *et al*., 2020) and this makes cooperatives look obsolete, antique, and unusual. In a time of high technology, these organizations face three significant challenges, namely misconceptions of cooperatives, innovation of business systems, and technological advances (Maulana & Tubaila, 2021). Referring to data issued by KemenkopUKM, of the 123,000 active cooperatives, there are only 900, or about 0.73% of the total number that have adopted technology (Syaiful *et al*., 2022).

Several cooperative managers need more entrepreneurial ability to sustain the organization's existence (Sitepu & Hasyim, 2018). Therefore, there is a need for a manager with entrepreneurial character and creative spirit to become something of high value (Purbasari & Raharja, 2021). Cooperatives are in great need of entrepreneurs because activities have proven to be capable of producing innovative products and services (Roundy, 2017; Purbasari *et al*., 2020). In this context, entrepreneurship determines the success of adopting technology to bring cooperative into modern state (Purbasari & Raharja, 2021). The issue was fully understood by the Indonesian government, which made policies to help increase TD. As a concrete step to commemorate the 74th Cooperative Day on July 12, 2021, Indonesian cooperatives re-branded into modern, contributory, and competitive enterprise (Humas Kementerian Koperasi dan UKM, 2021). The Minister of Cooperation and SMEs stated that the government had four strategies to develop MC. First, cooperative business model can be developed through food corporatization. Second, factory sharing should be developed with open partnerships to connect with the supply chain. Third, the development of multi-party cooperatives should be conducted. Fourth, the institutional and membership efforts of cooperative must be strengthened through merger strategies (spin-off and split-off). The four strategies were implemented through regulations such as Act No. 11 of 2020 and Government Regulation No. 7 of 2021. Moreover, cooperative entrepreneurship mindset supported innovation through digitization, with the launch of the IDX COOP in 2020, which documented the various ideas and practices (Humas Kementerian Koperasi dan UKM, 2021; Purbasari & Raharja, 2023). MC take a spirit of entrepreneurship that plays a crucial role in adopting technologies (Purbasari & Raharja, 2021).

Entrepreneurship arises from the interaction between individual attributes and the surroundings (Stam & Bosma, 2015; Acs *et al*., 2017; Purbasari *et al*., 2018), which can support the implementation of strategies for developing MC. Based on (Kusdiyanti, 2008), entrepreneurial competence in the business continuity framework is closely related to the elements and roles to improve competence and business sustainability. Building a proper entrepreneurial ecosystem is expected to support optimal business growth and competitive sustainability for Indonesian cooperatives (Purbasari, Muhyi, *et al*., 2020). In business environment, member participation is included in capital fertilization, using services provided by cooperatives (Catur & Setiawina, 2018; Syaiful *et al*., 2022). Members and other actors in entrepreneurial ecosystem form the concept of Social Economics and Solidarity (SES), which is an alternative to cooperatives, associations, foundations, and social enterprises, producing goods, services, and knowledge for economic and social purposes (Borzaga *et al*., 2017). SES cooperation is based on independence, self-responsibility, democracy, equality, and solidarity (Wijers, 2019).

MC structures have become an essential objective for implementing social economics and solidarity. To fulfill social objectives in cooperative business environment, the solidarity entrepreneurial ecosystem (SEE) must be observed and strengthened (Morais & Bacic, 2018). Therefore, it is necessary to form a productive entrepreneurial ecosystem to facilitate the formation, sustainability, and growth of social economics and solidarity. Building a solid SEE is complex and challenging because of a particular region's socioeconomic, political, and cultural characteristics. However, this is essential to support the sustainability and competitiveness of cooperatives (Morais & Bacic, 2020; Purbasari & Raharja, 2023).

Several previous research have been conducted relating to the participation of cooperative members. The participation of some members was influenced by cooperative knowledge, interest (Catur & Setiawina, 2018), managerial skills (Rindorindo, 2019), and manager creativity (Wazdi & Firman, 2021). Meanwhile, recent research related to the use of information technology has been carried out. According to Yusuf *et al.* (2021), a strategy to progress cooperation was the modernization of cooperation. Technology plays a vital role in addressing challenges that conventional methods may struggle to solve (Hasbullah & Bareduan, 2021; Syaiful *et al.*, 2022). Therefore, this research analyzes the effects of SEE on modern cooperation through TD.

Literature shows the need for an in-depth understanding of the business and managerial aspects of TD, specifically in the context of cooperation where the potential requires adopting models inspired by collaboration and networking principles (Garzoni *et al.*, 2020). The effects of cooperation on managerial problems have not been conducted since there is limited research on overcoming cognitive bias (Li *et al.*, 2018). Therefore, this research aims to complement the analysis of TD in cooperatives when associated with the concept of SEE (Purbasari & Raharja, 2022). In connection with the explanation, the effects of SEE on MC are determined through TD by using the case of MC in the West Java Region. The selection of the research locus is carried out in consideration of support for the policy of the Government of West Java pushing the digitalization of cooperatives (Purbasari & Raharja, 2022). The hypothesis should be tested to measure the success of TD for the Western Java Region cooperatives and develop knowledge in the field of SEE (Purbasari & Raharja, 2023).

This research aims to explain the impact of SEE on MC through TD in the Purwakarta regency, West. This research is also expected to contribute to the development of literature, especially regarding the relevance of the variables SEE, TD, and MC. The selection of Purwakarta Regency as the research location was based on the consideration that cooperatives in Purwakarta Regency have consistently increased since 2016 (883 units) to 902 units in 2021 (Department of Cooperatives, UMKM, Industry and Trade, Purwakarta Regency, 2021). Apart from that, 600 of the 780 cooperative units that have registration in Purwakarta Regency were declared to be in the active and healthy category. Cooperatives in the Purwakarta Regency are attractive to research because most cooperatives in other West Java regions have experienced a decline, mainly due to the COVID-19 pandemic in 2019. This shows the resilience of cooperatives in the Purwakarta Regency in facing problems related to problems with SEE, TD, and MC. (purwakartakab.go.id, 2021). The location can be used as input for policymakers to make adjustments to the development environment of digital era (Purbasari & Raharja, 2022).

## 2. LITERATURE REVIEW

### 2.1 Solidarity Entrepreneurial Ecosystem (SEE)

As systematized by Serrano (2015), ecosystems are a "network of actors" that consider the physical-territorial and cultural characteristics of a region. The region consists of several systems, including a) the political system (alliance and coalition between social and political actors to form the basis of territorial governance), b) the production system (promoting the formation of networks of actors in the production of goods and services),

and c) the territorial innovation system (created by several groups of acts in producing and disseminating innovation). The development of SEE is a participatory process of the society in the constitution of the regional cooperatives. According to Bajo *et al*. (2017), cooperation arises to a certain extent in the process of building citizenship and incorporating the concept into the development process as well as the norms and practices. Therefore, cooperation can be produced from an increased awareness of shared needs and discovered capacities beyond social movements (Morais & Bacic, 2020).

The fundamental objectives of the actors should be considered in developing solidarity entrepreneurship ecosystem, which can include entrepreneurs, universities, and participation in the collaborative development of public policies. Furthermore, the ability to recognize the significance of co-evolution will be important for attaining leadership. Sustainability, preservation, and evolution depend on the vitality of the entire ecosystem. Actors or stakeholders must recognize the interdependence and emphasize the collective nature of the network of solidarity entrepreneurship. Therefore, the degree of interconnectivity and the interdependence of all system components is an additional fundamental aspect of the development (Morais & Bacic, 2020).

Based on the explanation, integrating the actors into cooperative-oriented entrepreneurial ecosystem based on Purbasari, Muhyi, *et al*. (2020) (cooperative entrepreneurs, governments, academics, bankers, professionals, markets, and social societies) is important with several components forming part of the processes (Bajo *et al*., 2017; European Commission, 2019; Morais & Bacic, 2020; Purbasari & Raharja, 2023). The framework of the SEE consists of:
1. Cooperative entrepreneurs
2. Academics: access to knowledge, research development, and capacity-building in the field, as well as instruments to promote mutually beneficial networks
3. Government: political awareness and legal method to identify policies and actions, Public financial and financial assistance
4. Market access
5. Bank access: Investment to the financial support of society
6. Public participation.

## 2.2 Digital Transformation (TD)

Digital transformation is a term used to describe the process of digitization in all spheres of society. Lars defines the concept as "a process where humans are reshaping the way society 'works' by interpreting and understanding the environment, including the use of digital technologies in everyday life" (Norqvist, Lars). In addition, digital transformation refers to the process by which human beings re-create social patterns through technology in everyday life. (Floridi, Luciano, 2014).

Digital transformation consists of two elements and the first is "digital", which includes the use of technology to facilitate human activity. The second element is "transformation," describing the change of ways, thinking, and behavior from conventional to new methods. In conclusion, TD are changes in ways, thoughts, and behavior from conventional to digital methods or technologies for facilitating human activity (Sudarwanto & Kharisma, 2021). In this process, organizations continuously engage in digital innovation to develop or improve products, services, and business

models. Since new products and services may require different resources and working procedures, organizations must also engage in more profound changes in operational structures to support new forms of value creation. TD has six dimensions, namely strategy, organization, culture, technology, customer, and society (Bumann & Peter, 2019).

## 2.3 Modern Cooperative (MC)

Cooperatives have made significant contributions to the global economy (A. E. Okem, 2016) and this shows the vital role played by the organizations. The critical role has gained international recognition, as reported by the declaration of the sixty-fourth General Assembly of the United Nations in 2012, tagged "Year of Cooperatives". These organizations have proven to play an invaluable role in poverty eradication, job creation, general economic development, and social transformation (A. Okem & Lawrence, 2014).

Progress in previous research has produced different definitions of cooperation (A. Okem & Lawrence, 2014). The ICA, as the most prominent global organization, defines the concept as "the autonomous association of society who are voluntarily united to meet the common economic, social, and cultural needs as well as aspirations through a jointly owned and democratically controlled company operated based on principles" (International Co-operative Alliance, 2016). The members establish or join cooperatives to profit from the transactions with the company. These individuals have dual status as joint owners of the company and users of the goods and services provided. Ownership means providing the capital needed by cooperatives to conduct business as well as to decide the strategy and policy through democratic processes. This approach shows that cooperatives can be perceived as a market-based business to optimize results for members (Wijers, 2019).

The industrial revolution in England established MC (Kokkinidis, 2010). These social organizations are anticipated to share more in societies where economic and power inequality rises and increase market influence (Wijers, 2019). MC movement established ICIS, which promotes global ideals such as self-reliance, self-responsibility, democracy, togetherness, equality, justice, and solidarity (Faedlulloh, 2015; International Co-operative Alliance, 2016; Arianis Chan & Sam'un Jaja Raharja, 2024). These values are inherited from the pioneers, who emphasized integrity, transparency, and social responsibility. The following is an explanation of each value of MC:
1. Self-reliance: The value is based on the belief that every human being must strive to be better.
2. Self-responsibility shows that members accept responsibility for cooperation and must consciously be prepared for multiple roles. The owner is automatically the investor, while members are users as well as supervisors of the operation. Therefore, all cooperative members must be self-aware in carrying out different responsibilities.
3. Democracy: This shows that the implementation of cooperatives must be carried out democratically. In determining the policy of the cooperative, the members, administrators, or supervisors, must consult together.
4. Togetherness describes the progress or decline resulting from a collaborative process. Therefore, cooperative does not recognize the term "I" but "we."

5. Equality shows that each member has the same position when formulating policies. Achieving the democratization process must be directly proportional to the value of equality applied. Therefore, cooperatives do not recognize social background, religion, race, or position.

6. Justice: Each member is treated fairly according to the level of economic participation or services contributed. In this context, values are placed on distributive justice following the contributions of members. The logic is constructed as a social engineering step, allowing members to participate in building and developing cooperatives. With an active role on the business and social side, cooperatives can expand the benefits.

7. Solidarity: Cooperative movement enhances a sense of solidarity among members as capital in building and developing cooperatives. This solidarity is also a sub of social capital to impacts reciprocity among the members, directly or indirectly.

The seven values are a source of trust in cooperatives and the development increases the significance of social capital (Faedlulloh, 2015; Purbasari & Raharja, 2023).
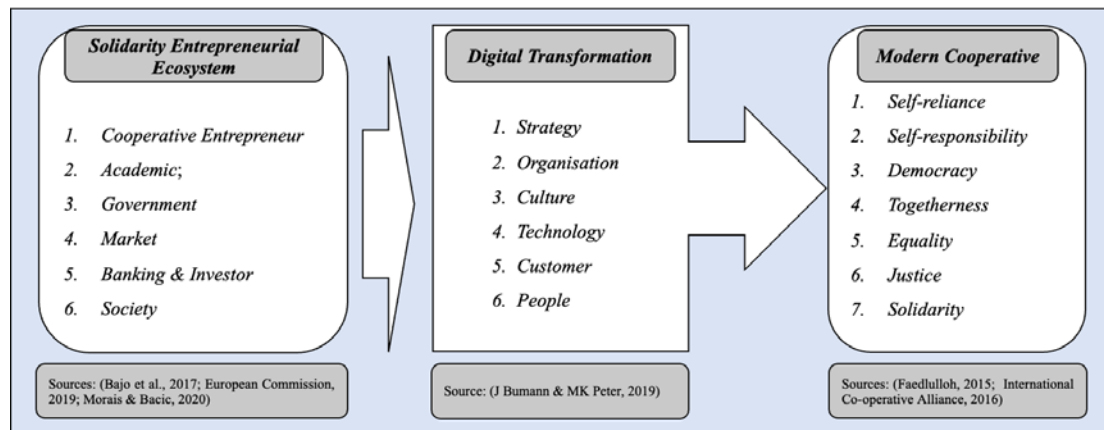


Figure 1. Research Conceptual Framework

## 3. RESEARCH METHOD

The research uses the descriptive and explanatory survey method with a quantitative approach to test hypotheses. In addition, inferential hypothetical testing/verification is adopted with structural equation modeling (SEM) because a model is an integrated approach between confirmatory factor analysis (CFA), structural model, and path analysis. This is in line with Jöreskog and Sörbom's view (Wijanto, 2008), where three benefits are obtained by using SEM, namely (1) examination of Discriminant Validity as well as Composite Reliability external and internal models (equivalent to CFA); (2) Hypothesis testing on PLS-SEM using a bootstrapping process to produce a counted T value. The hypothesis is significant when the T value is greater than the statistical t value with a 95% confidence rate (1,96). The variables include SEE, MC, and TD. Meanwhile, the sample size is determined according to the number of samples required for SEM. Research data was obtained from the Department of Cooperatives, SMEs, Industry and

Trade, Purwakarta Regency 2023 database, which shows that the number of registered cooperatives with active and certified status is 600 units.

Table 1. Respondent Profile Data

| Criterion | Number of Cooperatives/People/Years | Percentage |
|---|---|---|
| **District Area** | | |
| ***Jatiluhur*** | 4 | 6% |
| *Sukasari* | 2 | 3% |
| *Maniis* | 3 | 4% |
| *Tegalwaru* | 3 | 4% |
| *Plered* | 4 | 6% |
| *Sukatani* | 3 | 4% |
| *Darangdan* | 3 | 4% |
| *Bojong* | 3 | 4% |
| *Wanayasa* | 8 | 12% |
| *Kiarapedes* | 2 | 3% |
| *Pasawahan* | 4 | 6% |
| *Pondoksalam* | 2 | 3% |
| *Purwakarta* | 13 | 19% |
| *Babakancikao* | 3 | 4% |
| *Campaka* | 5 | 7% |
| *Cibatu* | 2 | 3% |
| *Bungursari* | 5 | 7% |
| **Total Managers** | 4-5 | 29% |
| | 6-7 | 55% |
| | 8-9 | 16% |
| **Year Established Range** | 1990-2000 | 12% |
| | 2001-2010 | 52% |
| | 2011-2018 | 36% |

The method used is proportionate stratified random sampling at active and certified cooperatives located in the Purwakarta Regency with a size of 69. However, this sample size has met the minimum number of respondents needed in descriptive quantitative research as explained by Gay & Diehl (1992) that for descriptive method research, a minimum of 10 percent of the population, for a relatively small population of at least 20 percent, while for correlation research a sample of thirty respondents (Torrentira, 2020). 69 respondents of cooperatives in Purwakarta Regency are spread across 17 sub-districts with profiles that can be seen in the table 1. Based on table 1, it can be seen that most of cooperatives as respondents are from Purwakarta District (Capital of Purwakarta

Regency) (19%), most of cooperatives have 6-7 total managers (55%) and most of cooperatives were established between 2001-2010 (52%).

The data is collected with surveys using instruments in the form of questionnaires. The analysis is conducted through partial least squares SEM (PLS-SEM) using SMARTPLS-4 software, which is intended to determine the influence of independent variables on dependent. The validity test shows that the entire unmeasured variable is measured using the observed structure from the number of loading factor values. The measurement aspect is based on (Hair *et al*., 2010), where approximately 0.3 is considered to have swallowed the minimum level, while 0.4 and 0.5 are better and significant, with criteria of at least 0.3.

## 4. RESULTS AND DISCUSSION

### 4. 1. Results of Realiy and Validity

The following are the results of data reliability and validity which can be seen in table 2 below.

Table 2. Convergent Validity Results: Acceptable Values (Factor loading)

| Constructs | Items | Factor Loading of Outer Model | Factor Loading of Outer Model Valid |
|---|---|---|---|
| **Solidarity Entrepreneurial Ecosystem (SEE)** | S1 | 0.590 | 0.617 |
| | S2 | 0.478 | 0.496 |
| | S3 | 0.671 | 0.671 |
| | S4 | 0.598 | 0.538 |
| | S5 | 0.390 | 0.338 |
| | S6 | 0.339 | 0.364 |
| | S7 | 0.201 | *removed* |
| **Digital Transformation (TD)** | TD1 | 0.898 | 0.862 |
| | TD2 | 0.792 | 0.755 |
| | TD3 | 0.933 | 0.937 |
| | TD4 | 0.670 | 0.586 |
| | TD5 | 0.369 | *removed* |
| | TD6 | 0.735 | 0.805 |
| **Modern Cooperative (MC)** | MC1 | 0.039 | *removed* |
| | MC2 | 0.332 | *removed* |
| | MC3 | 0.755 | 0.752 |
| | MC4 | 0.559 | 0.565 |
| | MC5 | 0.936 | 0,968 |
| | MC6 | 0.936 | 0,968 |
| | MC7 | 0.931 | 0,969 |
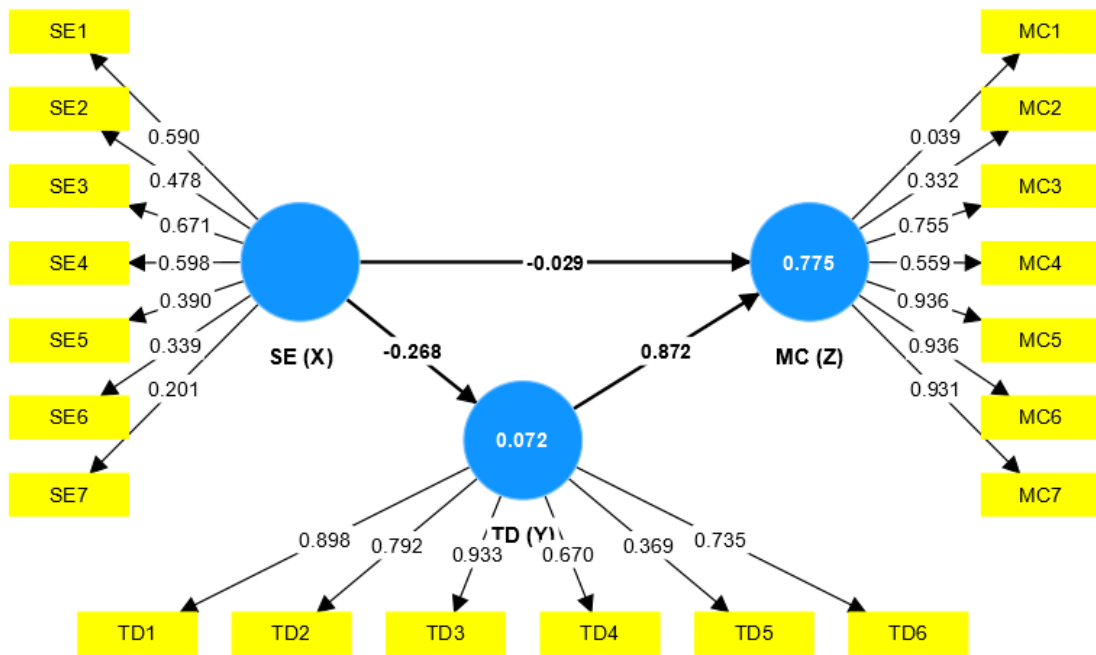
Figure 2. Outer Model

Based on the loading factor on SEE variable, several indicators do not meet the validity value, namely SE7 of 0.201. The variable of TD has met the loading factor but TD5 is removed from the indicator to be tested because the discriminant test validity is not met. On the variable of MC, an indicator does not meet the validity value where MC1 is 0.039. However, indicator MC2 is eliminated because the validity must be met in the discriminatory testing. At the subsequent test, the non-compliant indicator is removed and re-tested, as shown in the following diagram:
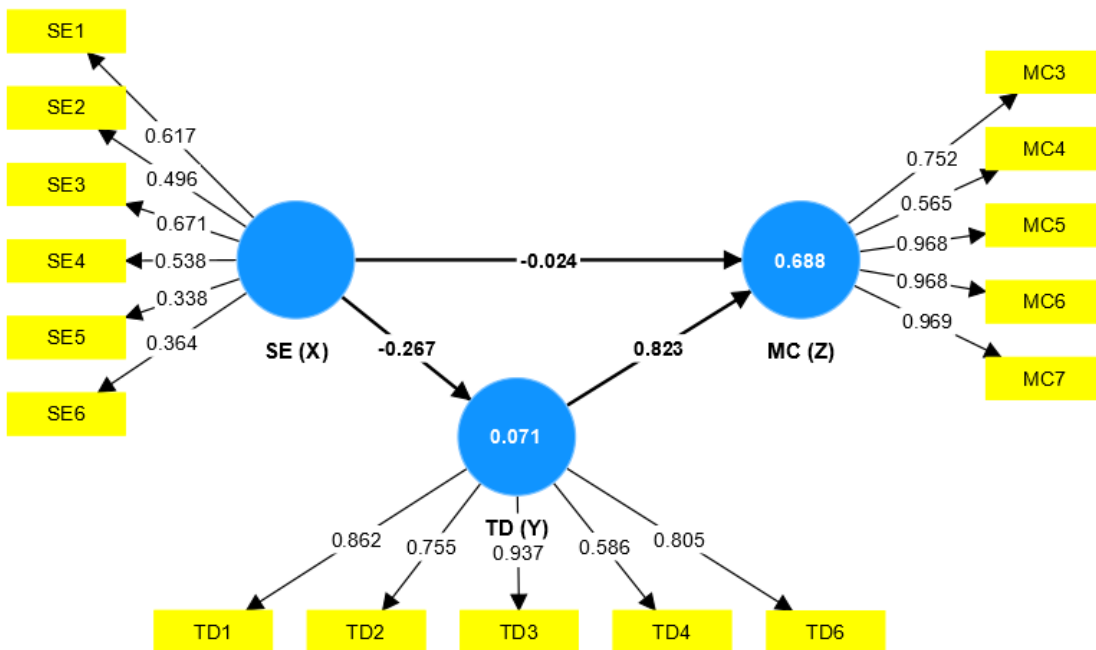


Figure 3. Outer Model Valid

The entire indicator has qualified validity with a minimum number of 0.3. Therefore, the variable SEE has a loading factor greater than SE3, with a value of 0.671. The variable TD has a loading factor, with the most significant number of TD3 being 0.937. On MC, the loading factor with the most significant number is MC7 at 0.969.

A discriminant validity test is carried out using the Heterotrait-monotrait ratio criterion (HTMT) and the loading value is accepted when <0.9. The entire loading value is acceptable, while the latent variable has excellent discriminant validity.

Table 3. Discriminant Validity

|  | MC (Z) | SE (X) | TD (Y) |
|---|---|---|---|
| MC (Z) |  |  |  |
| SEE (X) | 0.295 |  |  |
| TD (Y) | 0.775 | 0.321 |  |

Table 4. Composite Reliability

|  | Composite Reliability |
|---|---|
| SEE (X) | 0.676 |
| TD (Y) | 0.895 |
| MC (Z) | 0.932 |

The reliability test of the construction is measured using composite reliability (CR). The criterion that will be accepted is when the composite realistic value is > 0.6. Based on the test results, the entire composite reality test has fulfilled the prerequisite to declare the latent variable reliable. The testing on PLS-SEM uses a bootstrapping process that produces a counted T value. The hypothesis is significant when the T value is greater than the statistical t value with a 95% confidence rate (1,96). On $R^2$, testing (R-Square) is performed to assess the influence on MC and TD endogenous variables, as shown in Table 3:

Table 5. Determination Coefficient

|  | *R-Square* |
|---|---|
| MC (Z) | 0.699 |
| TD (Y) | 0.054 |

The $R^2$ value in MC is 69.9%, hence SEE and TD can influence the variable. Another 30.1% is described by other variables that have not been tested in this research. The results show a moderate relationship between the exogenous and the endogenic variables. The $R^2$-value in TD is 5.4%, hence SEE weakly influences TD, and 94.6% of the variable can be affected by the others.
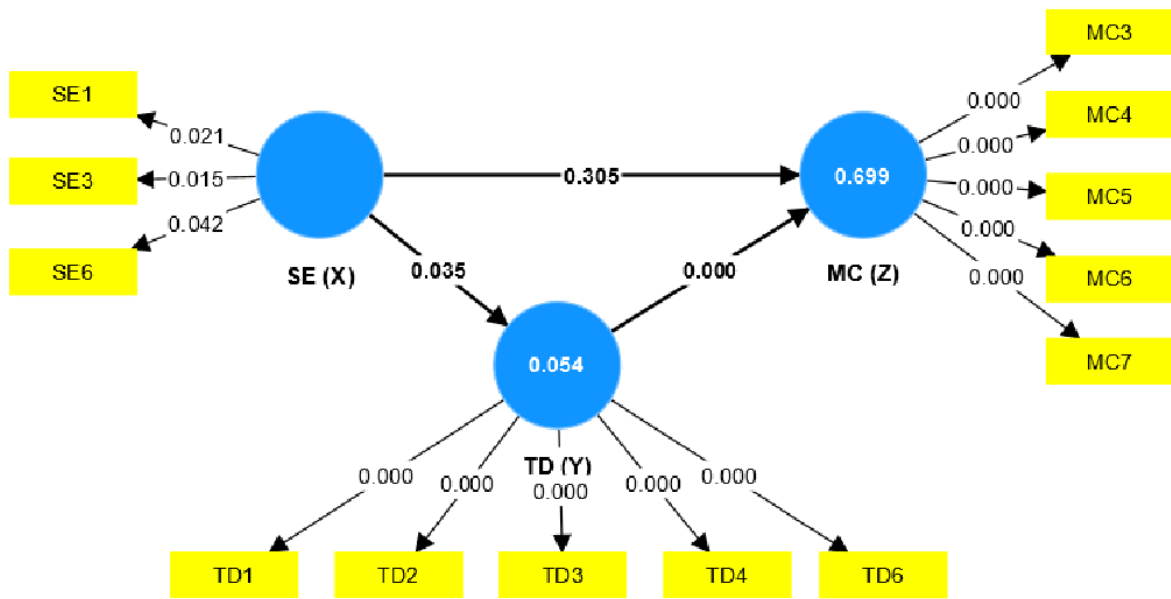
Figure 4. Inner Model

The research hypothesis was tested by comparing the p-value with the alpha value <0.05. The coefficient value of the inter-variable path through SmartPLS is shown in Table 4.

Table 6. Hypothesis Test

| Relationship | P-value | Effect Result |
|---|---|---|
| SEE (X) → MC (Z) | 0.305 | No significantly effect |
| SEE (X) → TD (Y) | 0.035 | Significantly affects |
| TD (Y) → MC (Z) | 0.000 | Significantly affects |
| SEE (X) → TD (Y)→ MC (Z) | 0.033 | Significantly affects |

The test results obtained are as follows:

**Effect of SEE on MC**
Variable SEE against MC has a P-value value of 0.305>0.05, hence SEE has no significant effect on MC.

The results show that SEE has no significant effect on MC but remains a crucial idea in MC due to society-based development. In this context, MC structures have become essential in applying social economy and solidarity. The approach includes firms and organizations, such as cooperatives, associations, foundations, and social enterprises to produce goods, services, and knowledge for economic and social purposes (Borzaga *et al*., 2017). For Social Economic and Solidarity to fulfill social objectives in cooperative business environment, the "entrepreneurial ecosystem of solidarity" must be observed and strengthened (Morais & Bacic, 2018). Building a solid solidarity is complex and

challenging because of a particular region's socioeconomic, political, and cultural characteristics (Morais & Bacic, 2020; Purbasari & Raharja, 2023).

**Effect of SEE On TD**
Variable SEE against TD value has a P-value of 0.35<0.05, hence SEE significantly affects TD

Many previous research have been conducted relating to the participation of cooperative members. The participation of some members in cooperatives is influenced by knowledge, interest (Catur & Setiawina, 2018), managerial skills (Rindorindo, 2019), and creativity (Wazdi & Firman, 2021). Meanwhile, recent years of research related to the use of information technology in cooperatives have been carried out. SEE as a strategy to make progress on cooperation through TD (Hasbullah & Bareduan, 2021; Syaiful *et al*., 2022).

**Effects of TD on MC**
Variable TD against MC has a P-value of 0.000<0.05, hence TD has a significant effect on MC.

Digital era promotes cooperatives through technology and provides positive progress (Purbasari & Raharja, 2021). The consistent application of MC values leads to greatness during digital era. This condition is reinforced by literature that states that greatness is obtained from values (Miller II, 2013). In addition, values are believed to increase the capacity of human resources and leadership to create a positive work environment (Despain *et al*., 2003; Purbasari & Raharja, 2021).

**Effects of SEE on MC Through TD**
Variable SEE against MC through TD has a P-value of 0.033<0.05. Therefore, SEE has significantly effect on MC when TD variable exists.

SEE is a viable alternative to forming MC. This is because the concept includes companies and organizations, such as cooperatives, associations, foundations, and social enterprises, capable of producing goods, services, and knowledge with economic and social objectives (Borzaga *et al*., 2017). Cooperatives are the social business model most suitable for SEE. These organizations are based on self-reliance, self-responsibility, democracy, equality, and solidarity (Wijers, 2019). Meanwhile, the actors must recognize that the current era of technological development demands TD. The existence of cooperatives as one of the economic actors plays a crucial role in the national economy (Fatimah & Darna, 2011; Diffa *et al*., 2021) and the network structure of SEE. These organizations must be able to support and assist other actors in increasing TD to become MC (Purbasari & Raharja, 2023).

## 5. CONCLUSION & RECOMMENDATIONS

In conclusion, SEE variable towards MC was reported to have a P-value of 0.305 > 0.05. The results showed that the variable did not significantly influence MC but had a P-value of 0.35<0.05 toward TD. Furthermore, TD for MC had a P-value of 0.000<0.05 due to the significant influence between the variables. SEE towards MC through TD had a P-value of 0.033<0.05 due to the significant influence between the variables. Therefore, the

variable influenced MC through TD. In this research, the suggestions were primarily aimed at actors in cooperative SEE, namely managers, government, and academics. These three actors had an essential role in supporting the success of TD, specifically in terms of implementation, policy, innovation, and technology. Therefore, a collaborative program was developed to create MC by strengthening the ecosystem network. The collaboration of all parties consistently and with total commitment increased the realization of MC in the Purwakarta Regency, West Java. The results contributed to the development of literature regarding SEE, TD, and MC in the form of a theoretical framework used for further research.

## ACKNOWLEDGEMENTS

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