

**Empowering knowledge-based interaction in digital startup****Ardi<sup>a\*</sup>, Innocentius Bernarto<sup>a</sup>, Margaretha Pink Berlianto<sup>a</sup> and Kezia Arya Nanda<sup>b</sup>**<sup>a</sup>*Department of Management, Faculty of Economics and Business, Universitas Pelita Harapan, Banten, Indonesia*<sup>b</sup>*Department of Mass Communication, E.W. Scripps School of Journalism, Ohio University, Ohio, United States***CHRONICLE****ABSTRACT***Article history:*

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Digital startups are growing fast around the world, but new digital startups that are less than three years old or did not materialize when it came to funding while the business model is quite promising. Various literature shows that digital transformational leadership can encourage knowledge sharing and an organization's absorptive capacity to improve performance. This research investigates whether digital transformational leadership and empowering knowledge-based interaction, as well as the power of absorptive capacity, will be able to maintain digital startup sustainability through the improvement of performance. 144 digital startups that are established in a limited corporation and registered in the Baparekraf (Indonesia Tourism and Creative Economy Agencies) were used as the purposive sampling. Data collection was done through online questionnaires from each startup leader and processed with SmartPLS 3.0. The results of the research findings showed that the higher the degree of digital transformational leadership, the higher the degree of the digital performance of startups that include traction and financial performance, and also increased empowering knowledge-based interaction in the form of encouraging goal-oriented participative involvement, intra-team knowledge exchange, and continuous interactive engagement. Empowering knowledge-based interaction develops an absorption capacity process to produce the performance of digital startup organizations.

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**1. Introduction**

The world is experiencing disruption in the fields of technology, politics, economics, leadership, and religion in the era of digital transformation in the form of artificial intelligence, robotic, 3D digital printing, big data, blockchain, mobile apps, machine-to-machine, virtual reality, augmented reality, drones, self-driving cars, industry 4.0 and the biotechnology revolution (Ihsan, 2018). The economy is experiencing great shifting to a new form characterized by high volatility, uncertainty, complexity, ambiguity, and paradox, abbreviated as VUCAP (Djohanputro, 2018). The new ecosystem encourages business people to be more creative, and innovative and transform the digital-based economy. Go-Jek is the largest transportation company in Indonesia and it does not own a vehicle, vehicle pool, or driver. Traveloka has become a large airline and hotel company without owning planes, hotels, pilots, flight attendants, and hotel employees. Tokopedia and Bukalapak are the biggest shops in Indonesia and they do not have space, goods, and employees. OVO is a major payment gateway in Indonesia and it does not open a bank (Sri Adiningsih et al., 2019, 96-113). The shift from a product value-based business to a digital-based business requires leadership with digitalization capabilities to support online, real-time, and contemporary business innovations including e-education, e-tourism, e-health, creative industries, smart cities, and intelligent transport systems (Sousa and Rocha, 2019). The ability to understand the change in all basic aspects of an organization can create adaptation and resilience to improve organizational performance in a competitive environment (Subramony et al., 2018). Organizational

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knowledge management has become a strategic effort in the form of creating, exploiting, renewing, applying, and understanding knowledge (Bryant, 2003). The results of digital knowledge management include the internet of things, artificial intelligence, big data, and cloud computing that are spread and used by organizations to grow corporate value (McIver & Lepisto, 2017). The application of organizational knowledge management in various industries is related to organizational performance. Knowledge management creates value and change and fosters a culture of continuous innovation that creates new ideas and values for stakeholders (Tseng & Lee, 2014). Organizations that can drive, improve, and maintain relationships with customers and produce reorientation of products, services, processes, and business models have improved company performance (Sayyadi & Provitera, 2018). Transformational leadership also has a positive effect on organizational performance both directly and through knowledge management mediation (Para-Gonzalez et al., 2018; You & You, 2019). There are different findings, namely that transformational leadership has no influence or causal relationship on organizational performance in the Chinese economic environment that requires authoritarian leaders, especially businesses that emphasize returns on invested assets and new businesses (Huang et al., 2015). Other studies have found that transformational leadership, individual consideration, and inspirational motivation do not affect organizational performance because small and medium-sized businesses are more focused on achieving targets. Instead, transactional leadership where leaders are directly involved is more needed for small and medium-sized businesses to survive (Muterera et al., 2018). Based on the above findings, it can be concluded that the effect of transformational leadership on organizational performance shows inconclusive results so further research is needed to fill the research gap. In connection with the description of the background of the problem, business phenomena, and research gaps, this research is expected to be able to answer research questions: How the new concept of digital transformational leadership and empowering knowledge-based interaction can overcome research gaps and business phenomena regarding the effect of transformational leadership on organizational performance in a digital startup?

## 2. Theoretical review

Transformational leadership styles have been researched as antecedents of knowledge management, knowledge sharing, and learning organizations that can improve organizational performance (Arif & Akram, 2018; Le & Lei, 2017; Zuraik & Kelly, 2018). Transformational leadership which has a dimension of charisma can move followers to contribute to collective goals, dimensions of inspiration and motivation can encourage followers to participate, and dimensions of intellectual stimulation in intelligence make followers active in learning resulting in organizational performance (Chen et al., 2019). Leaders see the threat of digital transformation can make old businesses extinct and with the emergence of new businesses, leaders can adapt and make changes to meet new challenges and demands of digital consumers (Keuper et al., 2018, 28). The digital leader focuses on developing digital tools to speed up the organizational change because they are expected to quickly turn their business strategies, change management, and minimize employee resistance. Digital leaders can imagine a new future, empowering the workforce to develop and realize new visions (Swift et al., 2018). Digital transformational leadership does not only understand digital change, but also be an active change designer to lead change management and decide where, when, and how to embrace digital disruption. Digital transformational leadership requires digital talent and business integration capabilities with the latest technology (Kreutzer et al., 2017). Digital transformational leadership is the ability to influence followers to understand the speed of technological development and apply digital technology, leading change management to adapt quickly by presenting innovative, creative, interactive, and productive organizations so that they have a competitive advantage and perpetuate organizational efforts (Ardi et al., 2020). Organizational performance is the result of company achievements such as high profits, good financial results, large market share, quality products, and company survival. Transformational leadership has a direct effect on organizational performance (Arif & Akram, 2018). Digital startup company performance (organizational performance) focuses more on traction or attracting customer attention, collecting customer databases, and attracting investors to invest (Ye, 2018; Zaheer et al., 2019).

**Hypothesis 1.** *A higher degree of Digital Transformational Leadership will lead to higher Organizational Performance.*

Empowerment comes from participative management theory, which is about employee involvement in the decision-making process, using power, accessing resources, and empowering subordinates to improve organizational performance and effectiveness through participation (Martin, 2006). Empowering employees by building feelings as a core asset for organizational success, promoting communication in training and interaction programs, and increasing organizational effectiveness and employee welfare will create a commitment, a sense of belonging, trust, increase innovation, survival, and organizational success (Chia and Chu, 2017; Gómez and Rosen, 2001). The growth of the firm theory emphasizes resource management to improve product quality, reduce costs, develop technology, and introduce new products in their fields so that they have a competitive advantage (Kor et al., 2016). The Behavioral Theory of the Firm is an understanding of the inner motives of shareholders, management, workers, suppliers, the accounting profession, law, auditors, and others in making decisions. Behavior can be studied when dealing with organizational instability, conflict, organizational change, and the direction of firms (Argote and Greve, 2007; Gavetti et al, 2012). The resource-Based View (RBV) explains that companies can exploit strategic resources to achieve a competitive advantage (Wernerfelt, 1984). RBV focuses on the company's internal resources in the form of assets, capabilities, and internal competencies. Another researcher emphasizes that the resources should be durable, essential, rare, and irreplaceable (Barney et al., 2001). Knowledge-Based View (KBV) emphasizes that knowledge is the most strategic resource, a knowledge that has value, is not easily imitated, and is scarce, through organizational learning will produce new knowledge and breakthroughs (Thornhill, 2006). Knowledge embedded and carried by individuals can be seen in the

organization's culture, identity, policies, routines, documents, and systems, which increases corporate excellence through the process of knowledge creation, sharing, and application (Grant, 1996). Research on interaction theory in social science, especially communication science, carried out by George Mead and Herbert Blumer, explains that humans give meaning and value to symbols. Meanings appear when reciprocal interactions between people happen, while objects get meaning in social interactions (Aksan et al., 2009). Service-Dominant (SD) logic focuses on people, long-term relationships, quality service, symmetrical relationships, transparency, ethical exchange, and sustainability that create service excellence. SD logic's emphasis is on communicative interaction, mutual service, sharing of knowledge and skills (operant resources), solution orientation, and shared value creation (Ballantyne and Aitken, 2007). Service-Dominant (SD) orientation is the ability to interact with partners, namely customers, intermediaries, suppliers, and employees for the company's success (Karpen et al., 2012; Karpen et al., 2015). Karpen introduced six types of interaction capabilities, which are individual, relational interaction capabilities, ethical interaction capabilities, empowered interaction capabilities, developmental interaction capabilities, and concerted interaction capabilities (2012; 2015). These six strategic capabilities constitute the ability to create service value (Karpen et al., 2012; Karpen et al., 2015). Empowering interaction capabilities is the empowerment of relationships between companies, customers, and employees through dynamic service interactions (Karpen et al., 2015; Vargo and Lusch, 2017). The concept of empowering interaction capabilities is adopted from the interaction process to improve team performance. Karpen's research builds customer experiences through interaction capabilities at the organizational and individual levels (Karpen et al., 2017). Organizations develop human resources through organizational learning which is based on learning groups, departments, or organizational units so that experiences or rules as an organization are embedded in individual and social interactions (Gavetti et al., 2012).

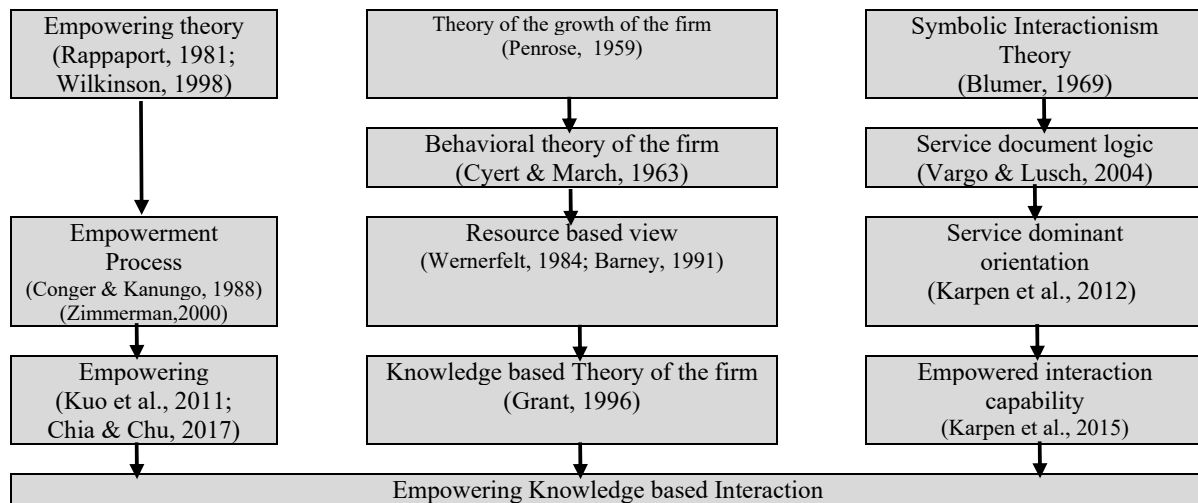


Fig. 1. Derivation of Empowering Knowledge-Based Interaction Concept



Fig. 2. Empowering Knowledge-Based Interaction Framework

The challenge of managing organizational knowledge is to develop a learning organization and knowledge management so that the organization can learn faster than its competitors. The main process of knowledge management is the transformation of personal knowledge stored in individuals (tacit knowledge) into explicit organizational knowledge (Smith, 2001). The level of knowledge-based interaction between employees and leaders determines the success of developing organizational

knowledge and capabilities (Nickerson & Zenger, 2004). Organizations that have various types of knowledge-based capabilities such as information technology, information systems, and new knowledge will be able to synthesize, enhance, and accelerate large-scale internal and inter-company knowledge management (Nickerson & Zenger, 2004; Sveiby, 2001). Knowledge management, learning organization, and organizational learning emphasize relate to the activity of acquiring, transferring, storing, and retrieval of the knowledge to create new knowledge as the basis for birth innovations that can improve performance (Budihardjo, 2017, 85). The concept of Empowering Knowledge-based Interaction or EKI is an organizational routine that is inherent in organizational life which includes the ability to initiate participatory involvement that is oriented toward organizational goals (goal-oriented participative involvement), build voluntary exchange of knowledge (intra-team knowledge exchange), and the involvement of members to interact actively and continuously (continuous interactive engagement) (Ardi, et al., 2020). EKI has the potential to improve organizational performance (Ardi, et al., 2020). Leaders with empowering behaviors increase the psychological capital of followers, which in turn stimulates knowledge sharing in groups and impacts team performance (Srivastava et al., 2006). This leadership style encourages followers to share ideas, motivate others and collaborate as role models. The openness of the leader increases the knowledge-sharing behavior of subordinates to increase their creativity, and problem-solving capacity and produce new products, services, processes, and markets (Carmeli et al., 2013). Transformational leadership has elements of appreciation, involvement, connection, transformational, inclusive, and authentic, which promote innovation through collaboration, communication, inspiration, commitment, courage, awareness, curiosity, cultural intelligence, and collaboration (Kokpol, 2018). Leaders who are inclusive and adapt to change focus on people (people-centric), are authentic and support an innovative and diverse organizational culture (Chen et al., 2016). Authentic leaders are sincere, can build honest relationships with followers, value followers' input and efforts, are mission-driven, and focus on long-term outcomes (Agote et al., 2016).

**Hypothesis 2.** A higher degree of Digital Transformational Leadership will lead to higher Empowering Knowledge-based Interaction.

Leaders who engage in empowering knowledge-sharing attitudes, encourage members to solve problems collectively, delegate more autonomy and power to subordinates, can increase followers' intrinsic motivation to engage in organizational decision making (Arnold et al., 2000). Knowledge sharing is a work interaction between employees in sharing expertise, experiences, skills, abilities, and ideas including personal and structured things (Earl, 2001). Interaction between individuals, groups, organizational units can create new knowledge. Internal and external motivational factors encourage the creation of new knowledge and innovations that increase organizational performance and productivity (Jeon et al., 2011). Knowledge management is one of the essential factors for developing a culture of innovation so that it can perform optimally (Budihardjo, 2017, 381-382). The interaction in sharing knowledge encourages the emergence of innovations that are needed by organizations to have a competitive advantage, resulting in organizational performance (Wang & Wang, 2012). Research on 70 employees of the telecommunications sector in Saudi Arabia shows that transformational leadership has a positive effect on organizational performance mediated by the Organizational Learning variable which has the dimensions of sharing knowledge and expertise (Mutahar & Al-Ghazali, 2015). Research on 119 resource managers and general managers of service companies in Bahrain states that there is a positive influence between transformational leadership and company performance mediated by knowledge management which has dimensions of increasing employee knowledge so that they can innovate and enhance performance (Birasnav, 2014).

**Hypothesis 3.** A higher degree of the Empowering Knowledge-based Interaction will lead to higher Organizational Performance.

Absorptive capacity refers to the identification of new knowledge that is combined with internal knowledge to increase the innovative capabilities of the organization. The relationship between knowledge sharing, organizational learning, and innovation is mediated by absorptive capacity (Cohen and Levinthal, 1990; Yaseen et al., 2018). Absorptive Capacity (AC) consists of potential absorptive capacity and realized absorptive capacity (Vlačić et al., 2019). The potential absorptive capacities are the acquisition and assimilation of knowledge and the realized absorptive capacities are the transformation and exploitation of knowledge (Vlačić et al., 2019). Knowledge-sharing interactions encourage absorptive capacity to get good learning outcomes (Peng et al., 2018). Sharing knowledge can create new knowledge but requires knowledge absorptive capacity (Nonaka, 1994; Rafique, et al., 2018).

**Hypothesis 4.** A higher degree of Empowering Knowledge-based Interaction will lead to higher Absorptive Capacity.

Absorptive capacity provides a competitive advantage to improve the performance and innovation of an organization. Absorptive capacity is proven to drive learning, knowledge management, creation, and innovation that will increase organizational competitiveness (Tho, 2017). The more organizations have absorptive capacities through acquiring, assimilating, transforming, and exploiting the latest technology, the more their organization performs (Maldonado et al., 2018; Vlačić et al., 2019).

**Hypothesis 5.** A higher degree of Absorptive Capacity will lead to higher Organizational Performance.

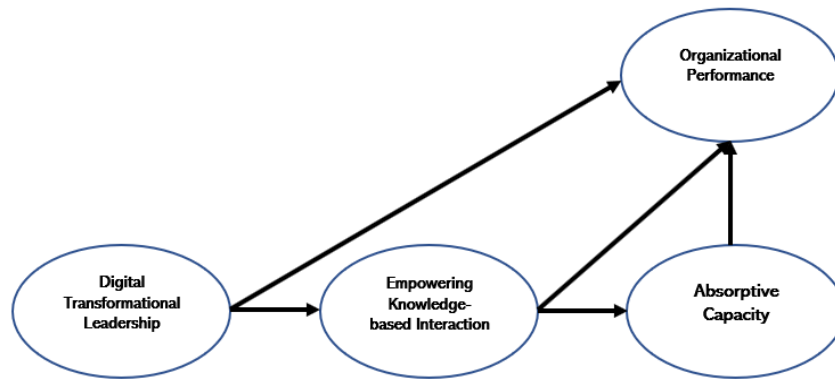


Fig. 3. Research Model

### 3. Methods

The research method is a quantitative research approach and through an online questionnaire or survey research with a Likert scale. This type of research uses correlational studies to predict the effect of independent variables on the dependent variable and to test predetermined hypotheses (Sekaran & Bougie, 2016, 44). Path analysis with primary data consists of individual perceptions representing organizational units and being the subject of this study. Descriptive analysis and inferential analysis consist of validity and reliability analysis as well as the coefficients of determination, path coefficients, and hypothesis testing to prove the theory which states that there is an influence between variables. 144 digital startup companies are the samples of this study with a purposive sampling in data collection. The unit of observation is the owner, manager, or director of the company representing an organizational unit, each of which one respondent represents an organization. The data analysis technique used is the measurement model (outer model), structural model (inner model), and hypothesis testing. Data processing with Partial Least Square Structural Equation Modeling (PLS-SEM) and using the SmartPLS 3 data management tool (Hair et al., 2017; Hair et al., 2019). The indicator model is reflective, tested for reliability, convergent validity, and discriminant validity of the indicators forming its latent constructs. The Outer model or reflective measurement model's rule of thumb see Table 1 below.

**Table 1**  
Rule of Thumbs, Reflective Measurement Model

| Outer Model                      | Parameter                   | Rule of Thumb                |
|----------------------------------|-----------------------------|------------------------------|
| Internal Consistency Reliability | Composite Reliability       | 0.60 – 0.90                  |
|                                  | Cronbach's Alpha            | 0.60 – 0.90                  |
| Convergent Validity              | Outer Loading Factor        | > 0.70                       |
|                                  | Average Variance Extracted  | > 0.50                       |
| Discriminant Validity            | Cross Loading               | > 0.70                       |
|                                  | Fornell-Larcker Criterion   | >inter-construct correlation |
|                                  | Heterotrait-Monotrait Ratio | < 0.90                       |

(Source: Hair et al., 2019, 15)

The inner model or structural model evaluation is to see the influence between constructs or latent variables by using the coefficients of determination ( $R^2$ ) and the path coefficients test.

**Table 2**  
Rule of Thumbs, Structural Model

| Inner Model                    | Rule of Thumb  |
|--------------------------------|--|
| Coefficients of Determination  | $0.5 < R^2 < 0.90$ (0.75 Substantial, 0.50 Moderate, 0.25 Weak)                    |
| Path Coefficients              | -1 (weak) and +1 (Substantial)   |
| Predictive Relevance ( $Q^2$ ) | > 0  |
| $f^2$ Effect Size              | 0.35 Substantial, 0.15 Moderate, 0.02 Weak   |
| Model Path Coefficients        | $t$ Values > $t$ Table<br>Significance level $\rho$ Values < Significance $\alpha$ |

(Source: Hair et al., 2019, 15)

The population of this study are 258 companies that were digital startup that had been around for 3 years (early stage), still active, had limited liability legality, received or did not receive investor funds, and were registered with Baparekraf (Indonesia Tourism and Creative Economy Agencies) and crunchbase.com.

## 4. Results

### 4.1 Descriptive Statistical Analysis

Analysis of respondent characteristics based on company ownership status, respondent age, and length of work in the organization is presented in the cross-tabulation table of company ownership status.

**Table 3**  
Respondent Profile based on Business Type

| Business Type   |         | Investment Fund |    | Total | Number of Employees (person) |       |       |     | Total |
|-----------------|---------|-----------------|----|-------|------------------------------|-------|-------|-----|-------|
|                 |         | Yes             | No |       | <10                          | 11-30 | 31-50 | >50 |       |
| E-Commerce      | Company | 29              | 9  | 38    | 3                            | 8     | 6     | 21  | 38    |
|                 | %       | 20              | 6  | 26    | 2                            | 6     | 4     | 15  | 26    |
| Fintech         | Company | 14              | 6  | 20    | 1                            | 1     | 2     | 16  | 20    |
|                 | %       | 10              | 4  | 14    | 1                            | 1     | 1     | 11  | 14    |
| Game            | Company | 5               | 7  | 12    | 2                            | 4     | 4     | 2   | 12    |
|                 | %       | 3               | 5  | 8     | 1                            | 3     | 3     | 1   | 8     |
| Media           | Company | 7               | 3  | 10    | 2                            | 2     | 2     | 4   | 10    |
|                 | %       | 5               | 2  | 7     | 1                            | 1     | 1     | 3   | 7     |
| Education       | Company | 2               | 3  | 5     | 2                            | 1     | 0     | 2   | 5     |
|                 | %       | 1               | 2  | 3     | 1                            | 1     | 0     | 1   | 3     |
| Property        | Company | 6               | 3  | 9     | 1                            | 1     | 2     | 5   | 9     |
|                 | %       | 4               | 2  | 6     | 1                            | 1     | 1     | 3   | 6     |
| Food & Beverage | Company | 12              | 11 | 23    | 5                            | 4     | 3     | 11  | 23    |
|                 | %       | 8               | 8  | 16    | 3                            | 3     | 2     | 8   | 16    |
| Others          | Company | 10              | 17 | 27    | 8                            | 10    | 1     | 8   | 27    |
|                 | %       | 7               | 12 | 19    | 6                            | 7     | 1     | 6   | 19    |
| Total           | Company | 85              | 59 | 144   | 24                           | 31    | 20    | 69  | 144   |
|                 | %       | 59              | 41 | 100   | 17                           | 22    | 14    | 48  | 100   |

Analysis of the characteristics of respondents based on the company's line of business, which received investor funds, and the number of employees is presented in the cross-tabulation table of the company's business fields.

**Table 4**  
Respondent Profile based on Ownership Status

| Ownership Status     |        | Respondent Age (Year) |         |         |         |      | Total | Working Period (Year) |     | Total |
|----------------------|--------|-----------------------|---------|---------|---------|------|-------|-----------------------|-----|-------|
|                      |        | < 25                  | 26 - 35 | 36 - 45 | 46 - 55 | > 55 |       | < 3                   | > 3 |       |
|                      |        | Number                | 0       | 1       | 3       | 2    |       | 0                     | 6   |       |
| %                    | 0      | 1                     | 2       | 1       | 0       | 4    | 3     | 1                     | 4   |       |
| Owner & Management   | Number | 3                     | 15      | 13      | 11      | 8    | 50    | 9                     | 41  | 50    |
|                      | %      | 2                     | 10      | 9       | 8       | 6    | 35    | 7                     | 28  | 35    |
| Management/ Operator | Number | 1                     | 26      | 22      | 22      | 17   | 88    | 32                    | 56  | 88    |
|                      | %      | 1                     | 18      | 15      | 15      | 12   | 61    | 22                    | 39  | 61    |
| Total                | Number | 4                     | 42      | 38      | 35      | 25   | 144   | 46                    | 98  | 144   |
|                      | %      | 3                     | 29      | 26      | 24      | 17   | 100   | 32                    | 68  | 100   |

### 4.2 Inferential Statistical Analysis

The results of the internal consistency test, measuring the ability of the indicator to explain latent constructs, estimate the reliability based on the inter-correlation of the indicators. The composite reliability value is above 0.7, the Cronbach's alpha value is above 0.7, and the AVE value is greater than 0.5, indicating a high level of reliability and validity of the measuring instrument.

**Table 5**  
Construct Reliability and Validity

| Variable | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|----------|------------------|-------|-----------------------|----------------------------------|
| AC       | 0.954            | 0.955 | 0.960                 | 0.667                            |
| DTL      | 0.845            | 0.846 | 0.885                 | 0.563                            |
| EKI      | 0.853            | 0.860 | 0.889                 | 0.534                            |
| OP       | 0.892            | 0.893 | 0.915                 | 0.606                            |

The path coefficient value with ( $\beta$ ) 0.275 indicates that there is a correlation or influence of digital transformational leadership (DTL) on organizational performance (OP). The path coefficient of DTL to EKI is 0.696, the path coefficient of EKI to OP is 0.204, the path coefficient of EKI to AC is 0.546 and the path coefficient of AC to OP is 0.300, indicating that there is a positive effect.

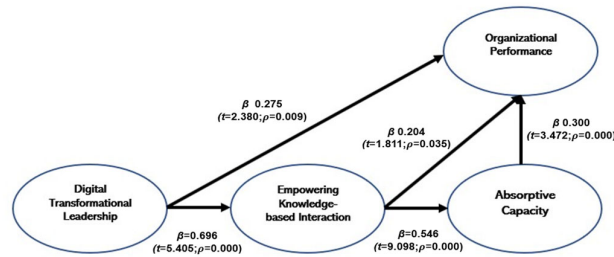


Fig. 4. Empirical Model

The results of the discriminant validity test show that the AVE root value for each construct is greater than the correlation value of a construct with other constructs or has a good and appropriate construct discriminant validity value. Based on the results of the Fornell-Larcker Criterion and Cross Loadings test, the value of each construct is greater than the correlation value of one construct with other constructs.

Table 6  
Fornell-Larcker Criterion

| Variable | AC           | DTL          | EKI          | OP           |
|----------|--------------|--------------|--------------|--------------|
| AC       | <b>0.816</b> |              |              |              |
| DTL      | 0.517        | <b>0.751</b> |              |              |
| EKI      | 0.546        | 0.696        | <b>0.731</b> |              |
| OP       | 0.554        | 0.572        | 0.560        | <b>0.778</b> |

The Heterotrait-Monotrait Ratio (HTMT) approach is to estimate the correlation between two constructs with correct or reliable measurements. A weak correlation (disattenuated correlation) between the two constructs if it approaches 1 indicates a lack of discriminant validity, the HTMT value is expected to be less than 0.9 to meet the discriminant validity requirements between the two reflective variables (Hair et al., 2019). The test results show that all HTMT values are below 0.9 so that the discriminant validity has met the requirements.

Table 7  
Heterotrait-Monotrait Ratio (HTMT)

| Variable | AC    | DTL   | EKI   | OP |
|----------|-------|-------|-------|----|
| AC       |       |       |       |    |
| DTL      | 0.572 |       |       |    |
| EKI      | 0.600 | 0.808 |       |    |
| OP       | 0.592 | 0.656 | 0.639 |    |

Test the coefficients of determination to see the predictive power of exogenous variables against endogenous variables or the model's explanatory power (Hair et al., 2019, 11). The value of the coefficients of determination ( $R^2$ ) or the R-square value is expected to be between 0 and 1.  $R^2$  value, 0.75 for the strong model, 0.50 for the moderate model, and below 0.25 for the weak model (Hair et al., 2017, 199).

Table 8  
R-Square and R Square Adjusted

| Variable | R Square | R Square Adjusted |
|----------|----------|-------------------|
| AC       | 0.298    | 0.293             |
| EKI      | 0.484    | 0.481             |
| OP       | 0.438    | 0.426             |

The value of  $Q^2$  is used to indicate the existence of predictive relevance or called Construct Crossvalidated Redundancy when the path model predicts data that is not used in the evaluation of the model. The  $Q^2$  value is obtained from the blindfolding procedure for the omission distance (D). All  $Q^2$  value is greater than zero, it means a certain endogenous construct has predictive relevance. The size of the effect of  $f^2$  is the contribution of each independent variable to the dependent variable. The

value of  $f^2$  is equal to 0.02 as the effect is small, 0.15 is moderate, and the value of 0.35 is the size of the effect, values below 0.02 have no effect (Hair et al., 2017). All  $f^2$  value is greater than 0.02.

#### 4.2 Hypothesis Testing

Hypothesis testing uses the statistical  $t$  value and  $\rho$  value from the results of the path analysis, if the value  $\rho < 0.05$ , then the alternative hypothesis is statistically proven. Conversely, if the value of  $\rho > 0.05$ , then the null hypothesis is sufficient evidence. By utilizing the bootstrapping function of the model path coefficient, the  $t$  statistical value and  $\rho$  value from the path analysis results are obtained. If the path coefficient is large, the calculated  $t$  value is also large, the significance level is high. Hypothesis testing has a positive direction so that the type of one-tailed test is carried out, with a significance level ( $\alpha$ ) of 0.05, the  $t$  table value is 1.65, and the probability value ( $p$ )  $< 0.05$  (Hair et al., 2017, 196). Based on the values of these parameters, the hypothesis test can be analyzed with the  $t$  statistical value, or the probability value ( $p$ ) and the path coefficient ( $\beta$ ).

**Table 9**  
Hypothesis Testing Result

| Hypothesis  | Path                  | Value $\beta$ | Value $t$ | Value $\rho$ | Decision  |
|---|-----------------------|---------------|-----------|--------------|-----------|
| H1. Higher degree of digital transformational leadership will lead to a higher organizational performance             | DTL $\rightarrow$ OP  | 0.275         | 2.380     | 0.009        | Supported |
| H2. Higher degree of digital transformational leadership will lead to a higher empowering knowledge-based interaction | DTL $\rightarrow$ EKI | 0.696         | 5.405     | 0.000        | Supported |
| H3. Higher degree of empowering knowledge-based interaction will lead to a higher organizational performance          | EKI $\rightarrow$ OP  | 0.204         | 1.811     | 0.035        | Supported |
| H4. Higher degree of empowering knowledge-based interaction will lead to a higher absorptive capacity                 | EKI $\rightarrow$ AC  | 0.546         | 9.098     | 0.000        | Supported |
| H5. Higher degree of absorptive capacity will lead to a higher organizational performance                             | AC $\rightarrow$ OP   | 0.300         | 3.472     | 0.000        | Supported |

## 5. Discussion

Hypothesis 1, which states that a higher degree of digital transformational leadership will lead to higher organizational performance, is supported through the research. The reason is that the performance of digital startup companies focuses more on achieving traction, traffic, brands, and getting investor funds, as well as increasing transactions or databases (Anderson, 2018). The finding of this study is in line with previous research conducted on 280 senior managers from 106 manufacturing companies in Iran, 86 owners of small and medium technology companies in Malaysia, and 200 industrial companies in Spain to confirm that transformational leadership has a positive effect on organizational performance (Arshad et al., 2016; Khan et al., 2018; Noruzy et al., 2013; Para-Gonzalez et al., 2018).

Hypothesis 2, which states that a higher degree of digital transformational leadership will lead to a higher empowering knowledge-based interaction, is supported through the research. Digital transformational leadership, through dimensions of charisma, motivation, stimulation, attention to individuals, and digital talent, leads to empowering knowledge-based interaction.

Hypothesis 3, which states that a higher degree of empowering knowledge-based interaction will lead to higher organizational performance, is supported through the research. The dimensions of empowering knowledge-based interactions result in increased organizational performance through collaboration, sharing knowledge and experience, and togetherness, because the leaders/managers of digital startup companies focus on traction or the number of transactions to get investor funds even though the company has not generated profits and income (Göbel, 2016; Ye, 2018; Zaheer et al., 2019). Cooperative interaction research found synergistic interactions that will significantly improve business performance (Chahal, Dangwal, and Raina, 2016). In research on SME companies in India, it was found that synergistic interactions have a significant relationship with organizational performance (Hsiao, Chen, and Chang, 2011).

Hypothesis 4, which states that a higher degree of empowering knowledge-based interaction will lead to a higher absorptive capacity, is supported through the research. Empowering knowledge-based interaction has a positive effect on absorptive



capacity with the dimensions of the dynamic ability of organizations to absorb external values and knowledge to assimilate internal knowledge, create, and use it to achieve organizational goals through the acquisition, assimilation, transformation, and exploitation of knowledge.

Hypothesis 5, which states that a higher degree of absorptive capacity will lead to higher organizational performance, is supported through the research. The dimensions of absorptive capacity support the improvement of the performance of organizations that have specific knowledge, skills, competencies, and abilities so that there is an effective transfer of knowledge and expertise among employees, especially those in need. The benefits of knowledge absorptive capacity are that employees contribute to the exchange and application of knowledge, increased sales and revenue from new products and services, a significant reduction in production costs, process improvements, and better team performance thereby increasing innovation and organizational performance.

## 6. Theoretical Implications

There are several theoretical contributions based on a discussion of hypotheses and conclusions on research problems, namely:

1. The results of this study support the previous studies which state that there is a significant influence between transformational leadership and organizational performance (Huang et al., 2015; Huang et al., 2011; Muterera et al., 2018).
2. Digital transformational leadership adds to the understanding of transformational leadership theory for digital transformation organizations with the addition of digital talent, namely the ability to develop digitalization, direct the team to use digitalization to face competition, and make decisions related to digitalization.
3. The novelty of empowering knowledge-based interaction construct that adds to the understanding of knowledge management theory, organization learning, and organizational learning in empowering knowledge-based interactions through participatory engagement initiatives oriented towards organizational goals, building volunteerism for positive knowledge exchange, and engaging members to interact actively and sustainably.
4. The results of the test for the influence of digital transformational leadership on empowering knowledge-based interaction and organizational performance significantly support previous studies (Chen et al., 2016; Khan et al., 2018; Nugroho et al., 2019; Para-González, Jiménez-Jiménez, and Martínez-Lorente, 2018).
5. The results of the significant impact test between absorption capability on organizational performance support previous studies (Ali et al., 2018; Darwish et al., 2020; Raisal et al., 2019; Vlačić et al., 2019; Wuryaningrat, 2013; Yaseen et al., 2018; Zhu et al., 2020).
6. The research results add to the body of knowledge or state of the art in leadership theory and knowledge-based view.

## 7. Managerial Implications

The finding that digital transformational leadership affects organizational performance shows that digital transformational leadership can increase traction or attract customer attention, collect customer databases and attract investors to invest. The findings of this study are consistent with the results of previous research that the financial performance of digital startup companies is through financial support from investors to be used for promotion, adding customers, and handling customer complaints (Zaheer et al., 2019). Digital transformational leadership needs to frame digital challenges, formulate a digital transformative vision, align teams, and build awareness of digital opportunities and threats according to the characteristics of digital transformational leadership who behave adaptively, creatively, innovatively, interactive, and productively. Implementation in the form of a road map, working across disciplines, cross-silo governance, and funding, creates a sense of urgency and innovative corporate culture and communicates ambition and change needed going forward.

The results also show that the empowerment of knowledge-based interactions which contain dimensions of knowledge acquisition, sharing knowledge, and utility or utilization of knowledge is not sufficient to boost organizational performance. Leaders need to invite employees to participate in creating business values (profit, capital, valuation, and market share) according to the substance of the research or goal-oriented interaction indicators. The company increases social values (social responsibility, protecting the environment, and benefits to the community) through proposed activities, initiatives, continuous improvement in business processes, easy-to-run applications, and attractive promotions according to value-oriented indicators. interaction. The research findings also show that digital startup companies can improve organizational performance through empowering knowledge-based interaction and knowledge absorption capabilities with employee involvement according to collaborating-oriented interaction indicators. In addition, the leaders should encourage interaction between employees to share knowledge and work experience according to the intra-team knowledge exchange dimension.

Activities that involve employees to improve their expertise in their respective fields include training classes, seminars, workshops, professional development in the field of problem-solving techniques, time management, delegation, PDCA (plan, do check, action), TQM (total quality management), and balanced scorecard. Employees often close themselves and avoid sharing knowledge and experiences because they are worried about reducing their superiority in competition with fellow employees, so leaders need to find ways to make employees interact voluntarily in sharing knowledge according to voluntary-oriented interaction indicators. This can be done through learning management or settlement practices, joint assignments, discussion forums, and making SOPs (standard operating procedures).

## 8. Conclusion

The results of this study indicate digital transformational leadership through dimensions of idealized influence, inspirational motivation, internal stimulation, individualized consideration, and digital talents lead to employee interactions that encourage goal-oriented participative involvement, intra-team knowledge exchange, and continuous interactive engagement. Leadership that is empowering knowledge-based interaction between members influences the behavior of sharing explicit knowledge and tacit knowledge, donations and collections of knowledge, as well as knowledge creation and utilization in organizations. Empowering knowledge-based interaction improves organizational performance also through the effect on absorption capabilities with the dimensions of the dynamic ability of the organization to absorb external values and knowledge, to be able to assimilate internal knowledge, create, and utilize it to achieve organizational goals through the acquisition, assimilation, transformation, and exploitation of knowledge in digital startups by measuring organizational performance that does not only use financial measurements but non-financial performance such as traction that focuses on the number of transactions to get investor funds even though the company has not yet made a profit.

## 9. Limitation and Further Research

Sampling is done by assigning one respondent as the key informant to represent an organization. Theoretically, 144 subjects from the sample can represent 258 digital startup companies or have sufficient statistical power, because they have similar characteristics according to the sample frame and are seen as a research universe and can be generalized to the entire population (Hair et al., 2017; Sekaran & Bougie, 2016). It is recommended that future studies use respondents of more than one informant in one organization (multiple), for example at least five informants from one organization but homogeneous respondents, have the same characteristics (Balloun et al., 2011; Tsai, 2002). The research was conducted on early-stage digital startup companies, so it is recommended that future research is at the growth or mature stage, with a focus on traction performance such as business models, active users, registered users, engagement, partnerships, clients, and traffic (Zaheer et al., 2019). This research design uses a quantitative method, so it limits to explore in more detail the relationship (correlation) and the influence/effector complex reciprocal causality between the constructs studied. In the future, qualitative research design can be used to investigate this issue through the use of videos, documents/texts, and interviews of organizational cases.

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