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# The Role of Intellectual Capital in the Development of Financial Technology in the New Normal Period in Indonesia

Anwar HARIYONO<sup>1</sup>, Bambang TJAHJADI<sup>2</sup>

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#### **Abstract**

This research seeks to determine what intellectual capital represented by indicators of conceptual skills, human skills, and technical skills plays a role in the development of financial technology. The consideration of fintech is more practical and economical. The concept of fintech is related to the rapid development of global technology by creating various new technologies, especially computer technology. This research uses secondary data; the population of this study is the top management companies in Indonesia during the new normal era. The sample in this research used a purposive sampling method, and the quantitative method. The results of this research indicate that the intellectual capital variable represented by conceptual skills has a significant positive role in the development of financial technology in the new normal era. This research posits that intellectual capital also has a role in the development of financial technology in the new normal. This is because the new normal period represents currently a new challenge in responding to the economic crisis that is resulting from Covid-19 pandemic around the world. Therefore, new concepts, new humanity, and new techniques are needed to develop financial technology, so that they can exist and encourage economic growth in this Covid-19 pandemic era.

Keywords: Intellectual Capital, Financial Prowess, New Normal Period

JEL Classification Code: O34, O32, P34

#### 1. Introduction

Intellectual capital is an economic phenomenon that is widely used by various global companies, especially start-up companies. The underpinning is that the use of fintech is more practical and economical. The concept of fintech is closely related to the rapid development of global technology by creating various new technologies, especially computer technology. However, the discovery of computer technology is a major leap in the history of modern human civilization.

The impact of globalization and the emergence of new information and communication technologies have caused companies to be in situations of intense competition (Bchini, 2015). Global economic conditions have changed from production-based operations to knowledge-based operations (Muchran, 2020; Solikhah, Wahyudin, & Rahmayanti, 2020; Chulanova & Ussenova, 2015; Hareebin, 2020; Tjahjadi, Soewarno, Astri, & Hariyati, 2019).

However, globalization, technological developments, high customer demand, and fast service have encouraged companies around the world to increase their capabilities, create and provide more value in order to compete and survive in the market (Schiuma & Lerro, 2008). It cannot be denied that digitalization, globalization, integration, and liberalization of the world economy are processes that are conducive to utilizing knowledge on a global scale (Łataś & Walasek, 2016). In global economic conditions, many companies are trying to implement modern technology, among others, disruption of innovation in computer technology. This is done to follow the pattern of global economic development that creates a new business paradigm, for example, the establishment of a free market and the use of plastic and electronic capital money. Globalization of business has become reality, with the economic interconnectedness of nations and their organizations facilitated by new technologies

<sup>&</sup>lt;sup>1</sup>First Author. [1] PhD Student, Department of Accounting, Faculty of Economics and Business, Universitas Airlangga Surabaya, Indonesia [2] Lecturer, Department of Accounting, Universitas Muhammadiyah Gresik, Indonesia. Email: anwar.hariyono-2017@feb.unair.ac.id <sup>2</sup>Corresponding Author, Lecturer, Department of Accounting, Faculty

<sup>&</sup>lt;sup>2</sup>Corresponding Author. Lecturer, Department of Accounting, Faculty of Economics and Business, Universitas Airlangga, Surabaya, Indonesia [Postal Address: Jalan Airlangga, Surabaya, East Java, 60286, Indonesia] Email: bambang.tjahjadi@feb.unair.ac.id

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and an increasing number of trade agreements between countries and regions (Nankervis et al., 2011). Economic globalization is a fundamental global change built on new economic concepts. This is inseparable from the contribution of modern technological advances and global politic changes, one example, is the emergence of free markets, the ease of doing business using online media and the like. One of the main economic problems is the establishment of free trade zones, for example the ASEAN Economic Community as a single market form (Thanh & Toan, 2018).

The condition in past economies is very dependent on natural resources, equipment and capital to create value. It is different from the current corporate organizations that place the economy on knowledge, which has more value than physical assets (Jaya, 2019). The increasing organizational performance is not the result of macroeconomic capital policies or financial balance, but the result of technical progress, innovation and quality of human, structural and relational factors, which, in turn, are heavily influenced by investment in knowledge-education, research and development (Gogan, Artene, Sarca, & Draghici, 2016).

#### 2. Literature Review

#### 2.1. Technological Determinism Theory

The theory of technological determinism was first expressed by Marshall McLuhan in his 1962 book, The Guttenberg Galaxy: The Making of Typographic Man. The theoretical basis is that changes in the way of communicating can shape the way of thinking, behaving, and moving to the next technological century in human life. The essence of this theory is that the discovery or development of communication technology can change human culture. Furthermore, McLuhan (1962) explains that human existence can also be determined by changes in communication modes, for example, the development of technology. The development of increasingly advanced technology makes everything fast and instantaneous. Technology as equipment will help facilitate human work, so that over time this will create a new culture, where people's live will be ever more easy, moving away from hard work and persistence. In addition, technology makes a person think about himself, which causes his social spirit to start to weaken. The reason is that people do not need help from others if they want something because technology is enough as a solution. The solution is that, in the culture that was formed in this technological era is to remain positive, it is necessary to develop mental and spiritual knowledge. Thus, the information obtained can be processed by a clear mind in order to create new humanist cultures.

#### 2.1.1. Utopian Theory of Technology

Utopian theory of technology refers to an ideology based on the belief that advances in science and technology will ultimately lead to utopia. At least it helps to fulfill the utopian ideal of Thomas More (1516). Hence, a hypothetical ideal society, in which laws, government, and social conditions operate only in the interests and welfare of all its citizens, are governed in the near- or far-future, when science and technology have advanced so this will allow for a more ideal standard of living. This form of techno-utopianism reflects the belief that technological changes are revolutionizing human affairs, and that digital technology, especially the Internet, is only a simple sign to increase personal freedom. This happens by freeing individuals from the rigidity of the government bureaucracy. Therefore, techno-utopians are often hostile to government regulation and the advantages of free market systems.

#### 2.1.2. Intellectual Capital

Intellectual capital is now the most valuable resource of the organization, and it should stand in the forefront of strategic concepts (Łataś & Walasek, 2016). Intellectual capital has grown in popularity exponentially in the 1990s (Erkan, 2011). Intellectual capital is one of the concepts that is close to intangible assets (Igielski, 2018; Muchran, 2020). For companies, currently managing and developing intangible resources is the most valuable asset. This concept shows that intellectual capital is important for an organization. Due to the high intellectual capital abilities, a person will always strive to develop the competence and knowledge that they carry (Nasih, 2009).

In general, the concept of intellectual capital is used to help develop the potential of an organizational structure and society to be more advanced or outside the group (Jaya, 2019). Intellectual capital also has an influence on the company's innovation capability (Yu, Wang, & Chang, 2011). Companies that have more innovative abilities are considered to be more successful in adapting to environmental changes. In addition, it can increase their competitiveness (Wang & Chen, 2013). Wang and Chen, (2013); Subramaniam and Youndt, (2005); Sullivan, (2000) showed that intellectual capital has a positive effect on innovative.

The key factor of this creative performance is the intellectual capital, considered one of the most critical capital, yet strategic value that an organization can have (Gogan et al., 2016). The innovative performance of a company in the twenty-first century, in line with the "Europe 2020" goals requires knowledge and intellectual capital management (which are key areas for most organizations) (Gogan et al., 2016). The first steps in the study of intellectual capital were performed in the developed countries of Europe and Northern America in the second half of the 20<sup>th</sup> century in response to the increasing trends of the growing role of intangible assets in economic relations and the transformation of production systems of these countries (Dyakona, 2015). Exclusivity of

intellectual capital makes it unavailable for other employees and individuals at the same time (Łataś & Walasek, 2016). The idea of intellectual capital begins as a promising exploration of the latent potential of a business that adds to its strategic advantage (Bratianu, 2018). Knowledge, namely, a knowledge-based approach is a very important factor affecting intellectual capital (Rexhepi, Ibraimi, & Veseli, 2013). Intellectual capital tends to be contextual in nature and continues to be debated when it comes to merit appraisal (Suseno, Hermina, Ramdhani, & Utari, 2019) claimed that intellectual capital was generally accepted as the most significant source of value development and competitive advantage (Mention & Bontis, 2013) defined intellectual capital is a portfolio of strategic firm resources that enable an organization to create sustainable value (Mention & Bontis, 2013).

#### 2.1.3. Financial Technology

Financial technology, generally referred to as "fintech," is now a regularly-used buzzword (Nicoletti, 2017). Fintech, a common word that refers to a wide variety of creative technology-enabled financial services, is by far the hottest subject in finance today (Omarova, 2019), which is related to m-payment (mobile payment) products (Teja, 2017). Fintech is the use of technology to provide new and better financial services (Thakor, 2019). There are various fintech applications classified in four main operational business processes: payments, consulting services, financing, and compliance. Fintech is defined as a cross-disciplinary subject combining finance, technology management and innovation management. Financial technology has contributed IDR25.9 trillion to the Indonesian economy. The use of technology to improve banking and financial services creates fintech. It uses the latest software, Internet, communication and utilization technology. There are two main reasons for the presence of fintech companies, namely, the global financial crisis in 2008 and the emergence of new technologies that support mobility, ease-of-use, fast and lower costs compared to financial services. Fintech can be defined as the use of IT in finance, financial and digital innovation, or startups (financial industry other than banks or financial services) (Suryono, 2019). Fintech is described as a disruptive challenge to the financial sector as a faster, cheaper and people-centered financial service (New, Of, & Services, 2017). Definition of fintech relates to companies developing financial services and products using much more intense use of information technology (New et al., 2017) introduction of new technologies, which disrupts financial business model and financial markets.

#### 2.2. Hypothesis Development

The current condition of the business environment demands that every company management, not only master as much as possible hard capital such as land, plants, equipment, and workers, but also soft capital. The existence of intellectual capital in an organizational environment is not only shown by the amount of knowledge they have, but also individuals need to represent this knowledge through actualization in their daily behavior and sharing with all interested parties (Nasih, 2009). Unstructured data, information or smart people cannot be included in the concept of intellectual capital if they cannot add value to their environment (Nasih, 2009).

In the current era of the knowledge economy, sustainable value can only be created through the development of intangible assets, for example, the skills and knowledge of workers, information technology that connects the company with its customers and suppliers, which are an organizational climate that encourages innovation and effective problem-solving. Based on the description above, the following research hypothesis can be formulated.

**H1:** Intellectual capital represented by conceptual skill indicators has a positive and significant role in the development of financial technology in the new normal period.

**H2:** Intellectual capital represented by human skill indicators has a positive and significant role in the development of financial technology in the new normal period.

**H3:** Intellectual capital represented by technical skill indicators has a positive and significant role in the development of financial technology in the new normal period.

#### 3. Research Methods and Materials

This research used quantitative methods, which involve quantitative research questions and hypotheses. Quantitative research questions ask about the relationship between variables (Creswell, 2009). Quantitative research seeks to test objective theory by examining the relationship between variables. These variables, in turn, can be measured, so that numbered data can be analyzed using statistical procedures (Creswell & Creswell, 2018). Secondary data were obtained using a questionnaire and literature review. The population of this research is the top management companies in Indonesia during the new normal period. The research was conducted from June 1 to July 3, 2020.

The sampling method was purposive sampling using the following criteria: 1) Company managers in Indonesia who have served at least two years, calculated from their tenure before the new normal era and during the new normal era; 2 Manager of companies in Indonesia whose companies are related to technological developments, such as implementing an online sales system; 3 Company managers in Indonesia

whose daily work activities are supported by technology, such as administrative records using a computerized system or the Internet. Purposive sampling is a sampling technique to self-assess members of the population of the study. This type of sample is believed to be able to obtain a representative sample by means of a proper assessment, which saves time and money. In addition, sampling is selected by using personal judgment in selecting cases to help answer research questions or objectives. The research sample is company managers in Indonesia. This sample is determined according to Ogston, Lemeshow, Hosmer, Klar, & Lwanga, (1991), as follows:

$$n = \frac{Z^2 1 - a/2^p (1-p)}{d2} \tag{1}$$

Notes:

n: number of samples

 $z^21-a/2$ : normal standard value, (if  $\alpha$ : 0.05, then Z: 1,960)

(1-P): estimated population proportion (if P is 0.5, then P (1-P): 0.25)

d: tolerable deviations (10%)

Based on the considerations and calculation results above, the number of samples specified in this study was 200 respondents. Determination of the value of each answer using a Likert scale. The descriptions are as follows.

Analysis of the data used in this study involves validity test, reliability test, descriptive statistical test, and SEM (Structural Equation Modeling) analysis test. The analytical tool used in data processing program is Lisrel 8.0, and IBM SPSS is used to test its reliability of analysis tools, namely

Table 1: Weight of the Likert Scale Answer Criteria

Description	Meaning	Numbers
SS	Strongly Agree	5
S	Agree	4
N	Neutral	3
TS	Disagree	2
STS	Strongly Disagree	1

Table 2: Measurement indicators for research variables

Number	Variable	Indicators	Number of Questions	
1.		1) Ability to assess organizational culture	1,2,	
	Intellectual Capital	2) Ability to observe the environment	3,	
	(Conceptual Skill-X₁)	3) The ability to solve problems	4,	
		4) The ability to create creativity (Sharma, 2013).	5,	
		The skills and expertise of a person in an organization.	6,7	
2.	Intellectual Capital	2) The level of one's work experience.	8,	
	(Human Skill-X <sub>2</sub> )	3) Motivation for someone to do something	9,10	
	_	4) The level of knowledge of a person in an		
		organization (Marko, 2013).	11,	
3.	Intellectual Capital (Technical Skill-X <sub>3</sub> )	Ability to use special methods and techniques     Ability to handle all work completion	12,	
		interruptions	13,14,	
		3) Ability to carry out managerial activities well	,	
		(Stoner, Freeman, and Gilbert Jr. (1995).	15,	
3.	Financial Technology (Y)	1) The level of modern financial knowledge	16,17,	
		Implementation of information technology in an organization	18,	
		The adaptive ability of modern information systems in an organization.	19,20.	

#### 4. Results and Discussion

The results of data analysis follow:

#### 4.1. Validity and Reliability Test

The results of the validity test above indicate that the standardized value of the intellectual capital variable for items CS01-CS05 for all of the T-Value categories is greater than 1.96 and the standardized value is greater than 0.04. This result means that all statement indicators or questions for the intellectual capital-conceptual skill variable are all valid (Sujarweni, 2018).

The results of the validity test above show that the standardized value of the intellectual capital variable for all items HS06-HS11 for the T-Value category is greater than 1.96 and the standardized value is greater than 0.04. This result means that all statement indicators or questions for the intellectual capital-human skill variable are all valid (Sujarweni, 2018).

The results of the validity test above show that the standardized value of the intellectual capital variable for TS12-TS15 items for all of the T-Value categories is greater than 1.96 and the standardized value is greater than 0.04. This result means that all statement indicators or questions for the intellectual capital-technical skill variable are all valid (Sujarweni, 2018).

The results of the validity test above show that the standardized value of the intellectual capital variable for all FT16-FT20 items for the T-Value category is greater than 1.96 and the standardized value is greater than 0.04. This result means that all statements or questions on intellectual capital for the financial technology variables are all valid (Sujarweni, 2018).

Based on the reliability test results above, it is known that the Cronbach's Alpha value is 0.917. This value will be compared with the r table with N=200, which is sought by using a significance of 5% (0.05), then the r table value is 0.138. These results conclude that the Cronbach's Alpha value> from r table is 0.917> 0.138. So, it can be understood if all statement items used in this study are reliable or can be trusted as data collection tools (Jaya, 2019).

#### 4.2. Respondent Characteristics

Secondary data collected by the researcher were analyzed to determine the characteristics of respondents from general questions, namely, gender, age, education, occupation, and monthly income. Male respondents total 70 people; female respondents, 130. Respondents were divided into three age groups, ranging from 28 years old to 35 years old. The educational background of the respondents was divided into two categories, namely S1 (Bachelors) and S2 (Masters). Respondents' occupations are grouped into two, namely, employees and entrepreneurs. Their income varies from IDR5,500,000 to IDR7,000,000 per month.

Table 3: Characteristics of respondents

Number	Number Sex	
1.	Mal	70 people
2.	Female	130 people
	Total	200 orang
Number	Ages	Frequency
1.	28-29 years	173 people
2.	30-33 years	23 people
3.	34-35 years	4 people
Total		200 people
Number	Education	Frequency
1.	Bachelor Degree	186 people
2.	Master Degree	14 people
Total		200 people
Number Job		Frequency
1.	Karyawan	
2.	2. Wiraswasta	
Total		200 people
Number Income		Frequency
1.	IDR 5.500.000,-	174 people
2.	IDR 6.500.000,-	24 people
3.	3. IDR 7.000.000,-	
	200 people	

#### 4.3. Descriptive Statistics Test

Descriptive analysis was carried out by grouping variables into five categories, according to Sugiyono (2011), as follows.

- 1. The average value of the answers is 1.00 to 1.79: Very low
- 2. The average value of the answers is 1.80 to 2.59: Low
- 3. The average value of the answers is 2.60 to 3.39: Enough
- 4. The average value of answers from 3.40 to 4.19: High
- 5. The average value of the answers was 4.20 to 5.00: Very high

The average intellectual capital variable (conceptual skill-X1); intellectual capital (human skill-X2) and intellectual capital (technical skill-X3) show the smallest value (minimum) of 1 and the greatest value (maximum) of 5. The above results also show that respondents tend to agree with intellectual capital (conceptual skills-X1); intellectual capital (human skill-X2) and intellectual capital (technical skill-X3), which play a role in the development of financial technology in the current new normal. Although, the mean value of the respondents was 2.22.

However, for the average intellectual capital variable (human skill-X2), the respondents' answers show a value of 2.715. This result is high enough to strengthen the notion that intellectual capital (conceptual skill-X1), intellectual capital (human skill-X2), and intellectual capital (technical skill-X3) play a role in the development of financial technology in the new normal period.

# 4.4. Test of Structural Equation Modeling (SEM) Analysis

The analysis tests the independent variable (intellectual capital (X1) and public financial services education (X2)) on the dependent variable (financial inclusion) conducted in Indonesia. Based on this description, the model equation is structured as follows.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_2 X \tag{2}$$

This equation test uses SEM analysis test to find out how strong the influence of the indicators composed of the research variables is.

## 1. The Role of Intellectual Capital (Conceptual Skill-X1) in the Development of Financial Technology

The test results above show that the intellectual capital (conceptual skill) variable has a T-Value of 5.45 or> 0.196 (Sujarweni, 2018). These results indicate that the variable intellectual capital (conceptual skills) has proved to have a significant positive role in the development of financial technology in the current new normal, especially in Indonesia. This conclusion means that H1 is accepted. This result strengthens the results of previous studies (Saunila, 2014; Wang & Chen, 2013) that intellectual capital is closely related to a technological innovation. However, our research provides more specific reinforcement on the conceptual skill side that has a role in the development of financial technology.

Table 4: SEM analysis test decisions

No.	Variable	T-Value ( > 1,96)	Decision
1.	$\beta_1 X_1 \rightarrow Y$	2,21	Significant
2.	$\beta_2 X_2 \rightarrow Y$	1,52	Not Significant
3.	$\beta_3 X_3 \rightarrow Y$	-2,55	Not Significant

Table 5: Determination Coefficient Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,815ª	,665	,663	1,860

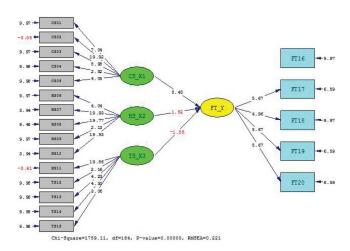


Figure 1: Research Model

Based on the results of the coefficient of determination above, it was also found that the role of the variable intellectual capital (conceptual skills) on the development of financial technology in the current new normal, reached 0.665 or 66.5%. These results prove that the role of intellectual capital is very dominant compared to the other two indicators of intellectual capital variables.

# 2. The Role of Intellectual Capital (Human Skill-X2) in the Development of Financial Technology

The test results above show that the intellectual capital (human skill) variable has a T-Value of 1.52 or <0.196 (Sujarweni, 2018). These results indicate that the variable intellectual capital (human skills) is proven not to have a significant positive role on the development of financial technology in the current new normal, especially in Indonesia. This conclusion means that H2 is rejected. This result means that human capital, which is routine knowledge that has characteristics in an individual, cannot be transferred to other individuals.

### 3. The Role of Intellectual Capital (Technical Skill-X1) in the Development of Financial Technology

The test results above show that the intellectual capital (technical skill) variable has a T-Value of -2.55 or <0.196 (Sujarweni, 2018). These results indicate that the variable intellectual capital (technical skills) has not been shown to have a significant positive role in the development of financial technology in the current new normal, especially in Indonesia. This conclusion means that H3 is rejected. This result means that in the new normal era, not all of them have the ability or technical knowledge in the use of financial technology. So, they are still dodging conceptual knowledge only. This requires encouragement from many parties to start providing technical knowledge about current financial technology developments

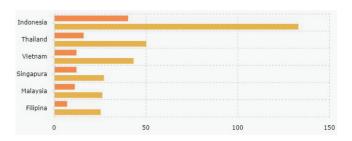
#### 5. Conclusions

The concept of intellectual capital management and knowledge management is not a new concept in companies in developed countries. However, currently, this concept is something that continues to emerge in several developing countries, for example in Indonesia and Turkey. It seems that in some countries and organizations the practice of using this model is a fairly new problem; for example, Turkey is one of the countries that have just introduced it (Erkan, 2011).

Figure 2 shows that the predicted trend for the economy in the digital economy era will continue to develop and progress until 2025. Thus, increasing knowledge and adapting to technological developments are very important steps for the sustainability of an entity. For example, e-commerce is a major driver of digital economic growth in Southeast Asia. This prediction also gives hope that in the future era all companies will compete with competitors through technology media. This means that this condition certainly requires the development of intellectual capital.

The current phenomenon of innovation in the financial services industry has changed the landscape of the global financial services industry, including Indonesia. This change has led to the emergence of a new phenomenon called financial technology or Fintech. In addition, fintech provides new opportunities for more efficient and effective economic activity (Jaya, 2019). Estimates that the accelerated growth of global financial technology (fintech) investment hit US\$20 billion in 2015, a rise of 66% from the previous year; Teja (2017) states that financial technology has contributed IDR25.9 trillion to the Indonesian economy.

The literature states that the concept of intellectual capital has received a lot of attention in various fields, such as management and accounting (Shokri, Nazari, & Akbari, 2017; Ardhiani & Nasih, 2019). The reason is that the intellectual concept is dynamic and universal and provides many opportunities for new contributions. With the above reasons, we have refreshed the intellectual concept by linking it to technological developments, namely, financial



**Figure 2:** Prediction of the Digital Economy Industry in Southeast Asia in 2019-2025

technology. We do this based on Lawson and Samson (2001), who define innovative capability as the ability to continuously transform new knowledge and ideas into products, processes and systems for the benefit of the company and stakeholders.

We conducted this research through in-depth analysis tests on the aspects of intellectual capital and financial technology. We conducted this research in the new normal period with the hope that it can provide more objective information for stakeholders to make constructive decisions for their business in the future.

Based on the research results show the following: The variable intellectual capital (conceptual skills) is proven to have a significant positive role in the development of financial technology in the current new normal. The variable intellectual capital (human skills and conceptual skills) is proven not to have a significant positive role in the development of financial technology in the current new normal.

This study further develop the concept of intellectual capital universally and not only related to the performance of a company or entity (Ardhiani & Nasih, 2019; Nasih, 2009). However, we have broadly demonstrated that intellectual capital also has a role in the development of financial technology in the current new normal. This is because the new normal period offers currently a new challenge in responding to an economic crisis as a result of Covid-19 around the world. Thus, it is necessary to have a new concept, new humanity, and new techniques to develop financial technology, so that it can exist and encourage economic growth due to Covid-19.

The obstacles and difficulties we experienced while conducting this research related to the distribution of questionnaires and meeting several respondents. We overcame the logistical challenge of this large-scale data collection by distributing questionnaires via Google Form.

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