The Role of Attitudes as a Mediating Variable between Self-efficacy and Digital Trust on Intention to Adopt

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Abstract. This research explores the impact of self-efficacy, digital trust, and attitudes on the intention to adopt. Additionally, it aims to investigate the role of attitudes as a mediating variable. A quantitative approach using a survey method with a questionnaire was employed for this research. The sample consisted of 98 employees from PT Schneider Indonesia, selected through random sampling. The findings of this research reveal a significant relationship between self-efficacy, digital trust, and the intention to adopt. Furthermore, attitudes directly influenced the intention to adopt and acted as a mediating variable. These results can provide valuable insights for companies in analyzing their employees and serve as a basis for enhancing company performance, including achieving sustainability goals. The novelty of this research lies in the necessity for comparative studies involving similar Industry 4.0 companies. Specifically, it examines the direct and indirect relationships between self-efficacy and digital trust and their impact on attitudes and the intention to adopt.

Keywords: self-efficacy, digital trust, attitude, intention to adopt

1 Introduction

Technology has been an integral part of human development throughout history. Humans have an instinct to create tools and innovations that have shaped human civilization for thousands of years. During the 20th century, technological development accelerated, with inventions such as the telephone, radio, and television transforming human communication and entertainment. Furthermore, computers and the Internet have accelerated this transition, bringing humanity into the digital age. Technology continues to shape how we communicate, work, play, and even think. Technology has had many positive impacts on human life. It increases production efficiency, enables instant global communication, and expands access to educational and informational resources.

Industry 4.0 is the latest industrial revolution driven by the development of advanced technologies. This is creating a significant transformation in how businesses and industries operate, with the potential to shape the future of the global economy. Industry 4.0 refers to the industrial revolution thirty years after the 3.0 industrial revolution, characterized by automation and mass production. The concept involves integrating digital technology, artificial intelligence (AI), Internet of Things (IoT), and cloud computing to create a smart, connected, automated manufacturing environment. While Industry 4.0 offers enormous potential, it also comes with challenges, such as cybersecurity concerns and ethical issues related to the use of artificial

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intelligence. However, we can benefit from this industrial transformation with a good understanding of these technological developments and the ability to adapt. Industry 4.0 is a step towards a smarter, more efficient, sustainable future that will shape how we work and interact for years. [1] state that the potential benefits of adopting Industry 4.0 are maximizing operational efficiency and profitability by combining digital technology, improving product quality, reducing production costs, and reducing product variations and defects, thereby increasing the overall operational efficiency of manufacturing companies. One of the positive factors of technology is digital trust.

Digital trust becomes a key driver for high-quality digital interactions by measuring an entity's expectations – specifically validating who or what it claims to be and whether the entity will behave in the expected way in digital business transactions. Digital trust variables have become an increasingly popular research topic in the context of implementing Industry 4.0. These studies examine how digital trust influences the acceptance and use of Industry 4.0 technologies by organizations and individuals. Digital trust is formed from a combination of traditional trust (human aspect) and digital technology, significantly impacting a company's ability to grow and be trusted. Speed is a characteristic of digital organizations, and the interaction of human trust with Industry 4.0, which plays a vital role in improving organizational innovation performance, is mentioned as another definition of digital trust [2], which is closely related to this research. Other articles as the primary source of digital trust are [3–6].

Given the ongoing lack of consensus regarding the definition of digital trust, [6] proposed several novel instruments for assessing digital trust in the workplace. These instruments are based on three key dimensions: technology, people, and processes, which align with the model proposed by [3]. These dimensions are commonly employed when implementing information systems, such as customer relationship management [7]. They are also relevant in analyzing the driving factors and barriers to implementing Industry 4.0 (8) and in the context of digital organizations [8]. [6] identified a research gap in the need for more comprehensive investigations into DIGITAL TRUST, particularly about employee acceptance of Industry 4.0 as a new technology.

Individuals must have confidence in their abilities, a sense of control, and self-confidence to practice entrepreneurial behavior as demanded by digital organizations successfully. Self-efficacy (SE) determines a person's thinking, acting, and motivation in facing difficulties and problems [9]. Their self-efficacy determines a person's success or failure when carrying out a particular task. People with high self-efficacy will be ready to face the failures and obstacles they face, be emotionally stable, behave and have a high locus of control and have an excellent attitude.

SE describes a person's belief in their ability to complete an activity or achieve a desired outcome. A person's confidence in their capacity to carry out actions that will produce the expected results [10], the higher it will lead to increased motivation, effort, and persistence in facing obstacles, while low SE can cause a decrease in motivation and effort. Furthermore, [10] researched the relationship between SE variables and intention to adopt using the TPB (Theory of Planned Behavior) framework, confirmed that self-efficacy is a construct consisting of four unique characteristics that are significant in influencing perceived behavioral control and provide a significant indirect effect on behavioral intention (Intention to Adopt). Regarding SE among decision makers (owners or managers), [11] shows that high SE significantly influences

the adoption and acceptance of information technology, and owners/managers play an essential role in the intention to adopt artificial intelligence.

Individuals with high SE are driven to align their behavior with their aspirations to achieve success. Initially discussed primarily in the clinical health field, SE was expanded to include organization and management, as highlighted by [12–14]. This expansion further extended to the realm of entrepreneurship. In digital organizations, the importance of self-efficacy, or one's confidence in their abilities, cannot be overstated. It plays a crucial role for actors in actor-oriented organizations who must quickly adapt, innovate, take ownership of processes (cultivating an ownership culture), and effectively work towards project or business goals. Several studies have examined the relationship between self-efficacy and intention to adopt within the TPB framework in various contexts, such as big data and IoT [15], artificial intelligence [16], and big data analysis [17].

2 Method

The method used in this study is quantitative because the research data is in numerical form, and the analysis uses statistics. According to [18], the quantitative approach is based on the philosophy of positivism, used to study populations using specific sampling techniques, data collection using research tools, and data analysis. Quantitative or statistical data for the purpose of testing predetermined hypotheses.

The research took place at PT. Schneider Indonesia an Industry 4.0 company; the company is located at the head office in the Cibis Nine Building on Jalan TB Simatupang No. 2, South Jakarta. The selection of this research location was driven by the fact that, while there are factories in Batam and Cikarang, only employees at the head office, particularly the commercial team, directly interact with customers. The research was carried out for two months.

The unit of analysis for this study is the individual employee of Schneider Indonesia who interacts with customers outside the factory. The total sample size for this study was 98 employees who met the specified criteria. Random sampling is used as the sampling technique, in which the sample is randomly selected from the population with a margin of error of 5%, determined according to the Slovin formula.

A case study data collection method uses the survey method of sampling from the population and uses questions written in questionnaire form as the primary data collection tool. The data was collected through a questionnaire distributed online using Google Forms to respondents.

A research variable is an attribute, trait, or value of a person, object, or activity with certain variations determined by the researcher to be studied and conclusions drawn [19]. According to [20], research variables are characteristics or properties of the research object related to the problem about which the data are measured. The variables in this study are classified based on exogenous and endogenous variables. Exogenous variables are called source or independent variables, which other variables in the model do not predict. Meanwhile, an endogenous variable is a factor predicted by one or more variables [21]. This research consists of two exogenous variables (Self-Efficacy and Digital Trust) and two endogenous variables (Attitude and Intention to Adopt). The research method is presented in Figure 1 below:

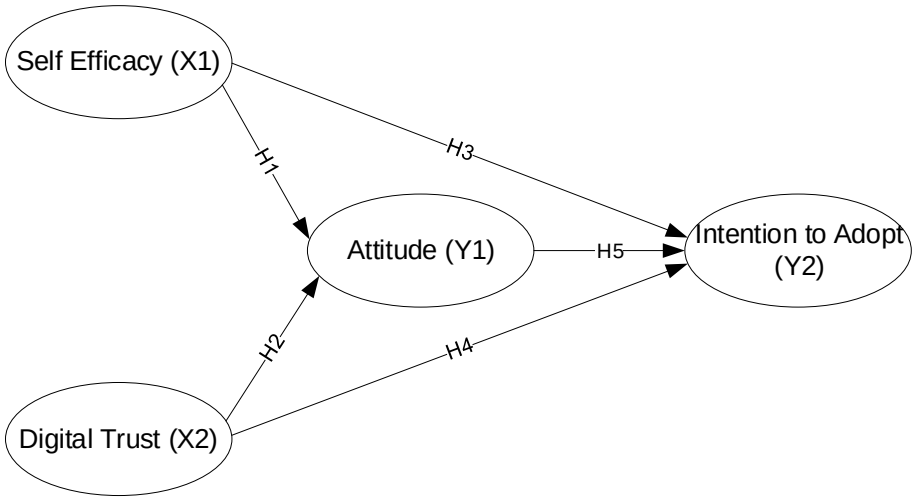

Figure 1. Research Model

Research hypotheses:

H 1: Self-efficacy influences attitude

H 2: Digital trust influences attitude

H 3: Self-efficacy influences the Intention to Adopt

H 4: Digital trust influences the Intention to Adopt

H 5: Self-efficacy influences the Intention to Adopt

Based on the type of data, this research is quantitative research. Data collected in this research will be analyzed using Structural Equation Modeling (SEM). Data analysis uses the PLS (Partial Least Square) analysis model [22] because 1) the analysis model is multilevel, and the structural equation model fulfills the recursive model, and 2) it measures latent variables, namely every variable that cannot be measured directly. Statistical modelling that involves relationships between variables and indicator models simultaneously is called structural equation modeling (SEM) [23].

3 Findings

Research data were collected from questionnaires. The questionnaire uses a Likert scale ranging from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (strongly agree). Before questionnaire data can be used for further analysis, it is necessary to verify the validity and reliability of the instrument. The research tool is declared reliable if the Cronbach Alpha value is > 0.6. According to the test results, the Cronbach Alpha value of all research variables is greater than 0.6. It can be concluded that self-efficacy (X1), digital trust (X2), attitude (Y1), and

intention to adopt (Y2) are valid and reliable. Therefore, the data collected through the questionnaire can be used for data analysis in the next step. To determine the quality of the research model, a model fit analysis will be performed. Based on Table 1, one can see the feasibility measure, the standard error or residual standard value, and the p-value of model fit.

Table 1: Model Fit

Model Fit	Estimate	SE	P-Value	Conclusion
FIT	0.0803	0.0222	<0.001	Significant
Adjusted FIT (AFIT)	0.0732	0.0234	<0.001	Significant
GFI	0.9315	0.0221	<0.001	Significant
Standardized Root Mean Square (SRMR)	0.9347	0.2609	0.005	Significant

Table 1 shows that the model is suitable for use or has excellent compatibility.

Table 2 shows an estimation of path coefficients that can be known about the value of the path coefficient and p-value of each path.

Table 2: The Estimate of Path Coefficients

Independent	Dependent	Estimate	P-value	Conclusion
Self-Efficacy (X1)	Attitude (Y1)	0.125	0.041	Significant
Digital Trust (X2)	Attitude (Y1)	0.585	<0.001	Significant
Self-Efficacy (X1)	Intention to Adopt (Y2)	0.057	0.286	Not Significant
Digital Trust (X2)	Intention to Adopt (Y2)	0.340	<0.001	Significant
Attitude (Y1)	Intention to Adopt (Y2)	0.512	<0.001	Significant

Table 2 depicts the results of testing the hypothesis with direct effects.

i. There is a significant influence between Self-Efficacy (X1) on Attitude (Y1) with a coefficient value of 0.125 and a p-value of 0.041, which is smaller than 0.05, which means there is a significant positive influence on the relationship between Self-Efficacy (X1) and Attitude (Y1)

ii. There is a significant positive influence on the relationship between Digital Trust (X2) on Attitude (Y1), where this relationship has a coefficient of 0.585 and a p-value < 0.001, which is smaller than 0.05.

iii. The positive influence is not significant between Self-Efficacy (X1) on Intention to Adopt (Y2) because it has a coefficient value of 0.057 and a p-value of 0.286, which is greater than the real level of 0.05 or 5%.

iv. The relationship between Digital Trust (X2) and Intention to Adopt (Y2) has a significant effect with a coefficient value of 0.121 and a p-value <0.001 less than 5%.

v. A significant positive influence between the relationship between Attitude (Y1) and Intention to Adopt (Y2) with a coefficient value of 0.372 and a p-value <0.001 less than 5%, which means that every increase in one level of Attitude (Y1) will increase Intention to Adopt (Y2) of 0.372 times.

Apart from direct impacts, there are indirect impacts; the analysis results are in Table 3.

Table 3: Indirect Effects

Independent	Mediate	Dependent	Estimate	P-value	Conclusion
Self-Efficacy (X1)	Attitude (Y1)	Intention to Adopt (Y2)	0.064	<0.001	Significant
Digital Trust (X2)	Attitude (Y1)	Intention to Adopt (Y2)	0.289	<0.001	Significant

Table 3 explains the following:

i. There is a significant influence between the relationship between self-efficacy and intention to adopt, which is mediated by the attitude with a coefficient value of 0.064 and a p-value <0.001, which means it is significant.

ii. The role of attitude can mediate the relationship between digital trust and intention to adopt, where if there is a one-unit increase in digital trust through attitude, it can increase intention to adopt by 0.289 with a p-value <0.001, which means it is significant.

4 Discussion

Based on research results, changes in self-efficacy will affect attitudes. The positive coefficient sign shows that enhancing self-efficacy has an impact on the attitudes of employees at PT. Schneider Indonesia. More precisely, business innovation can be defined as applying new ideas to their implementation, characterized by significant, lasting, and large-scale changes. This will ensure that the implementation process will significantly impact employee attitudes.

Almost all companies can feel the digital change. These results also show the role of digital trust that can influence attitude. The better employees are at digital trust, the better employee attitude can be. This shows that employees can overcome problems both individually and as a team. Increased trust can create commitment and innovation with new ideas. Apart from that, it can create good communication between employees.

The third hypothesis explains that self-efficacy can influence the intention to adopt. This was demonstrated by employees of PT. Schneider Indonesia, where the increase in individual employees of PT. Schneider Indonesia can increase the intention to adopt. Individual employee improvement is shown based on new innovations in solving existing problems at PT. Schneider Indonesia. The second increase was seen in employees of PT. Schneider Indonesia is brave in taking risks.

There is a positive influence on the relationship between digital trust and intention to adopt at PT. Schneider Indonesia. This is shown by the trust of PT employees. Schneider Indonesia in using technology. The more often they use technology, the more they can increase their belief

in the benefits of technology and increase their intention to change the decision system, which will later be carried out by PT. Schneider Indonesia.

The increasing attitude of employees at PT Schneider Indonesia can then increase the intention to adopt. This improvement in attitude can be seen from the social, economic, and environmental improvements of employees of PT Schneider Indonesia, who help each other if there are problems in the company. Apart from that, improvements in economic aspects and employee welfare are increasing. Based on these two aspects, a comfortable work environment is created to improve performance PT. Schneider Indonesia.

PT Schneider Indonesia's employees are consistently updated with e-learning or training on Digital Trust and are expected to apply it in their daily business operations. Similarly, all employees must act like owners in carrying out their daily tasks, which fosters a supportive attitude toward adopting new digital and electrical technologies. The industrial 4.0 technology, EcoStruxure, is well understood and promoted by Schneider's employees as part of the company's sustainability goals.

5 Conclusion

The conclusions obtained for PT Schneider Indonesia are described as follows. *First,* increasing self-efficacy will improve attitude. *Second,* digital trust can improve the attitude of PT Schneider Indonesia employees. *Third,* increasing self-efficacy will influence the Intention to Adopt PT Schneider Indonesia employees. *Fourth,* digital trust significantly and positively influences the intention to adopt. *Fifth,* attitude can positively influence the intention to adopt PT Schneider Indonesia employees. *Sixth*, a significant positive influence of self-efficacy is mediated by attitude to increase intention to adopt. *Seventh*, a significant positive influence of digital trust is mediated by attitude to increase intention to adopt.

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