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The Role of Digital Leadership, Total Quality Management, and Knowledge Management on Sustainability Management of Vocational Schools

Suharto Suharto[1]✉, Edy Siswanto[2], Totok Prasetyo[1], Sarana Sarana[1]

[1]Mechanical Engineering Department, Semarang State Polytechnic
[2]Universitas Negeri Semarang

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Abstract

The aims of this study is to analyze the relationship digital leadership significantly effects on Sustainability Management, digital leadership on total quality management, digital leadership on knowledge management, total quality management on sustainability management, knowledge management on sustainability management and knowledge management on total quality management. This study uses quantitative research methods. The data sources used in this study are primary and secondary data sources. The main data in this study comes from the results of a questionnaire survey of 320 vocational school teachers determined by simple sampling method. The data analysis method used in this study is structural equation modeling (SEM) which is a descriptive statistical test used to verify hypotheses while verifying their validity and reliability. Data processing was performed using the SmartPLS 3.0 application. Here are the results of this survey: Digital leadership has a great impact on sustainability management Digital leadership has a great impact on total quality management Digital leadership has a great impact on knowledge management Total quality management has a great impact on sustainability management Gives Knowledge management has a huge impact. Impact on Sustainability Management Knowledge management has a significant impact on overall quality management.

✉Correspondence Address :
Jl.Prof. Soedarto, S.H. Tembalang, Semarang 50275
E-mail : pakharto58@gmail.com

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INTRODUCTION

Vocational schools play an important role in the digital age and industrial revolution. The aim of vocational education Hamzah et al., (2021) formulated that vocational education aims to: (a) meet the community's need for labor, (b) increase educational options for each individual, and (c) encourage motivation to continue learning. One of the most important business challenges facing business development in the Industrial Revolution 4.0 era is the era of VUCA which implies volatility, uncertainty, complexity and ambiguity. The VUCA era provides a picture of a business situation that is uncertain and has a tendency to change easily which can cause anxiety experienced by leaders in an organization. According to Abbas (2020) vocational education is characterized by: (a) preparing students to enter the labor market (b) demand-driven (the needs of the world of work) (c) the content of vocational education is knowledge-focused with an emphasis on mastering the world of work required skills attitudes and values (d) The true assessment of a student's success should be based on activities or performance in the world of work. (c) A close connection with the world of work is key to the success of vocational education (f) State-of-the-art facilities for pre-training for increased efficiency and technological advancement (i) requires more investment than the cost of general and operational education. Teaching quality refers to process quality and product quality. Teaching is called process quality if the teaching and learning process is developed effectively and students experience a meaningful learning process. The quality of the process will determine the quality of the product, systematic intervention is given to the process to provide a convincing quality assurance. According to Hamzah et al., (2021) Educational outcomes are said to be of good quality if they have the following characteristics. (a) Students demonstrate a high level of academic achievement which should be included as educational goals and objectives. Education expressed in learning outcomes (b) Learning outcomes are based on the students' needs in life so that students not only learn something but also do something useful in life (c) Learning outcomes are appropriate or relevant to needs. It is one of the aspects of quality or indicators in a particular work environment.

Technology has become a part of our daily life where it can now be accessed anywhere and anytime. Baumgartner et al., (2017) Industrial Revolution 4.0 experienced this revolution first-hand in countries all over the world including Indonesia. Today's digital revolution is changing almost all industries and the competitive competition of companies as a whole. In the era of Industrial Revolution 4.0 business development faces more and more challenges. A major challenge in the business world is the age of VUCA. The VUCA era provides a picture of a business situation that is uncertain and has a tendency to change easily which can cause anxiety from leaders in an organization. According to Benitez et al., (2022) To survive in this VUCA era, companies or organizations are required to be more adaptive. Companies certainly need to organize and plan how they can sustain or survive in economic, social and environmental terms in this new era. In this era, sustainability is becoming a hot topic where with the role of technology and communication implemented in an organization or company it is estimated not only to be able to reduce the carbon footprint and global emissions but also pay attention to or pay attention to economic growth in a company. Sustainability Management is an application or sustainable practice that covers the categories of business or economic, social and environmental by managing them in a way that will provide benefits for current and future generations to achieve synergistic goals for the company.

According to a previous study by Benitez et al., (2022); Hamzah et al., (2021), there are many factors that affect corporate sustainability management. These factors are total quality management digital leadership and knowledge management. Previous

researchers have noted that digital leaders play a key role in ensuring that digital transformation is aligned with their vision and mission so that performance evaluation is based on the benefits of digital operations or digital maturity of the organization and development of its digital culture. Meanwhile other factors such as top quality management are important to maintain the companys support by helping to improve the quality of the companys products or services. Knowledge Management is also expected to be able to maintain the company's competitive advantage with knowledge that is spread and evenly distributed throughout the workforce and employees of the company, so that indirectly all parts of the company are intellectual assets that are useful for the company. For this reason this study was conducted to determine the impact of digital leadership on total quality management and knowledge management on sustainable management in vocational education institutions.

The purpose of this study is to analyze the relationship digital leadership significantly effects on Sustainability Management, digital leadership on total quality management, digital leadership on knowledge management, total quality management on sustainability management, knowledge management on sustainability management and knowledge management on total quality management.

The Benefits of this study is expected to contribute to the strengthening and sustainable development of vocational school management performance in the digital era and the 21st century.

METHODS

This study uses quantitative research methods. The data sources used in this study are primary and secondary data sources. The main data for this study was obtained from a survey of 320 vocational school teachers. Meanwhile, secondary data is a collection of pre-existing data or information in the form of journals, reports or censuses that can be used by researchers as research material. Secondary data that will be used by researchers is in the form of data obtained from previous research journals. The data collection method used in this research was the distribution of questionnaires using Google Form as the tool for distributing questionnaires. The measurement scale of the questionnaire with a scale of 1-5. The value scale of 1 is the lowest value of "Never" while the value of 5 is the highest value of "Always". Based on the questionnaire distributed by the respondents, the researcher obtained a total of 320 vocational school teachers as respondents. The method of data analysis used in this study is descriptive statistical testing with validity and reliability tests as well as structural equation model hypothesis (SEM) testing. Data processing is done using SmartPLS 3.0 application.

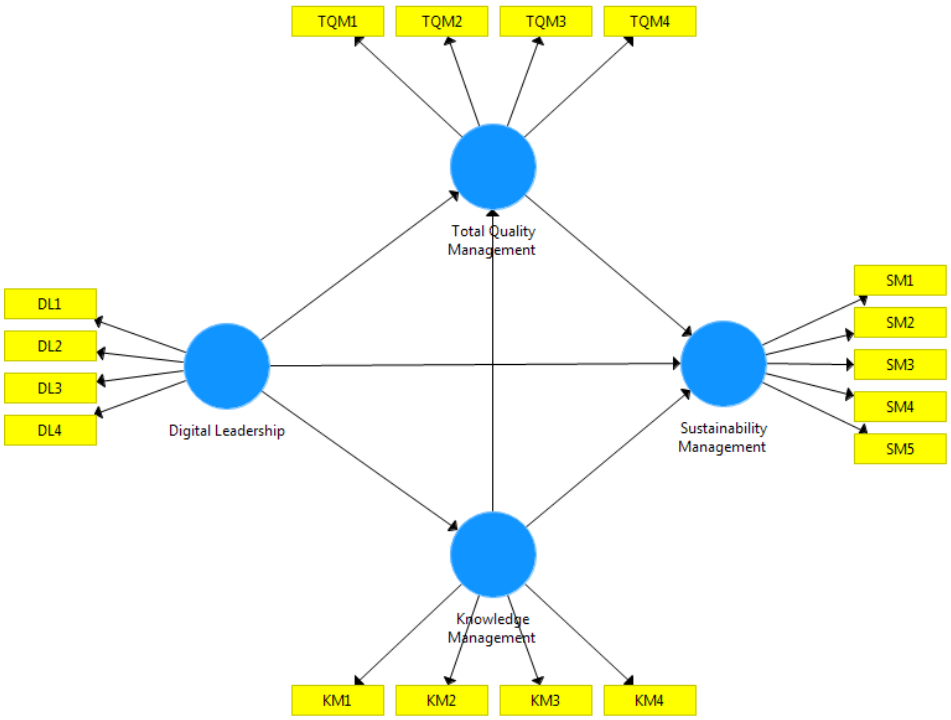

Figure 1. Research model

The models of the framework of thinking or hypotheses designed by the researchers in this study include:

Hypothesis:

H1: Digital Leadership has a positive and significant impact on Sustainability Management

H2: Digital Leadership has a positive and significant impact on Total Quality Management

H3: Digital Leadership has a positive and significant effect on Knowledge Management

H4: Total Quality Management has a positive and significant impact on Sustainability Management

H5: Knowledge Management has a positive and significant impact on Sustainability Management

H6: Knowledge Management has a positive and significant impact on Total Quality Management.

RESULTS AND DISCUSSION

Evaluation of the Measurement Model (External Model)

The external model is often called (external relations or measurement model) and defines how each indicator module is related to its latent variables. A measurement model (external model) is used to assess the validity and reliability of the model. Here is the test for the external model:

Convergent Validity

The convergent validity of a measurement model can be seen from the correlation between index scores and variable scores. Externally loaded or factored values were used to test convergent validity. An indicator is declared valid or converged if the external loading value of the indicator is > 07.

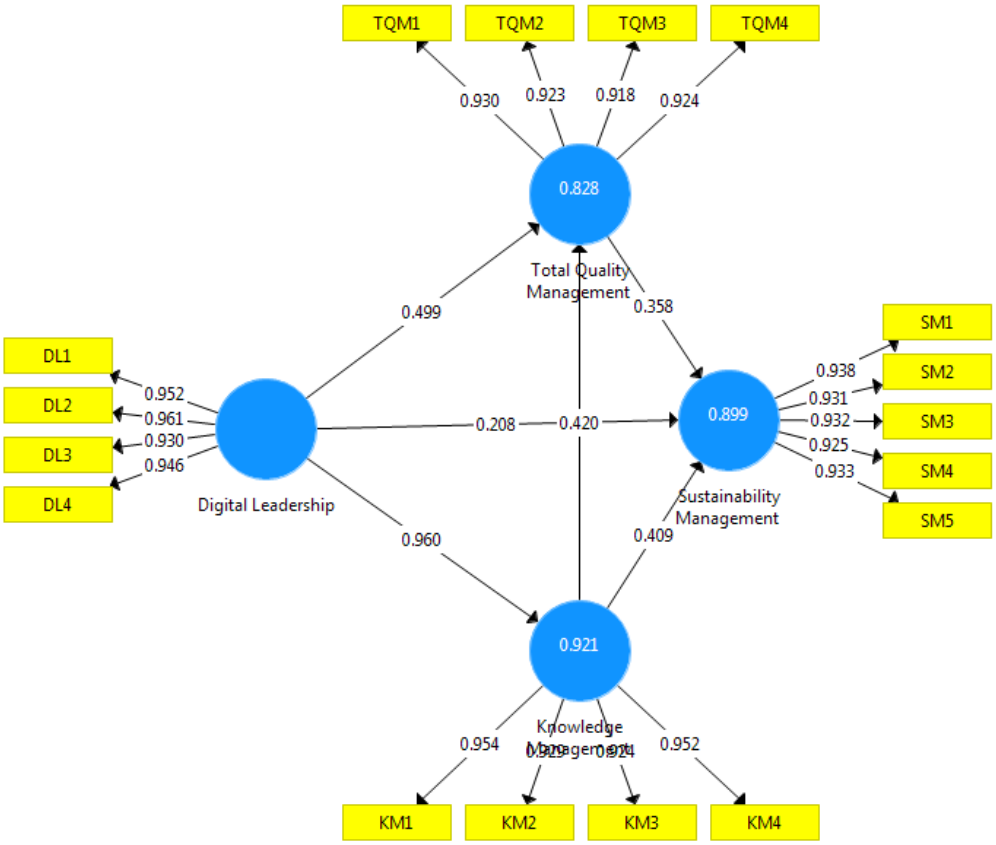

Figure 2. Convergent and Discriminant Validity Testing

In Figure 2 the scale has an external loading value > 0.7 so it is declared valid or meets convergent validity.

Discriminant Validity

The value of the critical crossload value can also be determined by other means ie. Look at the Average Variance Extraction (AVE) for each metric A good model should have an expected value > 0.5 The extracted average variance values are as follows:

Table 1. Average Variant Extracted (AVE)

Variabel	AVE
Digital Leadership	0.76
Total Quality Management	0.66
Sustainability Management	0.61
Knowledge Management	0.63

Based on Table 2 AVE values for all variants are identified as >0.5. Thus it can be said that each variable has good discriminant validity. Composite reliability is a component used to verify the reliability value of indicators in a variable. A variable can be declared to be of composite reliability if the composite reliability value of each of the variables used in this study is:

Table 2. composite reliability

Variabel	Composite Reliability
Digital Leadership	0.96
Total Quality Management	0.93
Sustainability Management	0.93
Knowledge Management	0.94

Table 2 shows that the global reliability values for all variables were >060. These results indicate that each variable satisfies the synthetic reliability so it can be concluded that all variables have high reliability.

Cronbach Alpha

The above reliability tests with composite reliability can be enhanced using

Cronbachs alpha value. If the Cronbachs alpha value > 0.7 the variable is declared as reliable or satisfies Cronbachs alpha. The Cronbachs alpha values for each variable are:

Table 3. Cronbach Alpha

Variabel	Cronbach's Alpha
Digital Leadership	0.95
Total Quality Management	0.91
Sustainability Management	0.91
Knowledge Management	0.93

According to Table 3 it can be seen that the value of Cronbachs alpha of all variables is > 0.70. Therefore these results can show that each research variable meets the requirement of Cronbachs alpha value so it can be concluded that all the variables have high stability.

Based on data processing using Smart PLS software the adjusted R-squared value is obtained as:

Table 4. *R-Square*

	R Square	R Square Adjusted
Total Quality Management	0.66	0.42
Sustainability Management	0.61	0.73
Knowledge Management	0.63	0.61

R-Square (R2) R-square is a measure of the predictive power of a structural model from endogenous variable values. Changes in R2 values can be used to explain the effect of certain exogenous latent variables on endogenous latent variables. We can conclude that this model is moderately robust with R-squared values of 0.75 0.50 and 0.25. This means that the higher the R2 estimate the better the prediction model and the proposed research model.

Hypothesis testing

Furthermore, the research results will be tested with a T-test using the boostrapping method. There are two types of hypothesis testing with T-test in this study, namely partial hypotheses and simultaneous hypotheses. Checking the hypothesis is done as follows: test only some of your hypotheses the inner model or route coefficient value displays the level of significance in the hypothesis test. For hypothesis testing with 5% alpha and 80% power, the result or statistic value must be more than 1.96 for the two-tailed hypothesis and above 1.64 for the one-tailed hypothesis.

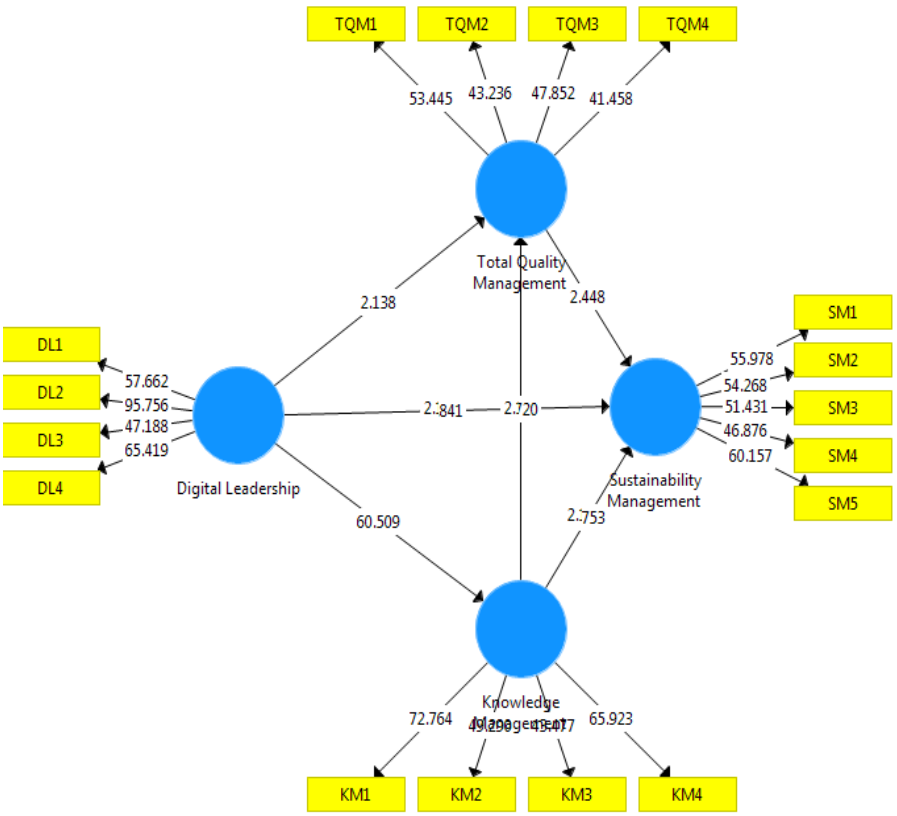

Figure 3. Hypotheses Testing

Hipotesis	Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics	P Values
Digital Leadership -ustainability Management	0.62	0.62	0.06	10.01	0.00
Digital Leadership -Total Quality Management	0.34	0.12	0.07	2.20	0.03
Digital Leadership -Knowledge Management	0.32	0.23	0.04	2.10	0.02
Total Quality Management - Sustainability Management	0.59	0.59	0.06	9.48	0.00
Knowledge Management - Sustainability Management	0.28	0.28	0.07	4.03	0.00

Digital Leadership and Sustainability Management

Based on the analysis, the P value of 0.00 is smaller than 0.05, so it can be concluded that digital leadership has a positive and significant impact on sustainability management. This finding is consistent with the research of Abbas (2020); Avidov et al., (2022); Baumgartner et al., (2017); Benitez et al., (2022); Hamzah et al. (2021) and supported by research by Hensellek (2020); Karakose et al,. (2021); Kadiyono et al. (2020); Keng-Boon, O. (2009); Kurniawan et al., (2022) found that digital leadership has a positive and significant impact on sustainability management.

Digital Leadership and Total Quality Management

Based on the statistical analysis, the P value of 0.03 is smaller than 0.05 so it can be concluded that digital leadership has a positive

and significant impact on the total quality of management management. This result is in line with the study by Lăzăroiu et al., (2020); Perez et al., (2015); Promsri et al., (2019); Purwanto (2022); Purwanto et al., (2021) and supported by the research of Quddus et al., (2020); Sasmoko et al., (2019); Stacchezzini et al., (2016); Wasono et al., (2018); Wesly et al., (2021) that digital leadership has a positive and significant effect on total quality management.

Digital Leadership and Knowledge Management

The results of data analysis obtained a P value of 0.02 lower than 0.05 so it can be concluded that digital leadership has a positive and significant effect on knowledge management. These results are in line with research by t Abbas (2020); Avidov et al., (2022); Baumgartner et al. (2017); Benitez et al. (2022); Hamzah et al., (2021) that digital leadership has a positive and significant impact on Knowledge management.

Total Quality Management and Sustainability Management

Based on statistical analysis the P-value of 0.00 is less than 0.05 so it can be concluded that total quality management has significant positive impact on sustainability management. These results are in line with research by Hensellek (2020); Karakose et al., (2021); Kadiyono et al., (2020); Keng-Boon (2009); Kurniawan et al. (2022); Lăzăroiu et al., (2020); Pérez-López et al., (2019); Purwanto et al., (2022); Purwanto et al., (2021) total quality management has a positive and significant impact on sustainability management'.

Knowledge Management and Total Quality Management.

Based on data analysis, the P value of 0.00 is smaller than 0.05 so it can be concluded that Knowledge Management has a positive and significant effect on the total quality of management management. These results are in line with research by Quddus et al. (2020);Sasmoko et al. (2019);Stacchezzini et al. (2016); Wasono et al., (2018); Wesly et al., (2021) that Knowledge Management has a positive and significant impact on the total quality of management management.

CONCLUSION

There is a major relationship between Total Quality Management and Sustainability Management, as well as between Digital Leadership and Sustainability Management. Knowledge management and sustainability management are strongly correlated. There is an important relationship between digital leadership and total quality management. Knowledge management has a significant impact on total quality management. Digital leadership has a significant impact on knowledge management. The researcher's suggestion through this research is that vocational schools should increase their awareness of the operational impact of vocational schools on the environment, be able to create product designs that are environmentally oriented, and can also increase awareness by using vocational school facilities efficiently. Vocational schools should pay more attention to the main roles of vocational school leaders and teaching staff. Results for the management variable total quality were not significant. I suspect that vocational schools have made a mistake in implementing the values of TQM principles. In a study conducted where the points of giving rewards or awards to employees are the points with the smallest average. The application of the values of Total Quality Management requires commitment from all entities from vocational schools to continue to develop and improve themselves and the system. For this reason, vocational schools also need to give appreciation and rewards to their employees as a motivation given by vocational schools for the hard work and involvement of employees who have helped vocational schools to develop. This is also supported by the statement that the research results are still lacking in giving appreciation

to employees who are able to provide new knowledge and insights. For this reason what vocational schools can do to improve knowledge creation includes conducting R&D and rewarding vocational school staff for service metrics that can generate new knowledge and insights in vocational schools. This is expected to make vocational schools continue to innovate and produce new knowledge and insights that can help prevent or overcome problems that arise. Only the factors of digital leadership, overall quality management, knowledge management, and sustainability management are examined in this study. Additionally, only working workers are included in this study. The author also experiences obstacles where there is still a lack of research that discusses digital leadership and knowledge management variables on sustainability management.

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