

Policy Strategy and Development of UNNES Financial System Transparency and Accountability Towards Industry 5.0

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Abstract

To maximize UNNES' contribution to industrial transformation 5.0, the implementation of financial transparency and accountability is a key factor. There are still various challenges in achieving optimal financial transparency and accountability at UNNES. The purpose of this study is to analyze the current condition of financial transparency and accountability at Unnes and analyze policy priorities and development of financial system transparency and accountability towards industry 5.0. To answer the first objective, the analytical tool used is descriptive qualitative and to answer the second objective the Analytical Hierarchy Process (AHP) analysis tool is used. Based on the results of the Analytical Hierarchy Process (AHP) analysis, the component that has the highest global weight is Communication with a global weight of 0.347, followed by Leadership (0.343) and Human Resources (0.309). The findings indicate that while UNNES has made progress in these areas, significant challenges remain in achieving full financial transparency and accountability. The results suggest that UNNES should prioritize improving communication channels across all levels of the institution to ensure transparency in financial processes.

Keywords: Accountability; Industry 5.0; Finance; Transparency; System

INTRODUCTION

As one of the universities in Indonesia, Universitas Negeri Semarang (UNNES) plays a vital role in developing its resources to contribute to the advancement of industry 5.0 (Asegid, 2015). This industrial era begins with integrated innovations from technological advancements, such as artificial intelligence, big data, and the Internet of Things (IoT). These components have the potential to advance the operations of educational institutions, including the financial system. The ease and transparency of the financial industry, offered by transformation 5.0, is key to advancing the financial system at UNNES. Transparency in the financial system refers to the disclosure of information regarding the management and use of budgets and resource allocation. This transparency is important as it helps maintain stakeholder trust. Meanwhile, financial accountability is necessary to demonstrate that universities can responsibly manage funds and policies.

There are various challenges regarding financial transparency and accountability at UNNES (Yasmin & Dan Ghafran, 2019). Examples include the lack of an integrated financial information system, insufficient openness in the organizational culture, and inadequate training in sound financial management practices (Dewi & Gayatri, 2019). Therefore, this study aims to explore how UNNES can improve its financial transparency and accountability practices to support its transformation to Industry 5.0. Financial transparency in higher education reflects the disclosure of information regarding budget management, the use of funds, and resource allocation (Fitriani Lita & Absor, 2020). This is important for building trust among stakeholders, including students, lecturers, parents, and the wider community. Meanwhile, financial accountability shows that UNNES is responsible for the management and use of financial resources (Sapartiningsih & Krisanto, 2018).

The role of financial transparency and accountability in higher education has demonstrated that these two elements are crucial for enhancing stakeholder trust and supporting institutional reputation (Fitriani Lita & Absor, 2020; Sapartiningsih & Krisanto, 2018). Previous studies, such as those by (Afryansyah & Haryanto, 2013; Dewi & Gayatri, 2019; Fitriani Lita & Absor, 2020), underline that financial transparency contributes to investment attractiveness, while high accountability is related to improved academic and research performance (Sari et al., 2017; Yongming & Sun, 2017). In Indonesia, despite government efforts to encourage good management practices, specific research on financial transparency and accountability in universities, including Universitas Negeri Semarang (UNNES), is limited. In the context of the transformation toward Industry 5.0, where technology integration is key, UNNES has an opportunity to lead by implementing better transparency and accountability practices, thus supporting the achievement of the institution's vision and mission in an increasingly digital era.

The problem-solving approach in this study begins with identifying financial transparency and accountability issues at UNNES, followed by the development of strategic recommendations to improve these practices (Atiningsih & Ningtyas, 2019; Budiana et al., 2019; Rane et al., 2023). The urgency of this research lies in the fact that the implementation of financial transparency and accountability is not only important to fulfill legal and regulatory obligations but also to support the achievement of the university's vision and mission in creating graduates who are ready to compete in the digital era. With good financial management, universities can more effectively allocate resources for research, program development, and facility improvement—key elements in producing quality graduates. The purpose of this study is to analyze the current condition of UNNES's financial transparency and accountability and to analyze the policy priorities and development of financial system transparency and accountability towards Industry 5.0 (Efunniyi et al., 2024; Imananta & Putri, 2021; Kashyap & Iveroth, 2021).

Previous research on financial transparency and accountability in universities, such as those by Kanter & Tucker (2020) and Bachri et al. (2019), has predominantly focused on general financial practices in higher education institutions, primarily addressing the importance of transparency for stakeholder trust and its role in improving institutional credibility. Kanter & Tucker (2020) highlighted that effective transparency practices can enhance accountability, thus

promoting organizational integrity and trust among stakeholders. However, their study did not specifically address how technological integration, such as that proposed in Industry 5.0, could affect the management of financial transparency in universities. Similarly, Bachri et al. (2019) explored financial governance models in universities but did not emphasize the unique challenges posed by Industry 5.0 or the specific case of Universitas Negeri Semarang (UNNES). These gaps create a need for more context-specific studies that consider the impact of digitalization and technological advancements on financial transparency and accountability in universities.

This study aims to analyze the current state of financial transparency and accountability at UNNES and to develop strategic recommendations to enhance these practices towards achieving Industry 5.0 standards. The research seeks to contribute to the academic understanding of the intersection between financial governance and technological advancements, particularly in the context of higher education institutions. The study's findings will provide actionable recommendations that can improve financial practices, thus supporting the university's vision of becoming a leader in producing graduates who are prepared for the challenges of the digital era. This research will benefit both academic and practical spheres, offering insights into how financial transparency and accountability can be integrated with technological innovations to improve university performance and foster greater stakeholder trust.

RESEARCH METHODS

This type of research is descriptive research with a quantitative approach. The data used in this research are primary data obtained from respondents and key person information. The sampling technique in this research is non-probability sampling with a purposive sampling technique. In accordance with the research objectives, the respondents in this study were students, lecturers, and staff of UNNES. Data collection techniques were conducted through questionnaires, in-depth interviews, and focus group discussions. To answer the first objective, the analytical tool used is descriptive qualitative analysis, and to answer the second objective, the Analytical Hierarchy Process (AHP) is employed. The AHP method can help set priorities and goals from various options using several criteria. Through the Analytical Hierarchy Process (AHP) method, several strategies will be produced that can be used to strategize policies and develop the transparency and accountability of the financial system towards Industry 5.0 at UNNES. The AHP model used in this research is described in the chart below:

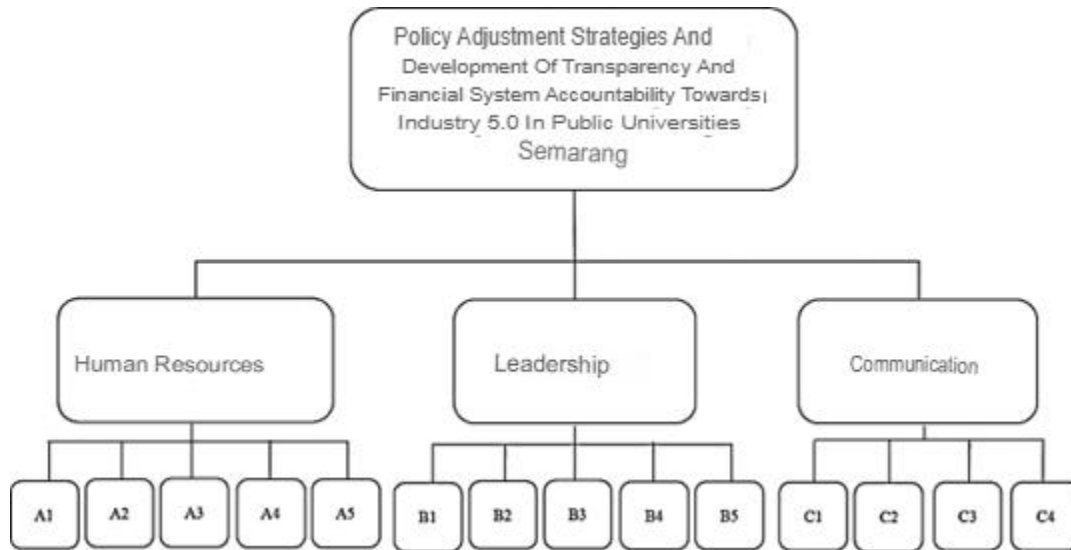


Figure 1. AHP hierarchical framework

Description:

A1 = Technical competence in managing digital financial systems

A2 = Digital and technology literacy

A3 = Integrity and work ethics

A4 = Availability of ongoing training

A5 = Adaptability to new technology

B1 = Leadership commitment to transparency

B2 = Digital-based integrative policy

B3 = Consistency of monitoring and evaluation

B4 = Data-driven decision making

B5 = Support for innovation and digital transformation

C1 = Disclosure of financial information

C2 = Regular socialization of policies

C3 = Utilization of digital platforms

C4 = Responsiveness to feedback/complaints

Human resource indicators are based on the Resource-Based View (RBV) theory by Barney (1991), which states that an organization's internal resources (including human resources) are the key to competitive advantage. In this context, competent human resources are an important asset in supporting digital transformation and transparent and accountable financial governance. Leadership is based on the Good Governance Framework (Bank, 2020; UNDP, 2022), which identifies leadership as an important pillar in realizing the principles of transparency and accountability, because leaders determine policy direction, supervision, and values of organizational integrity. Meanwhile, communication is derived from Transparency Theory, which states that clear and communicative information disclosure is an essential part of an accountable system, especially in a digital environment.

RESULT AND DISCUSSION

Answering the first objective used 30 respondents as data sources consisting of lecturers, education personnel, students and external parties (auditors). The distribution of respondents in this study showed that the majority came from educational staff (50%) and lecturers (43%), while students and external parties such as auditors only contributed 3% each. The high proportion of educational staff indicates that they are the main actors in the administrative and technical management of the financial system at Unnes. Their role in direct contact with financial processes makes their views crucial in assessing the level of transparency and accountability. Lecturers as system users, especially in terms of managing research funds, community service, and other academic activities, also have a strategic perspective on campus financial policies. Meanwhile, although the contribution of respondents from students and auditors is relatively small, both still provide an important point of view, students as recipients of financial services, and auditors as independent parties who assess the quality of governance. Meanwhile, 5 keyperson respondents were used as data to answer the second objective with 50% education personnel; 30% lecturers; and 20% external parties. Most of the respondents, 80%, have been involved with Unnes for more than 6 years, showing the dominance of respondents who are experienced and understand the dynamics of the campus financial system. Meanwhile, 10% have been involved for 4-6 years, 7% for 1-3 years, and only 3% have been involved for less than 1 year. This composition strengthens the credibility of the data as it is dominated by individuals with sufficient experience to assess the transparency and accountability of the UNNES financial system.

Table 1. Respondent Statistics

Respondents	Percentage	Keyperson	Percentage
Lecturer	43%	Lecturer	30%
Student	3%	Education Personnel	50%
External Party (Auditor)	3%	External Party (Auditor)	20%
Education Personnel	50%		
Length of involvement with Unnes			Percentage
<1 year			3%
1-3 years			7%
4-6 years			10%
>6 years			80%

Source: Data Processed, 2025

The current condition of Unnes's financial transparency and accountability can be seen in the following table:

Table 2. Current Condition of Financial Transparency and Accountability of Unnes

Component	Percentage
Disclosure of financial information	33%
Ease of access	30%
Clarity of financial information	30%
Transparency of fund management	40%
Conformity of financial statements with accounting standards	70%

Component	Percentage
Responsible for the budget by implementing the principles of good governance	57%
Financial systems that are digitized and support real-time automation of budget reporting	63%
Financial system readiness to be integrated in the Industry 5.0 digital transformation framework	67%

Source: Data Processed, 2025

Based on the data obtained, the current state of financial transparency and accountability of Unnes shows significant progress in systemic and technological aspects, although some fundamental components still require attention. In general, financial information disclosure is only at the 33% level, indicating that information related to the management and use of funds is not yet fully accessible or understood by all stakeholders. This is reinforced by the ease of access (30%) and clarity of financial information (30%) which are also still relatively low, indicating that although information is available, the level of readability and accessibility is not optimal. On the other hand, transparency in fund management stands at 40%, indicating an effort but not yet fully meeting the expectations of the principle of public accountability.

However, indicators related to systems and governance showed better achievements. Conformity of financial statements with accounting standards was recorded at 70%, indicating that administratively, UNNES has implemented a reporting system that is in line with applicable accounting principles. Furthermore, budget officers who apply good governance principles received an assessment of 57%, reflecting a commitment to good governance, although it needs to be improved to be more comprehensive and consistent.

In terms of technology, quite positive achievements were seen in the aspect of digitizing the financial system, with 63% of respondents stating that the system is already digital-based and supports real-time reporting automation. This shows that UNNES is on the right track in building the foundation of a digital financial system. In fact, the readiness of financial system integration within the framework of industry 5.0 digital transformation scored 67%, reflecting optimism towards the institution's ability to adopt future technologies to support financial transparency and accountability. Overall, although some basic aspects such as openness and access to information still need to be improved, UNNES has demonstrated structural and systemic readiness to move towards strengthening an adaptive and accountable financial system in the era of digital transformation.

Table 3. AHP Analysis Results

Component	Local Weights (LW)	Global Weights (GW)	Attributes	Local Weights (LW)	Global Weights (GW)	Rank
Human Resources	0,309	0,309	Technical Competency Management of Digital Financial Systems	0,222	0,069	8
			Digital literacy and technology	0,055	0,017	14

			Integrity and work ethics	0,212	0,065	9
			Availability of sustainable training	0,328	0,102	3
			Adaptability to new technology	0,184	0,057	11
Leadership	0,343	0,343	Leadership commitment to transparency	0,241	0,083	5
			Digital-based integrative policy	0,057	0,019	13
			Consistency of Supervision and Evaluation	0,210	0,072	7
			Data-based decision making	0,319	0,110	2
			Digital Innovation and Transformation Support	0,174	0,060	10
Communication	0,347	0,347	Financial information disclosure	0,281	0,098	4
			Regular policy socialization	0,073	0,025	12
			Utilization of Digital Platforms	0,223	0,077	6
			Responsiveness to input/complaints	0,422	0,147	1

Source: Data Processed, 2025

Based on the Analytical Hierarchy Process (AHP) analysis, the component with the highest global weight is Communication with a global weight of 0.347, followed by Leadership (0.343) and Human Resources (0.309). This shows that in the context of developing transparency and accountability of financial systems towards Industry 5.0 at Unnes, communication is seen as the most crucial aspect, especially in terms of information disclosure, utilization of digital platforms, and response to feedback.

In terms of attributes, Responsiveness to input/complaint ranks first (global weight 0.147), indicating that speed and effectiveness in responding to input is a major factor in realizing financial system transparency. This is followed by Data-based decision making (0.110) and Availability of sustainable training (0.102) which are ranked second and third respectively. This reflects the importance of data-based decision making and continuous strengthening of human resource capacity to support an adaptive and technology-based system.

Other attributes that also have a large influence include Financial information disclosure (0.098), Leadership commitment to transparency (0.083), and Utilization of Digital Platforms (0.077), which are ranked fourth to sixth respectively. While attributes such as Digital literacy and technology (0.017) and Digital-based integrative policy (0.019) have the lowest weight, suggesting that despite their importance, they are currently perceived as less dominant in the broader strategic context.

The priority order of policy strategies and the development of transparency and accountability of the Unnes financial system towards industry 5.0 can also be seen in the figure below:

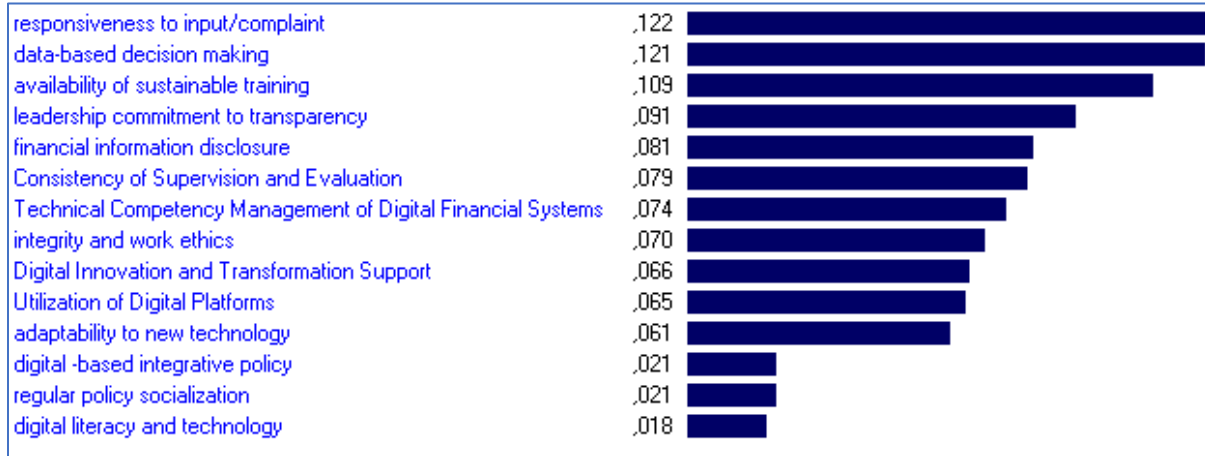


Figure 2. Global AHP Prioritization Results
Source: Data Processed, 2025

The results of the AHP analysis showed that of the three main components, namely human resources, leadership, and communication, the communication component ranked highest with a global weight of 0.347. The attribute of responsiveness to input/complaints emerged as the top priority in strategies to improve financial transparency and accountability at Universitas Negeri Semarang (UNNES). Followed by data-based decision making and availability of sustainable training, this finding emphasizes the importance of open and responsive communication, objective decision making, and strengthening HR capacity to support modern digital-based financial governance.

In the Resource-Based View (RBV) perspective, institutional excellence rests not only on physical or technological assets, but on the management of unique internal resources, such as organizational culture, expertise, communication systems, and HR integrity. Attributes such as responsiveness, data-based decision making, and integrity and work ethics are intangible resources that have strategic value because they are difficult to replicate and replace. Therefore, UNNES' ability to build an adaptive and responsive financial communication system can be the foundation of competitive advantage in facing digital transformation towards industry 5.0. The inclusion of the availability of sustainable training and adaptability to new technology attributes in the high rankings is also in line with the RBV which emphasizes the importance of organizational learning and sustainable development. Human resources with digital skills, adaptability, and ethical commitment will be a strategic asset in supporting an accountable digital financial system. On the other hand, leadership commitment to transparency and support for digital innovation reflect the importance of leadership figures in facilitating transformation and maintaining continuity of governance with integrity.

In the Good Governance Framework, the principles of transparency, accountability, and public participation are core elements. The AHP results show that UNNES has strategically placed these indicators, such as on financial information disclosure, consistency of supervision, and digital-based integrative policy. The leadership's commitment to information disclosure and the strengthening of a consistent supervision system are the cornerstones of good governance in higher education, in line with the principles of good governance that emphasize vertical and horizontal accountability. When examined from Transparency Theory, financial transparency is not just data disclosure, but includes clarity, accessibility, and utilization of information by stakeholders. Attributes such as utilization of digital platforms and financial information disclosure represent digital communication strategies that support the involvement of the academic community and the public in monitoring and understanding the campus financial system. The high global weight of this attribute reflects the urgency of transforming communication towards digital that is informative and participatory.

The responsiveness to input/complaints attribute, which ranks first, indicates that the effectiveness of two-way communication is a key need. Transparency theory asserts that an open system should be able to respond to questions, criticisms and information needs quickly and appropriately. This not only creates trust, but also strengthens the legitimacy of the institution in the eyes of the public. Thus, in the context of UNNES, building a real-time digital-based complaint and feedback mechanism will be one of the key elements in future financial governance. This finding is reinforced by various previous studies. For example, a study by (Atiningsih & Ningtyas, 2019) showed that financial transparency in higher education is influenced by strong leadership, information technology support, and the quality of human resources. Meanwhile, (Urdeneta et al., 2021) emphasized that successful digitization of public accountability requires integration between technology-based systems and organizational cultural commitment. This is in line with the UNNES AHP results which place human resources, leadership, and communication as the main pillars.

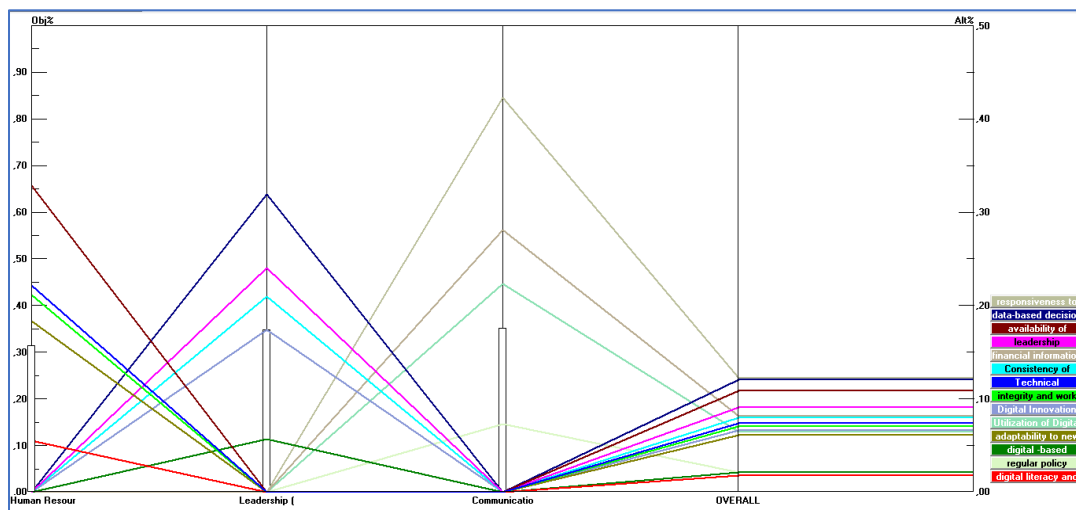


Figure 3. Sensitivity Analysis Results
 Source: Data Processed, 2025

The results of the sensitivity analysis in the graph above illustrate the effect of changes in the weights of the three main criteria, Human Resource, Leadership, and Communication - on the global weight of each alternative or strategy attribute in developing transparency and accountability of financial systems towards the Industry 5.0 era at Unnes. It can be seen that the attribute 'responsiveness to input/complaints', which is in the Communication category, is very sensitive to changes in the weight of the communication dimension, as shown by the sharp spike in the line when the communication dimension is given a greater weight. Similarly, the attribute 'data-based decision making' under the Leadership category shows high sensitivity to changes in the weight of the leadership dimension.

Meanwhile, attributes such as 'digital literacy and technology' and 'regular policy socialization' continued to show low weights across variations, indicating that even though the weights of the parent dimensions changed, these attributes were still not a top priority. In addition, attributes from the Human Resource dimension such as technical competency, availability of sustainable training, and integrity and work ethics increased significantly when the HR dimension was given a higher weight, but not as sharply as attributes on communication and leadership. Thus, this graph shows that in the context of sensitivity, the success of the strategy is highly dependent on the extent to which priority is given to the communication and leadership dimensions. This confirms that responsiveness and data-based governance are the most influential key elements, so that if there is a change in preferences or policies that increase the focus on any of the three key criteria, the composition of the strategy priorities will also change significantly. This interpretation is important to support the formulation of policies that are more adaptive and responsive to the needs of transparent and accountable financial governance.

CONCLUSION

Based on the results of the AHP and sensitivity analysis, it can be concluded that the main strategy in strengthening the transparency and accountability of the financial system of UNNES towards the Industry 5.0 era lies in the aspects of effective communication, adaptive leadership, and strengthening human resource capacity. The attributes that have the greatest influence on the entire system are responsiveness to input/complaints, data-based decision making, and the availability of sustainable training. This shows the importance of building a system that is responsive to input, based on data in decision making, and supported by continuous HR competency development. This indicates that digital transformation is not only focused on technical aspects but also on organizational readiness and a transparent and accountable work culture.

The policy implications of these findings include the need to strengthen responsive and digital-based financial management systems so that reporting and transparency can be done in real-time. Universities need to develop digital platforms that enable financial information disclosure and facilitate the involvement of the academic community in the budget monitoring and evaluation process. In addition, increasing the capacity of human resources through digital literacy training and technology-based financial management is crucial so that all elements of the organization are

ready to face the challenges of the Industry 5.0 era. On the leadership side, strong commitment from leadership is needed to instill good governance values in every financial policy, as well as to strengthen communication and inclusive policy socialization so that all stakeholders feel involved and understand the direction of the transformation being carried out. With these policy measures, UNNES will be better prepared to develop a transparent, accountable, and sustainable financial system in accordance with the demands of the future digital era.

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