Kilisuci International Conference on Economics & Business

Vol. 3 Year 2025

The Role of Technology in Improving Employee Performance of Gypsum Installation MSMEs

Nizam Irfani[1*], Edy Djoko Soeprijatno[2]

[1,2]University of Nusantara PGRI Kediri, JL. KH. Ahmad Dahlan No.76, Mojoroto, Kediri City, East Java, 64112, Indonesia

nizamirfani@gmail.com edyjoko.s@gmail.com

*corresponding author

Article Information

Submission date January 04, 2025

Revision date March 05, 2025

Date received March 15, 2025

Abstract

Research aim : *This study aims to analyze the role of technology in improving employee performance and productivity in Micro, Small and Medium Enterprises (MSMEs), especially in the gypsum installation sector.*

Design/Methods/Approach: *The research results found that the use of modern tools, such as battery-powered drills and standard scaffolding, can increase work efficiency and speed up the gypsum installation process. However, lack of training is a major barrier to technology implementation.*

Research Findings: *This research uses a qualitative approach through case studies and interviews with MSMEs engaged in gypsum installation. Data was collected through structured interviews and direct observation to assess the impact of technology adoption on efficiency and work processes.*

Theoretical contribution/Originality: *This study contributes to the literature on MSMEs by highlighting the unique challenges faced by traditional industries in adopting modern technologies. The study also offers a framework for understanding how focused training can facilitate technology transition.*

Practitioner/Policy Implications: *This study recommends policy interventions, such as subsidies for technology tools and industry-specific training programs, to accelerate technology adoption. Practical implications include the importance of managerial support and ongoing skills development to ensure successful implementation.*

Research limitations: *This research was conducted on a small sample, namely MSMEs in the gypsum installation sector, so the results cannot be generalized. Further research is expected to include a larger sample.*

Keywords: Technology adoption, MSMEs, productivity, employee performance, gypsum installation.

1.Introduction

3M scale-up has been implemented in the MSME sector by the Indonesian government, as MSMEs are vital to the Indonesian economy, but most of them face difficulties in adopting technology. MSME plaster installation is one of the affected sectors. Digital tools and better scaffolding - battery drills and the like - are still little used even by Jaya Gypsum MSMEs that have been operating for two decades. It is very clear that traditional tools, such as hammers and nails used by employees to install gypsum directly, have a significant impact on production and efficiency. In addition, the fact that scaffolding has to be specially designed and prepared for each project means that the use of more advanced tools also takes longer to

get used. The main problem is not knowing how to operate this new cost-effective and productivity-enhancing technology. This is increasingly important as we live in a world where the application of digital technology has been widely proven to increase the competitive value and performance of MSMEs[1].

Technology adoption by MSMEs in Indonesia remains low due to various factors, including limited human resources and technological capabilities[2]. MSMEs that have received assistance and training in using simple technology can improve their operational efficiency and competitiveness in the local market[3]. However, many SMEs are still hesitant to switch to digital systems due to a lack of knowledge and training, even though the application of technology significantly increases productivity[4]. Moreover, financial constraints and a lack of access to external funding also play a major role in impeding technology adoption among MSMEs, limiting their ability to invest in necessary digital infrastructure[5].

Based on existing research, a lot of research literature is more general in nature and emphasizes on more or less the same aspects, namely R&D and technological readiness, but there is no research on technology adoption in gypsum installation MSMEs. This research intends to bridge the gap by conducting a study on MSMEs "Jaya Gypsum". Davis et al. in the Technology Acceptance Model (TAM) which will be the basis of this research, suggest that perceived ease of use and perceived usefulness are important determinants of technology acceptance (1989). Therefore, this model is very suitable to be used to find out how the perceptions of MSME employees "Jaya Gypsum" towards information technology and the benefits obtained from using this information technology.

Indeed, research on technology acceptance in various fields such as e-commerce or food has been presented and there is research on it, but so far there has been no in-depth research on technology acceptance in the small construction sector such as gypsum. This research seeks to find the basis of the acceptance of gypsum chorus technology by MSMEs using a qualitative approach through interviews and participatory observation. Through this research, we will describe the barriers that employees face in using new technology and highlight the conditions that make them continue the traditional work experience they have been doing.

This study seeks to identify the steps taken by employees to improve their performance in implementing technology in MSME "Jaya Gypsum". This research will propose a model for technology adaptation and explore the impact of perceived ease of use and usefulness of technology on acceptance. Published in the journal "Legal Studies", DOI: 10.1111/lest.12340 This article is organized as follows: Introduction, Literature review, Methodology, Results and discussion, and Conclusion.

1.1 Problem Statement

One of the MSMEs "Jaya Gypsum" that has been operating for more than 20 years faces challenges in the gypsum installation process to implement new technologies. The workers are used to using common hand tools such as hammers and nails, as innovations such as battery drills or scaffolding are appropriate but difficult to implement at the company level. This led to less productive work and increased physical strain on workers. In addition, the wooden scaffolding, which is re-engineered for each project, used for the project should not reuse outdated structures, resulting in high time and cost.

The biggest challenge of UMKM "Jaya Gypsum" is the unpreparedness to accept new technology, namely the lack of training and experience in using these modern tools. (Davis et al., 1989), which is a barrier in the acceptance of existing technology. 1989). Currently, although this remanent tool cannot compete with existing tools on the market, the employees still use it.

So it is also necessary to examine the factors that influence technology acceptance in employees of UMKM "Jaya Gypsum". We explore the challenges of adopting advanced technology, and how employees' views on the usefulness and benefits of technological tools affect technology acceptance.

1.2 Research Objectives

The purpose of this study is to determine how the workers of UMKM "Jaya Gypsum" make adjustments to the application of new technology in the installation of gypsum. The purpose of this study is to examine the determinants of technology acceptance among employees, by concentrating mainly on two elements of the Technology adoption Model (TAM), namely perceived ease of use and perceived usefulness (Davis, 1989).

This research also aims to find out the challenges faced in the technology adaptation process, and how employees in the company perceive the ease of use and benefits of new technologies such as battery drills and better scaffolding to improve work productivity and efficiency.

Specifically, this research aims to:

1. Analyze how employees of UMKM "Jaya Gypsum" adapt to new technology in gypsum installation.
2. Identify factors that affect employee acceptance of technology, such as training, understanding of tools, and comfort with new technology.
3. Provide recommendations for MSMEs to improve their acceptance and adoption of more efficient technologies in their operations.

2. Methods

This assessment is qualitative in nature with the aim to investigate the employees/customers of UMKM "Jaya Gypsum" in adapting new technology in the gypsum installation process. Design: Qualitative exploration of employee perspectives, experiences, and barriers related to the use of new technology. Applying this analysis to technology helps to understand environmental, motivational, and incentive factors in technology acceptance.

2.1. Data Collection

This research uses data collected through semi-structured in-depth interviews, participatory observation, and documentation. Interviews were then conducted with four staff of MSME "Jaya Gypsum" and the owner, Mr. Samsul, to gain their insights on the adoption of new technology in gypsum installation and the challenges experienced by the new technology. The interviews were semi-structured to allow participants to discuss their experiences without restrictions, but guided enough to ensure that themes relevant to this research were discussed.

This was done by participatory observation at the workplace of UMKM "Jaya Gypsum" during the gypsum installation project. Direct observations were made to assess how workers use existing tools in their daily work, and whether or not they use new, more efficient technologies such as battery drills and scaffolding for the installation process. Gypsum

installation was observed at various project sites for two months. Documentary methods were used by recording the types of tools used, the time taken to complete the work, and field notes for data analysis.

2.2. Data Analysis Technique

Data collected from interviews and observations were analyzed using thematic analysis. Key themes that emerged from the transcripts and notes relating to attitudes towards technology adoption such as: perceived ease of use and perceived usefulness were identified using thematic analysis. The initial reading of the interview and observation notes consisted of several readings of the interview transcripts and observation notes followed by the extraction of data relevant to the research themes. Then, the data was grouped based on similarities and themes were identified that helped in better understanding of technology adoption by MSME employees.

2.3. Paradigm Relevance

This research takes a constructivist perspective that explains how people construct their experience of the world through social interaction and personal experience. This research is important to the constructivist approach, as it seeks to analyze employees' availability to adopt new technology in their work. The researcher was interested in exploring how employees perceive and react to new technology and how variables such as training, comfort, and understanding facilitate such acceptance.

2.4. Research Model

This study uses the Technology adoption Model (TAM), created by Davis et al. (1989), to explain employee technology adoption. This paradigm states that two main factors, perceived ease of use and perceived usefulness, are the main determinants of technology acceptance and adoption by individuals or organizations.

3. Results and Discussion

3.1. Results

The purpose of this research is to find out how well the employees of UMKM "Jaya Gypsum" implement new technology in the gypsum installation model and to see the two main elements of the Technology Acceptance Model (TAM), namely perceived ease of use and perceived usefulness. As mentioned by the owner of UMKM "Jaya Gypsum" that although the company itself has been established for approximately 20 years and many innovations in the world of building have emerged, in fact the workers still use outdated methods, namely by using tools such as hammers and nails. Where resistance to technology adoption is largely due to lack of training and familiarity with modern tools[6]. This is because they do not understand the new technology or what they need. Although construction has a variety of tools and cranes such as battery-powered drills, pumps and scaffolds that can increase productivity, owners say that the biggest challenge is getting skilled training. As such, one of the best ways to boost employee confidence and the use of new technology is through structured and more systematic training. That organizational readiness and managerial support play a crucial role in successful technology adoption[7].

Table 1. Interview Transcription

Name	Question	Answer
Mr. Samsul	Thank you for taking the time to speak with us today, Mr.	Thank you for having me. Our business has been running for

	Samsul. As the owner of UMKM "Jaya Gypsum," your insights into the adoption of new technologies are incredibly valuable. To begin, could you tell us a bit about the challenges you face with technology adoption in your business?	over 20 years, and we've always relied on traditional tools, such as hammers and nails, for gypsum installation. While we understand that modern tools, like battery-powered drills and scaffolding, could improve our efficiency, the main challenge has been the lack of skilled training. Our workers are more familiar with the old methods, and there's a hesitation to switch to new tools, especially when they don't fully understand how to use them.
Mr. Samsul	From your perspective as the owner, what do you think are the key barriers to adopting modern technologies in your MSME, and how can skilled training overcome these barriers?	The biggest challenge is getting skilled training.
Employee 1	What were your initial concerns when you were introduced to the battery drill, and how did your perception change after learning about its potential to improve your productivity?	I was initially concerned about whether I could use the battery drill, but I was convinced that it was a good idea to maximize my productivity at work.
Employee 2	You mentioned that new technology is meant to improve efficiency, but you feel unqualified to use it. Can you elaborate on what kind of support or training you think would help you feel more confident in using these tools?	New technology is meant to improve efficiency, but we are not qualified enough to use it with confidence.
Employee 3	How do you compare the safety and ease of use of modern scaffolding to the traditional wooden poles? What specific training do you think would help you use modern scaffolding effectively?	Modern scaffolding was safer and easier to use than the wooden poles used in the past, but we could not do it properly because we were not specifically trained to learn how to set up scaffolding.
Employee 4	What do you think causes reluctance among some coworkers to adopt new technology? How can this reluctance be addressed through training or other support?	Some reluctance to adopt new technologies by coworkers is due to established habits and uncertainty.
Employee 2	How do you feel about using new technology like battery	With hammers and nails, we know better how to use them;

	drills compared to traditional tools like hammers and nails?	new things, we haven't tested them yet, it takes longer for me.
Employee 2	Why do you feel that the battery drill hasn't had a significant impact on your work speed?	We're used to the old way, and the battery drill doesn't really speed up work compared to the way we already know.

Source : Interview at Jaya Gypsum

They are four employees of Jaya Gypsum, who share the same view of Indonesia. Traditional tools are much more familiar, as people are already used to them. As a result, they realize that new technology will definitely improve productivity, but they are cautious in adopting it - mainly due to lack of training.

The first employee was initially concerned about whether he could use the battery drill, but he was convinced that it was a good idea to maximize his productivity at work. Another employee shares the same view, saying that new technology is meant to improve efficiency, but they are not qualified enough to use new technology with confidence. A third employee said that modern scaffolding was safer and easier to use than the wooden poles used in the past, but they could not do it properly because they were not specifically trained to learn how to set up scaffolding. Some reluctance to adopt new technologies by coworkers is due to established habits and uncertainty, said a fourth employee.

The interviews found that adequate and systematic training is mandatory to encourage technology adoption by MSME employees. Staff who are more educated in safety practices are more comfortable and confident when using battery drills and modern scaffolding. The Technology Acceptance Model (TAM) shows 2 main factors which are perceived ease of use and perceived usefulness. The critical issue is whether people or collectives adopt the technology. Overall, qualitative interviews and observations generated rich data that can help answer our research questions about staff acceptance and technological adaptation of new tools related to plastering installation.

3.2. Discussion

3.2.1. Perceived Ease of Use

Based on interviews and observations, the data shows that new technologies such as battery drills and scaffolding are still a challenge for most employees to use and still have a long learning curve. Ironically, that is precisely the conclusion drawn by most employees: that they feel "safer" using traditional tools, such as hammers and nails, which they prefer. "With hammers and nails, we know better how to use them new things, we haven't tested them yet it takes longer for me," said one employee. This suggests that ease of use plays an important role in employee acceptance of technology.

The findings of this study are consistent with the Technology Acceptance Model (TAM) theory which suggests that perceived ease of use is a key aspect of technology acceptance. Employees will not adopt it if the new technology is difficult to use. Therefore, MSMEs should take steps to ensure that the training provided is sufficient to make employees confident with the tool to eliminate fear.

3.2.2. Perceived Usefulness

Workers are also wondering if this new technology is beneficial. While tools like battery drills and scaffolding have made some jobs easier to do, workers say they have yet to feel the impact of these devices on their work. Some claim that battery drills are faster than hammers and nails, but this information has little impact on timeframes. "We're used to the old way, and the battery drill doesn't really speed up work compared to the way we already know," said one employee.

Thus, it can be seen that the perceived benefits associated with e-training have a positive relationship with the outcome of acceptance of e-training in VET. If participants can see its current impact, such as saving time or honing skills, they are more likely to adopt the technology. [8]. Regardless of the new technology being more efficient, if employees do not feel directly motivated, or do not feel sufficiently rewarded by the tool, then they will always prefer old-school methods that they can master.

3.2.3. Training and Support Factors in Technology Adaptation

However, during the interviews, there were clear indications that training on new tools is a very important area. Workers are eager to experiment with new tools with the same pragmatic perspective on learning. In one interview, a worker told us, "If we can adopt a new tool with further training on how we should use the tool, we will all be more open to trying it." This means that concentrated training should be conducted to improve perceived ease of use and perceived usefulness.

This means that expectations for capturing, organizing and sharing knowledge have a strong correlation with perceived benefits. Education and training continue to play an important role in changing these perceptions[9] . Perceived support has a lot to do with employees' adoption of e-training, which in turn increases their perception of the benefits of technology-based training[10] . If employees feel more confident and understand how to use tools, they will be more likely to adopt new technologies in their work.

3.2.4. Gaps with Previous Research

Unlike previous studies, which combined the food and e-commerce MSME sectors and focused on retail, this study disaggregated the segments and targeted a specific segment, namely the small construction: plaster installation segment, to generate a significant difference in impact. Technology is used in food MSMEs and e-commerce because the benefits are more immediate, it also leads to production efficiency. But in the construction industry, technology is used mainly out of habit and comfort with the old ways. Thus, perceived ease of use significantly influences technology acceptance and makes food and e-commerce MSMEs interested in adopting the technology.[11] .

Some of the differences in results stem from differences in approach and methodology. The in-depth qualitative method allowed us to further explore employees' perceptions of the new technology, which distinguishes it from previous studies that focused solely on quantitative methodologies. To see the differences in terms of completed work. An interview with employees showed that while new technologies such as battery drills are more efficient and beneficial to employees, at the time they did not see any difference in terms of working time. "We were used to doing it the old way, and the battery drill didn't make the work any faster than the way we were already doing it." This indicates usability and perceived benefits as barriers to technology adoption. The research also emphasizes that while technology can

improve efficiency, many MSMEs still face challenges in adopting digital technology[4] . They prefer traditional methods because they are more familiar and considered safer.

3.2.5. Result Conclusion

The results of this study are in line with the technology acceptance model (TAM) theory which states that the constructs of perceived ease of use and perceived benefits affect the acceptance of technology by employees of UMKM "Jaya Gypsum". The conclusion that can be drawn from this research is that technology adoption can be improved through more in-depth training and support. As a result, you are stuck in the same old methods they know without any clarity about how easy it is to use and integrate technology.

4. Conclusion

The results of this study indicate that there are 2 main factors that influence the acceptance of new technology in employees of UMKM "Jaya Gypsum", namely perceived ease of use and perceived usefulness. Although new technologies such as battery drills and scaffolding have been proven to increase productivity and efficiency, employees often cling to old tools because they feel more comfortable with them and have been doing things the old way for a long time. Workers also voice doubts about the immediate benefits of the new technology and believe that the tools require more training to use. The Technology Acceptance Model (TAM) theory suggests that perceived ease of use and perceived benefits are the two main factors that lead to technology adoption.

This research significantly adds to the literature addressing the factors that drive technology adoption in MSMEs in the plaster installation sector, which remains under-researched. The findings of this study can add value to the existing literature on MSMEs and can also help in some way in advising training, policy and technology meetings in MSMEs. This research is novel in that it is a sector-specific study, namely gypsum, which has its own technical challenges in implementing new technologies. MSMEs should look for new barriers to technology and use technology at the largest achievable cadre and with concentrated training and making people aware of the actual flexible services in using technology.

Nonetheless, this study also has limitations. The study was conducted in one MSME with four employees, so the results may not provide a complete picture for other MSMEs in the same sector, and so on. In addition, the short observation period is also another limiting factor in the comprehensive consideration of long-term technology adaptation. Future studies could include more MSMEs, both in the construction industry and in other industries, and how to tailor training programs to benefit technology adoption in MSMEs. Studies can be conducted on the socio-psychological and sociocultural determinants of technology acceptance by employees in the MSME sector.

Reference

[1] Keumala E, Zakiah Z, Safrida S. Identifikasi Adopsi E-commerce dan Pengaruhnya Terhadap Kinerja UMKM Pada Masa Pandemi Covid-19 (Studi Kasus: Kota Banda Aceh). J Ilm Mhs Pertan 2023;8:62–72. https://doi.org/10.17969/jimfp.v8i1.22820.

[2] Vanda D, Firsty E, Dachyar M. Analysis of Factors That Affect E-Commerce Technology Adoption for Msmes in Indonesia 2023:3755–64. https://doi.org/10.46254/an12.20220700.

[3] Trihastuti A, Pandin MYR, Ruskito TM, Mardiono VEP. Pendampingan Akuntansi Dan Teknologi Tepat Guna(TTG) Untuk UMKM Krupuk Pati Dusun Miru Desa Banyuurip Kecamatan Kedamean Kabupaten Gresik. Sasambo J Abdimas (Journal Community Serv 2023;5:713–20. https://doi.org/10.36312/sasambo.v5i4.1451.

[4] Ausat AMA, Astuti ES, Wilopo. Analysis Of Factors That Influence On E-Commerce Adoption And Their Impacts For Sme Performance In Subang District. J Teknol Inf Dan Ilmu Komput 2022;9:333–46. https://doi.org/10.25126/jtiik.202295422.

[5] Umami I, Che Pee AN Bin, Bin Sulaiman HA, Hariyanto, Mar'ati FS. A literature review of MSME success: Acceptance and use of technology, financial access, and strategic cooperation. Multidiscip Rev 2023;6. https://doi.org/10.31893/MULTIREV.2023SS086.

[6] Loo MK, Ramachandran S, Raja Yusof RN. Unleashing the potential: Enhancing technology adoption and innovation for micro, small and medium-sized enterprises (MSMEs). Cogent Econ Financ 2023;11. https://doi.org/10.1080/23322039.2023.2267748.

[7] Hendri AS, Sudarmilah E. Enhancing Information Technology Adoption Potential in MSMEs: a Conceptual Model Based on TOE Framework. JUITA J Inform 2024;12:91. https://doi.org/10.30595/juita.v12i1.21051.

[8] Zainab B, Awais Bhatti M, Alshagawi M. Factors affecting e-training adoption: an examination of perceived cost, computer self-efficacy and the technology acceptance model. Behav Inf Technol 2017;36:1261–73. https://doi.org/10.1080/0144929X.2017.1380703.

[9] Arpaci I. Antecedents and consequences of cloud computing adoption in education to achieve knowledge management. Comput Human Behav 2017;70:382–90. https://doi.org/10.1016/j.chb.2017.01.024.

[10] Zainab B, Bhatti MA, Pangil FB, Battour MM. E-training adoption in the nigerian civil service. Eur J Train Dev 2015;39:538–64. https://doi.org/10.1108/EJTD-11-2014-0077.

[11] Fatma Yulyana Fasa Nasution, Ima Amaliah. Analisis Minat UMKM Kota Bandung terhadap Model Penerimaan Teknologi E-Commerce. Bandung Conf Ser Econ Stud 2024;4:254–63. https://doi.org/10.29313/bcses.v4i1.11412.