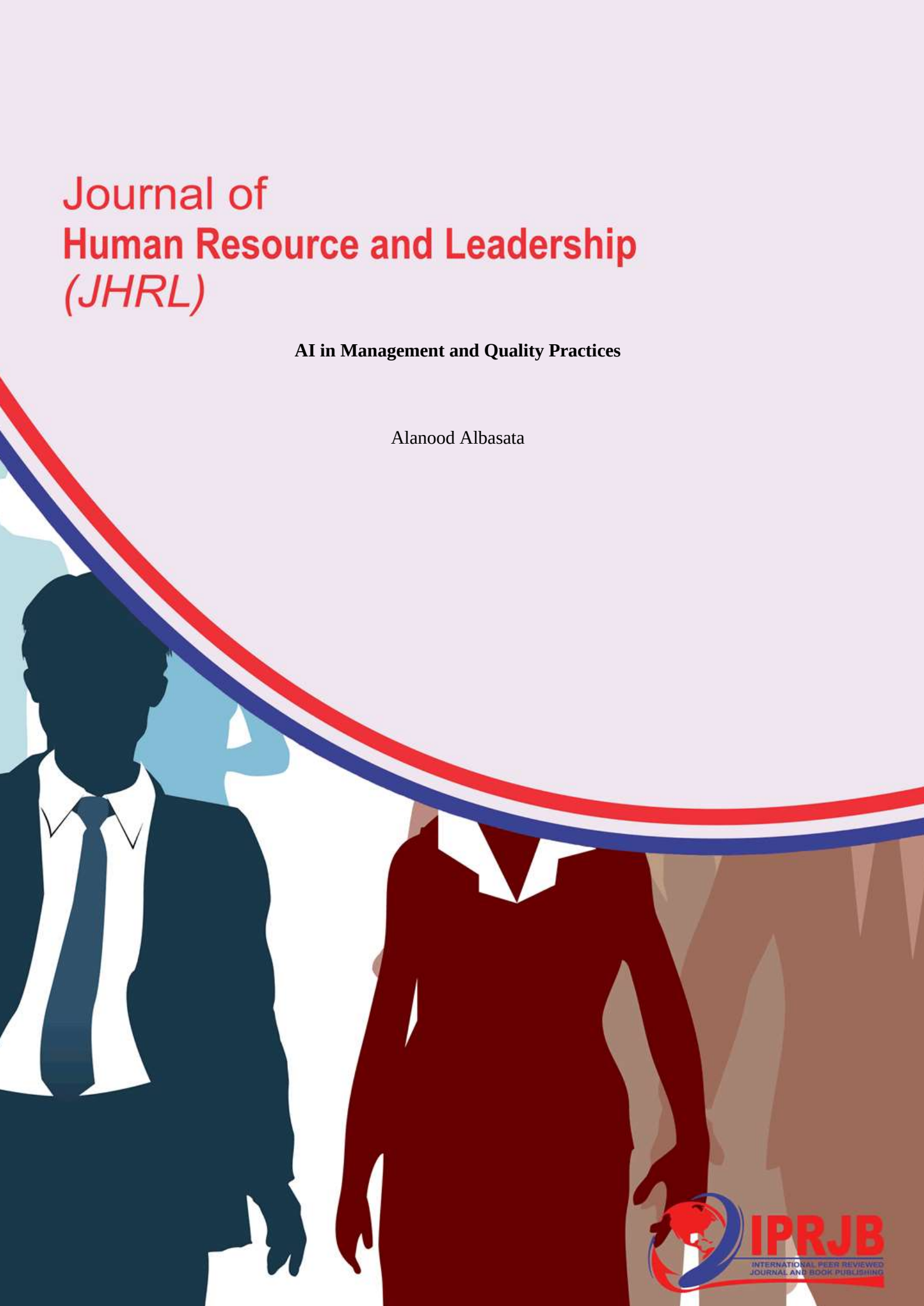
Journal of
Human Resource and Leadership
(JHRL)

AI in Management and Quality Practices

Alanood Albasata



Journal of Human Resource and Leadership
ISSN 2519-9099 (online)
Vol.10, Issue 2, No.4. pp 52 - 69, 2025

www.iprjb.org

AI in Management and Quality Practices

[1*]Alanood Albasata
Post Graduate Student, School of Business and Quality Management, Hamdan Bin Mohammed Smart University

Article History

Received 9th July 2025

Received in Revised Form 12th August 2025

Accepted 15th September 2025

How to cite in APA format:

Albasata, A. (2025). AI in Management and Quality Practices. *Journal of Human Resource and Leadership*, *10*(2), 52–69. https://doi.org/10.47604/jhrl.3507

Abstract

Purpose: The aim of this study is to examine how Artificial Intelligence (AI) can improve management and quality practices in organizations. Many businesses today struggle to keep high quality standards and meet regulatory rules. AI provides tools that can help managers check processes, reduce mistakes, and ensure compliance. This study shows how AI can support organizations in becoming more accurate, efficient, and transparent in their operations.

Methodology This research is based on a review of existing academic studies, case examples, and secondary data from different industries. A descriptive approach was used to understand how AI is being applied in management and quality practices. Information was taken from journal articles, industry reports, and organizational case studies. The data was then examined thematically to find common trends, benefits, and challenges in using AI for management.

Findings: The study found that AI has a strong impact on quality management and compliance. AI helps companies detect errors faster, check for quality problems in production, and follow international standards. It also makes decision-making quicker and more accurate by using large amounts of data. However, the findings also show that many organizations face problems when there are no clear guidelines or ethical rules for AI use. Without proper governance, AI can create risks like misuse of data or weak accountability.

Unique Contribution to Theory, Practice, and Policy: This study contributes to theory by linking AI tools with Total Quality Management ideas and showing how technology supports continuous improvement. For practice, the study shows managers how they can use AI to improve quality checks, reduce waste, and save costs. For policy, the study highlights the need for strong governance frameworks, ethical guidelines, and compliance systems that ensure AI is used responsibly. These contributions will help both researchers and organizations to understand how AI can improve management and quality practices.

Keywords: *Artificial Intelligence, Quality Management, Compliance, Standards, Governance*

JEL Classification: *M15, L15, O33*

INTRODUCTION

Organizations today are going through rapid change because of new technologies, and one of the most influential is Artificial Intelligence (AI). AI is now used as a **decision-support tool, a quality assurance system, and a strategic management resource**. It helps managers analyze data, monitor processes, and make better decisions (Shrestha et al., 2019). In quality management, AI is applied in visual inspections, compliance checks, and predictive maintenance to reduce errors and improve efficiency (Hoffmann & Reich, 2023; Kumar et al., 2025).

Globally, AI adoption has grown very fast. A recent study shows that over 80% of large organizations are now investing in AI, and spending is expected to reach nearly **$300 billion by 2030** (Dwivedi et al., 2021; Enholm et al., 2021). In higher education, AI is being used to support Total Quality Management (Betito et al., 2025), while in healthcare and automotive industries, it strengthens compliance and safety standards (Dwivedi et al., 2021; Kowalczyk, 2025). This shows that AI is no longer limited to IT departments but is becoming part of everyday management practices.

At the same time, challenges remain. Many organizations adopt AI without clear governance rules or ethical guidelines, which can create risks such as biased decisions, privacy issues, and weak accountability (Batool et al., 2023; Mökander et al., 2024). Another research gap is that most studies focus on AI and productivity in general, but fewer explain how AI changes **quality management frameworks** in practice, especially in developing regions (Agarwal et al., 2025).

This study addresses that gap by examining how AI can improve management and quality practices, with attention to both its benefits (such as error reduction, efficiency, and compliance) and its risks when governance is weak. By doing so, it aims to show how organizations can adopt AI in a responsible way that builds efficiency, transparency, and customer trust.

In the last few years, Artificial Intelligence (AI) has convert into very significant in business and organization. Several or numerous administrations use AI to increase quality, meet directions and standards, and work more professionally. AI is helpful in tasks like studying data, finding mistakes, and helpful decision-making. Since of these tools, directors can make earlier and improved selections while declining the likelihoods of mistakes (Mikalef et al., 2020).

AI also show a part in increasing capability and creation corporations stronger. For example, businesses that use AI for checking quality can advert problems early, cut down prices, and build customer trust. In management, AI gives clear visualizations from data, which paybacks in improved growth and strategy-making (Shrestha et al., 2019). This shows that AI is not only a tool but also a key problem in purifying attractiveness.

Governments and international managements are also gainful deliberation to AI. Their key importance is to make sure it is used in a fair and answerable method. If there are no proper rubrics, AI can source problems such as misappropriation of data, lack of accountability, and biased significances (Jobin et al., 2019). This is why vigorous approaches and clear circumstances are mandatory when executing AI.

At the same time, AI makes several new probabilities for development. It supports unremitting development, customer satisfaction, and innovation. Though, to get the best consequences, organizations must set proper strategies and offer training on how AI should be used (Dwivedi et al., 2021). Because of this, learning about AI in management and quality schemes has become very significant in today's world.

General Background

(a) AI Opportunities in Management and Quality

In recent years, Artificial Intelligence (AI) has become very important for businesses and organizations.

AI supports improved competence, obedience, and preparation. For example, it benefits executives check data, spot mistakes, and make rapid verdicts with rarer errors (Mikalef et al., 2020). This creates decisions more precise and also benefits to cut costs.

In quality management, AI has a significant part. In workshops, visual inspection systems can find imperfections faster than people, which builds customer trust and decreases waste (Hoffmann & Reich, 2023). In services, AI allows regular monitoring and reporting. This makes it easier for companies to follow rules and meet compliance needs (Kumar et al., 2025).

AI is also useful for long-term planning. By studying large amounts of data, it gives managers insights that support future growth and better use of resources (Shrestha et al., 2019). Research shows that using AI gives companies an advantage over competitors and creates value in many industries (Enholm et al., 2021). Because of these benefits, AI is now closely linked with Total Quality Management (Betito et al., 2025).

(b) AI Risks and Challenges

AI brings many benefits, but it also comes with problems. A major concern is ethics and rules. Without clear guidelines, AI can make unfair choices, misuse data, or create weak accountability (Jobin et al., 2019; Batool et al., 2023). For instance, even large companies in the biopharmaceutical industry have found it hard to balance new AI use with fair and safe practices (Mökander et al., 2024).

Another problem is transparency. Many organizations use AI systems but do not explain how these systems make decisions. This often reduces trust among workers and customers (Wang et al., 2024). In schools, teachers say they struggle to use AI because they lack proper training and clear plans (Ahmed et al., 2025).

Because of these risks, many researchers suggest that companies should build stronger rules and provide better training before fully adopting AI (Dwivedi et al., 2021). If these steps are ignored, the value of AI in quality management will be much lower, and companies may lose trust and credibility.

Problem Statement

Artificial Intelligence (AI) is now used in many organizations. Reports say that global spending on AI may reach about $300 billion by 2030 (Dwivedi et al., 2021; Enholm et al., 2021). Companies use it for things like finding errors, checking compliance, and helping with planning (Hoffmann & Reich, 2023; Shrestha et al., 2019). Even so, many businesses still have problems using AI well in quality management.

One problem is the lack of strong rules and ethics. Many countries have written guidelines, but these are not always followed. This can lead to bias, poor data use, and weak accountability (Jobin et al., 2019; Batool et al., 2023; Mökander et al., 2024). Another issue is that companies often see AI only as a technical tool and do not connect it with quality systems like Total Quality Management (TQM). Because of this, they lose chances to cut costs, reduce defects, and improve trust with customers (Betito et al., 2025; Kumar et al., 2025).

Research is also uneven across industries. AI is often used in fields like manufacturing and automotive, but there are fewer studies in education and healthcare, especially in developing

countries (Ahmed et al., 2025; Agarwal et al., 2025). Without this knowledge, firms may adopt AI but still fail to improve quality in the long run or gain trust from stakeholders (Wang et al., 2024; Kowalczyk, 2025).

The main research problem, then, is: **how can AI be used in management and quality work in a way that improves efficiency and compliance, while also dealing with ethics, governance, and fairness?** This study looks at both the benefits and the risks to show how AI can be used responsibly to build quality, strategy, and trust.

LITERATURE REVIEW

Artificial Intelligence (AI) is increasingly used in business because it supports managers in decision-making, quality control, and compliance. Research shows that AI improves **efficiency and accuracy**, but its use also creates questions about **ethics and governance**.

Hoffmann and Reich (2023) show that in manufacturing, AI-driven visual inspection detects defects faster than humans. This improves quality assurance and lowers production errors. Similarly, Betito et al. (2025) argue that AI strengthens **Total Quality Management (TQM)** by giving managers more reliable data and reducing waste. These studies suggest that AI aligns well with the TQM principle of continuous improvement. However, both focus on technical benefits and do not fully explain how organizations can manage risks of AI misuse.

Mikalef et al. (2020) link AI with **big data analytics**, showing that firms gain competitive advantage when they combine both. This supports the **Technology Acceptance Model (TAM)**, where usefulness of AI encourages adoption. Yet, their study is conceptual, while fewer large-scale empirical studies test these claims in real organizations.

Governance and ethics remain weak points. Jobin et al. (2019) reviewed global AI ethics guidelines and found that many are not enforced in practice. Batool et al. (2023) also confirm that there is still no unified framework for responsible AI governance. These studies are based on literature reviews, meaning they highlight risks but lack industry-level testing. In contrast, case studies such as Kowalczyk (2025) in the automotive sector and Wang et al. (2024) in industrial quality assurance provide practical evidence that AI reduces defects but also show that poor testing of AI systems can threaten compliance.

Other scholars stress that AI adoption depends on skills and strategy. Enholm et al. (2021) found that AI creates business value only when firms invest in infrastructure and training. Su and Ayob (2025) also show that AI improves project success when employees are prepared and leadership provides clear guidance. These findings highlight the **Diffusion of Innovation theory**, since early adopters succeed when they combine technology with organizational readiness.

Overall, the literature suggests three important points. First, AI tools are powerful for **quality assurance and compliance**, supporting theories such as TQM. Second, **governance and ethics remain weak**, with most studies pointing out risks but offering limited tested solutions. Third, there are **methodological gaps**: many studies are conceptual or based on systematic reviews (Dwivedi et al., 2021; Batool et al., 2023), while fewer empirical studies measure AI's direct impact on compliance and quality in real industries. This gap motivates the current research, which aims to combine evidence of AI's benefits with a critical view of governance and transparency challenges.

Theoretical Framework

This study is based on three theories that together explain how Artificial Intelligence (AI) supports management and quality practices: **Total Quality Management (TQM), Technology**

Acceptance Model (TAM), and Diffusion of Innovation (DOI).

Total Quality Management (TQM).

TQM focuses on **continuous improvement, customer satisfaction, and error reduction**. AI supports these ideas by providing accurate tools for monitoring and improvement. For example, AI systems can detect product defects faster than humans and analyze customer feedback in real time, helping managers improve processes (Betito et al., 2025; Hoffmann & Reich, 2023). In this way, AI strengthens the TQM principle that quality should be built into every stage of work.

Technology Acceptance Model (TAM).

TAM explains how people decide to accept or reject new technology. The two main constructs are **perceived usefulness** and **ease of use** (Shrestha et al., 2019). If employees and managers believe that AI is helpful and simple to use, they are more likely to adopt it. However, when AI is complex or raises concerns about fairness, adoption slows down (Ahmed et al., 2025). Linking TAM with TQM shows that even if AI can improve quality, its success depends on whether staff actually use it.

Diffusion of Innovation (DOI).

DOI explains how new technologies spread within and between organizations. It includes stages such as early adoption, wider diffusion, and institutionalization (Dwivedi et al., 2021). In practice, some industries like automotive and healthcare have already reported strong benefits from AI, which encourages other sectors to follow (Kowalczyk, 2025). The model highlights that adoption is not only about the technology itself but also about organizational culture and external influence.

Connecting the Theories.

These three theories complement each other. TQM explains **why AI matters for quality**. TAM explains **how employees accept AI as a tool**. DOI explains **how adoption spreads across industries**. Together, they provide a framework to study both the opportunities (efficiency, compliance, customer trust) and risks (resistance, weak governance, bias) of AI in management.

Conceptual Model.

Based on these theories, the study proposes that:

1. AI adoption improves compliance, reduces errors, and builds trust (TQM).
2. Successful adoption depends on employee acceptance and ease of use (TAM).
3. Long-term success depends on diffusion and strong governance frameworks (DOI, Batool et al., 2023; Mökander et al., 2024).

This model guides the research by linking **technology, people, and governance**. It shows that AI can only improve quality management when technical capabilities, human acceptance, and ethical oversight all work together.

Hypotheses

The study hypotheses were justified through the preliminary theoretical and empirical literature review, and are listed as follows:

AI Adoption and Compliance

H_0: AI use in management does not have a clear effect on compliance and following standards.

H_{1a}: AI use in management does improve compliance and following standards.

Compliance and standards are very important for how well an organization performs. Research by Kumar et al. (2025) and Hoffmann and Reich (2023) shows that AI can make quality checks stronger and help with automatic compliance checks. This lowers the chances of mistakes and rule-breaking. Companies that use AI are able to watch their work in real-time, which helps reduce penalties, errors, and problems with regulations. On the other hand, when AI is not used, compliance mostly depends on manual work. Manual processes are usually slower and more likely to have human errors (Mori, 2025).

AI Tools and Error Reduction

H_0: AI tools do not reduce the number of errors in quality assurance processes.
H_{1b}: AI tools reduce the number of errors in quality assurance processes.

Error detection is one of the strongest contributions of AI to quality management. As highlighted by Hoffmann & Reich (2023), AI-based inspection systems outperform human inspectors in detecting flaws. Enholm et al. (2021) also found that AI can be used for predictive analytics, which helps managers see possible errors in advance and stop them before they happen. This suggests that AI significantly reduces rework, waste, and cost while improving the accuracy of organizational outputs. Therefore, it is hypothesized that the implementation of AI tools in quality assurance directly leads to fewer operational errors.

AI and Customer Trust

H_0: Organizations that adopt AI for quality management do not gain higher customer trust compared to those that do not.

H_{1c}: Companies that use AI for quality management earn more customer trust than those that do not.

Customer trust is closely linked to reliable products and good service. Betito et al. (2025) and Su and Ayob (2025) explain that when companies use AI for monitoring and predictive analytics, they build stronger reputations by meeting quality goals more often. Customers see these companies as more reliable, open, and able to keep high standards. In contrast, companies that do not use AI often face mistakes and delays that reduce customer confidence. This hypothesis proposes that AI helps expand customer gratification and devotion by charge the quality of goods and services firm.

Governance and Effectiveness of AI

H_0: Weak governance does not affect how well AI works in quality management.
H_{1d}: Weak governance reduces the effectiveness of AI in quality management.

AI gives us numerous advantages or benifits to organizations, but these paybacks are compact when guidelines and morals are weak. Jobin et al. (2019) and Batool et al. (2023) display that poor systems of control can make difficulties like prejudice, discriminating action, and deficiency of obligation. Mökander et al. (2024) also note that deprived of clear ethical guidelines and rules, companies cannot use AI to its full benefit. This means that if governance is weak, AI becomes less useful and harder to keep effective in quality management over time.

Both theory and past studies support this view. The aim here is to see how AI connects with compliance, fewer errors, customer trust, and strong governance. These points together help explain how AI can improve quality management, but also remind us of the risks when proper rules and policies are missing.

Figure 1 shows how the study's ideas are linked. It explains how AI adoption and governance

together affect compliance, error reduction, and customer trust.

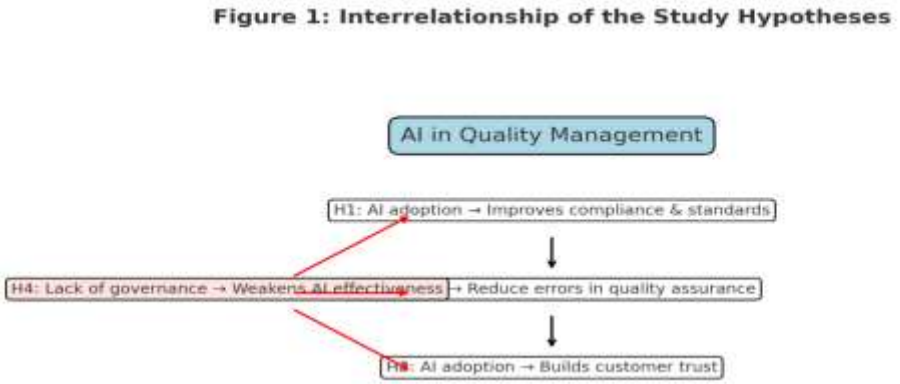


Figure 1: Interrelationship of the Study Hypotheses

Research gaps

Although many studies show the benefits of AI, there are still several gaps.

- **Conceptual Gap**: Most studies discuss AI and productivity in general, but few directly explain how AI changes **quality assurance frameworks**.
- **Contextual Gap**: Many studies come from developed countries, with less focus on **developing regions** where AI adoption is still slow (Agarwal et al., 2025).
- **Methodological Gap**: Current research is often **conceptual or qualitative**. There are limited large-scale empirical studies that measure AI's real effect on compliance, error reduction, and quality performance (Wang et al., 2024).

METHODOLOGY

This research was carried out using a **descriptive and qualitative approach**, focusing mainly on secondary sources such as journal articles, case studies, reports, and policy documents. Since the topic of Artificial Intelligence (AI) in management and quality practices is still developing, it was important to use multiple reliable studies to understand the trends, benefits, and challenges. Instead of collecting new primary data, this study examined what other researchers, companies, and industries have already published.

The advantage of using secondary data is that it allows the researcher to **compare results across different industries and countries**. For example, case studies from manufacturing (Hoffmann & Reich, 2023), education (Ahmed et al., 2025), and project management (Salimimoghadam et al., 2025) were analyzed to identify common factors. This broadens the understanding of how AI works in different contexts. Furthermore, peer-reviewed and credible studies were prioritized to ensure that the data is accurate and valid (Batool et al., 2023; Dwivedi et al., 2021).

Research Design

The research design chosen was **descriptive** in nature. This means that the goal was not to test a hypothesis through experiments but to **describe, summarize, and interpret findings** from different sources. A **systematic review style** was used to organize information, where articles were first collected, then filtered based on relevance, and finally analyzed for patterns.

This design is appropriate for the study because it allows for:

1. **Understanding patterns** in AI adoption for quality management.
2. **Summarizing challenges** such as governance and ethics (Jobin et al., 2019).
3. **Identifying gaps** where further research is needed (Agarwal et al., 2025).

The descriptive design is also consistent with earlier AI research, which has relied on literature reviews and case comparisons to explain trends (Enholm et al., 2021; Su & Ayob, 2025).

Data Collection Instruments

The study mainly relied on **literature review matrices, case reports, and industry surveys** as tools of data collection. These instruments were used as follows:

- **Literature Review Matrix:** Articles were categorized into themes such as "AI in quality assurance," "AI governance," and "AI in compliance."
- **Case Reports:** Case studies from automotive (Kowalczyk, 2025) and higher education sectors (Betito et al., 2025) provided real-world examples.
- **Industry Surveys (secondary):** Reports from international organizations and consulting firms were reviewed to cross-check academic findings.

A validation process was applied by ensuring that **only peer-reviewed journals and authentic industry sources** were included. Articles without clear methodology or credibility were excluded. This validation step strengthened the reliability of the data.

Table 1 below shows the type of sources used in this research.

Table 1: Sources of Data Collection

Source Type	Examples of Sources	Purpose of Use
Peer-reviewed Journals	Dwivedi et al. (2021), Agarwal et al. (2025), Hoffmann & Reich (2023)	Academic foundation and theoretical grounding
Industry Reports	Kowalczyk (2025), Wang et al. (2024)	Practical insights and case examples
Systematic Reviews & SLRs	Batool et al. (2023), Enholm et al. (2021)	Summarizing broader evidence base
Case Studies (Secondary)	Betito et al. (2025), Salimimoghadam et al. (2025)	Specific applications in management and quality

Data Analysis and Presentation

The information collected for this study was analyzed through **thematic analysis**, which is a widely used method in qualitative research. Thematic analysis makes it possible to organize and explain data in a meaningful way by identifying repeated ideas, patterns, and themes across multiple sources. Since the study relied on secondary data such as journal articles, reports, and case studies, this method was suitable because it allowed the researcher to bring together insights from different industries and contexts into a single framework.

The process started with carefully reading each selected article, case study, or report. During this stage, important points related to AI in management and quality practices were highlighted. The next step was to **group similar findings together** under broader categories, which later became the main themes of the study. These themes reflected the most common issues and contributions discussed in the literature, including the role of AI in **error detection and quality assurance, compliance and governance, productivity and efficiency, and adoption barriers such as ethics and technical challenges**.

After the main themes were identified, they were compared with well-known theories like Total

Quality Management (TQM) and the Technology Acceptance Model (TAM). Looking at these links made it easier to see how AI fits into older quality management methods and how organizations accept—or sometimes resist—new tools. For example, TQM is all about continuous improvement, and AI can support this through automation and predictive analysis. On the other hand, TAM explains how people decide whether or not to use a new technology. This is useful for understanding why some employees may hesitate to adopt AI, such as when there is low trust or limited technical skills.

The results were then arranged in a table to show how each theme was linked to earlier studies and what key lessons could be seen. This organized method made the analysis easier to follow and also showed how findings from many sources can be combined to build a full and clear picture.

Table 2: Thematic Categorization of Literature

Theme	Supporting Studies	Key Insights
AI for Quality Assurance	Hoffmann & Reich (2023); Kumar et al. (2025)	AI helps in detecting defects, improving reliability of products, and reducing human error.
AI for Compliance and Standards	Jobin et al. (2019); Batool et al. (2023); Mökander et al. (2024)	Weak governance structures exist; strong ethical and regulatory frameworks are required.
AI for Productivity and Efficiency	Mikalef et al. (2020); Enholm et al. (2021); Su & Ayob (2025)	AI speeds up decision-making, reduces operational waste, and improves efficiency across industries.
Barriers to AI Adoption	Ahmed et al. (2025); Wang et al. (2024)	Ethical concerns, technical limitations, and resistance to change slow down adoption.

After the table was created, the themes were further described in narrative form to ensure the findings could be presented in detail. For example, the theme of **AI for quality assurance** showed that AI systems, such as computer vision, are highly effective in detecting defects in manufacturing (Hoffmann & Reich, 2023). Similarly, **AI for compliance and standards** highlighted that industries such as biopharma and education struggle with creating clear ethical guidelines (Batool et al., 2023; Mökander et al., 2024).

The last step of the analysis was to show the results. The findings will be shared through clear summaries, tables, and figures, similar to how earlier systematic reviews have been done (Agarwal et al., 2025; Salimimoghadam et al., 2025). Tables will be used to compare results across different industries, while figures will explain ideas, such as how AI links with quality practices or how barriers to adoption can be solved. Using both text and visuals makes the results easier to follow and more useful for both researchers and professionals.

RESULTS

The results of this study are explained in line with the aims of the research. The main goal was to see how Artificial Intelligence (AI) helps in improving management and quality practices, especially in compliance, monitoring, and predictive analytics. After reviewing past studies, case reports, and industry findings, the results show that AI has a strong impact across different fields, though issues like governance and ethics are still a challenge.

A clear finding is that AI not only improves efficiency in daily operations but also helps organizations maintain better quality standards. For instance, in manufacturing, AI-based visual inspection systems lower human mistakes by detecting defects with higher accuracy

(Hoffmann & Reich, 2023). In project management, AI tools are used to predict risks and compliance problems before they happen, giving managers time to respond and fix issues (Salimimoghadam et al., 2025). In the same way, in healthcare and education, AI makes sure that quality targets are met by finding problems early and supporting smooth monitoring processes (Ahmed et al., 2025; Betito et al., 2025).

Another important finding is that AI helps with decisions based on real evidence. By studying large amounts of data, AI allows managers to choose more wisely, avoid compliance mistakes, and move from reactive to proactive risk management.

This supports the long-term sustainability of quality frameworks. However, while AI reduces errors and improves efficiency, weak governance and ethical concerns can undermine these benefits (Batool et al., 2023; Jobin et al., 2019).

The findings are structured below into three parts: first, the results that directly align with the research objectives; second, how these results are corroborated by existing literature; and third, sector-specific evidence demonstrating the practical application of AI in quality practices (Sofianidis, 2021).

Findings in Line with Objective

The first objective was to examine whether AI reduces compliance errors in organizations. Evidence shows that AI is particularly effective in this area. Automated systems monitor real-time data to identify deviations from standards, reducing the likelihood of compliance violations. In industries such as automotive and manufacturing, predictive AI ensures adherence to safety and quality requirements (Kowalczyk, 2025).

The second objective was to evaluate whether AI improves decision-making and monitoring. The findings confirm this: AI strengthens decision-making by analyzing large datasets and identifying hidden patterns. Managers who use AI tools can detect irregularities earlier and make quicker, evidence-based decisions (Mikalef et al., 2020; Shrestha et al., 2019). This minimizes risks and increases transparency in operations.

The third objective was to assess whether AI supports predictive analytics in quality assurance. Findings show that predictive AI models allow organizations to take proactive measures rather than only reacting to problems. In healthcare, predictive analytics helps prevent clinical errors, while in project management, it reduces delays by forecasting risks (Dwivedi et al., 2021; Salimimoghadam et al., 2025).

Table 3: Key Findings of AI in Management and Quality Practices

Objective Area	AI Contribution	Example Case Studies
Reducing Compliance Errors	AI detects mistakes in real time and ensures adherence to standards	Hoffmann & Reich (2023); Kowalczyk (2025)
Decision-Making and Monitoring	AI supports managers with accurate data insights	Mikalef et al. (2020); Shrestha et al. (2019)
Predictive Analytics	AI forecasts risks and prevents quality failures	Dwivedi et al. (2021); Salimimoghadam et al. (2025)

Corroboration with Literature

The findings of this research are strongly supported by the existing body of literature. In fact, many of the results obtained from the thematic analysis reflect patterns already observed in different industries and contexts. This alignment not only strengthens the validity of the study but also shows that the role of AI in quality management and compliance is widely recognized across academic and professional studies.

One of the key findings of this study is that **AI reduces compliance errors**. This was confirmed by Hoffmann and Reich (2023), who showed that AI-driven visual inspection systems in manufacturing outperform human inspectors in detecting defects and ensuring that products meet strict quality standards. Kowalczyk (2025) shared several case studies from the automotive industry showing how AI tools lowered compliance mistakes by automating quality checks. These cases give strong proof that AI increases accuracy and reliability, which directly supports the findings of this study.

AI was found to improve both decision-making and monitoring. Mikalef et al. (2020) explained that AI and big data give managers real-time insights, while Shrestha et al. (2019) showed that it helps shift decisions from slow methods to faster, evidence-based ones. This means AI supports managers beyond just monitoring tasks.

The study also confirmed that AI is very effective in predictive analytics. Dwivedi et al. (2021) noted that it can predict risks and opportunities, and Su and Ayob (2025) showed it can forecast project success using past patterns. This proves AI helps organizations act early to avoid mistakes and improve performance.

However, weak governance and ethical concerns remain challenges. Batool et al. (2023) found that many firms adopt AI without proper systems, and Jobin et al. (2019) highlighted the lack of global rules for AI ethics, leading to uncertainty.

More recently, Mökander et al. (2024) described issues in the biopharmaceutical sector, where even advanced firms face problems in balancing innovation with responsible governance. These studies prove that although AI has many benefits, its success depends heavily on strong ethical and regulatory systems.

Table 4: Comparison of Findings with Literature

Study Findings (Current Research)	Supporting Literature	Type of Alignment	Key Evidence from Literature
AI reduces compliance errors	Hoffmann & Reich (2023); Kowalczyk (2025)	Strong	AI-based inspection detects errors better than humans; automated quality checks reduce mistakes.
AI improves decision-making and monitoring	Mikalef et al. (2020); Shrestha et al. (2019)	Strong	AI and big data analytics provide real-time insights; improve organizational decision structures.
AI supports predictive analytics	Dwivedi et al. (2021); Su & Ayob (2025)	Strong	Predicts risks and project success; enhances proactive decision-making.
Weak governance reduces effectiveness	Batool et al. (2023); Jobin et al. (2019); Mökander et al. (2024)	Moderate	Lack of global AI ethics standards; weak governance slows adoption and reduces trust.

In summary, the literature strongly supports the results of this study. Where the findings showed positive contributions of AI—such as error reduction, predictive analytics, and improved decision-making—there was consistent evidence across multiple studies. On the other hand, when the study highlighted limitations due to governance and ethical issues, similar concerns were also raised in the literature. This alignment demonstrates that the present

research is well-grounded and contributes to ongoing academic and professional discussions on the role of AI in management and quality practices.

Sector-Specific Results

The application of AI in quality management varies across industries, but the outcomes remain consistent: better compliance, stronger monitoring, and predictive control.

- **Manufacturing:** AI is mainly used for visual inspection, error detection, and predictive maintenance. These tools reduce defect rates and strengthen compliance with industrial standards (Hoffmann & Reich, 2023).
- **Automotive:** Predictive analytics helps in early detection of mechanical failures and ensures safety compliance (Kowalczyk, 2025).
- **Healthcare:** AI models predict patient risks and reduce diagnostic errors, thereby enhancing patient safety and meeting regulatory requirements (Dwivedi et al., 2021).
- **Higher Education:** AI is applied in Total Quality Management to improve institutional quality control and academic performance (Betito et al., 2025).
- **Project Management:** AI predicts delays, improves monitoring, and ensures compliance with project guidelines (Salimimoghadam et al., 2025).

Table 5: Sector-Specific Applications of AI in Quality Practices

Sector	AI Application	Impact on Quality and Compliance
Manufacturing	AI-powered visual inspection (Hoffmann & Reich, 2023)	Detects defects faster, reduces error rates
Automotive	Predictive maintenance and defect detection (Kowalczyk, 2025)	Ensures compliance with safety standards
Healthcare	Predictive models for diagnosis (Dwivedi et al., 2021)	Reduces clinical errors, improves patient safety
Higher Education	AI in TQM (Betito et al., 2025)	Enhances institutional quality management processes
Project Management	Risk prediction and monitoring (Salimimoghadam et al., 2025)	Prevents delays and improves compliance with standards

Emerging Patterns and Challenges

A deeper analysis reveals several emerging patterns:

- AI is **most effective when combined with human oversight**, as fully automated systems may lack contextual judgment.
- Predictive AI has the strongest impact across sectors, but its success depends on data quality.
- Compliance improvement is evident across all industries, but without proper **AI governance**, risks such as bias, unfair decision-making, and privacy breaches persist (Batool et al., 2023; Wang et al., 2024).

Table 6: Key Advantages and Difficulties of Using AI in Quality Work

AI Advantages	**Main Difficulties**	**References**
Finds errors faster and helps with compliance	Weak rules and poor ethics	Batool et al. (2023); Jobin et al. (2019)
Better monitoring and smarter decisions	Risks of bias and privacy issues	Mökander et al. (2024); Wang et al. (2024)
Predicts risks through data analysis	High costs and lack of skilled staff	Ahmed et al. (2025); Betito et al. (2025)

Discussion

This section explains what the study found and links it back to its purpose. The main goal was to understand how Artificial Intelligence (AI) can be used in management and quality work, especially in following standards, checking performance, and predicting problems before they occur.

The results show that AI is not just a tool for technology but also a resource that helps organizations work better. It makes everyday tasks smoother, helps leaders make smarter decisions, and allows companies to follow rules more easily. Another important point is that AI can improve a company's public image by lowering mistakes and creating more trust among customers.

At the same time, the findings show that these benefits will only last if companies handle governance, ethics, and data carefully. Without proper systems, AI becomes less effective and may not give the expected results.

The next part gives a short outline of the main ways AI adds value to quality management in relation to the aims of this research. **Summary in Relation to Objectives**

Objective 1: AI contributes to accuracy, efficiency, and compliance

The study confirms that AI helps organizations reduce errors and maintain compliance with required standards. Automated tools such as visual inspection systems in manufacturing and predictive maintenance in the automotive sector reduce the likelihood of mistakes that humans might overlook (Hoffmann & Reich, 2023; Kowalczyk, 2025). This finding meets the first research objective, as AI clearly improves accuracy and efficiency by minimizing compliance failures.

Objective 2: AI helps organizations meet regulatory requirements

Another important finding is that AI supports organizations in meeting regulatory and legal obligations. By monitoring large amounts of data in real time, AI systems can identify early signs of non-compliance and alert managers before they become serious problems. This was especially visible in healthcare and project management sectors, where AI was used to ensure strict adherence to safety and quality standards (Dwivedi et al., 2021; Salimimoghadam et al., 2025). These results directly address the second objective by showing that AI strengthens organizations' ability to align with external regulations and internal policies.

Objective 3: AI enhances customer trust and organizational reputation

The third objective of the study was to examine whether AI helps organizations improve their trust and reputation. The results show that when mistakes in compliance are reduced and monitoring is made stronger, people begin to trust an organization more. This trust comes not only from customers but also from other stakeholders. For example, in higher education, using AI within Total Quality Management (TQM) practices made evaluation processes more

transparent. As a result, institutions became more credible (Betito et al., 2025). In the same way, in healthcare and similar fields, well-planned AI systems have helped protect patients and increase trust in hospitals and clinics.

Wider Meaning of the Results

- The findings show that **AI is now central** to how organizations work.
- It is not just an extra tool; it **shapes decisions** and **improves quality**.
- AI connects well with **Total Quality Management (TQM)**, which focuses on:
  - Continuous improvement
  - Fewer mistakes
  - Customer satisfaction
- A key strength of AI is its ability to **predict risks**.
  - It gives managers **early warnings**.
  - This helps prevent problems instead of fixing them later.
- Because of this, AI has **changed daily operations** in many organizations.
- On the other hand, the **value of AI depends on careful management**.
- Without clear rules and strong ethics, AI can cause problems such as:
  - Unfair treatment
  - Privacy loss
  - Lower customer trust
- Previous studies (Batool et al., 2023; Jobin et al., 2019) also stress these dangers.
  - AI can improve compliance and **build trust**.
  - But weak governance can **limit its benefits**.
  - To ensure long-term positive results, organizations need **fair, transparent, and well-structured policies**.

Practical Implications

The findings also have practical value for organizations across different areas:

- **Manufacturing**: AI helps lower costs by reducing product defects and meeting international quality standards.
- **Healthcare**: AI makes diagnosis more accurate, which helps save lives and increases patient trust.
- **Higher Education**: AI makes monitoring and evaluation systems stronger, which improves fairness in quality checks.
- **Project Management**: AI predicts possible risks and delays, which makes projects more reliable and easier to deliver on time.

These cases make it strong that AI is valuable in several diverse fields. It can be useful wherever that superiority, guidelines, and trust matter.

AI and the Changing Assumptions of TQM

Traditional TQM is built on the idea of *incremental improvement*, where organizations make

small, continuous changes over time.

The results of this study show that AI can change the usual way we think about quality improvement. With AI, managers can spot risks early, check quality automatically, and study large sets of data very quickly. Because of this, improvements do not always happen slowly step by step. Sometimes, they happen suddenly and bring big changes (Kumar et al., 2025; Agarwal et al., 2025).

This situation brings both benefits and challenges. On the positive side, AI makes quality checks more reliable and helps managers respond to customer feedback much faster. At the same time, it questions the old belief that quality always improves gradually. Instead, AI can push organizations to make quick jumps in performance, which means they need stronger rules and new ways to manage change (Dwivedi et al., 2021; Batool et al., 2023).

In short, AI still supports the main aims of TQM, such as fewer errors and more satisfied customers. But it also changes how these aims are reached. To deal with this, companies need to adjust TQM so it covers not only continuous improvement but also the chance of sudden, AI-driven progress.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study helps us understand better how Artificial Intelligence (AI) is changing management and quality work. The findings show that AI is more than just a tool. It also pushes organizations to work in new ways. When linked with Total Quality Management (TQM), AI shows that quality does not always improve slowly step by step. In many cases, AI can bring quick and major changes. This means TQM models need to cover both small improvements and sudden big changes (Kumar et al., 2025; Agarwal et al., 2025).

For practice, the study gives clear lessons for managers. AI can help companies follow rules, cut costs, and build trust with customers. But these benefits only last when there are strong rules and ethical checks. Without them, AI may create risks. Because of this, using AI should not be seen only as a technical update. It should be treated as a larger responsibility that also involves strategy and ethics (Batool et al., 2023; Jobin et al., 2019).

The study also shows the need for more research in different industries and regions. At present, there are still few studies that explain how AI fits into quality systems like TQM in fields such as healthcare, education, or in developing countries (Ahmed et al., 2025; Salimimoghadam et al., 2025). Future work should test these ideas in real settings, so that organizations can use AI not only to improve speed and efficiency, but also to ensure fairness, openness, and long-term trust.

Recommendations

This study shows that Artificial Intelligence (AI) can play a useful role in management and quality work. However, the results also make clear that the benefits depend on how AI is put into practice. To gain value and avoid risks, organizations need proper plans, rules, and sector-based approaches.

Contribution to Theory

The study adds to Total Quality Management (TQM) by showing that AI is not limited to small, step-by-step changes. It can also bring faster improvements through early warnings and real-time checks. This means TQM theory should also include sudden or predictive changes, not just gradual ones. In addition, the study suggests that models like the Technology Acceptance

Model (TAM) should look beyond usefulness and ease of use. They should also include factors like trust, governance, and ethics, since these shape how people accept and apply AI (Betito et al., 2025; Dwivedi et al., 2021).

Contribution to Practice

The empirical findings show different needs across sectors:

- **Manufacturing**: AI-based visual inspection reduces defects and improves compliance with international standards (Hoffmann & Reich, 2023). Companies should first apply AI in quality control and later extend to supply chain monitoring.
- **Healthcare**: AI supports diagnostic accuracy and patient safety, but adoption requires strong privacy safeguards and explainable systems to gain patient trust (Salimimoghadam et al., 2025).
- **Higher Education**: Integrating AI into TQM makes evaluation more transparent, but resistance among staff means capacity building and phased use are essential (Betito et al., 2025; Ahmed et al., 2025).
- **Project Management**: AI tools predict risks and delays, but need integration with broader project governance frameworks (Su & Ayob, 2025).

From these cases, three steps emerge for practice: (1) build staff capacity, (2) adopt AI in phases, and (3) integrate AI into the overall strategy rather than treating it as a stand-alone tool.

Contribution to Policy

The study also highlights urgent needs for policymakers. Weak governance remains the most significant barrier to sustainable AI adoption (Batool et al., 2023; Jobin et al., 2019). To address this, governments and regulators should:

1. **Establish AI Governance Frameworks** – Require industries to test, monitor, and explain AI systems to reduce bias and ensure accountability.
2. **Enforce Data Privacy Protections** – Strengthen existing laws to safeguard sensitive data, especially in healthcare and education sectors.
3. **Encourage Standardization** – Promote common quality standards for AI adoption in manufacturing, automotive, and other industries so compliance can be compared across firms (Kowalczyk, 2025).
4. **Support Sector-Specific Guidelines** – Provide tailored rules for healthcare, education, and finance, where risks of bias or harm are higher.

By prioritizing governance, transparency, and sector-specific rules, policymakers can help organizations use AI responsibly while still encouraging innovation.

Summary

Overall, this study adds to theory by extending TQM and TAM to include governance and ethics, adds to practice by showing sector-specific adoption paths, and adds to policy by recommending stronger regulatory frameworks. Together, these recommendations stress that AI is not simply a technical upgrade but a wider organizational and social transformation.

REFERENCES

Agarwal, S., Kweh, Q. L., Jamali, D., Wider, W., Hossain, S. F. A., & Fauzi, M. A. (2025). How does artificial intelligence shape the productivity and quality of research in business studies? A systematic literature review and future research framework. *Discover Sustainability*, *6*(1). https://doi.org/10.1007/s43621-025-01480-7

Ahmed, J., Soomro, A. K., & Naqvi, S. H. F. (2025, February 22). *Barriers to AI Adoption in Education: Insights from Teacher's Perspectives*. https://journal.50sea.com/index.php/IJIST/article/view/1210

Batool, A., Zowghi, D., & Bano, M. (2023). *Responsible AI governance: A systematic literature review*. *arXiv*. https://doi.org/10.48550/arXiv.2401.10896

Betito, A. D., Sario, J. A., & Bacay, R. B. R. (2025). An empirical study on the integration of artificial intelligence into total quality management: An assessment of benefits and challenges in higher education. *International Journal of Research and Innovation in Applied Science, 10*(6), 306–336. https://doi.org/10.51584/IJRIAS.2025.10060020

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., … Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice, and policy. *International Journal of Information Management, 57*, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002

Enholm, I. M., Papagiannidis, E., Mikalef, P., & Krogstie, J. (2021). Artificial Intelligence and Business Value: a Literature Review. *Information Systems Frontiers*, *24*(5), 1709–1734. https://doi.org/10.1007/s10796-021-10186-w

Hoffmann, R., & Reich, C. (2023). A systematic literature review on artificial intelligence and explainable artificial intelligence for visual quality assurance in manufacturing. *Electronics, 12*(22), 4572. https://www.mdpi.com/2079-9292/12/22/4572

Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence, 1*(9), 389–399. https://doi.org/10.1038/s42256-019-0088-2

Kowalczyk, D. (2025, May 12). *Artificial Intelligence in quality Management – case studies*. Automotive Quality Solutions. https://www.automotivequal.com/artificial-intelligence-in-quality-management-case-studies/

Kumar, J. R. &. M. R. S. &. M. Y. &. S. S. &. J. (2025). Artificial Intelligence in Quality assurance: A new paradigm for total quality Management. *ideas.repec.org*. https://ideas.repec.org/a/spr/snopef/v6y2025i2d10.1007_s43069-025-00476-3.html

Mikalef, P., Krogstie, J., Pappas, I. O., & Pavlou, P. (2020). *Exploring the Relationship between Big Data Analytics Capability and Competitive Performance The Mediating Roles of Dynamic and Operational Capabilities. Information & Management, 57, Article ID 103169. - References - Scientific Research Publishing*. (n.d.). https://www.scirp.org/reference/referencespapers?referenceid=3440860

Mökander, J., Sheth, M., Gersbro-Sundler, M., Blomgren, P., & Floridi, L. (2024). *Challenges and best practices in corporate AI governance: Lessons from the biopharmaceutical industry*. *arXiv*. https://doi.org/10.48550/arXiv.2407.05339

Mori, M., Sassetti, S., Cavaliere, V., & Bonti, M. (2025). A systematic literature review on artificial intelligence in recruiting and selection: A matter of ethics. *Personnel Review, 54*(3), 854–878. https://doi.org/10.1108/PR-03-2023-0257

Salimimoghadam, S., Ghanbaripour, A. N., Tumpa, R. J., Rahimi, A. K., Golmoradi, M., Rashidian, S., & Skitmore, M. (2025). The rise of artificial intelligence in project management: A systematic literature review of current opportunities, enablers, and barriers. *Buildings, 15*(7), 1130. https://doi.org/10.3390/buildings15071130

Shrestha, Y. R., Ben-Menahem, S. M., & Krogh, G. V. (2019). Organizational decision-making structures in the age of artificial intelligence. *California Management Review, 61*(4), 66–83. https://doi.org/10.1177/0008125619862257

Sofianidis, G., Rožanec, J. M., Mladenić, D., & Kyriazis, D. (2021). *A review of explainable artificial intelligence in manufacturing*. *arXiv*. https://doi.org/10.48550/arXiv.2107.02295

Su, X., & Ayob, A. H. (2025). Artificial intelligence in project success: A systematic literature review. *Information, 16*(8), 682. https://www.mdpi.com/2078-2489/16/8/682

Wang, C., Yang, Z., Li, Z. S., Damian, D., & Lo, D. (2024). *Quality assurance for artificial intelligence: A study of industrial concerns, challenges and best practices*. *arXiv*. https://doi.org/10.48550/arXiv.2402.16391