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The Impact of Perceived Usefulness and Ease of Use of AI on AI Ethics Maturity Level: Evidence from Iran & Pakistan ICT Sector

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RESEARCH ARTICLE

The Impact of Perceived Usefulness and Ease of Use of AI on AI Ethics Maturity Level: Evidence from Iran & Pakistan ICT Sector

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Abstract

This study investigates the relationships between Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and AI Ethics Maturity (AIE) within the two groups selected from ICT sectors in emerging markets, specifically Pakistan and Iran. By utilizing a survey-based quantitative approach, the research explores how these factors influence the ethical adoption of AI technologies in the selected groups. A total of 206 respondents (103 from each group) participated, and data were analyzed using descriptive statistics, reliability analysis, correlation analysis, and regression models. The findings reveal a statistically significant positive relationship between PEOU and AIE, suggesting that easier-to-use AI systems contribute to enhanced ethical maturity. However, AI's perceived usefulness (PU) was not significantly correlated with AIE, highlighting that perceived utility alone does not drive ethical AI adoption. Additionally, a strong positive correlation was found between PEOU and PU. These findings underline the importance of user-friendly AI systems in promoting ethical AI practices while indicating that organizational and cultural factors may also play a pivotal role in shaping AI ethics maturity. This study contributes to the growing body of literature on AI ethics in emerging markets and provides valuable insights for policymakers and practitioners aiming to enhance AI adoption and governance.

Keywords: Artificial Intelligence, AI Ethics, AI Ethics Maturity, Perceived Usefulness, Perceived Ease of Use, ICT Sector

Introduction

Artificial intelligence (AI) involves the development of computer systems that can perform tasks that often require human intelligence, such as speech recognition, visual perception, decision-making, and

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language translation (Garg, 2021; Kaur et al., 2022). Emerging as one of the most transformative technologies of the 21st century, it has reshaped industries, economies, and societies, and has led to major revolutions in businesses worldwide through innovations in automation, data management, and decision-making (Brynjolfsson and McAfee, 2014; Davenport and Ronanki, 2018). It consists of several subfields, including machine learning (ML), deep learning (DL), natural language processing (NLP), robotics, neural networks, and algorithms. All of these enhance a machine's ability to perform human tasks autonomously (Samoili et al., 2020; Abioye et al., 2021).

In recent years, AI has become a transformative force in many industries such as healthcare, education, transportation, agriculture, and information and communications technology (ICT), revolutionizing the way these industries operate by enabling automation, improving decision-making processes, and increasing efficiency (Dwivedi et al., 2021). The ICT sector, in particular, has witnessed significant advancements through the integration of AI, enabling innovations in data management, network optimization, and communication services. The use of AI in the ICT sector has emerged as a key driver of innovations and improvements. Such organizations are in a position to handle the depression of resources, and large amounts of data, and deliver personalized user interactions. Some of the most influential are predictive analysis, natural language understanding, automated customer support, and efficient network management as all enhance the delivery of services and client satisfaction (Dwivedi et al., 2021).

Nevertheless, it is not only the responsibility to be technologically innovative that is required for AI use in ICT and other sectors within these regions, ethical responsibility is also crucial. Kalenzi (2022) insists that the adoption of AI within the ICT sector should take into account trust, transparency, and accountability challenges so that the technology is effective for all sectors of society while its harmful effects are limited to the smallest possible level.

Despite developed countries being ahead in the application of AI, developing countries like Iran and Pakistan are not left behind as they are improving their socio-economic and operation conditions by utilizing AI to improve the quality-of-service delivery, close the gap of the digital divide, and enhance the competitiveness in the global market (World Bank, 2025). Certain barriers exist within organizations in these regions, such as ineffective regulatory systems, diverse workforce capabilities, and cultural dynamics, which retard the deployment of AI technologies. Even these challenges are aggravated by poor infrastructure and the absence of well-defined governance frameworks (Sharma et al., 2022; Mhlanga, 2021; Daneshjou et al., 2021). This increasing dependency on AI integrates AI

more into the embedded systems in the society and economy; therefore, there is a growing focus on AI ethics.

Global responses on the subject matter have been from developed countries; however, evidence shows that little has been contributed by developing countries which require them to find solutions to the subject of AI ethics (Floridi, 2019). In the same context, Jobin et al. (2019) highlight a significant geographic disparity in AI ethics guidelines, with developed countries like the USA, UK, and Japan at the top of the statistics while developing countries, including Iran and Pakistan, are remarkably underrepresented. To measure how well organizations integrate ethical AI principles like fairness, transparency, privacy, and accountability into their practice and operation of the AI technology, AI ethics maturity frameworks, including the Open Ethics Maturity Model (OEMM) by the Open Ethics Initiative and Krijger et al.'s (2022) AI Ethics Maturity Framework were developed. These models provide structured approaches to embedding ethical considerations into AI processes, from transparency to governance.

This study aims to investigate the role of perceived usefulness (PU) and perceived ease of use (PEOU) as included in the Technology Acceptance Model (TAM) and the AI ethics maturity (AIEM) in ICT sectors in emerging markets that share socio-cultural characteristics.

1. Literature Review

1.1. Artificial Intelligence and Ethics

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to perform tasks requiring cognitive functions such as learning, reasoning, and decision-making. AI has evolved into a transformative technology, impacting various domains including healthcare, finance, education, and governance (Russell & Norvig, 2021). Broadly categorized into narrow AI, which specializes in specific tasks, and general AI, which aspires to replicate human intelligence, the field has witnessed exponential growth due to advances in computational power, data availability, and algorithmic innovation (Goodfellow et al., 2016).

With the increased adoption of AI in businesses and industries, ensuring the alignment of technology with societal values and human rights is imperative. Ethical principles, like fairness, accountability, transparency, and privacy, provide a framework for labeling the challenges brought to our aggressively AI-driven world (Floridi et al., 2018; Jobin et al., 2019). Algorithmic bias, data privacy, and accountability in decision-making are some of the fundamental issues that ethical AI must address to warrant the advantages of AI utilization are maximized while its drawbacks are minimized (Floridi et

al., 2018). Organizations are playing essential roles in this process by effectively embedding ethical practices and guidelines into their policies (Bankins & Formosa, 2023). Several frameworks were developed to guide organizations towards the adoption and operationalizing of ethical AI. The AI4People's ethical framework by Floridi et al. (2018) provides a set of principles for a good AI society including beneficence, non-maleficence, autonomy, justice, and explicability. Similarly, Hagendorff (2020) highlights the importance of integrating ethical practices and considerations into AI systems as well as across organizational and societal contexts. The AI Ethics Maturity Model introduced by Krijger et al. (2022) offers organizations a roadmap to evaluate and improve their AI ethics practices by focusing on several dimensions, like governance, awareness, and training. Moreover, Da Motta Veiga et al. (2023) emphasize the business value of adopting ethical AI, particularly in driving innovation and making organizations more attractive to employees and stakeholders by enhancing trust and credibility. As AI technologies increasingly permeate the ICT sector, ethical concerns become critical, especially regarding transparency, privacy, and fairness in automated decision-making (Daneshjou et al., 2021). In emerging markets like Iran and Pakistan, the ethical adoption of AI is vital due to challenges like algorithmic bias, unequal access to technology, and the potential misuse of AI for surveillance (Binns et al., 2018; Kalenzi, 2022). Addressing these challenges requires an AI ethics maturity model that adapts global ethical principles to local contexts, fostering trust and ensuring ethical implementation in the ICT sector (Floridi et al., 2018).

1.2. AI Ethics Maturity: Model, Dimensions, and Levels

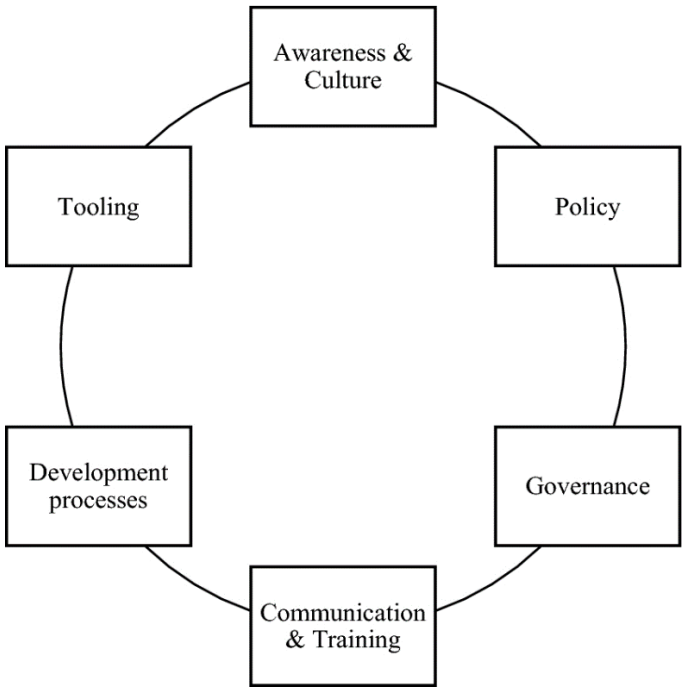
The AI Ethics Maturity Model (AIEMM) is essential for organizations seeking to evaluate and enhance the integration of ethics in AI development and deployment. AIEMM provides organizations with a structured approach to assess current AI ethics practices, identify gaps, and create actions for improvement. Maturity models help organizations understand their ethical maturity and the steps needed to advance responsible AI practices (Krijger et al., 2022).

As previously mentioned, several models exist in the field of AI Ethics. Among these, the AI Ethics Maturity Model proposed by Krijger et al. (2022) was selected as the foundational model for this research due to its holistic approach and practical applicability. The model's comprehensive nature, incorporating both organizational and technical perspectives, makes it particularly suited for assessing the ethical maturity of AI practices within organizations. The six key dimensions of this model cover all relevant aspects of AI ethics (Figure 1), from organizational culture to technical tools, ensuring that no area is neglected. Moreover, the model provides a clear, structured path for organizations to assess their current maturity levels and identify actionable steps to improve their AI ethics practices. Given

the specific challenges faced by organizations in Iran and Pakistan's ICT sectors, this model's flexibility and comprehensive nature make it an ideal tool for guiding organizations through the complexities of AI ethics maturity. The six dimensions are:

- *Awareness and culture*: this aspect relates to the spreading of organizational culture that prioritizes AI ethics, ensuring that ethical considerations are embedded into daily operations and decision-making).
- *Policy*: this aspect relates to the establishment of formal ethical guidelines and frameworks that guide AI practices within the organization, ensuring consistent implementation and adherence (Krijger et al., 2022).
- *Governance*: ensures clear oversight, compliance with established frameworks, accountability in AI systems' actions, and institutionalization of ethical practices.
- *Communication and training*: this aspect raises awareness about AI ethics and ensures that stakeholders are informed about best practices (Bankins & Formosa, 2023).
- *Development processes*: this aspect focuses on integrating ethical considerations into all stages of AI development, from design to deployment, to ensure ethical principles are embedded
- *Tooling*: this aspect refers to the technical tools and methodologies used to monitor, assess, and improve the ethical aspects of AI systems.

Figure 1. AI Ethics Maturity Dimensions



Source: Krijger et al., 2022

Table 1. Ethical Data Science Maturity Overview

	Level 1 (Initial)	Level 2 (Developing)	Level 3 (Defined)	Level 4 (Managed)	Level 5 (Optimized)
1-Awareness & culture	Awareness of data on an individual level out of personal interest	Fragmented attention through- out the organization	Focused and synthesized awareness through the formation of specific working groups or task forces	Organization wide support and representative multidisciplinary working groups	Buy-in from senior, middle and junior management, broad support and active involvement of developers, business and management
2-Policy	Minimal to no policy available for warranting ethics in data science	There is a demand for policy. Conversations have started and there is a first concept on the policy	Policy for ethical data science is available. A person assigned for the implementation and monitoring of the policy aspects	Policy is implemented in most parts of the organization. A central point is initiated for questions, monitoring, and feedback	Policy on data science ethics is widely implemented and monitored throughout the organization
3-Governance	Only legally mandatory checks	Additional robustness and model validation checks, not formally required	Specific ethical checks in design phase or post hoc, not formally required	Formally required ethical checks throughout data science lifecycle, governance committees are appointed	Fully integrated and supported AI ethics governance structure with formally required checks, procedures, and operating governance committees
4-Communication & Training	Minimal to no communication; employees improve their understanding based onown initiatives	Initiatives for training and communication only in small teams involved in data science processes	Incorporation of training and communication not only inside data science teams but also key stakeholders (e.g. C-suite) in line with established ethical framework	Company-wide sessions as well as the regular training of core team members Communication about the ethical aspects is becoming a part of the daily tasks and activities	Communication happens outside of the company to customers and citizens. There is a fully developed training module that includes a schedule for regular training for different types of users in the organization
5-Development processes	No structural approach to data science, or ethics in the lifecycle phases	Initiative for a structured data science approach mainly focusing on technical design choices in the development process	Relatively structured data science approach with ethical design choices were requested (on demand)	Structured approach, with alignment of ethical data science aspect to different phases in the data science lifecycle	Integration in the entire data science workflow where specific activities are implemented in and aligned with distinct lifecycle phases
6-Tooling	No or minimal tooling is used	There is demand for insights into the ethical aspects of data science. First ideas are gathered and translated into possible analysis/tooling	First methods and tools for generating insights into the ethical aspects are implemented and adopted	Tooling is available for and adopted by multiple stake- holders in the organization to monitor, discuss, and improve ethical data science aspects	Wide adoption of tooling where both internal and external stakeholders are using the available tooling to proactively monitor, discuss, and improve ethical data science aspects

Source: Krijger et al., 2022

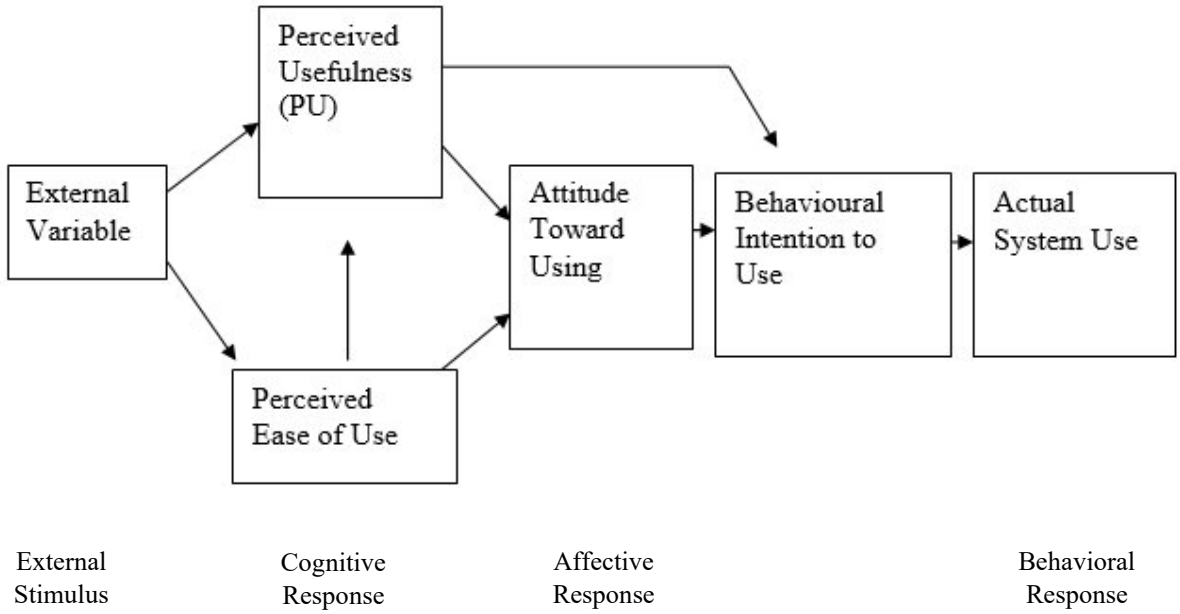
The AIEMM offers a holistic view of AI ethics by integrating both organizational and technical perspectives, as shown in Table 1. This model is particularly useful in the context of the ICT sector, where AI applications

have profound implications on data privacy, fairness, transparency, and decision-making processes (Floridi et al., 2018; Jobin et al., 2019). In emerging markets, the integration of AI into the ICT sector poses unique challenges. These nations face issues like resource constraints, inadequate regulatory frameworks, and limited capacity for ethical governance, which complicate the deployment of ethical AI systems (Appaya & Ng, 2024). Therefore, adapting global frameworks like the AIEMM to local contexts ensures effective integration of AI practices and contribution to societal development while minimizing harm.

1.3. Technology Acceptance Model (TAM) and AI Adoption

The TAM, introduced by Davis (1989) is one of the most influential frameworks for understanding technology adoption Figure 2. It primarily posits that two main factors, perceived usefulness (PU) and perceived ease of use (PEOU), determine the acceptance and useability of technology. These constructs are particularly relevant when studying AI adoption, especially in the ICT sectors, as they help explain how users' perceptions influence their attitudes toward and intention to use new technologies, such as AI systems.

Figure 2. Technology Acceptance Model



Source: Davis, 1989

1.3.1. Perceived Usefulness (PU)

Perceived usefulness refers to the degree to which a user believes that using a particular technology will enhance their job performance. PU predicts technology acceptance, and studies have shown that it significantly affects users' intentions to adopt technology (Davis, 1989). Additionally, PU is instrumental in adopting AI in the ICT sector. If AI is perceived to improve productivity, efficiency,

and decision-making, users are more likely to accept and utilize it in their daily operations (Venkatesh et al., 2003).

Numerous studies confirm the impact of PU on AI adoption, especially in sectors such as healthcare, education, and ICT, where the performance improvements brought by AI are more tangible (Venkatesh & Davis, 2000). However, the degree to which PU influences AI adoption varies across different industries and organizational contexts, as it is influenced by factors such as familiarity with the technology, the complexity of AI systems, and organizational culture (Venkatesh et al., 2012).

1.3.2. Perceived Ease of Use (PEOU)

Perceived ease of use refers to the extent to which a user believes that using a technology will be free of effort. PEOU is important because, even if a technology is perceived as useful, users are less likely to adopt it if it is considered difficult or cumbersome to use (Davis, 1989). In AI systems, this is particularly relevant, as AI applications can sometimes be perceived as complex or requiring specialized skills.

Research has shown that PEOU has a positive impact on both PU and the intention to use AI, when AI systems are user-friendly, users are more likely to believe that the system is useful and thus adopt it (Venkatesh & Davis, 2000). In the ICT sector, where technology adoption often requires significant investment and training, simplifying AI interfaces and ensuring ease of use can play a vital role in enhancing user acceptance (Venkatesh et al., 2012).

1.3.3. The link between PU, PEOU, and AI ethics maturity

The relationship between PU, PEOU, and AI ethics maturity is significant in the context of ICT sectors in both developed and emerging markets. Organizations that perceive AI systems as useful and user-friendly are more likely to implement them responsibly and ethically, integrating fairness, transparency, and accountability into their AI systems. Studies have shown that the acceptance of AI, driven by PU and PEOU, can foster an environment where ethical principles are embedded into AI adoption processes, thus contributing to the overall maturity of AI ethics within organizations (Davis, 1989; Venkatesh et al., 2003).

Furthermore, in emerging markets where regulatory frameworks and cultural factors vary significantly from developed nations, the role of PU and PEOU in AI ethics maturity becomes even more crucial. These countries face additional challenges such as infrastructure gaps, limited regulatory oversight, and socio-cultural dynamics, which influence how AI technologies are adopted and integrated ethically (Sharma et al., 2022; Kalenzi, 2022).

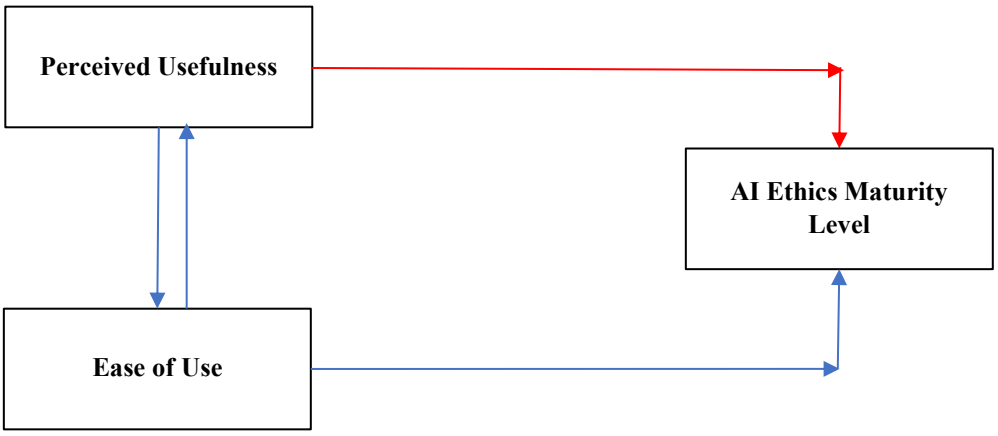
1.4. Ethical challenges in AI adoption in emerging markets

According to Folorunso et al. (2022), the adoption of AI technologies in emerging markets faces several challenges that impact innovation and ethical implementation. These challenges include a lack of essential digital infrastructure, such as high-speed internet and reliable data storage systems, which are crucial for the deployment and efficient functioning of AI technologies (Sharma et al., 2022; Mhlanga, 2021). Tight budgets make it difficult to allocate sufficient funds for AI initiatives, further hindering progress (Sharma et al., 2022). Additionally, Folorunso et al. (2022) point out the lack of political will and understanding as another barrier. Corruption and inefficiencies within governmental institutions can significantly slow down the process of implementing AI policies and frameworks. These factors contribute to the mismanagement of resources and delays in AI project execution, raising ethical concerns around accountability and transparency (Folorunso et al., 2022). Furthermore, many developing nations lack comprehensive regulatory frameworks to manage AI adoption effectively. Issues such as data privacy, algorithmic accountability, and transparency remain poorly regulated, raising concerns about the ethical implications of AI systems (Sharma et al., 2022; Mhlanga, 2021), so while AI has the potential to transform the world and be the solution for many problems, its unchecked deployment in developing nations creates significant challenges (Kalenzi, 2022; Sharma et al., 2022).

2. Conceptual Framework and Hypotheses Development

This study's conceptual framework (Figure 3) is grounded in the Technology Acceptance Model (TAM) and aims to explore the factors influencing AI ethics maturity within organizations. The framework identifies Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) as critical constructs that drive ethical maturity in the adoption and integration of AI systems.

Figure 3. Conceptual Framework



Source: Authors, 2024

- Perceived Ease of Use (PEOU): PEOU refers to the extent to which users believe that utilizing AI systems requires minimal effort. When AI systems are easy to operate and integrate into organizational processes, employees are more likely to adopt ethical guidelines and align their decision-making with these principles. Ease of use fosters confidence and reduces resistance to ethical practices, enhancing the organization's overall AI ethics maturity.
- Perceived Usefulness (PU): PU captures the degree to which users perceive AI technologies as beneficial to their productivity and effectiveness. Systems perceived as useful provide tangible value to users, motivating organizations to embed ethical standards in their AI operations. This construct highlights how perceived benefits drive the adoption of responsible AI practices, ultimately contributing to AI ethics maturity.
- Interaction Between PEOU and PU: The framework posits a strong positive correlation between PEOU and PU. When AI systems are easy to use, they are often perceived as more useful, as the reduced cognitive and operational effort enhances their value. This interaction strengthens the individual influence of each construct on AI ethics maturity, creating a synergistic effect that amplifies their collective impact.

The relationships among these constructs form the foundation of the following hypotheses:

- Hypothesis 1 (H1): *Perceived Ease of Use Positively Influences AI Ethics Maturity.*
- Hypothesis 2 (H2): *Perceived Usefulness Positively Influences AI Ethics Maturity.*
- Hypothesis 3 (H3): *There is a Strong Positive Correlation Between Perceived Ease of Use and Perceived Usefulness.*

This conceptual framework provides a structured approach for understanding how user perceptions influence AI ethics maturity. It highlights that ease of use and usefulness are not only significant individually but also mutually reinforcing constructs. By addressing these factors, organizations can enhance their ethical standards, create responsible AI systems, and ensure alignment with organizational values and societal expectations.

3. Research Methodology

This research adopts a survey-based quantitative method in order to examine the connections between the three variables, namely, perceived ease of use, perceived usefulness, and AI ethics maturity in the context of ICT industries in Pakistan and Iran. A self-administered instrument was utilized for gathering data in each of the participating Countries for a certain degree of uniformity and consistency.

The self-administered instrument was designed in a five-point Likert-type scale format (1 = Strongly Disagree to 5 = Strongly Agree) and was distributed electronically via LinkedIn and email to active ICT professionals in the industry.

A final total of 206 responses were obtained and out of these 206 responses, 103 were from Pakistan and the other 103 were from Iran constituting Equal representation. The data gathering method used was a non-probability sampling method known as convenience sampling focusing on respondents occupying different job descriptions or positions in the organizations. The constructs measured in the study included perceived usefulness, perceived ease of use, and AI ethics maturity which were in turn measured using six items on the Likert scale.

With the use of robust SPSS tools, research data were analyzed to recover inferences. The raw findings were summarized with the aid of descriptive statistics, that is, indicators outlining the respondents and their responses. Furthermore, Cronbach's alpha was employed in the reliability analysis to evaluate the internal consistency of the scales employed in the study. Besides that, correlation analysis was carried out to determine the strength of the relationships between the various variables and their directions. Lastly, regression analysis was performed to validate the impact of the perceived usefulness and perceived ease of use of AI in projecting ethics maturity. This approach enabled the researchers to achieve their research aims and objectives as well as gain a deeper understanding of certain factors affecting AI ethics within the ICT industry.

4. Results

4.1. Demographic Statistics

Most of the respondents 26–32 years (35.4) and 33–40 years (34.5) suggest that mid-career professionals formed the bulk of the studied sample while the other five aged groups were also represented during the study. Of the total 206 respondents, 66.5 percent were male while 33.5 percent were female. Generally, the gender split mirrors the present statistics of the ICT industry within the geographical context under study. Responses were equally split country-wise, with 103 respondents from Pakistan and 103 from Iran**,** ensuring balanced representation. Most respondents had a graduate (42.2%) or postgraduate (46.6%) education level, highlighting the sample's high academic qualifications. The demographics are presented in Table 2.

Table 2. Demographic Statistics

	Frequency	Percent	Valid Percent	Cumulative Percent
Age				
18 - 25	17	8.3	8.3	8.3
26 - 32	73	35.4	35.4	43.7
33 - 40	71	34.5	34.5	78.2
41- 50	37	18.0	18.0	96.1
50 Above	8	3.9	3.9	100.0
Total	206	100.0	100.0	
Gender				
Male	137	66.5	66.5	66.5
Female	69	33.5	33.5	100.0
Total	206	100.0	100.0	
Country				
Pakistan	103	50.0	50.0	50.0
Iran	103	50.0	50.0	100.0
Total	206	100.0	100.0	
Education				
Intermidiate	7	3.4	3.4	3.4
Undergraduate	16	7.8	7.8	11.2
Graduate	87	42.2	42.2	53.4
Post-Graduate	96	46.6	46.6	100.0
Total	206	100.0	100.0	
Responsibility Level				
Top level Management	45	21.8	21.8	21.8
Middle level Management	105	51.0	51.0	72.8
Operation Level	56	27.2	27.2	100.0
Total	206	100.0	100.0	

4.2. Descriptive Statistics

The descriptive statistics provide an overview of respondents' perceptions regarding perceived usefulness, ease of use, and AI ethics maturity within the ICT sector (Table 3). For perceived usefulness, the mean scores ranged between 3.81 and 3.95 across six items, indicating that respondents generally agree that AI tools and technologies are useful in their professional settings. Similarly, ease of use recorded mean scores between 3.66 and 3.81**,** suggesting that respondents find AI tools

moderately easy to use, although there is some variability in responses. AI ethics maturity, measured through six items, had mean scores hovering around 2.9, reflecting a lower level of agreement among respondents. This suggests that while respondents recognize the usefulness and ease of use of AI technologies, they perceive a gap in the maturity of ethical practices related to AI within their organizations. These insights underscore the need for targeted strategies to enhance AI ethics maturity in the ICT sector of Pakistan and Iran.

Table 3. Questionnaire's Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Perceived_Usefulness_1	206	1	5	3.95	1.108
Perceived_Usefulness_2	206	1	5	3.93	1.089
Perceived_Usefulness_3	206	1	5	3.83	1.141
Perceived_Usefulness_4	206	1	5	3.81	1.105
Perceived_Usefulness_5	206	1	5	3.95	1.035
Perceived_Usefulness_6	206	1	5	3.9563	1.07433
Ease_of_used_1	206	1	5	3.79	1.007
Ease_of_used_2	206	1	5	3.67	1.017
Ease_of_used_3	206	1	5	3.66	.988
Ease_of_used_4	206	1	5	3.70	1.062
Ease_of_used_5	206	1	5	3.72	1.020
Ease_of_used_6	206	1	5	3.81	1.006
AIE_1	206	1	5	2.97	1.374
AIE_2	206	1	5	2.86	1.263
AIE_3	206	1	5	2.93	1.426
AIE_4	206	1	5	2.90	1.303
AIE_5	206	1	5	2.93	1.282
AIE_6	206	1	5	2.97	1.288
Valid N (listwise)	206				

4.3. Reliability Analysis

The reliability analysis confirmed the internal consistency of the measurement scales used in the study. Perceived usefulness had a Cronbach's alpha value of 0.941, ease of use was recorded as 0.904, and AI ethics maturity was 0.885**.** These values significantly exceed the commonly accepted threshold of 0.70, indicating that the items within each construct reliably measure the underlying variable. The high-reliability scores validate the robustness of the data and ensure that the findings are consistent

and replicable. This reliability is particularly important in cross-country studies, as it reflects the stability of the constructs across respondents from Pakistan and Iran.

4.4. Correlation Analysis

The correlation analysis explored the relationships between the key variables: perceived usefulness, ease of use, and AI ethics maturity (Table 4). The results showed a weak but statistically significant positive correlation between ease of use and AI ethics maturity **(**$r = 0.139$, $p = 0.046$**),** indicating that as the ease of using AI tools increases, there is a slight improvement in AI ethics maturity. However, no significant relationship was observed between perceived usefulness and AI ethics maturity **(**$r = 0.059$, $p = 0.397$**),** suggesting that simply perceiving AI tools as useful does not directly influence ethical maturity. On the other hand, a strong and statistically significant positive correlation was found between ease of use and perceived usefulness ($r = 0.667$, $p < 0.001$). This robust relationship highlights that the perceived ease of using AI tools substantially enhances their perceived usefulness. These findings emphasize the interconnected nature of ease of use and usefulness while underscoring the importance of ease of use in improving AI ethics maturity.

Table 4. Correlation Analysis

		AIE	Perceived_ Usefulness	Ease_ Used
AIE	Pearson Correlation	1	.059	.139*
	Sig. (2-tailed)		.397	.046
	N	206	206	206
Perceived_ Usefulness	Pearson Correlation	.059	1	.667**
	Sig. (2-tailed)	.397		<.001
	N	206	206	206
Ease_Used	Pearson Correlation	.139*	.667**	1
	Sig. (2-tailed)	.046	<.001	
	N	206	206	206
*. Correlation is significant at the 0.05 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				

4.5. Hypothesis Testing (PU & EU as Independent Variable and AIE as Dependent Variable)

The hypotheses were tested using regression analysis, providing deeper insights into the relationships among the variables.

H1: Perceived Ease of Use Positively Influences AI Ethics Maturity

The regression analysis confirmed a statistically significant relationship between perceived ease of use and AI ethics maturity ($\beta = 0.139$, $p = 0.046$). The adjusted R^2 value of 0.015 suggests that ease of use explains 1.5% of the variance in AI ethics maturity. Although the effect size is small, the findings highlight that ease of use positively contributes to the development of ethical AI practices, even if the impact is limited. This suggests that organizations should focus on improving the user-friendliness of AI tools to promote ethical maturity.

H2: Perceived Usefulness Positively Influences AI Ethics Maturity

Contrary to expectations, no significant relationship was observed between perceived usefulness and AI ethics maturity ($\beta = 0.059$, $p = 0.397$). The adjusted R^2 value of **-0.001** indicates no explanatory power of perceived usefulness for AI ethics maturity. This implies that professionals' perceptions of usefulness alone are insufficient to drive ethical AI practices. The findings suggest that other factors, such as organizational culture and ethical training, may play a more significant role.

H3: Perceived Ease of Use Positively Influences Perceived Usefulness

The strong positive relationship between ease of use and perceived usefulness ($r = 0.667$, $p < 0.001$) was further validated, indicating that ease of use significantly enhances the perceived utility of AI tools. This relationship suggests that simplifying AI tools can indirectly improve their adoption and effectiveness by fostering perceptions of their usefulness.

5. Discussion

This study aimed to explore the influence of Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) on AI Ethics Maturity (AIE) in the ICT sectors of Pakistan and Iran, two emerging markets with shared socio-cultural characteristics. The research findings provide several key insights into how user perceptions shape the ethical deployment of AI technologies.

The regression analysis confirmed a statistically significant positive relationship between Perceived Ease of Use (PEOU) and AI Ethics Maturity (AIE) ($\beta = 0.139$, $p = 0.046$). This suggests that when AI tools are perceived as easy to use, organizations are more likely to adopt ethical practices and ensure AI systems align with ethical standards. These findings are consistent with previous research, which highlights that the usability of technology influences its ethical implementation (Venkatesh et al., 2003; Davis, 1989). By making AI systems more user-friendly, organizations can reduce barriers to ethical decision-making, fostering an environment where fairness, transparency, and accountability are prioritized (Floridi et al., 2018). Although the effect size is small (adjusted $R^2 = 0.015$), it suggests that

ease of use plays a role in promoting ethical AI adoption, reinforcing the idea that user experience can shape organizational culture around ethical practices.

Contrary to expectations, no significant relationship was found between Perceived Usefulness (PU) and AI Ethics Maturity (AIE) ($\beta = 0.059$, $p = 0.397$). This finding challenges the assumption that the perceived utility of AI tools directly translates into better ethical practices. One possible explanation is that while AI systems may be viewed as useful in enhancing efficiency and productivity, their usefulness does not inherently lead to ethical implementation. Research suggests that factors such as organizational culture, leadership, and formal ethics training have a more profound influence on the ethical integration of AI (Bankins & Formosa, 2023; Hagendorff, 2020). In the context of emerging markets like Iran and Pakistan, external factors such as infrastructure gaps, regulatory frameworks, and socio-cultural dynamics may be more influential in shaping AI ethics maturity than the perceived benefits of the technology itself (Kalenzi, 2022; Sharma et al., 2022).

A strong positive correlation was found between Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) ($r = 0.667$, $p < 0.001$). This suggests that when AI systems are perceived as easy to use, they are also more likely to be viewed as useful. This relationship supports the Technology Acceptance Model (TAM), which posits that ease of use enhances the perceived utility of technology (Davis, 1989).

The study's findings underscore the importance of user-centric design in AI adoption, particularly in emerging markets like Iran and Pakistan. Despite the challenges posed by infrastructure deficits, regulatory gaps, and cultural factors (Sharma et al., 2022; Mhlanga, 2021), the study suggests that improving the ease of use of AI tools can play a pivotal role in advancing AI ethics maturity. Given the complex socio-economic contexts of these regions, the results indicate that a multi-faceted approach is needed to address ethical challenges, including improved training, regulatory frameworks, and leadership commitment to ethical principles (Kalenzi, 2022). Moreover, these findings contribute to the literature on AI ethics by highlighting the need for context-sensitive AI ethics frameworks that consider both technical and organizational factors (Jobin et al., 2019).

6. Practical Implications

The findings of this study have several practical implications for organizations, policymakers, and AI developers in the ICT sector. First, organizations must prioritize the development of AI systems that are user-friendly and accessible. Enhancing ease of use not only facilitates adoption but also positively influences ethical maturity, as user-friendly systems reduce cognitive and operational barriers to

ethical decision-making. Training programs that improve employee proficiency in handling AI tools should also be integrated into organizational practices to promote a deeper understanding of ethical guidelines.

Second, policymakers in emerging markets should focus on creating robust and adaptive regulatory frameworks tailored to the specific challenges of their regions. These frameworks should address key ethical concerns such as transparency, accountability, fairness, and privacy, while also ensuring alignment with international best practices. By addressing these challenges, governments can build trust and enable responsible AI deployment.

Third, fostering a culture of ethical awareness within organizations is crucial. This can be achieved by embedding AI ethics into organizational governance, decision-making processes, and employee training programs. Models such as the AIEMM offer structured approaches for organizations to assess and improve their AI ethics practices systematically.

Finally, AI developers must focus on incorporating ethical principles into the design and functionality of AI systems. This includes developing tools that enhance transparency, provide explainable outcomes, and reduce bias. Collaboration between developers, organizations, and policymakers is essential to ensure that AI technologies are not only effective but also aligned with societal values and ethical standards.

By addressing these practical considerations, stakeholders can foster a more responsible approach to AI adoption and ensure that the ethical deployment of AI contributes to organizational success and societal well-being. These efforts will be particularly impactful in emerging markets like Iran and Pakistan, where AI is poised to play a transformative role in bridging technological gaps and driving innovation.

Conclusion

This study provides a comprehensive exploration of the relationships between perceived usefulness (PU), perceived ease of use (PEOU), and AI ethics maturity (AIEM) in the ICT sectors of Iran and Pakistan. By leveraging the Technology Acceptance Model (TAM) and the AI Ethics Maturity Model (AIEMM), the research reveals important insights into how user perceptions influence the ethical adoption of AI technologies. The findings confirm that PEOU has a significant positive impact on AI ethics maturity, underscoring the critical role of user-friendly AI systems in fostering ethical practices. In contrast, PU did not exhibit a significant direct relationship with AIEM, highlighting that while AI's

utility is recognized, it alone does not ensure ethical implementation. The strong positive correlation between PEOU and PU supports the foundational assumptions of TAM, suggesting that ease of use enhances the perceived utility of AI systems.

The study emphasizes the importance of contextual factors in emerging markets, such as infrastructure limitations, regulatory challenges, and socio-cultural dynamics, which play a pivotal role in shaping AI ethics maturity. These findings contribute to the broader discourse on AI ethics by underscoring the need for user-centric designs and multi-faceted approaches to address ethical challenges. For policymakers and organizations in emerging markets, these insights stress the importance of enhancing user experience, fostering a culture of ethical awareness, and developing adaptive governance frameworks.

This research provides a strong foundation for future studies to build upon, exploring AI ethics across diverse global contexts and integrating organizational, cultural, and technical dimensions into ethical AI adoption. However, it has limitations. The sample of 206 respondents, while balanced between Iran and Pakistan, may limit generalizability; a larger, more diverse sample could yield stronger conclusions. Cultural similarities between the two countries may not reflect broader regional differences. The use of convenience sampling through LinkedIn and email introduces potential selection bias, possibly excluding certain demographics. Additionally, reliance on self-reported Likert-scale data presents risks of response bias and subjective interpretation. These limitations highlight the need for broader and more nuanced research.

To address these limitations, future studies should expand sample sizes and include participants from diverse sectors and regions. Longitudinal research can reveal how PU, PEOU, and AIEM evolve with technological and policy changes. Cross-cultural studies may show how socio-economic and legal contexts shape AI ethics. Exploring moderating factors like organizational culture, infrastructure, and leadership styles can deepen understanding. Qualitative methods such as interviews or case studies could uncover nuanced perspectives on ethical AI use. Finally, extending research to industries like healthcare, education, or finance may reveal sector-specific challenges and solutions for advancing AI ethics maturity.

References

Abioye, S. O., Oyedele, L. O., Akanbi, L., Ajayi, A., Davila Delgado, J. M., Bilal, M., Akinade, O. O., & Ahmed, A. (2021). Artificial intelligence in the construction industry: A review of present status, opportunities, and future challenges. *Journal of Building Engineering, 44*, 103299. https://doi.org/10.1016/j.jobe.2021.103299

Appaya, M. S., & Ng, J. Y. J. (2024). *Global Trends in AI Governance: Evolving Country Approaches (English).* Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/099120224205026271

Bankins, S., & Formosa, P. (2023). The ethical implications of artificial intelligence (AI) for meaningful work. *Journal of Business Ethics, 185*(4), 725-740. https://doi.org/10.1007/s10551-023-05339-7

Binns, R., Veale, M., Van Kleek, M., & Shadbolt, N. (2018). 'It's reducing a human being to a percentage': Perceptions of justice in algorithmic decisions. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, 1-14. https://doi.org/10.1145/3173574.3174102

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.

Da Motta Veiga, S. P., Figueroa-Armijos, M., & Clark, B. B. (2023). Seeming ethical makes you attractive: Unraveling how ethical perceptions of AI in hiring impacts organizational innovativeness and attractiveness. *Journal of Business Ethics, 186*(1), 199-216. https://doi.org/10.1007/s10551-022-05380-6

Daneshjou, R., Smith, M. P., Sun, M. D., Rotemberg, V., & Zou, J. (2021). Lack of transparency and potential bias in artificial intelligence data sets and algorithms: A scoping review. *JAMA Dermatology, 157*(11), 1362-1369. https://doi.org/10.1001/jamadermatol.2021.3129

Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review, 96*(1), 108-116. https://hbr.org/2018/01/artificial-intelligence-for-the-real-world

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008

Dwivedi, Y. K., Janssen, M., & Lacity, M. C. (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.2020.101994

Floridi, L. (2019). *The logic of information: A theory of philosophy as conceptual design*. Oxford University Press.

Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., Luetge, C., Madelin, R., Pagallo, U., Rossi, F., Schafer, B., Valcke, P., & Vayena, E. (2018). AI4People – An ethical framework for a good AI society. *Minds and Machines, 28*(4), 689–707. https://doi.org/10.1007/s11023-018-9482-5

Folorunso, A., Olanipekun, K., Adewumi, T., & Samuel, B. (2022). A policy framework on AI usage in emerging markets and its impact. *Journal of AI Policy, 7*(3), 15-35. https://doi.org/10.1007/s42256-022-00041-2

Garg, P. K. (2021). *Overview of Artificial Intelligence*. In Sharma, L., & Garg, P. K. (Eds). *Artificial Intelligence Technologies, Applications, and Challenges* (Chapter 1). Chapman and Hall/CRC. https://doi.org/10.1201/9781003140351

Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.

Hagendorff, T. (2020). The ethics of AI ethics: An evaluation of guidelines. *Minds and Machines, 30*(1), 99–120. https://doi.org/10.1007/s11023-020-09517-8

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

Kalenzi, C. (2022). Artificial intelligence and blockchain: How should emerging technologies be governed?. *Frontiers in Research Metrics and Analytics, 7*, 801549. https://doi.org/10.3389/frma.2022.801549

Kaur, D., Uslu, S., Rittichier, K. J., & Durresi, A. (2022). Trustworthy artificial intelligence: A review. *ACM Computing Surveys (CSUR), 55*(2), 1-38. https://doi.org/10.1145/3491209

Krijger, P., Thuis, T., de Ruiter, M., Ligthart, E., & Broekman, I. (2022). AI Ethics Maturity Model: A holistic framework for evaluating AI practices. *Journal of AI Policy, 8*(3), 155-170. https://doi.org/10.1007/s42256-022-00028-x

Mhlanga, D. (2021). Artificial intelligence in Industry 4.0, and its impact on poverty, innovation, infrastructure development, and the sustainable development goals: Lessons from emerging economies. *Sustainability, 13*(11), 5788. https://doi.org/10.3390/su13115788

Russell, S., & Norvig, P. (2021). *Artificial Intelligence: A Modern Approach*. 4th Edition (Global). Pearson Education.

Samoili, S., Floridi, L., & Schartau, P. (2020). AI Watch. Defining Artificial Intelligence. Towards an operational definition and taxonomy of artificial intelligence. *AI Watch Report*. https://doi.org/10.2759/235023

Sharma, M., Luthra, S., Joshi, S., & Kumar, A. (2022). Implementing challenges of artificial intelligence: Evidence from public manufacturing sector of an emerging economy. *Government Information Quarterly, 39*(4), 101624. https://doi.org/10.1016/j.giq.2021.101624

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science, 46*(2), 186-204. https://doi.org/10.1287/mnsc.46.2.186.11926

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425-478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157-178. https://doi.org/10.2307/41410412

World Bank. 2025. *Digital Progress and Trends Report 2025: Strengthening AI Foundations*. Washington, DC: World Bank. https://hdl.handle.net/10986/43822