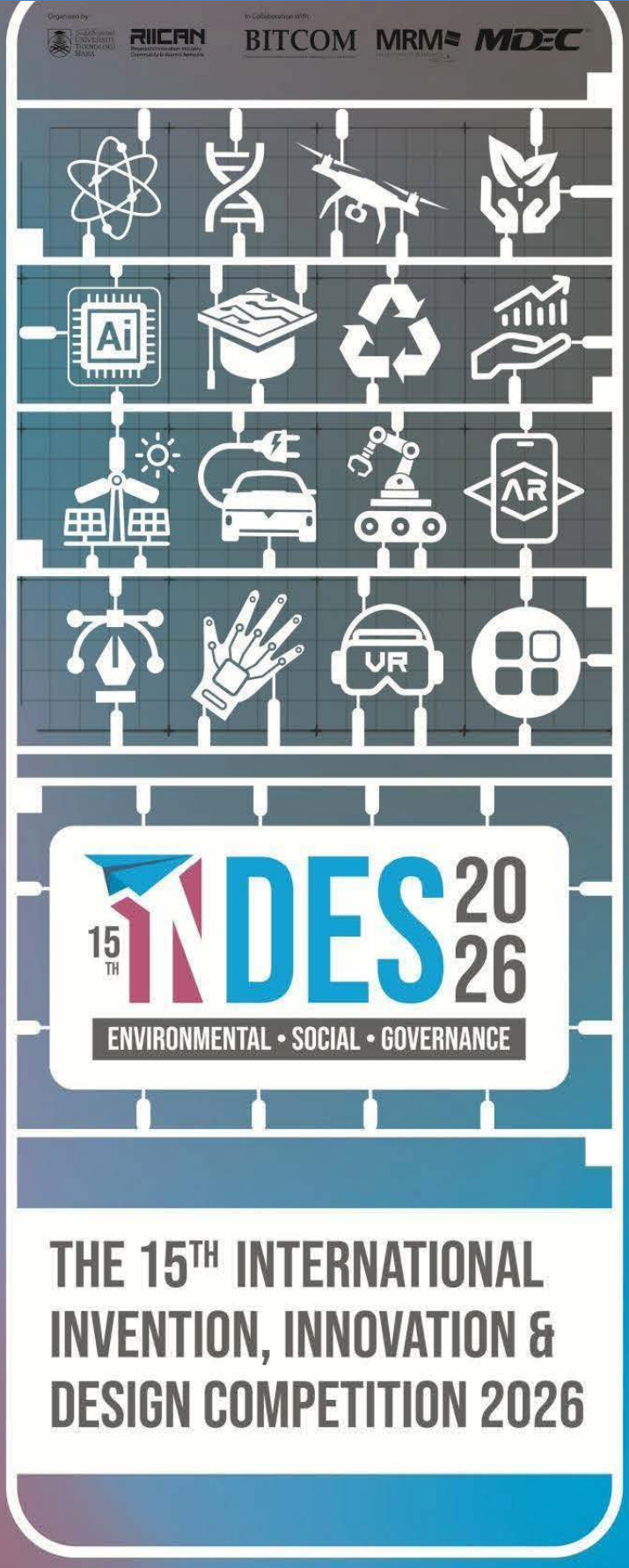


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THE 15th INTERNATIONAL
INVENTION, INNOVATION &
DESIGN COMPETITION 2026

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IPMA-ETHICGUARD: INTEGRATING ETHICAL AI IN HIGHER EDUCATION – A HOLISTIC FRAMEWORK

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ABSTRACT

The rapid adoption of artificial intelligence (AI), particularly generative AI tools, in higher education presents both transformative opportunities and serious ethical challenges. The MARA Education System (IPMA) lacks formalised governance and Standard Operating Procedures (SOPs), which leads to inconsistencies in academic practices, especially in differentiating between AI-assisted learning and academic misconduct. Current ethical AI frameworks remain largely conceptual, lacking empirical validation and institutional adaptability, thus creating a critical gap between theory and practice. This research proposes *IPMA-EthicGuard*, a holistic and empirically supported framework to facilitate ethical AI integration in higher education. The framework is based on the principles of AI ethics that include awareness, accountability, transparency, and integrity, and is supported by socio-technical systems theory. The framework was developed by using empirical data collected from IPMA students and validated through Partial Least Square Structural Equation Modelling (PLS-SEM). The framework is operationalised through four key pillars that are embedded into the institutional SOPs to govern the use of AI in teaching and learning. The results highlight that IPMA-EthicGuard not only enhances academic integrity but also increases ethical AI literacy among students and educators. Being a legally protected innovation, the framework provides a scalable and "plug-and-play" solution that can be adopted across higher education institutions around the globe. This study advances the current state of ethical AI governance by bridging the divide between normative principles and actionable institutional practices.

Keyword: Ethical AI, Higher Education, Academic Integrity, AI Governance, IPMA-EthicGuard

1. INTRODUCTION

The deployment of artificial intelligence (AI) in higher education has been growing exponentially, especially with the advent of generative AI tools such as ChatGPT. These technologies make learning more efficient and accessible, but they also present ethical risks, such as academic dishonesty, data misuse, and lack of accountability. The MARA Education System (IPMA) does not have standard guidelines, leading to inconsistent practices and raising concerns about academic integrity. Most of the AI ethics frameworks in the current literature are principle-based and do not offer operational mechanisms for implementation in institutional settings. This creates a "Wild West" environment where students and educators are navigating the use of AI without clear boundaries. Therefore, there is an urgent need for a coherent, evidence-based framework that incorporates ethical principles in institutional governance. In this paper, we present IPMA-EthicGuard, a robust framework for governing and guiding ethical use of AI in higher education using a systematic and scalable methodology.

2. METHODOLOGY

IPMA-EthicGuard is developed based on empirical research with students from different IPMA institutions. We collected data on patterns of AI usage, ethical awareness, and perceived academic risks. The framework was validated using Partial Least Squares Structural Equation Modelling (PLS-SEM) to assess the reliability,

validity, and structural consistency. This approach allows for the identification of significant relationships between ethical constructs and AI usage behaviour. The framework is built around four key pillars.

1. Awareness: Educating users on what is permissible and what is not permissible with AI
2. Responsibility: Taking ownership and being accountable for AI-assisted outputs
3. Transparency: Mandating disclosure of AI use in academic submissions
4. Integrity: Creation of preventive tools against plagiarism and misuse

These pillars are operationalised in the form of a Standard Operating Procedure (SOP) for institutional implementation.

3. FINDINGS

The findings suggest that IPMA-EthicGuard offers a structured and effective approach to ethical AI governance in higher education. The integration of the four pillars helps students understand the ethical boundaries and promotes responsible use of AI. Validation based on empirical data shows that:

1. Awareness plays a key role in ethical decision-making about AI use
2. Better accountability leads to more ownership and less misuse of AI-generated content
3. By means of disclosure practices, transparency promotes trust and academic integrity.
4. Integrity mechanisms effectively address plagiarism and data manipulation

Moreover, the framework has high scalability and flexibility, and hence is suitable for implementation in different higher education institutions. Its "plug-and-play" design allows for smooth integration into existing academic policies and governance systems.

4. CONCLUSION

IPMA-EthicGuard is a major step toward ethical AI governance in higher education. The framework links mechanisms for empirical validation and practical implementation to bridge the gap between theoretical ethics and institutional practice. It offers a comprehensive, scalable, and actionable solution to address the ethical challenges posed by the adoption of AI. In addition to protecting academic integrity, this framework encourages the development of ethically responsible and AI-literate graduates." As higher education institutions continue their digital transformation journey, IPMA-EthicGuard provides a sustainable pathway for responsible AI adoption.

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