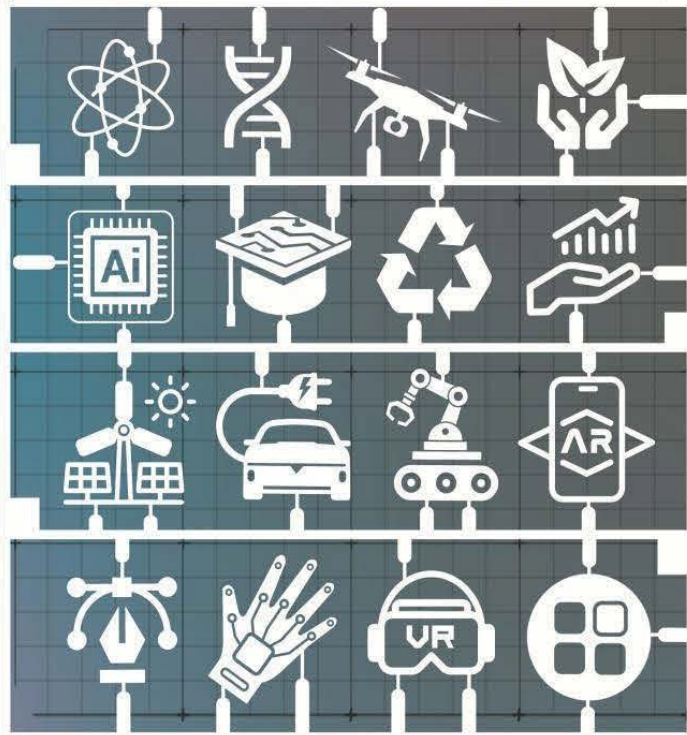




THE 15TH INTERNATIONAL INVENTION, INNOVATION & DESIGN COMPETITION 2026

E-BOOK OF

EXTENDED ABSTRACT

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KRIS-DQ.ai: TRANSFORMING RISK DISCLOSURE ANALYSIS THROUGH ARTIFICIAL INTELLIGENCE

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ABSTRACT

Corporate risk disclosure plays a critical role in enhancing transparency, supporting investor decision-making, and strengthening corporate governance. However, existing practices among Malaysian public-listed companies remain inconsistent, often characterised by generic or boilerplate disclosures with limited depth and decision-usefulness. While prior studies have introduced various disclosure indices, most tools remain manual, time-consuming, and difficult to apply in practice. This study introduces KRIS-DQ.ai, an AI-driven web application developed to automate the assessment of Key Risk Disclosure Quality (KRIS-DQ). The system is built upon the KRIS-DQ Index, a structured scoring framework that evaluates disclosure quality across multiple key risk categories using a five-level scale ranging from no disclosure to quantitative disclosure. The application allows users to upload annual reports in PDF format, after which the system processes the document, identifies relevant risk disclosures, and generates both an overall KRIS-DQ score and category-level insights. The innovation lies in transforming a traditionally manual academic framework into an automated, user-friendly tool that improves efficiency, consistency, and accessibility. KRIS-DQ.ai enables faster and more systematic analysis compared to manual content coding. This project contributes by bridging the gap between academic research and practical application. It provides a scalable solution for regulators, investors, researchers, and students to evaluate risk disclosure quality more effectively.

Keyword: Risk Disclosure, Artificial Intelligence, Web Application, Corporate Governance, Disclosure Quality

1. INTRODUCTION

In today's rapidly evolving business environment, companies are exposed to increasingly complex and interconnected risks, including cybersecurity threats, climate change, and geopolitical uncertainty (Babatunde & Lukman, 2020; Ben-Amar et al., 2023; Malatji et al., 2022). As a result, corporate risk disclosure has become an essential mechanism for communicating these risks to stakeholders and supporting informed decision-making (Elamer et al., 2020; Ibrahim et al., 2022).

Despite regulatory frameworks such as the Malaysian Code on Corporate Governance (MCCG 2021) and Bursa Malaysia Listing Requirements, the quality of risk disclosure among Malaysian public-listed companies remains uneven. Prior studies document that firms tend to emphasise financial and operational risks while underreporting emerging risks such as ESG and digital transformation (Mohd Ali & Taylor, 2014a; Abdullah et al., 2015). Furthermore, disclosures are often generic and lack depth, limiting their usefulness to stakeholders (Amran et al., 2009; Abdullah & Shukor, 2017).

Existing research has attempted to address these limitations through the development of disclosure indices. However, most approaches rely on manual content analysis, which is time-consuming, subjective, and difficult to scale (Ibrahim & Hussainey, 2019; Osman et al., 2026). This creates a gap between academic measurement frameworks and real-world application.

To address this limitation, this study introduces KRIS-DQ.ai, an AI-driven web application that automates the assessment of risk disclosure quality. By integrating the KRIS-DQ Index into a digital platform, the project transforms a theoretical framework into a practical and accessible tool for real-world use.

2. METHODOLOGY

2.1 KRIS-DQ Framework

KRIS-DQ.ai is built upon the KRIS-DQ Index, a structured framework designed to measure the quality of key risk disclosures (Osman et al., 2026). The framework evaluates disclosures across a comprehensive set of 18 contemporary risk categories derived from established risk frameworks, ensuring relevance to current business challenges (KPMG, 2021; 2022a; 2022b).

Each risk category is assessed using a five-level scoring scale ranging from 0 (no disclosure) to 4 (quantitative disclosure). This structured approach captures progressive disclosure quality, moving from generic statements to detailed, strategy-linked, and measurable reporting. Compared to traditional binary or quantity-based measures, this scale provides a more nuanced and meaningful evaluation of disclosure quality (Van Staden & Hooks, 2007; Ibrahim & Hussainey, 2019).

2.2 System Design and Development

KRIS-DQ.ai is developed as a web-based application designed to simplify and automate the evaluation process. The system follows a structured workflow in which users upload annual reports in PDF format, after which the system extracts textual content and applies artificial intelligence techniques to identify relevant risk disclosures. The extracted information is then evaluated using the KRIS-DQ scoring framework to generate both overall and category-level scores.

The use of AI in textual analysis enables consistent and scalable evaluation of corporate disclosures, a method widely supported in prior research on financial text analysis (Loughran & McDonald, 2011; Li, 2010; Kearney & Liu, 2014). This approach reduces subjectivity associated with manual coding (Krippendorff, 2004) and aligns with prior studies emphasising the need for standardised and systematic disclosure measurement frameworks (Abdallah et al., 2015; Shivaani & Agarwal, 2020; Mbithi et al., 2022).

KRIS-DQ.ai WORKFLOW

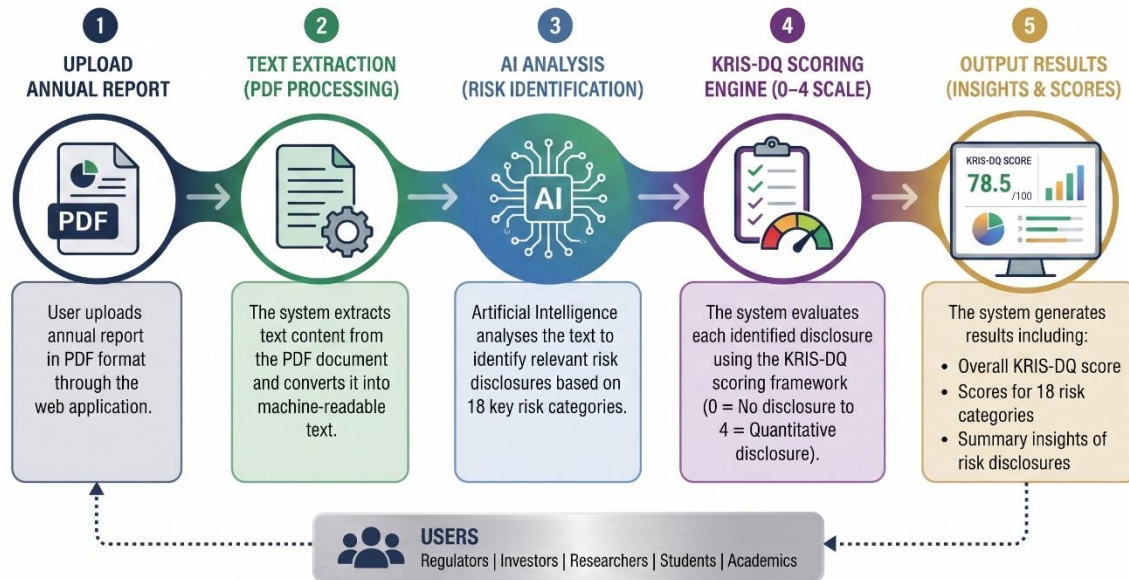


Figure 1: KRIS-DQ.ai workflow

3. FINDINGS [TIMES NEW ROMAN, 12, bold, UPPERCASE]

KRIS-DQ.ai demonstrates strong potential as an effective tool for evaluating risk disclosure quality. The system is capable of processing annual reports efficiently and generating structured outputs within a significantly shorter time compared to manual analysis.

Preliminary testing indicates that the application can successfully identify variations in disclosure quality across different risk categories. It is able to distinguish between generic statements and more detailed disclosures that include mitigation strategies and quantitative information, reflecting meaningful differences in disclosure depth (Ibrahim & Hussainey, 2019; Osman et al., 2026).

In addition, the automated approach enhances consistency by applying uniform evaluation criteria across all documents, thereby reducing subjectivity commonly associated with manual content analysis (Krippendorff, 2004). The system also improves accessibility, allowing users with limited technical expertise to perform structured disclosure assessments.

Overall, the findings suggest that KRIS-DQ.ai provides a reliable, efficient, and scalable approach to evaluating corporate risk disclosures.

4. CONCLUSION

This paper presents KRIS-DQ.ai as an innovative solution for assessing the quality of corporate risk disclosures. By integrating the KRIS-DQ Index with artificial intelligence and web-based technology, the project transforms a traditionally manual and academic framework into a practical and user-friendly application (Osman et al., 2026).

KRIS-DQ.ai contributes by improving efficiency, consistency, and accessibility in risk disclosure analysis. It provides a valuable tool for regulators, investors, researchers, and students to evaluate corporate transparency more effectively, particularly in environments characterised by uneven disclosure practices (Mbithi et al., 2022).

The project highlights the potential of combining academic research with digital innovation to address real-world challenges. As corporate reporting continues to evolve, tools such as KRIS-DQ.ai can play an important role in enhancing the quality and usefulness of risk disclosures.

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