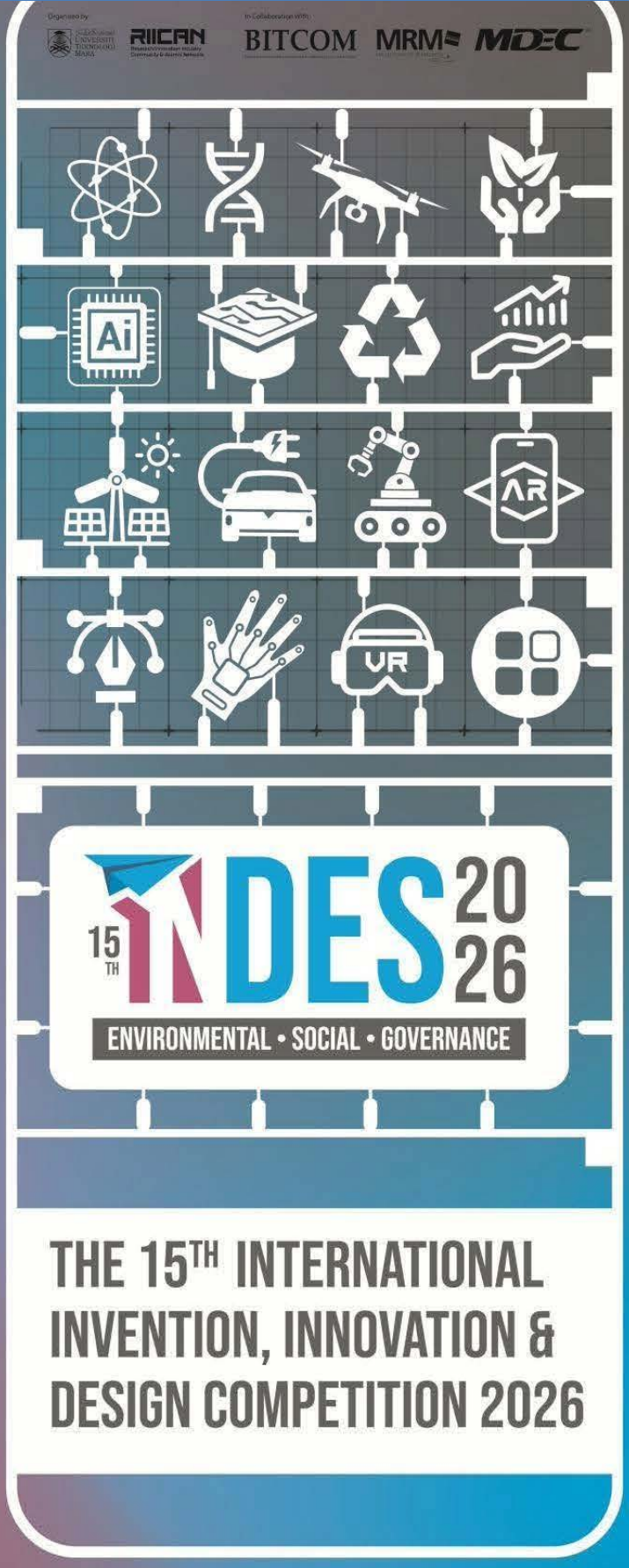

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THE 15th INTERNATIONAL
INVENTION, INNOVATION &
DESIGN COMPETITION 2026

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KONTRAK+: A DIGITAL PLATFORM FOR PERFORMANCE MONITORING IN CONSTRUCTION PROJECTS

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ABSTRACT

Kontrak+ is a proposed digital platform for performance monitoring in Malaysian construction projects, particularly for small and medium-sized contractors and project managers who require affordable and structured project-control tools. The platform addresses fragmented manual reporting by integrating financial, productivity, work progress, and performance data into a standardized mobile application and cloud-based dashboard. Its development responds to persistent construction-sector challenges, including inconsistent digital adoption, disconnected project data, and limited access to enterprise monitoring systems among smaller firms. The innovation follows an iterative development pathway, from issue identification and survey justification to expert-panel review and prototype development, and is currently positioned at Technology Readiness Level 4 (TRL 4). The expected contribution is a practical decision-support system that improves reporting speed, project visibility, financial control, and productivity tracking while reducing delays, disputes, and operational risk. Kontrak+ offers commercial potential through subscription-based access, implementation and training services, and partnerships with contractor and project-management associations.

Keyword: Construction Project Monitoring; Digital Platform; Kontrak+; Performance Management; Small And Medium Contractors

1. INTRODUCTION

The construction industry continues to face difficulties in adopting digital technologies consistently across project-management and performance-monitoring workflows (Lawani et al., 2023; Qadir et al., 2025). Although Building Information Modelling, real-time analytics, cloud platforms, and Internet of Things applications have improved project coordination, many contractors still rely on fragmented reporting practices, manual records, and separate spreadsheets. This creates a gap between data collection at the site level and strategic decision-making at the management level. Murguía et al. (2022) argue that construction performance measurement is weakened when organizations fail to connect top-down performance objectives with bottom-up digital data capture. The problem is more critical for small and medium-sized contractors because many commercial project-monitoring systems are costly, complex, and designed primarily for larger enterprises. Kontrak+ is therefore proposed as an affordable, localized, and structured platform for contractors (G1–G7) and project managers to monitor project finance, productivity, progress, and overall performance through a unified workflow. The objective of the innovation is to convert scattered project data into actionable dashboard information that supports faster reporting, clearer visibility, and better operational control.

2. METHODOLOGY

The development approach follows an iterative innovation workflow consisting of problem identification, industry issue gathering, preliminary survey justification, Technology Readiness Level (TRL) progression from TRL 1 to TRL 4, expert-panel review, and prototype development. The target users are Malaysian small and medium-sized contractors, project managers, and construction firms that require low-cost performance-monitoring support. Early validation was conducted through preliminary engagement with contractors and early-adopter project managers to confirm practical needs, usability expectations, and reporting pain points. Development is strengthened through industry collaboration and mentoring to improve adoption readiness. Functionally, Kontrak+ is designed as a mobile application supported by a cloud-based dashboard. The platform standardizes project inputs related to finance, productivity, work progress, and performance indicators and then converts them into monitoring outputs for decision-making. This methodology aligns with agile software-development logic, where system requirements, data structures, and dashboard functions are refined iteratively through feedback and real-world testing (Lawani et al., 2023; Liu et al., 2024).

3. FINDINGS

The findings indicate a clear need for a practical digital workflow that can integrate financial, productivity, and progress data without imposing high implementation costs on smaller contractors. Existing enterprise platforms such as Procore and Buildertrend are useful for large organizations, but they may be less accessible to smaller firms that need localized, simple, and affordable monitoring tools (Sharma, 2025). Kontrak+ responds to this gap by prioritizing interoperability, standardized data entry, automated reporting, and real-time dashboard visibility. The proposed architecture is consistent with data-to-dashboard strategies for construction performance measurement, where multiple data sources are transformed into indicators that support management decisions (Murguía et al., 2022; Radman et al., 2025). The innovation also has market potential because Malaysia has a large contractor base and a growing demand for project-management capabilities. Its proposed revenue model includes tiered subscription access, implementation and training services, and commission-based partnerships. The expected impact includes improved financial control, reduced operational risk, greater project transparency, fewer reporting delays, and better productivity tracking. These outcomes support SDG 8 on decent work and economic growth and SDG 9 on industry, innovation, and infrastructure.

Table 1 Key Features of Kontrak+

Feature	Description
Functionality	Provides real-time data monitoring and automated reporting by integrating financial, productivity, progress, and performance data.
Target Users	Small and medium-sized contractors, project managers, and construction firms in Malaysia.
Unique Value	Improves decision-making by reducing project risks and delays, increasing transparency, and streamlining performance monitoring.
Technology Used	Mobile application supported by a cloud-based dashboard.

4. CONCLUSION

Kontrak+ presents an affordable and user-friendly alternative for improving project performance monitoring among small and medium-sized construction firms. By integrating financial, productivity, progress, and performance data into a structured mobile and cloud-based system, the platform strengthens reporting consistency and enhances decision-making. The current TRL 4 position indicates that the concept has progressed beyond basic ideation toward prototype validation. Future development should focus on broader pilot testing, AI-powered analytics, the

localization of reporting indicators, and stronger integration with contractor and project-management associations. Overall, Kontrak+ has the potential to improve transparency, reduce project risk, and support digital transformation in Malaysia's construction industry.

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