A mixed-method study on the barriers of industry 4.0 adoption in the Indonesian SMEs manufacturing supply chains

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ABSTRACT

Purpose
This paper aims to investigate the adoption barriers of Industry 4.0 in the Indonesian manufacturing supply chains.

Design/methodology/approach
The mixed method was deployed to validate the findings. First, the qualitative study was conducted based on the interviews. Then, the companies were approached using filter questions on the involvement in adopting industry 4.0 and its impact on the supply chain.

Findings
Based on the qualitative study, nine main barriers were found in the thematic analysis. Thus, to get a consensus on the barriers in the industry, the barrier indicators were tested using a structural equation model retrieved from 173 small and medium Indonesian manufacturing firms. Results indicate that five main barriers (e.g. unclear Industry 4.0 policy, higher-risk investment, insecure data sharing, lack of expertise and lack of incentive) are confirmed as the adoption barriers.

Practical implications
The successful adoption of supply chain integration with Industry 4.0 technology can strengthen the manufacturing sector and competitiveness. Therefore, this study can be a complimentary assessment to evaluate the Indonesia Industry 4.0 Readiness Index (INDI 4.0) and the effectiveness of the government support program.

Originality/value

The results can be used as the framework to foresee the successful implementation of smart manufacturing supply chain management and its integration. Therefore, the authors proposed the framework to foresee the successful implementation of smart manufacturing, supply chain management and integration.

KEYWORDS: Ecosystem 4.0, Barriers, Supply chain integration, Manufacturing industry, Indonesia, Smart manufacturing, Industry 4.0 policy

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