



## TESTING A FRAMEWORK FOR INDUSTRY 4.0 DIGITAL DISRUPTION-A STUDY IN MALAYSIAN SMES

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## Abstract

Industry 4.0 has become a buzzword among the global industry and it is an amazing melting pot of disruptive technologies and is referred to as production-based industries digitalization transformation, driven by connected technologies. Malaysia is still ranging between industry 2.0 and 3.0 and unable to enter into the era of digital innovation whereas the neighboring countries are building bridges to connect to the era of Industry 4.0. The eleventh plan of Malaysia represents a crucial platform for the Malaysian SMEs to create the essential strategy relocation and this research integrates Industry 4.0 and sustainability addressing the thrust area of digital Malaysia to shift behavior from being consumption- to production-centric using digital technologies. Due to the lack of an integration model of 4.0 and environmental sustainability, the actual advantages are not recognized by SMEs and the purpose of this research will help to come up with a national policy/framework on Industry 4.0.

## Research Highlights

SMEs are the backbone of the Malaysian economy (Kayadibi et al., 2013). Most of the SMEs are involved with business organizations and the contribution to GDP is nearly 47% which can be increased to 50% of production yield by 2020 (Thurasamyet al., 2009). Creating more jobs and deducting unemployment (SME Corp. Malaysia, 2012).

Malaysia is still ranging between industry 2.0 and 3.0 and cannot afford to enter into the era of digital innovation whereas a majority of the neighboring countries are building the bridge from Industry 3.0 to 4.0. Therefore, it is the appropriate time to adopt the latest technologies of Industry 4.0 in the manufacturing sector especially in SMEs in Malaysia.

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## Research Objectives

The objectives of the study are as follows,

- To identify the dimensions of Industry 4.0 for the adoption of the latest technologies in the manufacturing sector.
- To investigate how the dimensions contribute to the effectiveness of industry 4.0.
- To examine the impact of Industry 4.0 on sustainability.

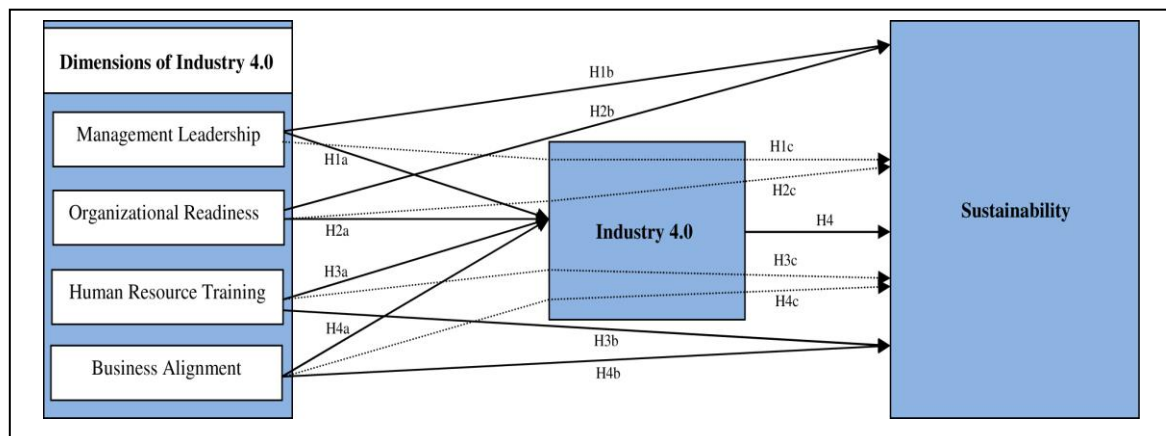




- To scrutinize how Industry 4.0 mediates the relationship between the dimensions of Industry 4.0 (independent variables, 1-4) and sustainability (dependent variable).

## Research Framework

The research framework is as follows,



**Fig. 1:** Research Framework

According to the framework the dimensions of Industry 4.0 i.e. Management Leadership, Organizational Readiness, Human Resource Training and Business Alignment are the independent variables. Industry 4.0 is the mediating variable and Sustainability is the dependent variable. Industry 4.0 mediates the relationship between the independent variables and the dependent variable.

## Methodology

A novel model and its impact on organizational sustainability is proposed for the SMEs of Malaysia based on the Eleventh Master Plan of Malaysia. The cross-sectional survey will be conducted from Malaysian SMEs. Malaysian SMEs are the target population and the samples will be selected from SME Corporation. The survey will be carried out in Selangor, Johor Bahru, Melaka and Kuala Lumpur. The study will use Structural Equation Modeling (SEM) and will obtain the necessary information through a questionnaire-based survey.



## Literature Review

**Management Leadership:** Management leadership is very important in achieving sustainability and the leadership style has a significant impact on the implementation of the latest technologies in manufacturing companies (Shao, Feng, & Hu, 2017). Industry 4.0 requires a transformational leadership style for encouraging employees to ignore their personal interest in attaining the goal of the organization (Politis, 2001).

**Organizational Readiness for change:** Readiness for change of an organization can forecast the attainment of change management procedures (R. A. Jones, Jimmieson, & Griffiths, 2005), and Industry 4.0 technologies will influence the work processes in the production system.

**Human Resource Training:** Recognizing, managing and executing the new tasks due to the acceptance of Industry 4.0 technologies involve suitable training and skill development for the workforce (Waibel, Steenkamp, Moloko, & Oosthuizen, 2017).

**Business Alignment:** Business alignment involves the change of technological potential into improving organizational results (Bergeron, Raymond, & Rivard, 2004). Most of the time, the implementation of new technologies flops because of an absence of the alignment between technological and organizational intentions (Henderson & Venkatraman, 1999) and organizations cannot attain success without an entire alignment with information technology (Avison, Jones, Powell, & Wilson, 2004).

## Findings

The findings of the paper may help organizations to identify the dimensions of Industry 4.0 that will help them to take appropriate initiatives for the adoption of the latest technologies to build competitive advantage and the economy as well.

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