

Industrial Internet of Things Implementation Strategies with HCI for SME Adoption

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(Received 16 January 2019; Accepted 6 June 2019; Published on line 1 June 2020)

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DOI: 10.5875/ausmt.v10i1.2108

Abstract: Industrial Internet of Things (IIoT) is changing the future world and making a big impact on every company. As SMEs are too small to have their own R&D, they may be left behind from the digital disruption age. Academic researches that describe the IIoT implementation strategies with Human Computer Interaction (HCI) for SMEs and adoption items of the strategies are rarely known. This paper reveals the IIoT implementation strategies with new HCI for SMEs in multi-dimensional facets. Analyses of IIoT implementation drivers, strategies, capabilities, and benefits on 30 articles from leading publishers such as Elsevier and Springer in the last 7 years are compared. Furthermore, the adoption items of IIoT implementation strategies are developed and quantitatively analyzed from 325 respondents of leading industries in Thailand manufacturing sector based on Technology, Organization, and Environment (TOE) adoption framework. The findings show that the 4 significant adoption items are lightweight flexibility, non-monotonous task of new HCI, top management's real-time decision making, and market opportunity. These results permit better understanding of how SMEs can learn from the analyzed IIoT implementation strategies with HCI and the analyzed significant adoption items in order to adopt IIoT for their business empowerment, thereby maximizing the IIoT value.

Keywords: Industrial Internet of Things; Industry 4.0; IoT; Human-Computer Interaction; Adoption; SME.