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## **A systematic review of literature on the readiness of post-harvesting technologies of paddy cultivation towards agriculture 4.0 in developing countries**

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Agriculture is one of the key sectors of the economy of developing countries and paddy rice is the leading cereal crop grown in most of those countries. The introduction of new technologies to the post harvesting phase help to minimize the serious losses occurring during post-harvest operations. The evolution of agriculture 4.0 can be compared with similar evolutions in the industrial world, with industry 4.0. Agriculture 4.0 stands for the integrated internal and external networking of farming operations. It is vital to assess the readiness to adapt to this technological transformation which will provide a comprehensive roadmap to implement advanced technologies. Readiness is the measure used to assess the maturity of evolving technologies. It is the systematic, metrics-based process that assess the maturity of, and the risk associated with, critical technologies. The objective of this study is to investigate the readiness of post harvesting technologies of paddy cultivation related to agriculture 4.0. The relevant knowledge was extracted from the published research papers which have been accepted as valid. The articles were collected through a web search based on the key words. Then the topic and the abstract of each article were analysed in order to decide the relevance of the article for the study. Next, the full text of selected papers were reviewed by qualitative analysis to be considered in the final analysis. The technologies used in paddy cultivation were extracted from the selected research papers and analyzed qualitatively. Based on the comprehensive literature review, following fundamental questions: What are the post harvesting technologies of agriculture 4.0 which could be used in paddy cultivation and what changes are needed to be done in order to adapt to the new technologies were answered. The results of the study provide a model to assess the readiness of post harvesting technologies of paddy cultivation towards agriculture 4.0, which is aligned with complementary factors along four dimensions; Technoware, Humanware, Inforeware, and Orgaware. Technoware includes precision agriculture which use drones to monitor the cultivation, autonomous tractors for harvesting, sensors such as capacitive sensor, mass flow sensor, photoelectric sensor and impact sensor for various purposes in storage phase. Humanware includes level of competence, perception on technology. Inforeware comprises level of utility of facts and information sharing. Orgaware refers to the need of organizational support to make Technoware and Humanware more effective.

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