

An empirical study on predictors of green sustainable software practices in Malaysian electronic industries

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ABSTRACT

Currently, sustainability is a pertinent issue that should be considered in the software development process; hence it is imperative to recognize how environmental-friendly practices can be applied in the electronic industries that develop and deploy software products. However, sustainability is not fully considered when electronic industries implement modern software systems. Additionally, software developers in electronic industries believe that software is environmental friendly mainly because it is virtual. Conversely, the life cycle process and approaches applied to implement, deploy and maintain software do possess social and environmental impacts that are usually not accounted for by electronic industries. Therefore this study identified the predictors that determine sustainable software practice applications in electronics industries by presenting a model to facilitate sustainable software products development. The identified predictors influence sustainable software practices applications which correlate to environmental, technical, economic, social and individual dimensions of sustainability in electronics industries. Based on the identified predictors, this research developed a set of indicators for survey questions and collected data from 133 respondents from Information Technology (IT), software, environmental and electronicbased industries. The survey data aimed to verify each of the identified predictors that influence sustainable software practice applications. Descriptive and inferential statistical results from the survey data show that each of the predictors is significant and do influence sustainable software development. The finding from this study provides insights to electronic industries in implementing sustainable software practice applications.

KEYWORDS:

Green software development; sustainable software development dimensions; software practice application; software process life cycle; predictors.