Light-Weight Composite Environmental Performance Indicators (LWC-EPI): A New Approach for Environmental Management Information Systems (EMIS)

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ABSTRACT

In light of rapid environmental changes, the relevance of current environmental policies is being scrutinized. The paper begins by shedding light on the usefulness of environmental management information systems (EMIS) which are being followed to assess whether relevant regulations have been adequately applied to successfully curtail and mitigate the enterprise’s impact on the environment while running its business. Based on this finding, the authors further investigate areas of weaknesses and subsequently identify enterprise corrective action to meet regulations. Furthermore, and taking into consideration the growing needs of Small and Medium Enterprises (SMEs) for EMIS, faced with an ever high cost of the required software solutions, this paper is a first attempt at providing recommendations on how to develop an appropriate EMIS for SMEs. The paper provides a brief summary of the LWC-EPI system’s approach, the motivation behind its adoption, the system expectation and its underlying architecture.

Keywords: Enterprise Resource Planning System (ERPs), Environmental Management Information Systems (EMIS), Environmental Performance Indicator (EPI), Small and Medium Enterprise (SME), Software Solutions

INTRODUCTION

In light of rapid environmental changes, the relevance of current environmental policies is being scrutinized. This paper begins with a literature review, shedding a light on the usefulness of environmental management information systems (EMIS) which are being followed to assess whether relevant regulations have been adequately applied to successfully curtail and mitigate the enterprise’s impact on the environment while running its business. In this part, we focus on meanings rather than facts, so we followed a deductive research method which depends mostly on the qualitative data analysis, and it is closer to the positivist and critical due to the topic covered.

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Based on the findings in the first part, we further investigate areas of weaknesses and subsequently identify enterprise corrective action to meet regulations. Furthermore, taking into consideration the growing needs of Small and Medium Enterprises (SMEs) for EMIS, we followed the design science method to present a first attempt at providing recommendations on how to develop an appropriate EMIS for SMEs. The paper provides a brief summary of the LWC-EPI system’s approach, the motivation behind its adoption, the system expectation and its underlying architecture following a systematic methodological rigor approach.

Starting as early as years, the preservation of the environment has gained more prominence at a global level, and the world community has been actively engaged in devising public policies with far-reaching global impact. This has presented households, businesses and governments alike with great challenges. As such, rapid environmental changes and challenges meant that urgent actions are required, with a particular focus on the relevance of the current environmental policies in place.

Having said that, researchers have identified some remarkable achievements to date that have positively impacted the environment and society in general (Jamous et al., 2011). Governments and NGOs met in international fora to address global environmental issues, leading to corporations to more actively address areas of weaknesses; 172 governments and close to 2,400 NGO representatives met at the Earth Summit which was held in Rio de Janeiro during June 1992. An agreement on the Climate Change Convention was reached which in turn led to the signing and adoption of the Kyoto Protocol (Eco92, 1997).

At a European level, the European Union (EU) has played a major role in promoting sustainable development. Documenting the European’s initiatives, rules or programs is not the primary purpose of this paper, and I will suffice by mentioning a few important ones. For one, the “Single European Act” and the continuous “EC Framework Program” for researches (the European Commission 7th Framework Program, being the latest) are attestations of the EU supportive policy of researches working on new methods leading to a better environment. With regard to the industry, the EU introduced the “EU Emission Trading Scheme” (EUETS), one of the largest multinational emission trading schemes in the world (Jamous et al., 2011). It currently covers more than 10,000 installations in the energy and industrial sectors which are collectively responsible for about half of the EU’s CO2 emissions and 40 percent of its total greenhouse gas emissions (EU-ETS, 2008; Aruvian’s Research, 2010). German and Austrian authorities introduced the environmental data catalogue (Umweltdatakatalog UDK) for public, industry and governmental institutions for easier access to environmental databases (Jamous et al., 2011). The increasing Eco taxes serve as another example.

At the enterprise level, environmental problems have not been seriously tackled, whether manufacturing, logistics, IT, cattle industry, or transportation (tourism, travelling etc). Companies have increasingly taken actions to monitor and reduce their impact on the natural environment, and at an accelerating pace given the wider public awareness with the advent of the Meadow’s book titled, “The Limits to Growth.” The latter has depicted an alarming picture with rapidly growing world population meeting with finite resource supplies. To date, a large set of publications continues to raise awareness of the depletion and or degradation of natural resources environment at the hand of humankind carried out at local, regional and global levels (Welford, 1996).

Companies’ environmental actions take many forms. Implementing an EMS is prototype framework for setting objectives and targets which allows organizations to evaluate and improve their environmental compliance and performance (Welford, 1996).

Moreover, Information Technology (IT) has turned out to be a major pillar during the last decades in providing corporations/enterprises (cutting across a wide range of fields, and domains) with solutions, particularly important for environmental-related topics where lied some
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