A Study of the Relationship between Eco-Design and Environmental Management Accounting

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ABSTRACT

Eco-Design brings in the Life Cycle Assessment (LCA) to the estimation and the development phases of product life cycle. The Life Cycle Assessment factors include the choice of materials, mechanical design, producing procedures, packaging design, transport distribution, consumers using, wasting and recovery, living environment design and environmental laws. Eco-Design should be considering those elements. Despite the developing cost will raise few, Eco-design will reduce raw material using and energy using and deduct the environmental impacts.

Environmental Management Accounting (EMA) is a tool for decision-makers or chief executive officer to supervise environmental benefits. EMA keeps tracking the input and output of all original materials and energy, and provides reports to decision making levels to understanding the producing performances and wastes. EMA also helps business decision makers to adjust and improve corporate environmental policies. Finally, EMA will aid companies to achieve the great economic efficiency and reduce the environmental pollutions and impacts.

The study based on the green design examining table and the environmental management accounting guideline of Association of International Accountants. The study used the expert interviews to explore the factors which were relevant both Eco-Design and EMA. The study used Analytic Hierarchy Process (AHP) to analyze all data and test the consistency indicators (C.I.) and consistency of ratio (C.R.). Finally, the study achieved the priorities of the influence factors of environmental management accounting eco-efficiency. This priority list provides the criteria to solve the conflicts between the factors of Eco-Design. Besides, the priority will support the development engineers and the product designers to think by top to down strategies and strengthen the features of green products. In addition, the list helps designers when they face all Eco-Design factors to avoid orienting products to lower eco-efficiency. In the end, the product design can follow Eco-Design principles to develop rapidly and decrease design changes. Meanwhile, the businesses will have an advance of environmental responsibility, and raise their green images.

Keywords : Eco-Design、Life Cycle Assessment (LCA)、Environmental Management Accounting (EMA)、Analytic Hierarchy Process、Consistency Index (C.I.)、Consistency Ratio (C.R.)

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