The Impact of Promoting Green IT on Corporate Brand Equity

Soyoung Park, Taehwan Park, and Jaewan Choi

Abstract—**The purpose of this study recognizes the importance of companies Green IT and companies promoting Green IT in a company's brand equity is to evaluate the impact empirically. To this end, this paper examines the results of a survey that solicited the views of a group of employees from Korean companies. The survey instrument was designed to discover if companies Green IT strategy differences would in any way be reflected in the respondent's concept of the 'brand equity'. For this study, the research model was set whether to run the company's Green IT, Green IT budget allocations, Green IT strategy execution, the purchase of environmentally friendly products, as explanatory variables and the company's brand equity as the dependent variables, correlation analysis, regression analysis, t- test were conducted. As a result, for companies which did not actively point the Green IT of companies will not independent in the matter of expenditure. From the beginning, the expectation whether to run the company's Green IT will be a positive impact on the company's brand equity was not satisfied. In the meantime, the research trend on company's Green IT, the mainstream was about the research on the Green IT introduction plan and development study. However, in the case of this study we analyzed quantitatively about the impact of promoting Green IT on corporate brand equity. There are implications in this study.**

Index Terms—**Green IT, environmental issues, Eco-friendly products, brand equity**

I. INTRODUCTION

A. Background of the Study

According to the increasing environmental problems in the world, the interest on energy conservation and alternative energy development is increasing in more than ever. Especially in the case of IT industry which has comparably faster product life cycle due to the high tech development, considering as high energy consumption and greenhouse gas emissions industry, the energy efficiency of the IT has been more important. In early of March 2007, CeBiT technology fair held in Hanover Germany, environmental friendly and energy-saving of Green IT and ICT technology buzzword has become an issue. In addition, as the strength of major countries on regulations about environmental issue became strong, major IT companies are beginning to respond positively about environmental problems. Accordingly, environmental factors will be able to an important strategic reduce greenhouse gas emissions and energy savings for environmental management, such as green IT choice, not an essential element is a growing recognition.

B. The Purpose of the Study

The purpose of this study and a survey of companies through analysis of companies promoting green IT in a company's brand value is to evaluate empirically the impact.

II. THEORETICAL BACKGROUND

A. Green IT

If we define of Green IT, the term began from Green Computing; it means environmental technologies in the efficient use of computer resources, which produces less waste of energy. To prevent global warming, carbon emissions from being started, drawn the term came from the IT. Green IT in the administration of leading countries are trying to achieve.

B. The Company's Brand Assets

Brand Equity is related assets and companies and the customer's brand name and symbol that symbolizes the added value for goods or services is a set of assets.

The major area of brand equity is as follows.

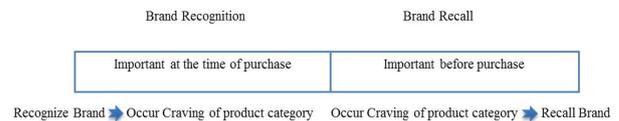① Brand Awareness, ② Brand Loyalty, ③ Perceived Quality, ④ Brand Associations

Fig. 2-1. The process of making brand Awareness
Source: Gwangho Ahn . Sangman Han . Seongryul Jeon, Stragegical Brand management
Seoul: Hakhyun Press, 1994, p.204

III. SURVEY DESIGN

A. Set of Research Model

In this study, about the perspective of companies, for the realization of Green IT, Green IT budget allocation, strategy execution and corporate purchasing environmentally friendly goods should be reported to the next preceding. <3-1> was set as the research model.
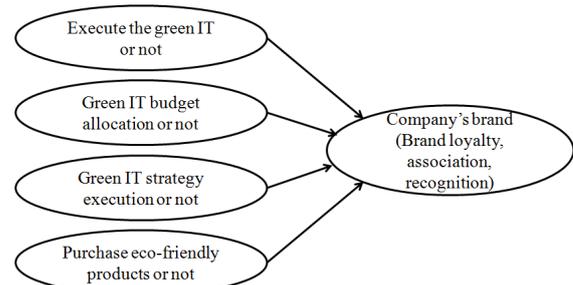

Fig. 3-1. Research model

B. Hypothesis

Hypothesis 1. Depending on whether the company's Green IT run impact on the company's brand assets will appear differently.

Hypothesis 2. Corporate Green IT budget allocation, depending on whether the company's brand equity will appear differently.

Hypothesis 3. Company's Green IT strategy execution, depending on whether the impact on the company's brand assets will appear differently.

Hypothesis 4. Depending on whether the company's eco-friendly products purchased on, the company's brand assets will appear differently.

C. Materials and Configuration of the Survey

This study surveyed to enterprise which has between more than 50 and under 1000 employees scale. Questionnaire was composed of 5 questions about environment-friendly agreement and regulations, 5 questions for awareness about green IT, 10 questions about corporate brand equity, and including other general matters 4 questions, total 24 questions. Survey period started from 30 October 2011 and ended November 10. Questionnaire prepared a total of 180 and 160 copies were collected and than 156 were used for the analysis except dishonestly answered four copies. Examined the results computed using SPSS 12.0 statistical program Statistical analysis methods were used in this study are as follows: First, in order to test the research model was used to program Lisrel 8.5W. Second, to analyze the general characteristics and frequency analysis, and a variety of complex interrelationships among variables analyzed to find common factors of the entire variable received by each group of variables to analyze the characteristics of the factor analysis will be carried out. Third, correlation anlysis is conducted in order to analyze the relationships between variables. Fourth, T-test, in order to test the hypothesis, correlation analysis and multiple regression analysis was carried out.

IV. ANALYSIS AND DISCUSSION

A. Analysis

In this study, Lisrel analysis of 156 samples was used for the degrees of freedom is 4, Lisrel analysis met the prerequisites.

B. The company's Brand Assets

The awareness of corporate brand equity

The awareness of corporate brand equity result, I examined the company's products, we will continue to use the item as an average of 5.40 showed a positive response.

Factors affecting corporate brand equity

Agreement and regulations for eco-awareness and corporate brands showed little correlation between assets. In other words, agreements and regulations for eco-awareness about the higher corporate brand equity is considered that a more positive perception.

Multiple Regression Analysis

Factors in the company's brand equity in order to verify the multiple regression analysis was performed. The input method of variables in the regression analysis was step-by-step method. Green IT is running as an independent variable whether the company's green IT budget allocations, Green IT strategy execution, purchasing environmentally friendly products was set at a total of four factors.

TABLE I: RECOGNITION AGREEMENTS AND REGULATORY ENVIRONMENT-FRIENDLY GREEN IT AWARENESS, BRAND EQUITY, THE CORRELATION ANALYSIS BETWEEN COMPANIES

Variables	Recognition agreements and regulatory environment-friendly	Green IT awareness	Corporate brand equity
Recognition agreements and regulatory environment-friendly	-		
Green IT awareness	0.271**	-	
Corporate brand equity	0.380**	-0.105	-
			* p<0.05, ** p<0.01

C. Hypothesis Testing

Green IT in order to verify the hypothesis of a running group and did not run between the groups, separated by a group independent sample T-test conducted by the mean difference between the two groups were examined. As a result of the corporate brand asset items 10 items at the significance level 0.05 remain statistically significant difference was found.

In order to verify hypothesis 2 to allocate a budget for green IT group and you do not assign a group separated by independent samples T-test between groups conducted by the mean difference between the two groups were examined. As a result of the corporate brand assets 5 items 10 items at 0.05 significance level remain statistically significant difference was found. 0.05 significance level, a statistically significant difference from the others was unknown.

Hypothesis 3 green IT strategy in order to verify performance of companies that performed with peer groups and are not performed by independent samples T-test between groups conducted by the mean difference between the two groups were examined. As a result of the corporate brand asset items 10 items the significance level from 0.05 to remain statistically significant difference was found.

4 To verify the hypothesis first to buy environmentally friendly products that do not buy the group divided into groups and between groups using independent samples T-test conducted by the mean difference between the two groups were examined. As a result of corporate brand equity, three items, 10 items showed differences remain.

D. Discussion

Respondents' perceptions on Green IT, the result of surveying all five items show the average scores lower than the average 4.0 for the relatively low awareness of Green IT is considered that showing. Specifically, Green IT strategies discussed have never tried the items on average 3.77, Green IT, running or have completed the item on average 3.66, overseas competitors than green IT strategy is in the lead of

the items on average 3.45, Green IT budget for the allocation and that item 3.28, IT products priority when purchasing eco-friendly products that the items on average 3.58, respectively. Companies like this country is low awareness of Green IT in the previous studies showed similar results. But the company's increasing awareness of Green IT, of course, when the budget for the company's Green IT strategy for the allocation and performance, eco-friendly products for the purchase also is expected to increase.

Green IT in an organization's stance against the company's entry point not less than proactive in the matter of expenditure, which will not, and never independent.

TABLE II: COMPANY'S BRAND EQUITY AS THE DEPENDENT VARIABLE A REGRESSION ANALYSIS

Model		Tues coefficient of non-standard		Standardized coefficients	t	Probability of significant	Collinearity statistics	
		B	Standard error	β			common difference	VIF
1	(Constant)	3.477	0.289		12.041	0.000		
	Corporate Green IT budget allocation	-0.407	0.083	-0.320	-4.876	0.000	1.000	1.000
	R²= 0.098 , F = 23.777							
2	(Constant)	4.411	0.388		11.379	0.000		
	Corporate Green IT budget allocation	-0.360	0.082	-0.283	-4.371	0.000	0.974	1.027
	Purchasing environmentally friendly products	-0.320	0.091	-0.227	-3.501	0.001	0.974	1.027
	R²= 0.144 , F = 18.659							
3	(Constant)	5.454	0.625		8.727	0.000		
	Corporate Green IT budget allocation	-0.327	0.083	-0.257	-3.935	0.000	0.940	1.064
	Purchasing environmentally friendly products	-0.283	0.092	-0.200	-3.067	0.002	0.939	1.065
	Green IT strategy execution	-0.310	0.146	-0.140	-2.116	0.036	0.920	1.087
	R²= 0.158 , F = 14.140							
	Dependent variables: The company's brand assets							

V. CONCLUSION

A. Summary

The purpose of this study is to figure out empirically the influence of the company's brand equity from the green IT project of the company with analysis the survey on the company

To discover the difference of scores according to green IT budget allocation on company's brand equity or non allocation, 5 items out of 10 have some statistically significance. In detail, the group which allocate budget on "Our brand is the best choice." get 4.94, non allocate group get 4.36. The group which allocate budget on "Our brand is the first choice among others." get 4.73, non allocate group get 3.83. The group which allocate budget on "Our products have good quality and service." get 4.17, non allocate group get 3.57. The group which allocate budget on "Our product and service is one of the best" get 4.46, non allocate group get 3.15. The group which allocate budget on "Our company provides products and service to customer's convenience." get 4.05, non allocate get 3.46. Above show budget allocation groups have higher scores than non allocation group, and the former has more positive recognition them the latter. According to difference of average scores in green IT strategy execution. 2 items out of 10 have statistically significance. In detail, the group which execute strategy on "Cheer up at using our company's brand." get 4.29, didn't execute strategy group get 3.28. The group which execute strategy on "I recommend our company's products to other people." get 5.06, didn't execute strategy group get 3.94. Above show strategy execution groups have higher scores than non execution group, and the former has more positive recognition them the latter.

To discover the difference of scores according to purchase eco-friendly products on company's brand equity or not purchase. 2 items out of 10 have some statistically significance. In detail, the group which purchase eco-friendly products on "Cheer up at using our company's brand." get 4.39, did not purchase group get 3.76. The group which purchase eco-friendly products on "Our products have good quality and service." get 4.34, did not purchase group get 3.56. In the final conclusion, this study finds out the fact that many companies adopt only partial strategies not all of them, because of budget. From the start, most

companies have not big expectation on the affirmative influence of green IT strategy execution.

B. The Implication of the Study and Proposition

Meanwhile, company's research trends of green IT is focused on research for introduction plan of green IT and progress. But in this study case, there is the implications in terms of fact that analyze the influence of the company's brand equity from the green IT project of the company quantitatively. Especially this study has the significance in analysis of hypothesis that according to the fact of a company's brand equity has different influence. There is a advantage in collection of research data because of various research on the influence of the company's brand equity from the green IT project, however, there is also difficulty to find out new forms of study model among the researches. Therefore, we should establish the new forms of study model and revise them continuously.

First, the most important problem is generalization. This study makes uses small scale samples, and did not make longitudinal study of long time, but cross-sectional. So there is limit of generalization degree whether how many companies adopt to the results of this study. In addition, it is necessary to have longitudinal and cross-sectional studies for more companies with long time in future.

Second, this study has limitations on data collection and survey. Above all, we should collect samples wide areas not regional concentration. Also this study applied only limited samples by just using 7-point scale. Therefore, future studies should conduct with keeping in mind, various and proper way in the qualitative characteristics.

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