

<b>Sno</b>	<b>Name of the Scholar</b>	<b>Name of the Supervisor</b>	<b>Title of the Research Topic</b>	<b>Ph.D. Award</b>
4.	Ms. Sania Khan	Prof. D. Ravinath	A study of Green IT Enablers : Modeling and Analysis of Consumer Purchasing Behaviour for Saudi Arabia	September 2015

### **ABSTRACT**

The growing mergers and acquisitions and online trading system drastically increasing the need for IT infrastructure in regular business operations. Consequently, the demand for computing and storage devices are escalating the issues related to power consumption, heat generation and cooling requirements of critical concern – both in terms of the growing operating costs as well as their impact on environment and society. With an estimation that IT products are responsible for 2% of global pollution in 2007, which increased to 3% by 2009 and still expected to reach 6% by 2020. Though the adverse impact of IT products on the environment found to remain under identified, the consumers and IT marketers are still unable to distinguish and understand the benefits between conventional and green IT products. Considering green business as a smart business in today’s world of green revolution, the information technology potentially can support three critical aspects of sustainability in organisations - socially, economically and environmentally so called triple bottom line. Also, the emerging Green IT which was introduced and gained its traction since 2007 disclosed that the green IT studies were primarily researched from corporate perspective and the consumer perspective has widely been neglected. In this context the green IT as a potential research area opens an exciting research opportunity to explore more on Green IT marketing.

Saudi Arabia being a prospered and better economic status country; and with the largest market and highest purchasing power of IT products among the Middle East countries attracted the researcher to conduct this research study in Riyadh, as a sample in the central province of Kingdom of Saudi Arabia. While some of the green marketing studies in the past identified the influencing factors of consumers’ green purchasing behaviour, their considerations were scattered and not specific to the green IT products. Therefore, the study specifically considered the corporate green IT consumer purchasing behaviour holistically by interlinking environment, consumers, business issues and regulatory role together in the country which was previously absent. It focuses on how the corporate consumers perceive green IT products keeping environmental attributes, economical aspects as mandatory in their minds and fulfilling the regulatory role while dealing in IT business at various standpoints.

Pertaining to related literature the present study has identified fifteen key enabling factors that are driving the corporate IT consumers towards green IT purchases. With the absence of any

evidence in modelling these enablers and understanding the interrelationships among them, this study is undertaken to fill the knowledge gap between green IT products and consumer green purchasing behaviour. Therefore, it is imperative to first conceptualise these enabling factors into a hierarchical structural model and then investigate the proposed model empirically.

This study emphasized on identifying the underlying factors for green IT, conceptualise them into a hierarchical structural research framework and to verify and validate those interrelationships among these factors. For this a Delphi study with twelve field experts was conducted in three rounds, further whose final consensus were used in Interpretive Structural Modelling (ISM) technique in developing a hierarchical structural framework. Accordingly, the developed “Green IT Consumers’ Purchasing Behaviour Model” was hypothesised and validated empirically using Structural Equation Modelling (SEM) with 710 useful responses which was administered by a survey questionnaire. An exploratory factor analysis using principal component analysis by Varimax rotation method was performed with SPSS and derived all the elements into fifteen factors based on their Eigen values greater than one. The confirmatory factor analysis (CFA) was conducted to check the measurement model fit of all the latent variables and fits the proposed model well with the observed data.

As the major findings of the study, it was found that power consumption is most independent factor with high driving power and low dependency power. Also green IT product performance, e-wastage disposal and global warming are the significantly important enablers which are driving other factors. The other eleven factors found to be linking variables due to their high dependency and moderate driving power compared to these four independent factors. The empirical study revealed in explaining the overall structural model with very weak to strong relationships among the identified enabling factors. Among all the fifteen enabling factors, sustainable strategy with highest correlation coefficient is strongly driving the consumers towards green purchasing. The factors like environmental consciousness, Kyoto protocol, corporate social responsibility, financial benefits, consumer demand and preferences, market players, corporate perception, psychological factors and sustainable strategy showed a significant total effect on consumer green purchasing behaviour and support a total of twelve hypothesised paths. Also the other factors in the model viz., global warming, e-wastage disposals, power consumption, performance and eco-labelling and certifications did not shown a significant influence on the consumers’ green purchasing behaviour due to their insignificant associations and resulted in three unsupported hypothesised paths in the final model. Overall the structural model has explained 46% of variance on green purchasing behaviour.

This research which is first time in academics and unique in itself has made multiple contributions for both the academia and industry. Also the consumers who are highly educated and occupy the managerial positions in the firms understand the actual meaning of

sustainability and intended to buy green IT products. It is recognised manufacturing, construction, IT/ITES, educational and healthcare industries already implemented green IT initiatives and preferring green IT products during their procurement when compared to other industries. As such marketing studies found to be very few in green IT area the findings of this study have important implications for both theoretical and management who are working in relationship to green IT marketing and consumer purchasing behaviour areas. Theoretically, it identifies key driving factors for green IT purchasing and examines the interrelationships among them. As managerial implication, it understands IT users from three distinctive prospective namely social, economic and environmental aspects. It also helps marketers in improving their strategies in line with consumers' aspects and their behaviour. Moreover, targeting on right consumers would help marketers save their effort, money and time, yielding good turnover within short span of time. Finally, the findings of this study also assist environmentalist and enviropreneures by doing business in a more sustainable way.

The study undertaken is constrained by few limitations, as the male respondents found to be more participative than females due to the separation of gender system at work and availability of fewer females. Due to the time limitation the study has collected data only in the central part of Saud Arabia. The public sector found to have more limitations in disclosing evidences of their business. The findings may not be exactly identical to other green IT expert's studies as the collected data is up to the understanding and interpretation of the respondents also may or may not be applicable to other products.

The findings of this study are considered as only the beginning of the green IT consumer due to the non-evidence of similar research studies in green IT literature. Since the green IT research studies are in the initial stage there is much more to explore in this area and recommend future researchers to conduct similar research studies considering other parts of the country and also can include any other appropriate enablers to the present model. Similar study can also be conducted by considering barriers for green IT product purchasing to know what factors are inhibiting consumers from purchasing green IT products. Also a study on cost-benefit analysis of green IT products will help consumers and industries to realise the acute gains of these products in long run. A study on cross industrial green IT consumer purchasing in different geographical locations can be explored to know which industries are more intended for eco friendly IT products and understand how their awareness level and green IT practices leading to green purchasing. However categorising these fifteen enablers under socioeconomic and environmental criteria, a multi criterion weightages using analytical hierarchy process (AHP) can be identified to give the rankings for each factor based on their priority. As the consumer purchasing behaviour keeps changing over the time, the impact of these green IT enablers on such behaviour can be studied by using system dynamics modelling technique assisting the policy makers and green IT product innovators. Any research study suggesting the best marketing strategy can also be conducted to grab the green

IT consumers. Therefore, all these studies are expected to contribute to the green IT marketing research.

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