

Understanding Stakeholder Motivation for Adopting Green Practices: Cases of Proactive and Reactive Responses to Green Innovation for Triple Bottom Line

Boidurjo Mukhopadhyay¹, B. K. Mukhopadhyay²

¹Faculty, Department of Management, University of Sussex, Falmer, United Kingdom

²Former Professor, Indian Institute of Bank Management (RBI), Guwahati, India

Abstract: While climate change discussions have raised new questions for social sciences and the ever-growing empirical literature to address them, one given by-product has been the exponential adoption and application of energy-efficient options in societies. 'Going green' and creation of 'green jobs' have now innately become a part of industry philosophy independent of firm-sizes, operational models, institutional partnership structures and also cultural contexts internationally - this paper elucidates how carbon efficiency in product and services can emerge from different levels and types of innovation in companies. There is also a need to understand how green innovation, introduced and delivered by companies or societies, is adopted by different stakeholders who use and interact with the process. The paper therefore specifically provides an understanding, using different cases, of different factors that motivate consumers, market and organizations amongst other groups to adopt green practices for consequential use in societies.

Keywords: Carbon efficiency, institutions, green innovation, stakeholder, sustainability.

1. Introduction

"Financial performance and environmental performance can go hand-in-and. Eco-efficiency is the key to sustainability, in both economic and ecological terms. The key to eco-efficiency is innovation and productivity improvement." Milmo (1995:22). Responding to the green agenda remains a key challenge and also an opportunity to organisations of all sizes. It can be perceived as a challenge since a wide variety of internal and external variables can act as determinants of green innovation adoption in the market, while it could also be an opportunity when a company makes a pro-active response to the green issue, which can further their business operations to be more sustainable in the long run. A large number of organisations are now looking into their internal processes to improve their environmental profile and product life cycle from raw material acquisition stage to final use and further disposal phase of their products. A good example of green innovation would be hard and soft innovation that is related to green product and processes (Kaufmann, 1998), including the

innovation in technologies that are directed to pollution prevention, energy saving, waste recycling, green product design or environmental product management.

Proctor & Gamble (P&G), for example, conducted life-cycle assessments to calculate the amount of energy needed to use its products, it found that detergents can make U.S. households energy guzzlers. They spend 3% of their annual electricity budgets to heat water for washing clothes. If they switched to cold-water washing instead, P&G reckoned, they would consume 80 billion fewer tons of carbon dioxide. The company went on to develop cold-water detergents as a priority. In 2005, P&G launched Tide cold water in the United States and Ariel Cool Clean in Europe (Ozaki, 2009). The trend has caught on more in Europe than in the US. By 2008, 21% of British households were washing in cold water, up from 2% in 2002 (HBR, 2009). After cold-water washing managed to catch on globally, P&G cashed in on the trend (Ozaki, 2009). This is where the understanding of organisational motivation and leadership becomes pivotal. P&G maintains more than 5 key competitors globally but it stepped up first to embrace green process in a detergent business and thus it has been successfully able to maintain a very high market share all through (i.e. being the pioneer).

Evidently therefore, an early adoption of the green agenda not only could improve a business profile but also its bottom line profits. Given the importance of adopting the green agenda within corporations, a company can either adopt a re-active position and suffice the short-term market demand or choose to react with a pro-active position in order to exceed or push demands. An empirical study by Bianchi et al (1997) revealed that companies adopting a re-active position can only succeed in developing incremental eco-innovations in the short run complying with emerging market demand; whereas pro-active responses could help in making incremental as well as long term radical eco-innovations. The latter would clearly make a deeper impact on the sectoral innovation and also technological reforms in the long run.

As Kemp and Maj Munch (2004) defines Environmental innovation as: “product, production process, service or Management or business method that is novel to the organisation (developing or adopting it) and which results, throughout its life cycle, in a reduction of environmental risk, pollution, and other negative impacts of resource use (including energy use) compared to relevant alternatives”.

The primary difference between environmental and other innovations is the combination of an urgent environmental problem that needs a solution but which is associated with external costs that do not enter the private costs of the polluter. Environmental innovations, includes process, product, and organisational innovations (OECD, 2008b). There has been no necessary correlation established between organisational innovations and environmental impacts, but it does facilitate the implementation of technical (process and product) environmental innovations in companies (Murphy and Gouldson, 2000). What we usually mean when we refer to Process Innovations is something of an improvement in the production process resulting in reduced environmental impacts, e.g., material recycling. Similarly, product innovation aims at reducing environmental impacts during a product’s entire life cycle, e.g., making the value chain green (discussed later). Finally, service or management innovation, for which, IBM as a case will be discussed later in the paper.

Clearly, the literature on the determinants of innovation is huge and diverse and most of them focus on particular determinants of innovation rather than focusing entirely on environmental innovation (or establishing the link between organisational innovation and environmental impact as discussed above). As we can see in the following parts of this paper, available research which studies the correlation between environmental innovation and regulation looks at technology push, market pull factors (competitiveness and customer demand), firm internal conditions, and most importantly regulatory conditions to be the drivers which help create environmental innovations (Bergh, Truffer and Kallus 2011).

There is also a strong belief that it is always the big firms which takes on the green agenda, as Schumpeter (1939a) observes that the possibility of large firms to act in a monopolistic way increases their willingness to take risks. And thus, in the end it is this large pool of big firms which comes up with varying forms of environmental innovations. Also, importantly on this note, the ‘win-win’ proposition devised by Porter and Linde (1995a), that environmental regulation could induce innovation by ‘making industry aware of and willing to exploit otherwise missed opportunities’. Thus, from the theory of strategic management, we can also analyse this fact and say that organisations those who will be able to rightly anticipate and correspond to these changes can develop potential competitive advantage.

A. ‘Going green’ for Restaurant industry in Taiwan

‘Restaurants are the retail world’s largest energy use. They use almost five times more energy per square foot than any

other type of commercial building using the latest EPA carbon equivalents, that amounts to 490 tons of carbon dioxide produced per year per restaurant” (Horovitz 2008). The hospitality industry is mainly a profit-based industry, and a restaurant’s cost condition counts more than its ‘going green’ image as profit decides their sustainability. Stys (2008) observes that restaurants in the USA consume a vast volume of disposable products, water and energy, with the annual cost of electricity and gas averaging \$161 dollars per seat. Clearly, this brings green practice research in the tourism industry to importance. Minor greening actions do exist in the restaurant industry, but no specific regulatory body decides green action on the part of this sector or advocates for pro-active environmental sustainability. In other words, this mean that the institutional pressures to change from within the sector and industry is largely lacking (Rivera 2004). This also shows how important regulation is in terms of bringing organisations into green agenda. Taiwan is a good example because the restaurant sector in this country is mainly a domestic market and therefore different from export markets, which are strictly regulated and comply with the quality standards of foreign trading partners such as Japan and the EU (Chou, Chen and Wang 2011). Thus, greening this sector Taiwan depends entirely on voluntary participation (only). There is very little market/consumer pressure on restaurants to adopt environmental innovations, study says that one of three Taiwanese could be classified as a part of the Lohas group, (Chang 2007) a group of consumers who are concerned with health but not with environmental sustainability.

A study carried out by Chan (2008) looks at exploring restaurant’s behavioural intentions toward adopting green practices. It uses the Theory of Innovation Adoption, which Krozer (2008) devised by looking at the deciding factors behind innovation adoption to be relative advantage, compatibility, complexity, observability and triability (Rogers 1995). The study also discusses Theory of Planned behaviour (Ajzen 1985) where personal behaviour depends on one’s behavioural intention. This behavioural intention mainly depends on three factors, Attitude towards the behaviour (AT), the subjective norm (SN), and the perceived behavioural control (PBC) (Ajzen, 1985, 1991). The participants/respondents were mainly the staffs of hotel restaurants, including general managers, food/beverage department managers, administrative chefs, and supervisors.

The methodology involved qualitative research methods and mainly the questionnaire on the sample group were formed on the basis of – 1) Perceived innovation characteristics (PIC) (Frambach and Schillewaert 2002, Lin et al., 2011; Rogers 2003) and one of the sample questions asked to the participants was – When your company adopts green practices, how likely is it that it will achieve economic benefit? 2) Attitude towards green practice (AT) (Ajzen 2002a), 3) Social Influence (SI) (Jeon et al., 2006; Montalvo 2003) where in the question that was asked was – ‘When you want to adopt green practices, how

likely is it that you feel the consumers will approve?' 4) Perceived behavioral control (PBC) which included questions based on self-efficacy, organisational resources, innovative beliefs and environmental features (Jeon et al 2006).

The results from this study showed that while attitude and PBC are significantly influential in explaining green adoption intention, social influence is not a factor (Chou, Chen, Wang 2011). Now following this result found in Taiwanese restaurant industry, we can observe that the ability to empower restaurant managers, to promote education and training at the individual managerial level, and to enhance learning at the organisational level should be introduced and used to justify incentives for. Additionally, Governments should drive voluntary initiatives within the restaurant industry by chalking out multiple strategies in the form of policies to build a better business environment that would support accepting/adopting green innovations.

Krozer (2008) observes that unless enterprise face urgent pressures from impending stringent environmental regulations and prospective high regards to cover the costs and risks resulting from investing in the new measures, the majority of restaurant managers are resistant to voluntarily adopt green measures. Thus, promoting awareness among the public and the consumers, and further establishing a support system for environmental improvements, verification and marketing purposes.

B. A look at green lawn mowers

A study on green lawn mowers at Husqvarna AB shows us the importance of market differentiation and marketing strategy for green products as two other important determining factors behind green adoption (Bragd, 1997). Husqvarna AB, firm operating within the mechanical engineering sector and one of its pioneering products has been its lawn mowers. These machines are solely based on the combustion engine technology, which is regarded as a dominant design in the gardening industry across the globe. Husqvarna AB developed several applications of the catalyst technology for small engines which secures their unique market position so far as regular process innovation goes. The application of the catalytic converter improved the combustion technology by reducing the odor and the amount of harmful substances emitted into the air (Tushman and Rosenkopf 1996). This has not only led to the improvement of environmental performance of the combustion engine but also the green image of the company. The improved environmental performance combined with no changes in customer use has resulted in strengthened ties with established customers and improved service in the already established application.

Coming to other environment friendly products, Husqvarna AB has also developed a new battery-powered lawn mower; this releases no exhaust fumes and makes low noise levels. The battery-powered mower represented a completely new technology for the company and demanded new technological skills. This was recognised by the management and the required

competence was acquired externally. Existing distribution networks and traditional marketing strategies were used and the product's potential to attract environmentally conscious customer groups was not identified. Furthermore, the distribution network had to learn new practices and the demands of the service and the aftermarket support changed substantially (Johansson and Magnusson, 1998).

They further introduced a solar powered robot for mowing grass which is quite revolutionary in nature, and it required customers to change their 'gardening' perceptions of how to cut grass thereafter. The technology of using daylight as fuel totally eliminates the emissions produced during use and can therefore be characterised as a radical step towards environmentally sound products. To Husqvarna AB the solar technology was an entirely new technology outside of existing competencies and this required new expertise. As a result of the innovativeness of the project, several external consultants and distributors wanted to participate in the generation of the technology (Johansson and Magnusson, 1998) which for sure led to bigger inter-industry collaboration.

The product didn't succeed initially in the market when it was first offered and the analysis carried out by Bragd (1997) shows that the marketing had to be based on symbolic aspects, which had to be visible to the customer i.e. the product being modern and futuristic. Another lesson learned from the introduction of the solar mower was that the marketing department tried to cover too many markets at the same time which means there is a necessary focus lacking in terms of identifying the importance of following market segmentation strategy and further testing on a reference market first.

In their study, Abernathy and Clark (1985) looked at the market's inability to accept the solar mower in the first place, this illustrates that a radical eco-innovation needs to be exploited by a company within a mature industry sector (and as Schumpeter (1939a) observed that it is always the mature sectors and big corporations which can make the most out of the radical innovation). Husqvarna saw the new solar technology as an opportunity to create an image of the company as being innovative (Bragd, 1997). The solar mower, being slightly less radical than the battery-powered lawn mower, illustrates that a company in an established industry sector can benefit from new technological options to develop radical eco-innovations. The aluminum car body for automobile industry is another example, where the aluminum industry, due to environmental demands from the car producers, has seen the opportunity to move to more radical modes of innovation. From this study, the importance of the different organisational aspects in terms of marketing, strategy and long-term planning is clear.

C. 'Greenwashing', Market delivery, Stakeholders and Sustainability

The market dimension of new eco-innovations is very important as discussed by Bragd (1997). Bragd's analysis of the two lawn mower examples shows that understanding the market dimension and the buying behaviour of the existing and

potential customers are highly important determining factors when introducing environmentally sound products. This is congruent with Abernathy and Clark (1985) statement that Architectural innovation (i.e. innovation having the ability to create a new set of consumer base and enabling a company to move out of the existing group looking towards the future) demands unique insight about user needs combined with the ability to see the application of the technology in a new way.

As mentioned earlier in this paper, we looked at the reality that adopting green innovation could be both an opportunity and challenge at the same time. Following the studies above, we can well emphasise on the importance of regulation in its role of making an organisation take up the green agenda. Looking at regulation or compliance as an opportunity could help organisations develop their own competency which would help them, if they could foresee and shape the regulations to their growth and survival by collaborating with rivals, to come up with creative solutions (Nidumolu, Prahalad, Rangaswami 2009). As an example, US automobile manufacturers take two or three years to develop a new car model. If GM, Ford, or Chrysler, had embraced the California Air Resources Board's fuel consumption and emissions standards when they were first proposed, in 2002, it would be two or three design cycles ahead of its rivals today – and by 2016 it would have been ahead of the new U.S green law that would be proposed. And as Schumpeter (1939a) observes that it is more often the big firms which can do it given its vast resources, market connectivity and the rivals it faces on a large scale.

The immediate next thing which gathers importance is making the value chains sustainable so as to increase efficiencies at all levels. The inter-organisational capability and ability to redesign operations leading to usage of less energy and water, and subsequently producing fewer emissions, generate less waste. Process like this of course calls for and life-cycle assessment and developing knowledge-based processes similar to the example of P&G and the solar mower, as discussed above already. Exploring new delivery technologies changes value-chain relationships (Nidumolu et al, 2009) in significant ways is another aspect that modern organisations like Walmart (who had aimed to reduce waste and emissions, cut packaging costs by 5% by 2013), Unilever (who now would purchase palm oil and tea from sustainable sources only) and also Starbucks have been addressing over the past decade.

Following to the mechanism of making the value chains green and sustainable (which could be referred to as process innovation) next comes product innovation which is designing sustainable products and services. This would albeit call for adequate resources on the part of the organisation which would help generate real public support for sustainable offerings and not be considered just as 'greenwashing' (perhaps a political term, as it seen in automobile companies in some countries where Governance fails to maintain the green behaviour of companies). An example in favour of this case, IBM encourages employees to work from home. This, consequently, leads to

reductions in travel time, travel costs, and energy use. Of IBM's 320,000 employees, 25% telecommute, which leads to an annual savings of \$700 millions in real estate costs alone. AT&T estimates that it saves \$550 million annually as a result of telecommuting (HBR, 2011).

Koellinger (2008) opines that taking the market demand and regulation compliances significantly and further making a proactive response could lead to developing new business models (the case of steel and aluminum industry as looked earlier) which would help an organisation step up to a whole new level. In this case, essential is to carry out a well-founded market research and prospective use of the findings (to avoid challenges as in the mowers case study, as mentioned earlier). Here again, possible collaboration with rivals could enhance the scope of the same in terms of the resources that could be gathered. Lastly, helping businesses to create next-practice platforms, by developing the understanding of how renewable and non-renewable resources affect business ecosystems and industries. Help should come to this ground from different academic to Government levels in varying forms. This would perpetually synthesise business models, technologies, and regulations in different industries.

D. Consumer 'motivation' behind Green adoption

"Environmental product innovations are seen as a differentiation tool for firms that helps maintain/increase market share." (Meffert and Kirchgeorg, 1998; Belz, 2001)

In the 1980s and early 1990s, green consumerism, i.e., consumers' consideration of environmental aspects in purchasing situations and their willingness to pay premiums for green products, was widely believed to emerge and gain momentum with time (Peattie, 2001). For example: Straughan and Roberts (1999) identify high income, high education level, liberal political orientation and most importantly, perceived consumer effectiveness (PCE) as positive determinants of environmental attitudes and behaviour (Roberts, 1996; Roberts and Bacon, 1997). Yet, other studies show that consumers' claims to prioritize green attributes have mostly not matched their actual purchasing behaviour (Wong et al., 1996; Kuckartz, 1998; Prakash, 2002). Straughan and Roberts (1999) opines that consumers' attitudes and responses to environmental issues are a function of their beliefs that they can positively influence the outcome of environmental problems. In this section, a variety of theories are looked at which helps us to analyse why the overall response to green innovation products has been fairly low in the consumer market and why associated incentives to bring it up has fallen short.

Though the very first one, with a lot of methodological challenges discovered at a later stage, yet quite a useful theory was developed by Dunlap and van Liere (1978), called as New Environmental Paradigm (NEP). This theory identified a set of core values which directly influences behaviour in consideration of natural limits and the importance of preserving the balanced integrity of nature. Following this theory, other studies have scoured on this similar zone trying to establish the

relationship between values and behaviour involving further qualitative and quantitative research.

Schwartz's (1977) came up with Norm-Activation theory which looks at social and personal norms, (e.g., strong moral obligation) and it establishes a direct relationship with pro-social behaviours, rejecting the idea of behavioural intentions (contrary to what NEP viewed, as mentioned above), instead mediating the relationship of the two. In this theory, awareness of prospective consequences and recognition of responsibility create personal norms, which lead to pro-social behaviour. Based on this perspective, Stern et al. (1999) develop a model of pro-environmental consumer behaviour: the value-belief-norm model. In this model, the acceptance of the NEP values leads to awareness of consequences and ascription of responsibility, and the resulting personal norms lead to pro-environmental behaviours such as environmental citizenship, policy support and private sphere behaviours.

Furthermore, Stern (2000) also presents the attitude-behaviour-context model, which looks into the effect of individual attitudes towards a particular behaviour (e.g. values and personal dispositions) and contextual factors (e.g. monetary/physical constraints and interpersonal influences). These theories are widely used in research on consumer pro-environmental behaviour, emphasizing the importance of values, consequential beliefs and the sense of responsibility that creates norms for pro-environmental action.

E. Market and organisational 'motivation' factors behind green delivery and adoption

In the context of adopting green innovation, and on the basis of our literature review, we can assume that consumers are likely to adopt green change/products when - they see benefits and positive consequences from adopting [and accept responsibility for the consequences] (i.e. perceived benefit), they think that the service is compatible with their current practices and values, and with the images, identities and cultural references they like to express (perceived compatibility and reflexivity), they feel enough social pressure or see many others adopt (social influence and norms). They think that they can cope with the hassles associated with adopting and are happy to pay extra (controllability), and when they do not perceive risks in terms of functionality and economics (perceived risk). (Rogers 1995)

Adopting sustainable innovation is thus clearly an issue which is more relevant to address than just incorporating GI in policy prescription. The sub-factors, from the above research and from Ozaki's (2009) study, responsible for green innovation adoption are recognition of green values, green beliefs (the awareness of consequences), green norms, access to information, functionality and controllability, consequential beliefs, green expectations/norms, self-efficacy, overall attitudes towards green electricity, social influence, controllability, overall controllability.

Building on the Porter's (win-win) hypothesis as Bernauer (2006) discusses, a considerable body of literature classifies and

analyses corporate environmental strategies and their potential for gaining competitive advantage. First, the timing of corporate activities in relation to regulations or public concerns; such timing is often viewed in terms of proactiveness or reactiveness. Second, the scope of corporate environmental activities – usually defined as firm-internal (processes) or market-oriented (products) or both. Cleff and Rennings (1999) find significant effects on environmental product innovation only for the strategic goal of maintaining or increasing market share.

2. Conclusion

In conclusion, all the models and tools in the existing literature of eco-innovation can merely serve as a supporting base for organisations that are developing and commercializing eco-innovation. It can be argued thus, existing innovation theory, via these frameworks can't explain all dimensions of eco-innovation. However, they help us to raise new questions and further develop the discussion and prospects of eco-innovation and the management of the same by organisations who are either into it as a re-active or pro-active response measure. One of such questions could be – to look at the relation of the environmental dimension of innovations, i.e. the environmental performance, to traditional (economic) performance measures such as price, functionality, and technical performance.

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