

Purpose . is to examine how modern technology can raise awareness to reducing the carbon footprint.

Design - using a case study approach as an insight into the manner Marriott work in regards to Corporate Social Responsibility (CSR) and sustainability to develop their business through design with limited natural resources using innovative research to lowering carbon footprint.

Findings - an on-going study, to enable further investigation into how Marriott can work through research and policy into long and short term policy for sustainability and corporate social responsibility (CSR).

Research and implications - limited conceptual insight, further research is required into investigating long and short term policy using a larger case study sample.

Originality/Value - provides and insight into the methods of technology and innovation Marriott use to lower their environmental impact.

Keywords - Corporate social responsibility, innovation, sustainability and policy.

Paper type - Research paper

Introduction

Marriott have been recognised not only for their environmental leadership but also how they have taken innovative advancements in developing their business. Developed through a sustainable approach to their business, using technology and collaborating with researchers from environmentally friendly companies to reduce their carbon footprint and effect on the earth's natural resources. Marriott.com (2012)

At year-end 2011, Marriott had more than 3,700 hotel properties in 73 countries and territories, with approximately 300,000 associates at managed and franchised properties, Marriott Corporate Headquarters and office locations. Reported revenues were more than \$12 billion in fiscal year 2011. Marriott.com (2012) Marriott implement their design policy through their strategy in how they support the environment, buildings, employment and they do so through their everyday actions at home, while at work and on travel. With one of the broadest portfolios of brand in the industry, and a worldwide lodging leader. Marriott has built a culture through its service and innovation, the company continues to evolve, building upon the success of their brands, together with their owners and franchisees. Marriott development.com (2010)

The environment as described by Jones (2010 p.98) includes the natural world as well as the built or technological, social, cultural, political and economic world we inhabit. Marriott not only focus on the environment but realise the importance of the analysis of their strengths and weaknesses in the value chain and what resources are vital to the business failure or success and in which markets they compete in better than others.

Sustainability defined by The Brundland Commission 1987, as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Worldbank.org (2012) Incorporating sustainability into the company law syllabus specifically in relation to corporate governance enables greater consideration of the economic facets of sustainability (Jones et al 2010). Marriott are aware that to have a successful design policy to respond to pressing environmental issues that will allow change to implemented from idea to an end product or service is through creativity, innovation and brand loyalty all of these factor build profits and growth. It is required to have not only relevant policy in place but to know what they which to achieve.

Samujh (2011) described where a business can change from survival to sustainability is most successful driven by the ability to continuously think of the future. Marriott are taking a more holistic approach to their operations and using a long term approach to business using design of new policies, procedures and buildings into developing process, products and services as sustainability is the driving change in business. Best (2010) described design policy as where an idea can be improved upon by design to add value to a company.

The development of Corporate Social Responsibility (CSR) has resulted in businesses now having to take this into consideration to attract investors. Kaplan (2010). Marriott take a broad view when it comes to corporate governance, recognising the importance of a web of relationships not only between the company and shareholders but also that of stakeholders too stakeholder theory. Marriott.com (2012)

Whereas Friedman (1970) took a more economic approach and an agency perspective to corporate governance and CSR, arguing against the social responsibility side of business and that the main responsibility of the business was to create profit In Murray (p.20 2011) taken from the Economist Intelligent Unit Global Survey that the poorest share price comes from the poorest sustainability performers.

Research

At a corporate level, Marriott are creating value through the business, deciding which areas of the world they wish to work in by developing business units, and ensuring each unit works

well with another then deciding on a strategy in which to position it on a political, economic, global and social environment perspective (Slack et al 2001). Ensuring Corporate Social Responsibility (CSR) is implemented by Marriott through their design policy allows the opportunity to respond to pressing environmental issues thinking for the short and long term.

How to encourage a more sustainable future by:

- " Reduce the amount of waste and recycling.
- " Educate staff, customers, and suppliers.
- " Encourage communication between local councils.
- " Increase Corporate Social Responsibility (CSR).
- " Reduce CO2 emissions.

The researcher views the link between Technology, CSR and Design Policy, that allows Marriott to explore sustainability elements relevant to the company by collaborating with other companies, which not only ensure they adhere to the laws and regulations imposed by CSR but the use of smart technology to gather information to measure environmental impacts, to produce an innovative design policy to create a sustainable future (Marriott.com 2012).

Through the implementation of all three can bring sustainability and together work towards the lowering of Marriott's carbon footprint, research shows that they all play a crucial role. Carter & Jones-Evans (2006) discovered using deliberate strategies essential which are combined internally and then implemented, while taking into consideration the outside influences. Therefore improving the operation of the legal system or investing more in the development of human capital will speed up growth as Hashi & Karsniqi's (2011) research states that whilst implementing policy measures which are aimed at improving these factors and monitoring changes which influence growth allows significant results in promoting entrepreneurship and Marriott's growth through a better functioning market. Hogevoid & Svensson (2012) explained sustainability is best achieved when whole supply and demand chains consider the practice of doing many different things at the same time. Marriott have designed a program, FutureFish, to source sustainable seafood through working with seafood suppliers and fisheries. Marriott.com(2012)

Marriott implement their own design policy for new and existing projects, planning, maintenance, design and operations, setting clear procedures which are transparent throughout the hierarchal structures using the latest technology in an innovative flexible

approach to ensure the policy is implemented and regularly measured. Dess et al (2010) define strategy as the analysis of the goals or visions alongside the external and internal environment of the organisation to create and endeavour to create sustainable advantages. Moving with change Marriott has built a culture through its service and innovation. Marriottdevelopment.com (2010)

The researcher agrees with Mintzberg (Dess et al 2010), that the business environment is far from predictable thus limiting our ability for analysis. In order for Marriott to deepen their understanding of the environment can come from the knowledge of encouraging others in their ideas, identifying opportunities; ability to find resources that they do not have themselves, focus on growing their ideas, creating value and growth with drive and ambition. Birley & Muzyka (2000). To attract business in the economic down turn, their focus has shifted to further afield; Asia, China and Dubai where innovation is growing rapidly, they are taking advantage of the technological advancements and strategically diversifying into these areas ahead of competitors and ensuring have a unique edge for meetings, exhibitions and conferences through MICE and opening in Dubai at the end of 2012 the world's tallest hotel. nuqudy.com (2012)

Pavic, Simpson & Koh (2006) believe the traditional value chain needs to be reversed in this new world of e-technology, for a business to remain competitive and to face the challenges posed by the businesses they must achieve mastery of information and relationships in the new virtual e-economy.

It is a knowledge economy within this new digital age, working in partnerships with other companies allows shared research and knowledge. Marriott have a target to reduce by 25 percent water and energy consumption by 2017 ensuring the supply chain is as green as they can make it whilst lowering costs and working towards sustainability. Marriott.com (2011) Working together academic research, businesses and government can move towards global sustainability reducing the environmental impact and producing new technology that will allow for new sources and methods to reduce CO₂ and nature's declining resources. It is changes in the environment that creates opportunity for innovation (Burnes, P. 2007)

Findings

Cardiff Marriott gave insight into policy and practice in regards to sustainability and the reduction of carbon footprint. They have introduced LED lighting as more energy efficient, meters for water, gas and electricity to monitor and check results through a database. The analysis of cost effectiveness and efficiency for Marriott Cardiff are outside the scope of this paper. However, research conducted in 2011 of hotels across Asia and Europe

demonstrated a reduction of costs and energy demand reducing their scope 2 emissions by implementing LED lighting. Marriott.com(2012)

Marriott has been ranked one of Newsweek's "The Greenest Big Companies," Marriott.com (2012)

Marriott meetings are held monthly with the heads of departments and representatives to discuss environmental policy. Eco-teams hold monthly and quarterly meetings to discuss pressing issues; information via monthly meetings is fed throughout the hierarchical structure of the company it is this flexibility allows them to react quickly to changes in the environment. Dess et al (2010)

- The bar, kitchen and housekeeping staff are trained on the use of the compactor used for dry goods, the use and importance of the recycling bins for glass, paper, food and general. On a broader spectrum, Marriott's research has delved deeply into environmentally sustainable supplies for their hotels from using recycled materials for their towels, eco-smart pillows, carpets and key cards which they estimate saves from manufacture to guestroom 6 million gallons of water. Marriott.com(2012)
- Training refreshers for staff are on a quarterly basis; turning off lights, towel rails and heaters as each small move is a leap towards sustainability.
- Laundry . programs have been designed to reduce the environmental impact and partnered with Ecolab in 2010 who use numerous scientists to research how new technology can efficiently use nature's resources. Not only reducing costs but also the environmental impacts of the limited resources of our planet by reducing temperatures to wash linen. The comparison of the amount of water previously used, saving on average for the project in 2011 (based on location specific prior to the program) 35 % Energy and 20% water. Water is of limited supply and we do not have alternative sources, therefore more research is required into new recycling methods to cope with growing population.
- Introducing the disposal of batteries, light bulbs and paper through reliable sources.

Marriott Cardiff collaborates with companies below to work towards sustainability, for example:

- ENVIROTECH . Waste to Energy approach, which is a green solution to waste disposal, have allowed Marriott to embark further sustainable practices for the business, using new technology and initiatives resulting in less sent to landfills.
- NALCO . a global company specialising in air, water and energy, in order not only to conserve but also use technologies to produce more efficient ways to create energy

sustainably Nalco.com (2012). Marriott plan to achieve over a three year period a 2010 to 2012 saving of 450 million gallons in water Marriott.com (2012). Marriott operate cooling systems using 3D TRASAR technology which reduce operating costs by cutting electrical usage and real-time monitoring lowering maintenance and an efficient safe cooling system by reducing waste and improving cleanliness whilst reducing greenhouse gases. Ecolab2012

- THE CARBON ACCOUNTING COMPANY (TCAC) – who are able to track and monitor greenhouse gas emissions related to the supply chain, producing comprehensive reports of the findings of an organization's business operations and supply chain. Thecarbonaccountingcompany.com(2012)
- The Global Green Council - who look at ways to improve and develop and design environmental strategy and set long term goals, through quarterly meetings where the sustainability lens is applied and delivered. Marriot.com(2012)
- CONGENCO- using technical expertise and scientific analysis allows Marriott to reduce emissions and carbon footprint through combined heat power (CHP) using lean burn technology - a gas engine which drives an electrical generator also using equipment to recover the energy that would normally be lost in the exhaust gases to provide heating and hot water. cogenco.co.uk (2012)
- ACM (an environmental waste management company) to monitor and reduce costs, protect the environment. This technology allows for measurement of carbon and waste impact by means of an online database, together they work with Marriott to ensure less is sent to landfill. acmplc.com (2012). Furthermore, partnership asset disposal companies since 2006, has diverted nearly 500,000 kilograms of eWaste - computers, servers, printers, network equipment components from landfills. Marriott.com (2012)

To achieve sustainable business requires understanding of the processes and techniques used within a company. The board has the knowledge and experience to ensure it stays innovative and effective considering the Triple Bottom Line. It is important to understand that being ethical is much more than being legal and an integrity based approach addresses the issue of ethics in a more comprehensive manner, combining the concern of the law with an emphasis on managerial responsibility for ethical behaviour. It is broader deeper and more demanding than a legal compliance initiative. Harberg & Rieple (2008)

Value

Planning ahead focusing on how the business can be sustainable with declining resources, Zadek (2012). Marriott are not waiting for all new laws and are being innovative and going

above and beyond. A corporation not only has economic and legal obligations but ethical and discretionary responsibilities (Frc.org.uk 2012). Changing ethics are the driver behind new law/regulations. Solomon (2010) explained you can make a fast buck by ignoring CSR but can't run a sustainable long term business without it.

In May 2012, Marriott introduced the Green Hotels Global tool, to reduce Marriott's carbon footprint and to be able to monitor and analyse their effect on emissions and on the environment, through the calculation of waste diversion and also their water footprint. The online system demonstrates through the collection and analysis of data each hotel's carbon footprint (developed and managed by The Carbon Accounting Company). Marriott are keen to introduce this globally throughout their brand. Marriott.com (2012)

An activist approach taken by Marriott in relation to CSR, considers the business to be part of society and also a cause to environmental damage, therefore has a responsibility to deal with these issues. They have a business ethics training program to reinforce both ethical responsibility and corporate values. Marriott.com(2012) These strategies and policies are implemented by dedicating each employee 34 hours of professional development and on average 78 hours of training each year. Marriott.com (2011).

As global population increases so does the pressure on limited natural resources required to meet rising consumer demand, influencing ethics which are key drivers behind change to CSR. Grace & Cohen (2005). Marriott are aware that adhering to the minimum standards of regulation are not enough in the more socially conscious world in which we are living. Haberberg and Rieple (2008) the ethical values which shape the search for opportunities, the design of organisational systems and the decision making processes, provide a unifying force across the different functions. Marriott take an integrity based approach of ethics which are driven by personal and organisational commitment to ethical behaviour rather than a compliance based approach which is driven by fear of punishment enabling them to move forward in terms of research and development to be more sustainable. Marriott (2012) The CSR movement is for us not a threat but an opportunity - it offers a course to follow that can help to establish a new relationship between business and society based on trust and shared values, leading to greater freedom for business and a more enlightened public attitude to profit.+Amble, B. (2002)

Information is power if people are more aware they are keener to adapt to work to solve the problems Haberberg and Rieple (2008).

Policy design helps achieve funding and investment from organisations and government as it provides clear infrastructure. Research dictates that each policy is not one size fits all and

should be written to specific business needs CABE (2005, p.8) Companies differ greatly in regards to their needs, structure, character, opportunities, areas covered and how designers are used in the design process. Marriott are taking a more holistic approach to their operations, using design of new policies, procedures and buildings into developing processes, products and services as sustainability is the driving change in business. Best (2010)

James & Card (2012) discovered that Institutions may best achieve sustainability success by utilizing both a top-down and bottom-up approach in instigating sustainability changes. Marriott as a whole has one vision that is centralised; HR, procedures and policies and are committed to getting their employees to participate in decisions which affect them. This employee engagement contributes to employees happiness, enthusiasm and motivation in the workplace. Marriott.com (2011) Improving the operation of the legal system or investing more in the development of human capital will speed up growth of Marriott as discovered in Hashi & Karsniq (2011). Whilst implementing policy measures aimed at improving these factors, and monitoring changes that influence growth, afford significant results in promoting entrepreneurship and growth, through a better functioning market.

This can be achieved through boundary less+organisation design to compliment traditional organisation structure, which allows for innovation and information sharing. Dess et al (2010, p.358). Advanced through their high skill level, sharing skills, knowledge and by encouragement opposed to competition. This allows Marriott to respond to the market faster, allowing greater alliances with suppliers, partners and customers. Whether it should be implemented by government or a more social and bottom up approach should be considered as we are equally responsible for our environment and how this can be achieved for both short and long term targets, to plan ahead focusing on how the business can be sustainable with declining resources. Zadek (2012) through extensive research and scientific knowledge that businesses can advance towards sustainability.

It is important to be aware of the boundaries both internally and externally. Without the flexibility in the rapidly changing environment, and strategy for different countries they are expanding into. Dess et al (p.370, 2011). Marriott must take steps to ensure the strategy of products and services take this on board during the design process as Herbig et al (1992) discovered that the reality of innovation overload for customers to change, understand or adopt can be beyond some of the customers capabilities. It is important for the behaviours of people to understand how relevant the design policy and technology can aid sustainable living. Murray, P. (p.14 2011) believes that changes is easier on a collective basis through the power to influence such as businesses and governments who lead the lead into

sustainability and change which allow for others to follow in their footsteps although this requires the cooperation of individuals.

Mattila et al (2009) discovered that people who adapt to a new technology are positive towards it and are also interested in new technology. Whereas, late adopters towards this technology are found to have a more negative attitude towards it.

Discussion and Limitations

Marriott are using technology to advance in sustainable living using the advancements of technology to reduce their consumption and waste being ahead of policy and CSR implementation and constantly striving to look for ways in which they can advance whilst building a profitable company, as discussed earlier. Limitations to this study where the lack of availability to speak to senior management at the Marriott Inc. Future research would involve cost benefit analysis of the data to give a more thorough understanding of how the reduction in carbon footprint and waste management affect company profits and the environment. Marriott's attention to detail which allow them to progress through the rules and regulations to create a sustainable development globally. This relationship between value creation, innovation, and integration forms the core of business planning allowing full integration of communication between buyers and sellers. Pavic, Simpson & Koh (2006). Marriott use value creation and innovative knowledge to their advantage in these times of recession to ensure business is not lost through poor service and therefore strengthening their brand. The strategic elements which they use, translate into an enterprise that is both efficient and flexible, allowing the company to adapt, change, grow and innovate.

These findings present a link between technology and sustainability through innovative business research and design for the long and short term. Future research and analysis into the environment and sustainability of the earth's natural resources in regards to CSR should be considered in more detail to improve understanding of the limited natural resources.

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