Digital Printing Networks: a case of Best Practice in Sustainable Marketing Communications

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Abstract

Purpose of the paper and literature addressed – This paper reports on the findings of a collaborative project involving a UK University and a UK marketing agency. The purpose of the paper is to highlight the importance of the issue of sustainability of marketing communication activities and the need to adopt best practices to limit the environmental impact of corporate communications. We review a variety of literature on Sustainable Marketing.
Research method – The paper uses a case study approach to investigate the issues identified. The firm that will provide the case study is a UK SME specializing in marketing communications and digital printing. The research project is partly funded by the UK government.
Research findings – We suggest that best practice in marketing needs to address the impact of corporate marketing communications. Because of the nature of the project we concentrate on the technological aspects of communication, while we acknowledge that the type of communications selected is also important. We propose a sustainable marketing communications model, SustComPro, which can be used as a checklist to audit all components of a communications plan. The achievement of sustainable marketing communications requires a skilful management of interactions and relationships within an integrated network.
Main contribution – The contribution of the research is to propose management tools that can enable companies to limit and monitor the impact of their communication activities. We also make a point that marketing communications do have an impact on the environment and corporations have a duty to limit this impact.

Keywords

sustainable marketing communications; digital printing; interaction; network; environmental footprint; case study methodology; waste; pollution; sustainable marketing communication model

Introduction

This paper investigates the issue of the environmental impact of marketing communications and proposes a model of sustainable marketing communications. It also looks at the role of interaction and business networks in contributing to the delivery of best practice in

environmentally sound communications. Our research looks at the design of best practice "green" marketing communications by a marketing communication agency based in the North West of London.
The production of "eco-friendly" marketing communications by this company involves close collaboration with commercial partners in their network. This involves two way relationship management, and network management, as a necessary condition for the achievement of best practice.

There are many examples of initiatives by businesses to position themselves as environmentally friendly. For example, Tesco, the largest grocery chain in the UK, has introduced numerous programmes, including consumer incentives to reduce usage of disposable shopping bags. Companies have even been set up with this issue in mind, for example *The Bodyshop* and *Lush* (lush.com) positioned their brands according to claimed social or environmental concerns.
One issue that seems not to have received adequate attention by academics, though, is the environmental impact of marketing activities and communications. This is rather ironic, since businesses use marketing communications to educate consumers on the choice of environmentally sound products, their considered usage, recycling, etc.
Some academics, e.g. Peattie (1999) and Fuller (1999) express the opinion that the impact of marketing communications is not as severe as that of a product (and its packaging, production and usage, and all the logistics activities involved with transporting the product to the point of sale and selling it). Fuller (1999, P. 223) claims that "Even though communication processes do consume resources and spin off waste to an extent, these activities are waste generating lightweights when compared to the business of designing and making products and then making them accessible to customers". Peattie (1999) claims that product development and distribution are key areas for companies to improve their environmental performance, somewhat overlooking the importance of communication activities. One of the purposes of this paper is to argue with this point, and to alert marketing academics and practitioners to the significant environmental impact of their marketing communications.
We argue that best practice in marketing communications needs to take into account the impact of each activity on the environment, and favour those activities that offer the greatest savings on energy consumption and waste generation and therefore a reduced environmental impact.
We also argue that, to achieve sustainable printing and sustainable marketing communications, a company needs to implement good practices of relationship management within their supplier and client network. The paper concludes by proposing a model of best practice in sustainable communications.

Sustainable Communications

Research on the environmental impact of marketing communications is very scant.
Marketing communications activities have a measurable environmental footprint, and therefore marketing professionals need to be concerned about the immediate environmental impact of their activities as well as that of the products and services they help to market (Catulli, 2007). These activities should be planned so that they support environmental marketing strategies (Kärnä et al, 2003).
Some industries are associated with marketing communications, for example the paper production industry and the printing industry. In both these industries concern for the environment has informed best practice for some time (ibid). These concerns address the sustainability of paper manufacturing, in particular the extent to which the sources of the raw materials to produce paper and its derivatives are renewable. The impact of both production and use of paper is damaging, since these processes cause trees to be felled, and trees are an essential component of our environment.
Demand for paper by the marketing communication industry is considerable.
Marketing communications requiring paper include outdoor posters, direct mail (consisting of mass mailings requiring medium size print runs), brochures and information booklets, printed newsletters – all these are printed in small to medium runs. Packaging, also used for marketing

communications (the “silent salesman”), is often made of paper products, and it often involves printing. For some time, people thought that advertising has no direct responsibility for the demand for paper and print by companies producing newspapers, magazines, directories and other types of media printed in large runs, as these media would be produced even without advertising, as they serve a direct purpose as a service. It could be argued, though, that media would not have reached the current proliferation had not been for the financial incentives offered by the marketing communication industry and relative activities of businesses. In other words, if we exclude books and other media which do NOT carry advertising and other marketing communications, all paper printing that carries some form of advertising contributes to the environmental impact of marketing communications. The magnitude of this impact is mind numbing when thinking about the sheer scale of the marketing communication activities carried out by millions of small, medium and large businesses, across the entire World. The environmental impact of printed marketing communications include, in addition to the above mentioned felling of trees:

- The chemicals and energy used in paper production processes;
- The chemicals and energy used in printing;
- The energy used in the transportation and storage of paper products and printed material, and
- The amount of paper that gets wasted and has to be disposed off in landfill sites.

The scale of the production of this waste is of particular concern. 78,000 metric tons of “junk mail” ended up in landfill in 2005 (Catulli, 2007). This has significant implications for climate change, as decomposing paper releases methane, a greenhouse gas even more polluting than carbon dioxide (CO□).
The impact of the printing process itself includes energy consumption, release of pollution and waste from the chemicals used, e.g. solvents and ink (Bartlett et al 1998); waste paper generated when finishing, and the energy required by the storing and transportation of printed papers.

From this perspective, increasing use of electronic media, for example internet based communications, could be regarded as a positive development; however, it is necessary, in order to fully assess the impact of these communications, to take into account the energy consumption of servers, routers, computers and other electronic equipment.
The scale of the latter is likely to be considerable, as the range of business communications activities means that innumerable electronic devices are involved (*each* consumer using e-marketing to find information on a product or service from the internet needs to use energy by using a computer as a “portal”). If one tries to imagine the flow of electronic communications generated by the internet activities of companies such as Nike, not to mention internet bound companies such as Amazon, it is likely that the energy consumption, and the relative environmental impact, is of concern.
Other marketing communication activities also have significant environmental impact, for example the deployment of a sales force to visit customers has a great impact because of the need to travel. Some companies have fleets of hundreds of company cars for their sales people. To this we may add the waste streams represented by very diverse types of packaging, including inner and outer packaging, information sheets included in the package together with the product, etc (Catulli, 2007).
In summary, marketing communications have a significant impact on the environment, so to warrant research to identify best practice to minimize marketing activities’ impact on the environment. In contrast with the lack of research by academics, some practitioners have already addressed the issue. London based advertising agency *St. Luke*, for example, launched the first “carbon neutral” advertisement in 2004 (Beale, 2007). *Clownfish Marketing*, another marketing communication agency, also puts the sustainability agenda in their marketing communication services. However, these operators are still on the fringe of the marketing communications industry, which is frequently regarded as a wasteful one (Peattie, 1995).

The role of interaction

In order to assure environmental performance, companies cannot look at their activities in isolation. The achievement of a low carbon footprint by an individual business is meaningless if members of the network upstream (suppliers) or downstream (customers and commercial partners) do not achieve comparable savings in energy and carbon emissions. It is necessary for each business to "green their supply chain" (Alvarez et al, 2006), in other words to ensure that all the members of their business network deliver a reduction in their environmental footprint. This need has given rise to many certification schemes, such as ISO14001 for example, which aim at giving businesses an opportunity to vet their suppliers and commercial partners based on these criteria. In the case of marketing communications, network management goes beyond the management of the supply chain: the marketing agency needs to be integrated in the network of their clients as well, for example as a manager of their intellectual property assets (virtual warehousing).

The interaction approach, introduced in the 80s (Håkansson, 1982; Ford and Håkansson, 2002; Ford and Håkansson, 2004) is a model that acquires renewed currency in the context of the achievement of efficiency gains and carbon reduction, as it is very effective in modelling the complex relationships and interactions which are necessary to assure that all the network complies with environmentally sound practices. It would be easy to assume that the compliance with legislation and the adherence to voluntary regulation such as ISO14001 should be sufficient to ensure everyone behaves in a responsible manner. This may not be the case, however, when members of the network are based in different countries, where legislation and regulation in terms of environmental practices is not as stringent or well enforced. Furthermore, even assuming that legislation is adequate and enforced, Individual companies may wish to "overcomply", i.e. they may wish to exceed the requirements of legislation and regulation (Reinhardt, 1999; Cavaliere, 2000), in order to achieve a competitive advantage, as this is, many theorists argue, a consequence of environmental excellence (Porter and van der Linde, 1995; Stone and Wakefield, 2001; Maxwell and van der Vorst, 2002). The implication of this is that if a business makes a strategic decision to position itself as environmentally responsible, then it may be necessary to get all the members of the network to overcomply. This involves skilful relationship and network management, and requires the fostering of high levels of commitment and trust by means of nurturing relationships (Selnes, 1998). The achievement of environmental goals also calls for reciprocal adaptation, which can be facilitated by a relationship management system (Ahmad and Buttle, 2001). The actor bonds, activity links and research ties established as part of the relationship development can thus be orientated towards the achievement of environmental gains.
This makes an argument for the interaction approach to be used as an essential blueprint for the delivery of a successful strategy which relies on the environmental performance of the network.

The Role of Printing Services

According to industry sources, for example (http://www.mcnaughton-group.com), print buyers increasingly focus on sustainability. Offering the market a sustainable communication service could offer rewards for both suppliers and print buyers.
The interest in "green" printing services may be driven by regulatory pressures, such as self-regulation, e.g. the will to conform to international standards such as ISO14001, and legislation, or strategic reasons, for example companies' concern for their reputation capital (Miles and Covin, 2000; Kärnä et al, 2003).

Green printing best practice needs to be supported by a network of suppliers who implement sustainable business practices certified by environmental standards such as ISO14001 (Vachon, 2007). Members of this supplier network include paper suppliers, who provide paper manufactured from renewable sources such as those certified by the *Forest Stewardship Council (FSC),* or recycled paper; suppliers of vegetable based inks and other chemicals

(Bartlett et al 1998); and suppliers of printing machinery, such as Xerox for example, whose printing machines components are recyclable (xerox.com).
Sustainable printing is also supported by technology; for example, the sustainable benefits of Digital Printing (DP) technologies derive from the fact that they support practices such as Web–to print, which allows a print buyer to upload content onto the web and order remote printing; this technology also supports virtual warehousing. This reduces the need for storage, with consequent reductions in paper waste and logistic costs. The latter contributes enormously to sustainability, as logistic activities greatly contribute to CO release (Yang et al, 2005). Best practice also requires data driven campaigns. Up to date, relevant databases enable correct targeting of communications, hence reducing wastage due to irrelevance to the receiver.

Towards a Model of Sustainable Marketing Communications

The intellectual framework behind our proposed model of sustainable marketing communications is based on the fundamentals of sustainable business processes proposed by various authors (for example, Hawken et al, 1999; Fuller 1999; Esty and Winston, 2006; Sawitz and Weber, 2006).
Our proposed model, which we entitled *SustComPro* (Sustainable Communications Process), is a closed loop communication process. The rationale of the model is an attempt to implement the principles of Pollution Prevention (P2) and Resource Recovery (R2) (Fuller, 1999). An important imperative is that of waste minimization, where the process is designed to reduce resource use and waste, and at the same time recover all the resources that are wasted in order to reuse or recycle them – the 3Rs of Reducing (use), Reusing (resources) and Recycling (resources).
These practices are embedded in the context of business networks, as the role of interaction is to get commitment by all the members of the network to abide by these principles.
Based on the same literature, we also take the view that the *onus* of minimising the environmental impact of marketing communication lies with the company that sponsors and implements these; this includes the recovery of any *promotional* waste (e.g. brochures, letters, and other promotional materials discarded by a company's audience) at the sponsor's expense. This is known as the *polluter pays principle* (Hawken et al, 1999; Fuller 1999; Esty and Winston, 2006; Sawitz and Weber, 2006).
The process is a closed loop cycle – it attempts to reintroduce as many wasted resources as possible into the loop. The model is divided in four stages which are designed so to satisfy the P2, R2 and 3Rs principles at each stage. The work done on our case study research attempts to assess to what extent modern marketing communications agencies address these principles in the marketing communications programmes they perform on behalf of their clients, and validate the model. The four stages of the model are explained as follows:

Technology used

This stage of the framework is concerned with the selection of the technology which is more energy efficient and less wasteful. Keeping up with new technology is important so to use up to date equipment with best in class performance.

Media Sustainability

Our definition of media includes printed and virtual media. Some may assume that virtual media is more sustainable than print media because of lower levels of waste; the concerns explained above need to be taken into consideration though, in that each consumer that gets reached needs to power up a computer to accede a company's web site. A poster might be energy neutral but obviously there are issues with it being unsightly. The planner needs to compare the different types of media available and be able to trace back for example what type of paper has been used, so that the least invasive is deployed.

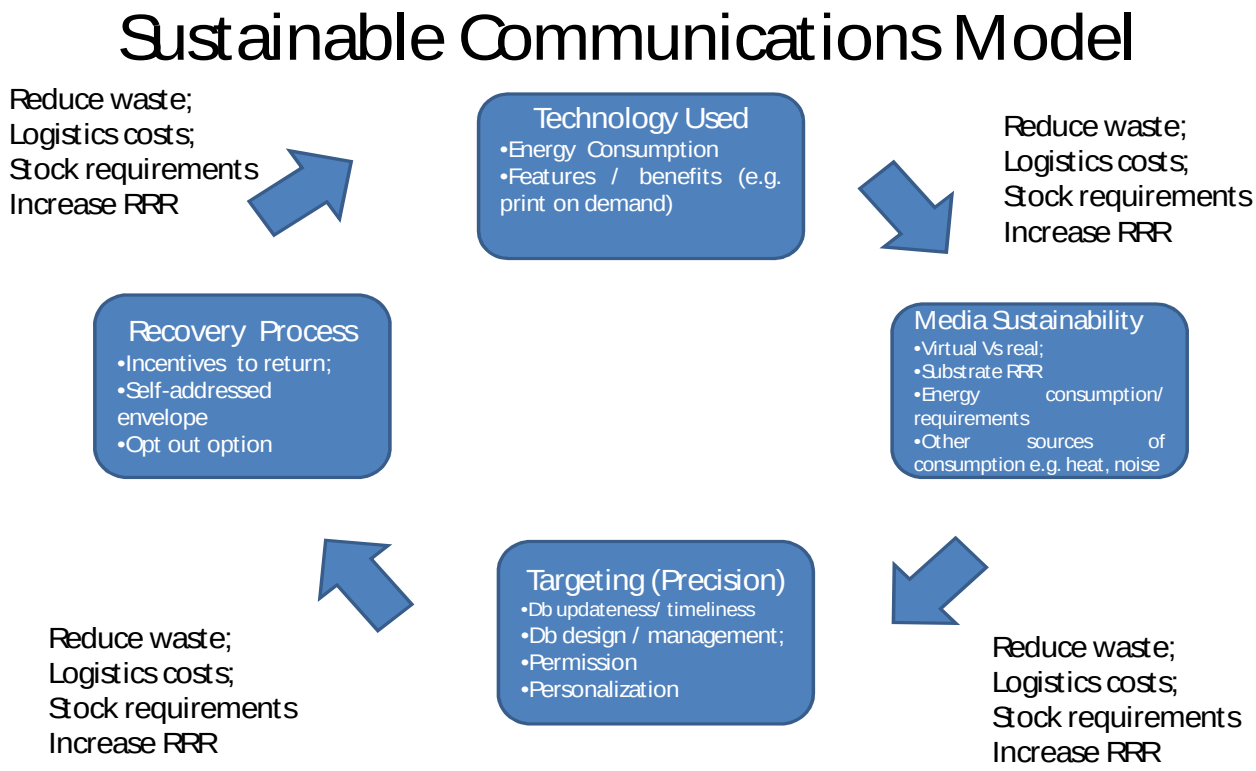
Targeting precision

Apart from environmental considerations, this stage also affects the cost-effectiveness of the communication activity, because when communication is badly targeted the cost-effectiveness of the message suffers. In environmental terms, if targeting is not precise too many irrelevant communications are used, resulting in more printing, energy consumption, mail deliveries, etc. than necessary. The success factors in this stage are that databases for example are kept up to date, and also that there is such information in them as to allow targeting audiences with communications which are relevant to them. Achieving permission from respondents to be targeted by these communications also helps keeping waste to a minimum.

Recovery process

We suggest this fourth stage is the most innovative part of our proposed model, and the one that closes the loop. It deals with the P2, minimization of waste and R2 advocated by Hawken et al (1999), Fuller (1999), Esty and Winston (2006) and Sawitz and Weber (2006).
"Opt out" options are very important in this stage, as they give the respondent a choice to opt out of future campaigns to update databases and avoid sending communications to uninterested parties. Other strategies, for example giving incentives to the respondent to return the materials used in the communication (for example brochures, letters, etc.) to the marketing agency, aim at recovering resources. Fig. 1 summarizes the model.

Fig. 1 the *SustComPro* **model**



Note: RRR = Reduce, Reuse, Recycle

Sources: The Authors

Notes on Methods

Our research uses a case study methodology to investigate the issues identified. This is a type of inductive method requiring a holistic approach to data collection (Ahmad and Buttle, 2001) which involves investigation and analysis of phenomena within their real life context (Perry, 1998) and offers the opportunity to analyze critical incidents that determine a course of events within the context of a longitudinal study (Perry, 1998; Meredith, 1999; Tikkanen and Alajoutsijärvi, 2002). This research method was chosen as it offers the possibility to generate rich contextual data to build theory (Eisenhardt, 1989)

The firm that will provide the case study is *Hunter Lodge* Ltd (HL), a UK marketing agency with digital printing (DP) facilities that handles all the process of production of direct marketing communications. The agency is investing resources in its DP activities and it has identified sustainability of communications as a major opportunity for growth.
As the research is part of a Department of Trade and Industry funded research program, dubbed *Knowledge East of England Partnership* 2 (KEEP2), involving the university and the firm, access to secondary and primary data has been full and supportive.

Case study methodology uses multiple sources of data (Perry, 1998). The research instruments used as part of the case study research method include the use of secondary sources such as financial records, meeting minutes, memoranda, business plans and a variety of secondary data, including sales reports. Primary data include qualitative interviews of the company personnel and two key suppliers, a supplier of printing paper and a supplier of printing equipment. Although regarded as a valuable method (Glaser and Strauss, 1967; Yin, 1981; Eisenhardt, 1989) there are necessarily concerns over the 'generalisability' of the findings particularly when only involving one firm. We acknowledge this view and will therefore use the case study as a pilot study to spearhead further research in marketing communications, both on the client and agency side.

Empirical Evidence

Sustainability as a Purchasing Criterion

Print buyers have a great interest in environmentally friendly communications. "*Since 2006 we have seen increasing number of print users enquiring about sustainable and environmental printing",* explains Andy Wells, Production Manager at HL. Rob Pearson, Sales Director, HL agrees: *"recently this topic has been raised by more and more clients. As a sales person I have definitely noticed that clients are demanding to know about process and materials printers use. In sum, whilst few years ago there were only a hand full of clients that showed some interest in environmental printing and sustainability, today at least 20% of clients enquire about it."* Rebecca Phillips, New Business Development Manager, HL agrees that 20-25% of clients enquire about sustainability of printing.

Technology Used

The technology stage covers various aspects of marketing communications, *"including materials used and processes involved. This is why we only use carefully chosen suppliers and continually aim to enhance efficiency of our plant*" (Wells) Digital printing has allowed HL to supply sustainable printing services, as "*DP allows to collaborate both in online and offline communication modes."* Some types of Digital Printing (DP) assist the minimization of waste, while some printing machinery has recyclable components and non-toxic consumables such as vegetable inks.
"We have developed a number of services that help our clients reduce wastage and enhance their efficiency. For example our web-to-print service gives our clients more control over

ordering and printing processes as they can choose when and how much of marketing communication collateral they need and ordering can be done on line. Being part of Xerox family has also allowed us to adopt hybrid service offering", a service offering which allows for aspects of delivery to be supplied by more than one company in the network. *"This is especially useful in cutting down transportation costs and fuel consumption when distributing printed materials, as it allows collateral to be designed and prepared in one country or place and printed at the nearest possible point of recipients' location*", i.e. another digital printing company in Xerox's network for example.

Media Sustainability

Sustainable printing is very important for HL, says Wells, as "*On the one hand it helps us to enhance efficiency and allows us to service our clients better by meeting their needs and demands that are placed by their consumers and market. On the other hand we feel that being environmentally responsible allows us to have an advantage over our competitors. In sum it is so important that we are currently putting in place measurements that will help us to get* (ISO14001) *certification*". For any type of print media, best practice should include using recycled substrate of paper made from renewable sources, for example the FSC. In the case of digital printing, media sustainability consists in the environmental characteristics of the printing substrate.

Network issues

In order to assess and assure the carbon neutrality of the marketing communication activities, the agency works as part of a network which includes, for example, the supplier of printing equipment (in this case, Xerox), the supplier of printing substrate (paper or equivalent); and the suppliers of vegetable based inks and other chemicals. Each of the players in the network has a strategic agenda to achieve carbon neutral activities. For example, Xerox has attempted to position itself as an environmentally friendly company by maximising the ability to recycle and reuse the components of their machines. Paper supplier McNaughton positioned itself as a "green" paper supplier by assuring their supply with FSC certified paper for their virgin paper, and offering a recycled paper option. The problem is that in order to achieve a positive impact, each player needs to act as a well integrated player in a network. Thus Xerox attempts to "educate" printers that use their products, and McNaughton justifies price differentials with cheaper competitors with their quality assurance. ISO14001 requires a considerable sharing of information across the players in the network to document compliance with best practice. Network management is 360° orientated, involving for example the management of part reusing and recycling – where the printer returns these items to the printing equipment supplier – and the asset management activities on behalf of clients, "where the printer holds intellectual property such as brochures, leaflets, etc. on electronic support on behalf of their client for print on demand" (Wells). This need for the agency to integrate in their clients' network should not be underestimated, as digital asset management is an important contribution to the marketers' carbon footprint as commercial communications are only printed when they are needed, reducing the need for storage and logistic activities.

Targeting Precision

A sustainable marketing communication campaign needs to be *data driven*. One essential requirement is that databases are up to date; this means that communications are not addressed to "moved out" addresses. Relevance and personalization are also important. Respondents will discard communications which are not relevant to them, and are less likely to engage with communication which is not personalized (Vriens et al, 1998). *"Our variable data printing allows clients to precisely target their customers by individually personalising their communications [items] reducing junk mail. Furthermore, our digital asset management*

expertise gives our clients opportunity to reduce fiscal inventory build up as we manage their assets virtually" (Wells).

The only stage of the proposed model which is not corroborated by the case study is the recovery process stage. Its novelty means that the P2 and R2 principles that underpin it will need to be embraced by communications agencies, and this requires time.

Conclusions and Managerial Implications

This paper has tried to make the point that marketing communications best practice has to address the issue of sustainability when designing marketing communications campaigns. Our case study proposes the use of state of the art technology in order to adopt a suggested model of sustainable marketing communications.
We also argue that the achievement of sustainable marketing communications requires a skilful management of interactions and relationships within an integrated network, therefore professional marketers should dedicate considerable attention to the establishment and management of relationships within their business networks to enable them to deliver environmental excellence to the end buyer.

The model we propose can be treated by marketing planners as a "checklist" to ensure they address vital criteria of sustainability when designing marketing communications. The first three stages of the model offer considerable benefits to marketers even before environmental considerations are taken into account; all these criteria include a reduction of wastage, which, if achieved, would also lead to increased communication effectiveness and a reduction of costs.
The fourth stage of our proposed model, the recovery stage, might be seen by marketers as the most controversial stage of our model. The implementation of P2 and R2 principles seems to promise increases in the overall cost of the campaign. Assuming marketers cover the costs of returning the mail pieces to the sender (which is in line with the "polluter pay" principle) one needs to consider for example the costs of returning 5,000 mail pieces, albeit 2nd class. In addition to this, printed materials need to be disposed for recycling, and this could produce additional costs. To this we comment with three main points:

- Professional marketers should follow ethical codes of practice, and take responsibility for the damage done by their marketing communications; a small addition in expense to recover the materials and recycle them may have a return in terms of reputation capital;
- There could be an opportunity to sort standardized materials such as brochures, select those that are unblemished and *reuse* them (as part of the 3Rs imperative of Reduce, Reuse and Recycle). If 50% of 5,000 returned brochures are reusable, this means that 2,500 brochures can be used again to be sent to respondents in future mail shots. This could save considerable printing costs, so it could be an incentive for marketers to implement this stage of the communication;
- In the current climate of legislation and voluntary regulation, the need to recover marketing materials might become law in the EU, and at least voluntary regulation in the UK. With this scenario in mind, companies that use or produce marketing communications might enjoy a first mover advantage if they pioneer this approach.

Limitations of the Study

Whilst the research behind this paper hopefully contributes to the conception of a theoretical framework to design and assess sustainable marketing communications campaigns, the fact that it is based on a single case study over a short period of time means that the paper describes a "pilot" project which, while suggesting directions for important research in the field of sustainable marketing communications, needs further empirical research for its validity to be adequately tested. It should also be noted that our research concentrated on the technological aspects of printed communications: we have not addressed other types of communication, and

we acknowledge that this is an important area for research, as some communication strategies, for example Word of Mouth (WOM), and similar strategies might be inherently more sustainable. We will address this issue in future research.

Recommendations for future research

Because of the "pilot" nature of this project, future research should investigate to what extent marketing communication agencies address sustainability issues and use communication models comparable to our proposed model.
An effort should be made to identify case studies in order to produce guidelines of best practice.
A very important objective of future research is the investigation of marketing companies on the client side which are interested in this type of activities. This in turn would create powerful arguments for marketing agencies to design sustainable marketing communications with are of "closed loop" nature.
Further research is recommended into how marketing agencies build and manage their business networks and identify further areas for improvement in this area.
Finally, future research should include pilot studies to corroborate the validity of the model.

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