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## Sustainable innovation through public procurement: The case of 'closed loop' recycled paper

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# Working Paper Series

## Sustainable Innovation through Public Procurement: The case of 'closed loop' recycled paper

Jillian Yeow  
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Manchester Business School Working Paper No 615

## Manchester Business School

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## **Abstract**

Sustainability has been at the forefront of procurement policy in the UK in recent years, and innovation can be a key constituent to deliver the sustainability agenda. This paper uses a single case study to illustrate the procurement of recycled paper by a UK government department. It charts the transformation in procurement from that of a product to an integrated service, and highlights the procurement of a sustainable innovation to achieve multiple objectives. The study indicates the importance of certain factors for enabling the procurement of a more innovative and sustainable solution. In particular it illustrates the role of project champions driving change, senior management support, a good working relationship between buyer and supplier and the creation of a space in which trust and ideas generation can be enabled. Data is drawn from secondary sources, observations and in-depth interviews with public and private stakeholders participating in the process.

## **Keywords**

Innovation, sustainability, public procurement

## **JEL Classification**

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Sustainable innovation through public procurement: The case of 'closed loop' recycled paper

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## **1 Introduction**

In recent years, there has been an increasing interest in sustainable public procurement among practitioners, policy makers and academics. Sustainable procurement is seen as capable of delivering significant environmental benefits while achieving better value for money in public services. Despite this increasing interest, evidence is still lacking on the factors and barriers to adoption of sustainable procurement practices by policy makers. Furthermore, there is little empirical evidence demonstrating actual commitment to procurement practices by the public sector. Additionally, evidence tends to be restricted to the procurement of 'green' products rather than services, and rarely examines the interplay or complementarity between sustainable procurement objectives and other agendas such as data confidentiality, transparency, innovation and market creation.

This paper gives an account of sustainable procurement of recycled paper by a UK government department. In particular it examines the commissioning of a 'closed loop' integrated service of paper collection, recovery and supply of recycled paper by HM Revenue and Customs (HMRC). The case describes a shift in procurement from that of a product to an integrated service to achieve the dual objective of improving traceability of confidential information while achieving sustainable procurement objectives related to the use of 100% recycled paper. The case highlights the

importance of certain enabling factors in the delivery of a more innovative and sustainable solution to paper purchasing, in particular the relationship between the procuring organisation and its supplier, the role of project champions and senior management buy-in.

The paper is empirically informed using a case study of a particular procurement, namely the 'closed loop' integrated service. Data is drawn from secondary sources, observations and in-depth interviews with public and private stakeholders participating in the process. Theoretically, this paper brings together two inter-related, albeit often separately considered, strands of the literature dealing with innovation and sustainable procurement and presents a case for bringing these two together. This paper further provides a conceptual understanding of the organisational, institutional, and economic drivers and barriers that have been identified in the literature as influencing the successful integration of sustainability and innovation.

The structure of the paper is as follows: some contextual background to sustainable public procurement in the context of wider procurement objectives is first presented. This is followed by a brief review of the literature on sustainability and innovation effects of public procurement. The next section describes the research methodology for this study and the organisational and political backdrop to the development of the closed-loop project. The findings from the case study are presented, followed by a discussion of the findings. Finally, the conclusions are presented as well as areas for future research.

## 2 Contextual background

### 2.1 The nature of public procurement

Increasingly, procurement is not just about purchasing in ways that reduce cost and achieve value for money, but also about achieving wider policy objectives, be these social, environmental or otherwise (Erridge, 2004; McCrudden, 2004). Indeed procurement rarely serves one objective only.

Sustainability has been at the forefront of procurement policy in the UK in recent years. The UK Government's 2005 Sustainable Development Strategy set the goal of making the UK a leader in sustainable procurement in the EU by 2009. Within the strategy, there is a commitment to supporting "innovation to bring through new products, materials and services", and "reducing waste at source and making use of it as a resource" (Defra, 2005, p.7). One way to deliver this strategy is through sustainable procurement, which is defined as "a process whereby organisations meet their needs [...] in a way that achieves value for money on a whole life basis [...] whilst minimising damage to the environment" (p.10).

Similarly, Morgan (2008) notes that in order to deliver on the sustainability agenda the public sector needs to act as an 'ecological client', since "one of the key tests of the political commitment to sustainable development is the sustainability of the Government Estate" (p.1241). According to the OGC, the public sector spends £220 billion each year on procurement (OGC, 2010). As such, there is great potential to use procurement to deliver value for money whilst leading on the sustainability agenda. Additionally, the Sustainable Procurement Task Force (Defra, 2006) pointed out that sustainable procurement should be an organisational priority and that

government departments should therefore question the need to spend, try to cut out waste, seek innovative solutions and secure delivery by well-trained professionals

Given multiple objectives in public procurement it is inevitable that tensions between policy objectives across different levels may exist or arise, for instance between regulatory, socio-economic and commercial goals (Erridge, 2004). However, discussions on the contribution of procurement to various policy agendas (e.g. social policy, sustainability, innovation, efficiency) tend to take place in isolation, without sufficient acknowledgement of not only tensions but also complementarities between policy objectives, i.e. how some policy objectives can help achieve other goals.

For instance, as noted by Edler and Georghiou (2007), policy goals such as sustainability and energy efficiency, may be reached more efficiently through innovation. However, they lament that the connection between innovation and certain policy goals such as sustainability and energy efficiency are “still insufficiently examined in the literature and poorly designed and taken advantage of in policy practice” (p.957). The contribution of innovation to sustainable procurement is increasingly acknowledged within the government; besides the aforementioned Task Force report, more recently the National Audit Office (NAO, 2009) acknowledged that “the public sector has considerable buying power, and the ability to influence supply chains to address government priorities such as sustainability both directly and [...] through encouraging innovation” (p20).

Government procurement can play a role as a stimulus for innovative activity, and the potential of government to stimulate innovation in supply markets may also apply

to sustainable products and services. The sheer size of public sector demand, particularly in environmentally sensitive areas such as transport, energy, food and paper confers obvious potential for impact (Defra, 2006). Significant demand 'pulls' innovation as it reduces uncertainty by guaranteeing a market, allowing firms to benefit from economies of scale and technological investment, and ensuring larger profits. Procurement can also have a significant effect on the dynamics of markets and competition (OFT, 2004; Caldwell et al., 2005; Uyarra and Flanagan, 2010;). Through its large purchasing power, public sector procurement may help to promote competition, e.g. by deliberately sourcing from a range of suppliers. However, if it adopts procurement practices that restrict participation in tenders, e.g. from SMEs, then market dynamics are distorted and competition is restricted.

The above discussion suggests the potential of the public sector to act as an 'intelligent', 'competent' or 'demanding' client or customer. The government may itself be the end user of the product or service, or a 'first user' of the innovation (Dalpe et al., 1992; Rothwell and Zegveld, 1981). There is a well established body of literature emphasising the importance of users (Mowery and Rosenberg, 1979) and user-producer interaction (Lundvall, 1988) in the innovation process. The state can act as a 'lead user', i.e. a "user(s) whose present strong needs will become general in a marketplace months or years in the future" (Von Hippel, 1986, p.791). In the area of sustainability, the NAO (2009) notes how "sustainable procurement offers the Government the opportunity to lead by example and to use its purchasing power to influence suppliers and the products they develop and design, for the wider benefit of others in the economy and the UK environment" (p.4).

Such effects are not restricted to high-tech sectors, but may apply to mature sectors and even kick-start a process of reversal or renewal of industry development or “dematurity” (Abernathy and Clark, 1985). This can be induced by new technical options that open up possibilities for new applications, by changes in customer demands, or by changes in government policy, such as industry regulations and standards, all of which may trigger an emergence of new concepts and kick-start the development of a new market (Abernathy and Clark, 1985).

Discussions on innovation and sustainability have too often been restricted to the procurement of manufacturing goods. However, Caldwell et al (2009) suggest that the work of procurement professionals is increasingly characterised by purchasing a combination of product and services. They argue that a manufacturing bias dominates procurement practices, when paradoxically a move towards integrated and more complex product/systems implies that “the task cannot be accomplished by the serial and additive transaction mode of traditional (manufacturing) procurement”. (Caldwell et al., 2009, p.178). This is particularly pertinent in the case of sustainable procurement. Indeed Walker (2010) identifies an emerging literature that takes into consideration how services can be provided by suppliers in a more sustainable way. Post-product sale issues such as disposal and recovery of materials have arguably led to a shift from purchasing products to purchasing a set of services. One of the suggestions of the Sustainable Procurement Task Force (Defra, 2006) to deliver sustainability objectives was precisely to move from the procurement of products to the procurement of services.

## 2.2 What triggers sustainable procurement? What hinders it?

The previous section made the case for sustainable procurement, and suggested innovation as one key component to deliver the sustainability agenda. However, while much emphasis has been placed on the potential of the public sector to act as an innovative or ecological client, a lead user and market shaper; several studies have reported a number of limitations and drivers influencing the realisation of such potential.

In their study of sustainable procurement in the UK public sector, Walker and Brammer (2009) found a wide disparity in the nature of sustainable procurement in the UK public sector, pointing out particular idiosyncrasies of local authorities, health and education. Overall, they hypothesised that sustainable public procurement is often undertaken due to pressures on the organisation to do so. They further differentiated between internal and external factors influencing their performance in sustainable procurement. Besides skills, capabilities and knowledge available in the organisation, one of the internal factors influencing sustainable procurement is its financial viability; 'green' solutions are often perceived as being expensive (or requiring a big capital investment). Equally important are organisational attitudes, incentives and pressures to sustainable procurement. An organisational culture and structures and processes that are supportive and conducive towards sustainable solutions, as well as senior management are considered key (Walker and Brammer, 2009). Externally, they mention the availability of suppliers and the extent and nature of the relationship between the procuring organisation and its suppliers.

One commonly discussed aspect diminishing the innovative potential of public procurement is the fragmented nature of public sector purchasing (OFT, 2004). Even when the public sector accounts for a significant share of the total demand in a particular market, if different functions or departments are buying the same goods individually and in an un-coordinated fashion, buyer power cannot be made effective. As noted by Phillips et al (2007, p.79), fragmentation and the co-existence of many “different purchasing decision points [...] can result in disharmony and a reduction in [...] purchasing power”. This issue has been reiterated recently in the Efficiency Review by Sir Philip Green (2010). Even seemingly ‘unitary’ parts of the public sector may not act as a coherent whole in practice (Caldwell et al., 2005), as they may comprise of different decision-making and purchase points.

The advantages of aggregation of demand include better management of information, greater leverage for contracting with suppliers, greater economies of scale and lower transaction costs (e.g. by simplifying the tendering process). However, there are potential drawbacks (OGC, 2004); for example, procuring and managing very large and complex contracts necessitates highly skilled procurement professionals, project management and contract management staff, which are not always present in contracting organisations. Furthermore, large contracts do not necessarily lead to greater innovation; in fact the opposite may be true: large purchasing can lead to incumbent advantages, market distortion, narrowing of technological trajectories, even encouraging lock-in to suboptimal technologies or standards, and more conservative decision-making. Smaller lots of purchasing can, on the other hand, allow more managed risk-taking to test new innovations.

Another barrier to procuring innovative solutions resides at the level of the individual where there may be a discrepancy between the capabilities held by procurers and the skills required for procuring innovative solutions. As noted by Rothwell and Zegveld (1981), whereas relatively little in-house competence is needed when procuring off-the-shelf goods for the lowest possible price, greater competence is required to encourage suppliers to innovate. Changes in the procurement function towards a more strategic orientation, and a more demanding environment for procurement has led commentators to critically examine the skill and competency requirements of procurement professionals (Tassabehji and Moorhouse, 2008). Cousins et al (2006) also found that purchasers with high skill levels and knowledge have a significant impact on financial performance and operational efficiency in terms of quality improvement, design and reduction of lead times. They differentiate between strategic, celebrity, undeveloped and capable purchasing, according to their performance in the following: performance against strategic planning, purchasing skills, purchasing status and internal integration. The Sustainable Procurement Task Force noted that many parts of the public sector lacked professional procurement expertise (Defra, 2006, p.47). In particular, there was a lack of understanding about sustainability and its relationship to procurement; they commented that this was partly due to the fact that environmental specialists rather than procurement experts deliver sustainable procurement training.

Numerous studies have also highlighted the position of procurement in the internal hierarchy of the organisation and its status relative to other corporate functions. Despite procurement being increasingly seen as strategic in public and private organisations, existing evidence reviewed by Zheng et al (2007) suggests an uneven

picture in relation to procurers' influence over corporate level strategic decisions or make-or-buy decisions, and in managing relations with suppliers. It appears that the status of the procurement/purchasing function tends to be lower than in other functional areas, particularly in the public sector (Uyarra, 2010). This relatively low influence is aggravated by a general lack of commitment and ownership of procurement strategies by senior management and political leaders, as suggested by Walker and Brammer (2009), Morgan (2008) and the Sustainable Procurement Task Force (Defra, 2006). The Task Force found that there was a lack of clear direction from top management to make delivering sustainable development objectives through procurement a priority. Related to the importance of leadership, the role of 'champions' has been identified in securing the success of certain innovations, such as the introduction of digital signal process hearing aids into the NHS as reported by Phillips et al (2007). A champion is a "charismatic individual(s) who throws his or her weight behind and innovation, thus overcoming indifference or resistance that the new idea may provoke in the organisation" (Rogers, 1995, p.414). Champions are typically powerful individuals high in the management of an organisation.

The availability and quality of procurement data in the public sector has also been identified as a barrier to procuring sustainable solutions. An NAO (2009) report on the environmental impacts of public procurement referred to the lack of data availability as a significant barrier to managing demand by procurement teams. HM Treasury (2009) stressed that in many parts of the public sector, information on what is spent is of insufficient quality to support decision-making and ensure progress against policy agendas. Accordingly, spend cannot be effectively managed if it

cannot be articulated effectively in the first place (HM Treasury, 2009, p.20). Diversity in accounting structures, uneven data availability, a lack of widely accepted data standards, and insufficient use of technology are among the key barriers preventing good management information on procurement.

A good working relationship between buying and supplying organisations has been highlighted as important in order to reduce uncertainty and encourage innovative responses from suppliers. Partnerships have the potential to build social capital by developing long-term relationships with private sector suppliers. Erridge and Nondi (1994) argued that interaction and exchange lead to developing trust and shared norms that reduce opportunism, the need for costly monitoring and general transactions costs associated with exchange in instances where there is information asymmetry. Zheng et al (2008) analysed the interplay between relational and contractual governance in relation to two PFI case studies and concluded that relational and contractual mechanisms are complementary. They found that contractual governance capability was insufficient for effective exchange and needed to be complemented by pro-active relational governance based upon inter-personal trust. Similarly, Cousins et al (2006) found that informal socialisation processes were important in creating relational capital whereas formal socialisation processes were less effective.

Nonetheless, such buyer-supplier relationships can be hindered by procurement practices, as suggested by Erridge and Greer (2002), who identified a number of barriers preventing a partnership approach to public procurement. They note that “regulations and rules to ensure financial probity and competitive tendering have

restricted the development of closer supply relations and social capital by setting out rigid bureaucratic procedures, and creating a public sector culture which is risk averse and resistant to change” (p.519). They suggest that there is a situation of imbalance between transparency, value for money and relationship development, driven by rigid rules and bureaucratic processes, low levels of procurement expertise, a lack of interdepartmental collaboration and little involvement of senior departmental managers. According to Erridge and Nondi (1994), procurement practices that prevent adequate public/private partnering include “rigid application of tendering procedures for low-value items regardless of non-costs; too many suppliers; short-term contracts and the absence of cooperation from suppliers” (p.178). This focus on transparency when combined with a risk-orientated culture manifests in high levels of contractual procedures leading to reduced flexibility, trust and experimentation.

Space, or slack, has been found to facilitate innovation (Bourgeois, 1981; Nelson and Winter, 1982); it allows innovative projects to be pursued by providing a ‘safe space’ around uncertainty and risk thereby encouraging experimentation without detrimental consequences (for example to normal production) and sometimes resulting in unexpected benefit to a firm (Nelson and Winter, 1982). Slack “allows for intertemporal adjustments to demand or supply fluctuations” (Nohria and Gulati, 1997, p.604), and Rogers (1995) states that organisational slack is important for organisational innovativeness. Slack is often misconstrued as wastefulness, associated with idleness, incompetence and an inefficient use of resources. However, many authors have argued that slack is not necessarily a bad thing, and

slack resources allows individuals and departments to experiment in ways that might lead to innovation (Nohria and Gulati, 1997).

### **3 Research method**

In this paper we utilise a single case study to describe the shift from product procurement to the procurement of an integrated service. The research is concerned with organisational processes that are too complex to be addressed through a survey, or other methodology. A case study approach was chosen to allow a “richly detailed portrait of a particular phenomenon” (Hakim, 2000, p.59) enabling the authors to take a fine grained analytical approach supporting theory generation. Case studies are the preferred strategy when ‘how’ or ‘why’ questions are being posed, when the investigator has little control over events, and when the focus is a contemporary phenomenon within some real life context (Yin, 1994; 2003). Eisenhardt (1989) further states that case study research is appropriate when “the focus is on understanding the dynamics present in single settings” (p.534). Although multiple cases provide additional evidence to support the resulting analysis, it has been suggested that single cases allow for in-depth investigation and rich description of a phenomena (Walsham, 1995). This focus enables a more detailed examination of process, and a single case study is appropriate where it is an extreme or unique case, or where it is a revelatory case (Yin, 1994, p.38-40).

Nonetheless, the use of a single case study is not without its limitations. Hartley (2004, p.326) points out that “the challenge (in single case studies) is to disentangle what is unique to that organisation from what is common to other organisations”, and

we cannot categorically state that findings are generalisable when relying solely on a single case study.

Multiple sources of evidence have been used to construct the case study. Semi-structured interviews were conducted with key individuals at senior management levels in the procurement function of HMRC and with the supplier, and the interviews were supplemented with site visits by the researchers. An analytical line of enquiry was developed prior to interviewing in order to reduce bias and reflexivity, and background research conducted to inform the interview process. All data was collected between June and December 2010. The case study also draws on a variety of secondary data sources including market analysis, government reports, articles and media coverage. The data has been triangulated in order to reduce bias, and is presented as a narrative.

## **4 Case findings**

### **4.1 The extraordinary event (or problem)**

In November 2007, HMRC hit the news headlines when it was reported that two discs containing (child benefit) details of 25 million people had been lost in transit to the National Audit Office. This highly publicised event was set amongst a backdrop of wider security concerns. Two other major cases of paper-related insecurity (one regarding disposal in April 2007 and one related to paper loss in Jan 2008) and 158 other centrally recorded Category I and II loss incidents were also reported to the Information Commissioner's Office in 2007-08<sup>1</sup>.

HMRC is a relatively new government department, formed on 18 April 2005, following the merger of HM Customs and Excise and the Inland Revenue. Commercial spend in HMRC is approximately £2 billion, of which £600m is spent on the procurement of third party goods and services (HMRC, 2010b). The majority of HMRC's activity involves VAT returns and the department is heavily reliant on paper-based communication. Print and office supplies accounted for £104 million of annual spend in 2007. However, the purchase of office supplies had historically been highly fragmented<sup>2</sup>; individuals could purchase from a variety of suppliers.

According to the OGC, the public sector spends around £850 million annually on stationery and spend on pulp and paper by all departments is estimated at £1.7 billion (OGC, 2007). Defra estimated that central government procures 200 000 tonnes of paper each year, half of which is copy paper (Defra, 2010). Office supplies are considered a standard commodity, best consolidated and purchased collaboratively, implying standardising specifications, aggregating demand and utilising economies of scale. Collaborative procurement maximises savings whilst enabling commercial staff in individual organisations to focus on core, strategic, purchasing categories. However, this logic can break down; firstly, when it reinforces discrete purchasing rather than an integrated, more holistic, provision of services that can achieve better value for money. Secondly, what constitutes non-critical or strategic items is relative to the mission and objectives of the incumbent organisation. Due to their reliance on it, paper became a strategic item for HMRC, the same as turbines are strategic for the chemical industry and bottling equipment for breweries (Caniëls and Gelderman, 2005).

Paper also represents the largest component of HMRC's waste and in their 2008 sustainable development report, HMRC highlighted that one of the areas they were exploring was paper waste (HMRC, 2008). Reducing paper waste could potentially reduce the consumption of other stationery resources, e.g. toner cartridges. However, internally there were concerns about the accuracy of HMRC's waste management data due to the highly fragmented nature of estates management. This issue helped frame the new procurement process for 'closed loop' paper, introduced shortly. Recycling was also another key component of HMRC's sustainable development agenda. In 2008, the government set a target that by 2010, 40 per cent of all Departments' waste had to be recycled, with this figure increasing to 75 percent by 2020. HMRC's paper recycling performance met these requirements and in 2007-08 they reported that 36 per cent of their waste was recycled and recycling schemes were in place at most HMRC buildings (HMRC, 2008).

Paper was therefore already a key spend category for HMRC, able to be leveraged due to volume and meet sustainability objectives (in terms of purchasing of 'green' alternatives, recycling and disposal). However, the extraordinary events in 2007 led to a radical shift in paper procurement. Due to heightened security considerations, the procurement of confidential paper disposal services and copying paper for internal use became highly strategic.

Indeed, the highly publicised incidents regarding the loss of confidential and personal data proved to be a significant turning point, with data security becoming a critical issue for HMRC. Internally, it was recognised that this incident provided an opportunity to turn things around in the organisation. Morale was low, as was public

confidence; HMRC was severely criticised by IPCC and several board members were replaced.

A review into the loss of child benefit data, led by Kieran Poynter in June 2008, identified several structural weaknesses and obstacles in HMRC that prevented the organisation from making significant progress forward. They included a failure to recognise information security as a management priority and an overly complex organisational structure with no focus on management accountability. One of the recommendations from the Poynter Review stated:

“HMRC has insufficient knowledge and oversight over its third parties’ compliance with information security requirements. It should urgently address this through a programme of assurance via Internal Audit, or if they do not have the capacity via an independent third party. This should start with third parties who handle post, confidential waste, off-site storage and who provide security services....” (R35)

In addition to the Poynter review, HMRC undertook an internal study to address this problem. The study focused on security data and IT, including paper security. It soon became clear that the large number of estates that HMRC owned and the way they were managed posed a problem. At the time the organisation had over 400 offices, 80% of which were managed through outsourcing arrangements and at least five different PFI arrangements. The budget for waste collection was held by Estate and Support Services (ESS) rather than centrally through the Commercial unit. Forty-three different arrangements were in place for restricted and confidential waste

disposal resulting in limited traceability of (confidential) waste once it left the organisational premises.

As part of a wider government review on data handling in 2007, one of the Cabinet Office's recommendations was that all waste had to be shredded onsite and that departments had responsibility for waste once it had left the site. HMRC took the decision to centralise waste collection. However, the company associated with the missing discs incident were very negatively affected and it became difficult to attract suppliers to undertake confidential waste disposal.

As part of a change programme running concurrently (2006 and 2008), HMRC consolidated their estates down to 235 offices, and a relocation of all procurement staff in single office (based in Manchester/Salford), The decision to centralise procurement was perceived by the Commercial Director as important to the effective leverage of the function. Facilities management services were also improved through new supply chain arrangements, one of which was for waste disposal.

Following the merger of HM Customs and Excise, and partially in response to the Poynter Review and the Carter Review, the organisation underwent a massive transformation to address restructuring issues. To control off-contract spend, HMRC moved to centralised budgets<sup>3</sup>. Paper was identified as a commodity that could be procured more efficiently, through the aggregation of demand and economies of scale, using a centralised process. A shift towards a centralised procurement model was complemented by substantial investments in management information systems (MIS) to facilitate spend analysis and contract management.

## 4.2 The solution

The missing data incident in 2007 was a catalyst that enabled HMRC to find a solution that could resolve the situation where waste collection was carried out by forty-three different firms, with insufficient guarantees of data security and with no transparency and no data collection on the waste generated or disposed of.

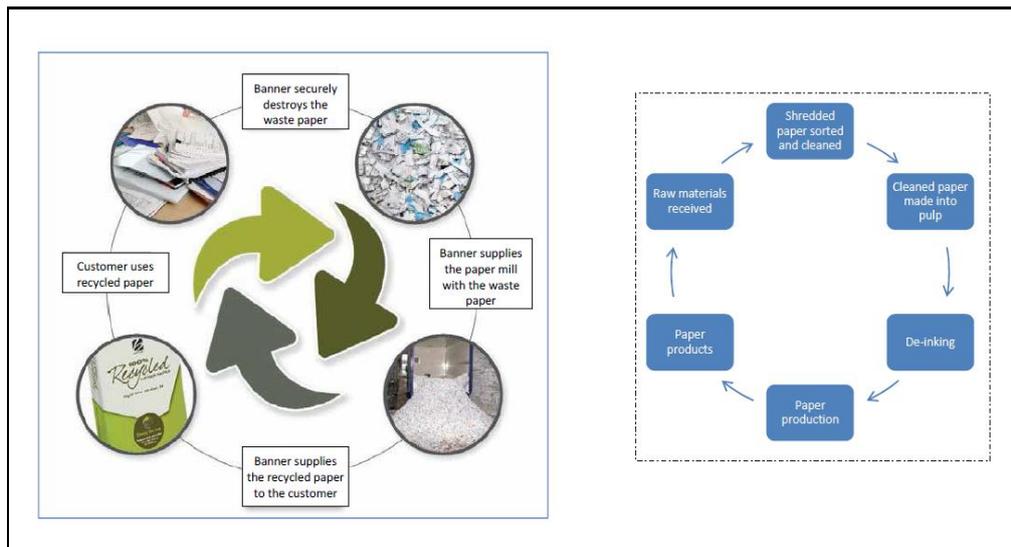
To address the problems above, a decision was made to find a solution that could serve all HMRC estates, facilitate tracking of waste and avoiding a large number of individual contracts. Key strategic issues were to trace and track waste, particularly confidential waste and to contribute to recycling rates and landfill reduction. The value attributed to waste also changed at this time (the typical price of recovered paper was worth up to £40-60 per tonne in 2007), which led HMRC to recognise waste paper as a valuable commodity, and that the value of this resource was being lost to the department.

The existing relationship with HMRC's primary supplier of copying paper (Banner<sup>4</sup>) facilitated discussions about innovative ways to tackle these issues. The responsiveness of the supplier during the crisis and their continued good relationships with HMRC led to discussions on developing innovative solutions for the paper supply and waste issue at the department. Banner was tasked with conducting a data collection exercise on the volume of waste that HMRC generated. They surveyed HMRC offices to find out about existing arrangements (for waste disposal), volume of waste generated, the frequency and cost of collection. Due to the extraordinary circumstances and renewed political importance of ensuring data

security, HMRC contracted Banner to collect all confidential paper waste in the interim. Banner used the information they were in the process of collecting, in combination with an IT logistics system to organise their waste collection, and entered into a joint venture with a shredding company. Within the interim arrangement, HMRC and Banner developed, in partnership, an innovative, closed loop, solution to the confidentiality, paper waste disposal, and recycling problem.

### 4.3 “Closed loop” paper

After a series of long discussions, the closed loop concept (see Figure 1) was successfully trialled in May 2010. It provided a solution to the confidential paper waste problem by shredding it on-site and selling it back to the department as 100% recycled paper at a lower cost. The paper flow became a ‘closed loop’ with zero waste. The shredded waste is securely baled and tagged with management information off-site and transported to a recycled paper mill where the trucks return with closed-loop paper produced from the previous batch. Tagging enables the paper to be traced throughout the process, ensuring the department’s waste becomes the department’s paper supply. The recycled paper mill in turn operates a closed-loop system to a high environmental specification<sup>5</sup>. The closed loop is secured by the mill using a dedicated run and stopping regular lines while the dedicated production run occurred. The resulting closed loop recycled paper is then sold back to government departments; currently HMRC, the Home Office, and the Environment Agency.



**Figure 1** The closed loop concept.

The closed loop process meets a number of procurement objectives not least resolving the confidentiality problem. In relation to the traceability and accountability of its confidential waste, such a system ensures that confidential waste does not exit the system, thus reducing the chance of fraud and increasing the security of information among other things, thereby addressing concerns about data loss.

The lower price of new copier paper and the competitive price for waste disposal meet value for money objectives. Turning the organisation's waste into a recycled paper product that is re-sold to the same organisation allows that paper to be bought at a lower price, since in effect the organisation has subsidised the cost of producing that product by providing the raw material needed. This reduces the number of third parties in the system, and therefore reduces the cost. Furthermore, working with the supplier on this pilot enabled HMRC to review their processes and streamline their restricted paper waste arrangements, reducing unnecessary costs. Combining the supply of commodity products with service provision streamlined the supply chain

and helped to reduce the environmental impact. It is estimated that the new arrangements achieve savings of approximately £65k per annum.

Additionally, the process is more sustainable than the previous system. Waste paper can be recycled back into recycled paper up to six times in the closed loop process, remaining in the recycling loop for a longer time than other recycled products that waste paper is turned into (e.g. tissue, cardboard). It also implies the purchase of 100% recycled copier paper, which is now mandated by central government. According to HMRC, “all departments currently report against the Defra Quick Win standards for copier paper, which mandates that copier and graphic paper must have 100% recycled content [...] the concept of using public sector waste to produce a bespoke A4 copier sheet far exceeds this mandate” (HMRC, 2010b). The supplier is able to offer recycled paper supplies at a lower (and consistent) price as the public sector has provided used paper as the input for the recycled paper. The price of the recycled paper is not affected by price fluctuations in the international recycling markets.

Finally, the project contributed to, and was enabled by, other policy objectives such as innovation. Substantial supplier capacity investment in IT systems, bespoke vehicles, shredding technologies, etc, took place in what is effectively a shift towards the provision of an integrated waste recycling service and office supply provision as opposed to just the supply of a product. It allowed the supplier to be more than just a supplier of paper, and generated innovation in the supplier organisation.<sup>6</sup>

## 5 Discussion

As Walker and Brammer (2009) hypothesised, sustainable public procurement is often undertaken as a result of pressure, either internally or externally, on an organisation to do so. In this case, since 2005 the UK government had set out a strategy to deliver the sustainability agenda through sustainable procurement for all government departments. For HMRC, the data loss crisis of 2007 proved to be a critical juncture against which to deliver sustainability while addressing other critical issues simultaneously, and to do so through innovation. Here, we reflect on the various elements that came together to enable the sustainable procurement of innovation.

### 5.1 Barriers faced

The procurement system in place made it difficult to enable change in a cohesive way. Silo budgeting was normal and promoted segregated decision-making according to different functions. Functional-focused budgeting privileges micro-management rather than a holistic, big picture strategy. It promoted conflict, not just internally but also between buyers and suppliers, leading to several different pricing strategies and agreements with different suppliers, sometimes for the same product. Silo budgeting also provided no incentive or motivation for procurers to make initial investments required to save money in the medium to long term since they had to be accountable for the here and now<sup>7</sup>.

The move towards shorter-term contracts as a result of EU legislation was perceived as unhelpful by interviewees. In particular, it impacts on the time needed to build relationships between buyer and suppliers, which is necessary to reduce uncertainty

and encourage innovative responses from suppliers. Whilst product innovation can be achieved in the short-term, service innovation requires a more long-term commitment. The current mechanisms for procurement, e.g. shorter contracts (with the knock-on effect on buyer-seller relationships), transactional relationships and a focus on per unit purchases through Buying Solutions, reduces the ability of organisations to be innovative or to buy services, thus pushing the product/commodity aspect which does not have long-term viability.

## **5.2 Buyer-supplier relationship**

As previously cited, a good working relationship between buyer and supplier is often crucial to reduce uncertainty, increase trust and encourage innovation. In this case, the nature and extent of the relationship between the buyer and supplier proved crucial for enabling innovation. Traditionally, procurement relationships tend to be arms length in nature, embodying adversarial type interactions to negotiate the lowest possible unit price. As discussed, the longer term relationship between the public client and the supplier, and the pricing format, enabled more open discussions. Banner had supplied paper to HMRC since 2002 and renewal meetings were not simply about re-negotiating the contract price. Both parties were able to discuss how the partnership could develop. This type of relationship was found to be more conducive to identifying and developing mutually beneficial opportunities.

An opportunity to combine waste disposal, paper recycling and paper procurement was identified during these various discussions. In 2002, both parties talked about the idea of 100% recycled paper, specifically the idea of collecting HMRC paper waste and producing copy paper from it, a concept now known as 'closed-loop'. At

the time, this concept was very much “blue-sky thinking”, and several obstacles needed to be overcome for such a process to occur, including generating enough volume of waste paper and having access to a paper mill to produce it (no 100% recycled copy paper was produced in the UK). It was agreed in principle to move towards a closed-loop model but the idea was ‘parked’ as it was too challenging; the model required management buy-in and a minimum volume of waste commitment for the paper mill. In particular, the latter was a major issue at the time since HMRC had no data on the amount of waste paper generated internally. Management information was historically poor and this issue has been addressed recently.

The importance of this relationship was reiterated by both parties; in particular, the length of the relationship played an important role in facilitating open discussion. However, EU regulations, and the current government drive towards commoditisation and efficiency savings based on lowest unit price costs encourage a return to adversarial transactional relationships which hinder innovation.

### **5.3 Project champions and the creation of a space for innovation**

‘Project champions’ are often crucial for securing the success of certain innovations (Phillips et al., 2007). Typically, these would be individuals in positions of power within the organisation. In HMRC, the main project champions were the Commercial Director and Procurement Manager. Sustainable solutions are often perceived as relatively expensive and may require an initial large capital investment and/or no immediate returns. The support of senior management is crucial for sustainable procurement, a point reiterated by Walker and Brammer (2009) and demonstrated here. The Commercial Director understood the importance of procurement, and

having experience purchasing in the private sector, recognised the disparity between private and public sector procurement and was able to bridge the gap in practices. He gave HMRC's Procurement Manager flexibility and space (and time) to develop a solution. The Procurement Manager then engaged with suppliers, and particularly with one trusted supplier, to develop solutions. Schon (1963) argued that "a champion is required to identify the idea as his or her own, to promote the idea actively and vigorously [...], and to risk his or her position and prestige to ensure the innovation's success" (cited in Howell and Higgins, 1990, p.317).

Here, we can see that procurers have an important role to play, and are well-positioned within some organisations to influence decisions and deliver on sustainability commitments. In particular, they can use their position to articulate user needs and signal future requirements to the market, providing opportunities for product development and innovation by suppliers. In this case, the Procurement Manager had been in this role for a long time, and had previously chaired the OGC-Buying Solutions collaborative board for office supplies. She had the necessary skills, knowledge and capability to negotiate the complicated procurement landscape. The Procurement Manager engaged individually with suppliers (both existing and potential) to generate ideas through 'blue-sky thinking' about how to stimulate the market and she raised the possibility of the closed loop concept.

When presented with pressure to undertake sustainable procurement, the success of the new solution depends on the skills, knowledge and capabilities within an organisation to address sustainable procurement, as well as the use of these capabilities and knowledge to deal with external suppliers. In this case, a good

working relationship between the Procurement Manager and one of the suppliers enabled exploratory discussions. The relationship was based on trust and transparency, and was exemplified by a pricing model based on a percentage profit for the supplier. This format differed from the pricing models of other suppliers. By working on costs and potential profits, an innovative solution economically attractive to both the client and the supplier was co-generated. This collaborative relationship though market based went beyond the transactional.

As previously mentioned, a project champion can make the difference between the success and failure of an innovation within an organisation. Success requires a 'shared vision' (Phillips et al., 2007). However, the champion also needs space to develop the new idea and turn it into an innovation. Significant organisational re-configuration of contracts, estates and budgets, was necessary to enable the closed loop process. The high profile data loss incident propelled the secure disposal of paper waste into a strategic and politically important objective. The critical nature of this new problem overrode existing procurement processes which had served to hinder the development of the proposed innovation. The critical problem facilitated organisational change, for example the development of efficient management information systems, which was necessary for the closed loop process to work. Importantly, the politically sensitive nature of data security ensured senior management buy-in. This critical problem provided a space within the normal procurement process for innovation; close collaboration and coordination was possible. In this case, the creation of a temporary space in which buyer and supplier could innovate did not detract from the optimal use of resources but utilised slack to promote experimentation and the pursuit of a potentially risky project. This critical

problem was also framed by efficiency reforms, the shift of paper to a strategic commodity and a wider government policy objective for sustainable solutions. These factors converged and framed the space created by the extraordinary event. The focus on efficiency in the public sector arguably reduces this slack, ultimately eliminating the potential of experimentation necessary for normal economic growth and paradoxically resulting in inefficiency. Intolerance of failure and risk aversion are embodied in procurement processes that are intended to ensure competition and transparency. In this case, only when the normal procedures were suspended in response to an exogenous shock, i.e. the critical problem, was it possible to institute an innovative solution.

## **6 Conclusion**

This study explored the procurement of an innovative, sustainable solution in response to a crisis. The emergence of a critical problem provided the context and impetus for change, but crucially, senior management buy-in, the capability of procuring professionals to recognise the bigger picture and the existence of a strong buyer-seller relationship provided the necessary conditions for the development of an innovative solution and the creation of an experimental space in which that change (and the risks associated with experimentation) could be enacted.

According to HMRC (2010a), sustainable procurement is “a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment”. We feel that the case described here demonstrates not

only the successful achievement of value for money, but also how it has been done through an innovative sustainable procurement that streamlined the supply chain and generated benefits not only for the organisation, but also for the environment. Crucially, such a sustainable solution was enabled by the creation of a space to develop a solution, which was possible with senior management buy-in and a project champion, and the existence of a good working relationship between buyer and supplier.

This case provides a number of implications for policy. Firstly, it suggests that sustainable procurement can be best enabled by a systemic and service-oriented approach and by securing a 'space' and certain flexibility to innovate, There is a danger however that a fully centralised commodity purchasing may exacerbate rigid product-led, transaction-driven procurement through further standardisation and commoditisation.

On the other hand, the close loop case has shown that innovation tends to be associated with procurement that is linked to activities with true leverage or critical to the pursuit of strategic objectives of the organisation, able to mobilise senior management and to send a clear and consistent signal to the market. Organisations should therefore focus on strategic purchasing, supported by better cross-government collaboration to enable expertise sharing, cost saving and the freeing resources in other parts of the government to focus on more strategic issues, Finally, and in contrast with the tendency to 'bolt on' increasing objectives to the procurement function, better alignment and prioritisation of objectives should be encouraged on a case-by-case basis depending on what is being procured and its uses, as well as other political and financial constraints and objectives.

Nonetheless, we acknowledge that there are limitations to this study. As a qualitative case, we cannot expect the results to be generalisable to the entire public sector. Indeed, the unique surroundings of the crisis of 2007 provided a critical exigency for this organisation. Further research is required to ascertain the likelihood that as issues increase in strategic importance, the rigid application of rules is relaxed enough to provide enough institutional space for the generation of innovative solutions, and the creation of mechanisms to facilitate the implementation of those solutions.

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<sup>1</sup> Another 2 cases were reported to ICO in August and September 2008, and another 165 Category I-III protected personal data related incidents in 2008-09.

<sup>2</sup> This was also a finding of Sir Philip Green's review not just of office supplies but epidemic over many common categories of spend in central Government.

<sup>3</sup> HMRC's procurement capability review reports that "maverick" spend is less than 2%; in comparison, the US Internal Revenue Service reports maverick spend of less than 0.5%.

<sup>4</sup> Banner Business Supplies (hereafter referred to as 'Banner') is a subsidiary of office2office plc. It was originally a division of Her Majesty's Stationery Office (HMSO) but was privatised in 1996. It became a limited company in 2000 under the parent company office2office.

<sup>5</sup> The mill, based in Germany (there are currently no UK paper mills able to perform this function) uses 100% less wood pulp to make paper (compared to virgin paper); up to 83% less water consumption; up to 72% reduction in energy use; up to 46% reduction in CO2 emissions; an integrated (combined heat and power) plant that has 50% reduced CO2 emissions and 87% increased thermal efficiency.

<sup>6</sup> There is potential, if rolled out, or diffused, for this process to shape the evolution of the recycled paper market in the UK.

<sup>7</sup> This is why HMRC feels that centralised procurement, particularly for common categories, works. A mandate across departments will push this even further by forcing the use of this (cheaper) model.