

**WR1403: Business Waste Prevention
Evidence Review
L2m4-0 – Interventions Introduction**

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Context of Project WR1403

Waste prevention is at the top of the waste hierarchy. A major priority of the coalition government is to move towards a zero waste economy, and an important element of this will be to encourage and increase waste prevention. This review aims to map and collate the available evidence on business waste prevention. It will help inform the preparation of England's National Waste Prevention Programme as required under the revised EU Waste Framework Directive (2008).

The focus is on aspects of waste prevention that are influenced directly or indirectly by businesses - it complements a previous evidence review, WR1204, which focused on household waste prevention. The definition of the term 'waste prevention' used here is that in the revised Waste Framework Directive:

'Prevention' means measures taken before a substance, material or product has become waste, that reduce:

- a) the quantity of waste, including through the re-use of products or the extension of the life span of products;*
- a) the adverse impacts of the generated waste on the environment and human health; or*
- b) the content of harmful substances in materials and products.*

Recycling activities or their promotion are outside the scope of this review.

Context of this Module

This module is one of a number of Level 2 modules that contain analyses of Approaches, Interventions, Sector Issues and other aspects of the review. This module deals specifically with the aspect of Interventions and introduces the types of assistance or intervention provided to help businesses change waste prevention performance. The module refers to the accompanying Level 2 modules, **L2m4-1** to **L2m4-8**, which detail and exemplify the full evidence for each type.

A full index to the report modules may be found in **L1m2: Report Index**.

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Glossary

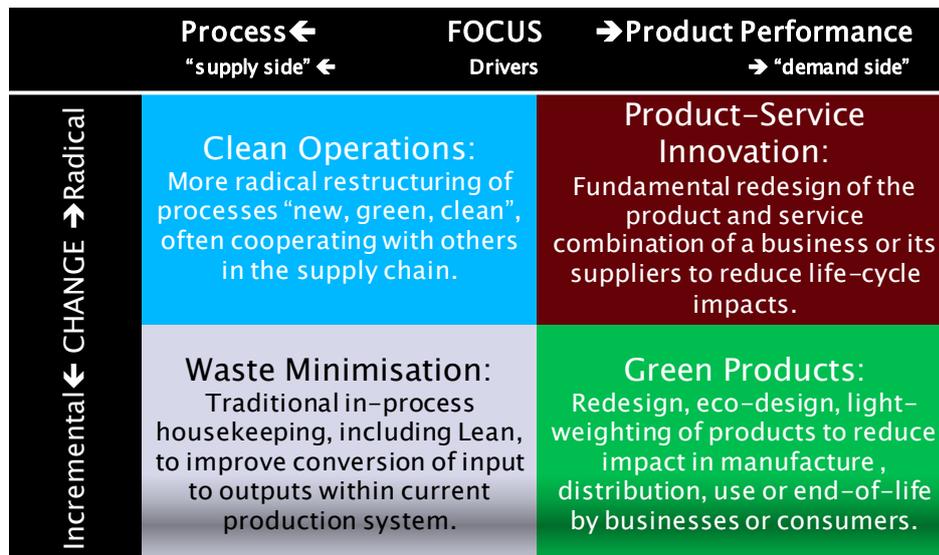
BREW	Defra’s Business Resource Efficiency & Waste programme	FRN	Furniture Reuse Network
BRC	British Retail Consortium	ISO	International Standards Organisation
BS	British Standard maintained by BSI (below)	MTP	Market Transformation Programme
BSI	BSI British Standards Ltd, National Standards body of the UK	PAS	Publicly Available Specification
CRR	Centre for Remanufacturing & Reuse	TIC	Technology and Innovation Centre
EMAS	Eco-Management and Audit Scheme, voluntary initiative	WRAP	Waste & Resources Action Programme
EuP	Energy-using products, in the context of the EU’s EuP Directive		

Units Conventional SI units and prefixes used throughout: {k, kilo, 1000} {M, mega, 1,000,000} {G, giga, 10⁹} {kg, kilogramme, unit mass} {t, metric tonne, 1000 kg}

Language

This report has used a framework for evaluating both the actions a business takes to prevent waste (the Approaches), and the mechanisms that have catalysed the actions (the Interventions). The detailed description of Approaches and Interventions may be found within the respective modules **L2m2: Approaches** and **L2m4-0: Interventions Introduction**, but a brief reference outline to the Approaches is given here:

Positioning of approaches in response to business drivers including waste



Source: Oakdene Hollins/Brook Lyndhurst

1 Introduction

This section of the report examines specific catalysts or mechanisms to galvanize action by businesses. For the purposes of this work we have called these Interventions because, in the general consideration of efforts to promote waste prevention, they are as the result of defined initiatives and agents contracted to stimulate businesses into action. Interventions are broadly classed in the following way:

- Voluntary actions inspired as a response to the prevailing business environment, for strategic, tactical or altruistic reasons, or in anticipation of future legislation.
- Actions taken by single companies, within supply chains or across sectors motivated by a catalysing agent as described further below.
- Actions taken in order to comply with legislation, typically a mandatory rule such as banning a particular substance from landfill or hazardous material from processes and products; this class is excluded from this work because businesses have no element of choice. Note, however, that reduction in hazardousness has been examined where it is the by-product of waste prevention actions not related to compliance.

2 An Overview of Interventions

Apart from the purely voluntary motivation, we identified the following classes of intervention:

- Standards, (stand-alone report **L2m4-1: Standards**)
- Labelling, (L2m4-2: Labelling)
- Procurement, (L2m4-3: Procurement)
- Commitments & Voluntary Agreements, (**L2m4-4: Commitments**)
- Communication, (L2m4-5: Communications)
- Incentives, (L2m4-6: Incentives)
- Business Support through waste minimisation clubs, (**L2m4-7: Waste Minimisation Clubs**)
- Business Support by other means, (**L2m4-8: Business Support**)

The scope of this work excludes consideration of legislation directed primarily at waste prevention. However, some aspects of national, regional or local spatial planning policies, such as dedication of land to eco-businesses and eco-parks or preference for repair or reuse facilities, rather than fiscal or mandatory requirements could be relevant. If they have been located, they are covered in module **L2m4-6: Incentives**.

2.1 Standards

A standard is an agreed, repeatable way of performing an action. It is a document that contains criteria designed to be used as a rule, guideline, or definition. Standards are designed for voluntary use. However, laws and regulations may refer to certain standards, and make compliance with them compulsory.^a The range includes:

- BS (British Standard) – the national equivalent of an ISO standard.

^a <http://www.bsigroup.com/>

- PAS (Publicly Available Specification) – issued by BSI in consultation with users, but taken up voluntarily. This is often seen as a taster, a precursor to a full standard, and has been employed extensively by WRAP in recyclate specifications such as wood, compost and tyre crumb.
- Sector-based standards and codes of practices - these are by voluntary agreement within a sector and can entail some sort of qualification, audit or label. Self-assessment schemes are widespread, such as the US EPEAT scheme for environmentally sound computing equipment.
- Community based guides and codes of conduct or practices- these may be developed by a ‘community of interest’ to regulate activities, often for reputational reasons, or to become a bona fide community member. An example of this is the Furniture Reuse Network’s on-line white goods repair and recycling guides aimed at embedding sound member practices.
- Internal company guides – usually as an adjunct to a management system, but commonly employed in engineering applications and processes to support compliance with health, safety and good design and operating practices. However, these also extend to the softer systems of Corporate Social Responsibility and ethical trading.

Within this report, individual internal company standards have not been considered to any depth due to lack of defined boundaries and documentation on their benefits.

2.2 Labelling

In this review, we have used a broad definition of a label. Classically, labels that display environmental credentials are self-contained, verified either independently or by the producer of the product, and are often intended to differentiate the product from a competitor’s. They can require performance benchmarks to be reached before a permit to display the label on the product is issued and as such are closely related to standards (both formal and informal).

A primary aim of labelling is as a driver to enable consumers and purchasers to differentiate similar products. The term ‘product’ is taken to mean any sold item whether it is a discrete finished item or a bulk intermediate material or even a service. In the context of this document, labelling has been viewed as a means to inform purchasers regarding environmental or sustainability choices. In doing so, labelling provides three key functions: Informing consumer choice, promoting economic efficiency, and stimulating market development. In addition to labelling schemes where they are used to differentiate between products, this report also references classes of label that can enable waste prevention, such as corporate brands.

2.3 Procurement

The UK’s Sustainable Procurement Task Force, established in 2006 with Defra and HM Treasury funding, defined ‘sustainable procurement’ as:

‘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.’ (1)

An organisation’s procurement decisions can prevent waste in two distinct ways depending on whether procurement is used primarily as:

- A tool for **internal change**: an organisation chooses to buy, or switch to (2 p. 25), an existing product or service which results in less waste being produced, normally within its own operations. Examples include procuring: reduced, reusable or returnable packaging; remanufactured products; a service

instead of a product (or leasing) (3 p. 41); or services in a closed loop. Alternatively, the organisation may decide to go without the product or service altogether, again preventing waste (2 p. 25);

or

- A driver of **external change**: an organisation collaborates with, or influences, an existing supplier to change the latter's processes or products so as to reduce waste. The waste reduction normally occurs in the supplier's operation, or elsewhere in the supply chain. Crucially, the supplier's behaviour has been changed. A cascading effect along an entire supply chain can result (4 p. 13).

2.4 Commitments

Commitments are overt statements made in respect of 'signing up' to a waste prevention initiative, policy or philosophy. Researchers have grouped them into four main types: Public voluntary programmes; negotiated or bilateral agreements; unilateral commitments; and private agreements. Commitments as defined in the present review generally have the following features: voluntary; measurable; time-delimited; and auditable.

A key strength of voluntary initiatives such as commitments, as identified in a 2003 research paper, "is the flexibility afforded to participants which then enables them to respond innovatively in ways most appropriate to their own type of business" (5 p. 8). Mandatory targets and regulations tend to be too rigid in their prescriptions which sometimes dictate specific actions to be taken. In the context of this project, commitments should be viewed not only as interventions in their own right, but also as an enabling factor used in concert with other interventions. The most obvious example is their role in facilitating sustainable procurement (see Procurement section).

This report assessed the evidence for waste prevention from voluntary initiatives only. However, mandatory instruments such as the UK's Carbon Reduction Commitment are also likely to have an impact in the future.

2.5 Communications

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2.6 Incentives

Incentives are defined within this report as external rewards or pressures that encourage waste prevention. These can be in the guise of support to enable waste prevention (positive incentives such as grants or soft loans) or as a disincentive to continue with a behaviour that is deemed more wasteful than an alternative (negative incentives such as taxes and levies). Whilst much of the evidence within this report relates to incentives induced by policy and legislation, it is worth remembering that market competition and price signals often provide sufficient incentives for waste prevention. This becomes less likely where associated value is low, and where the environmental impact is high, so intervention may be desirable.

Certain types of intervention are specifically excluded from this report on the basis that they do not provide incentives as such, but rather represent a regulatory 'hurdle' to which businesses must comply e.g. interventions that ban the production or disposal of different substances. However mandatory schemes can offer inducements for waste prevention activities that go beyond mere compliance. A good example of such a mandatory intervention might be a producer responsibility scheme that incentivises weight reduction in order to reduce future compliance costs. A key distinction here that can be drawn between the two types of intervention is the extent to which continuous innovation is encouraged.

2.7 Business Support – Waste Min Clubs

This review has considered a diverse range of business support mechanisms. Of these, the aspect of waste minimisation clubs proved large enough to justify its own section. This is largely because, after the pioneering example of the Aire & Calder initiative (reviewed by Peters et al. in (5)), there was a proliferation of clubs of diverse constitution and style of operation.

For the purposes of this work, waste minimisation clubs are a group of businesses within the same sector or a given geographical area that work together to achieve savings in waste minimisation, as well as some aspects of clean operations and product design. In addition to providing varying levels of training and consultancy support to participating companies, waste minimisation clubs provide members with the opportunity to share knowledge and experience through club meetings and events. However, numerous schemes have a 'virtual' existence, where no physical meetings take place at all – membership of the club simply gives preferential access to other resources, such as consultancy.

'Waste minimisation' has been defined very broadly by clubs, reflecting different meanings to different groups. As such it often included activities to reduce landfill disposal and off-site recycling. In addition, most clubs link waste prevention with wider resource efficiency objectives, including energy management, water efficiency, legislative compliance and reduction of greenhouse gas emissions. Financial saving and other impact data will therefore need to be treated with caution, as discussed in the next section.

2.8 Business Support – Other

A significant number of programmes and initiatives currently running are aimed at improving the environmental performance of businesses. Such business support comes in many forms including: The provision of help-lines for advice; creation and dissemination of guidelines and other tools for self-analysis; the auditing of facilities and practices; technical assistance in implementation; and organisation of networks and application for finance. Even though the instruments and tools applied may differ, all these business support initiatives share some elements: Ambition to achieve a win-win situation for business and the environment; involvement of public bodies or trade associations; supply driven i.e. promoted by those offering support; and voluntary participation as opposed to mandatory involvement.

In the context of this survey, business support contracted without government intervention is most likely to consist of private consultancies engaged by a company at the latter's own expense. Evidence for this is extremely limited, not perhaps because of its rarity, but because there is little incentive to publicise it.

3 About the Evidence

Evidence has been obtained predominantly from UK sources and English language publications from Anglophone countries as well as pan-EU materials. However, with native foreign language speakers in our team, we have also accessed and reviewed a significant number of reports from Germany, France, Finland and elsewhere.

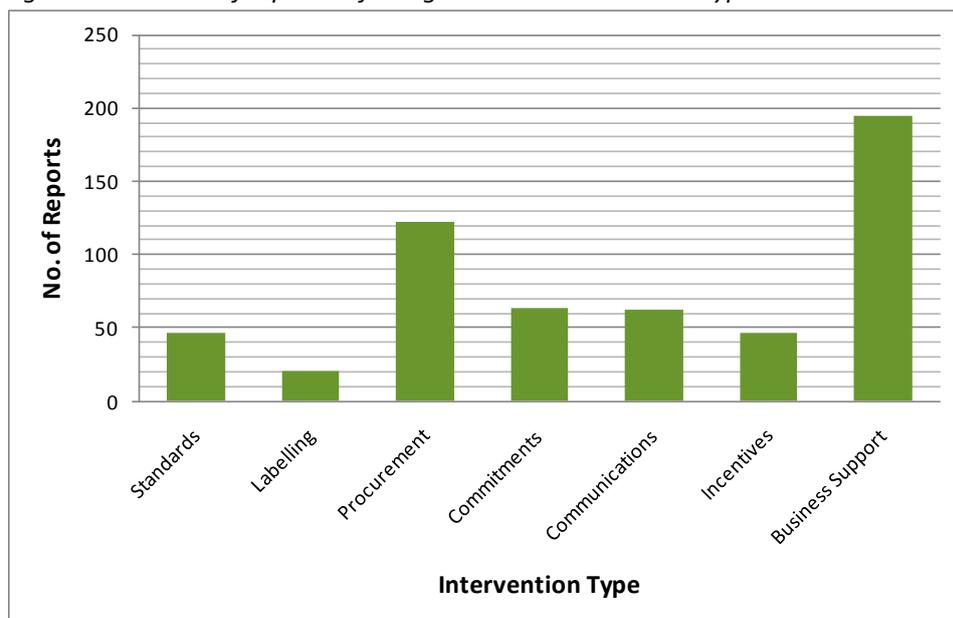
In advance of reading the evidence review of individual sector modules, this section provides an overview of the balance of evidence indicated by numbers of reports located in the search. The statistics of Figure 1 are based on the evidence review database as of 19 November 2010, and are in respect of the higher quality reports that have been retained or reserved for further analysis.

Business Support is the most prevalent mechanism in the evidence base. This is perhaps not unexpected given the large investment in business support from early days, and is well correlated with the abundance of examples in Waste Minimisation.

Labelling was the least revealed mechanism in our search; this may be understandable given that labelling appeals largely to consumers who are only indirectly able to influence root cause of waste generation through their purchasing decisions or through special interest groups – both relatively slow acting; any evidence is therefore likely to be poorly attributable in its effect. Major initiatives such as EU Ecolabel are too early to evaluate in respect of waste prevention.

Further analysis of prevalent Interventions by sector is described in module **L2m2: Approaches**.

Figure 1: Numbers of reports referring to named Intervention type



Source: Oakdene Hollins/Brook Lyndhurst

N.B. Business Support includes Waste Minimisation Clubs and Other Business Support.

4 Mapping Interventions

The Waste Framework Directive obliges member states to take action on waste prevention on a broad front. A mapping of Interventions – and some named examples – onto the suite of actions demanded by the Waste Framework Directive is provided in Table 1 below. Without pre-empting the analysis presented within the component modules, it appears that the UK has employed most if not all of these tactics.

Table 1: ANNEX IV to DIRECTIVE 2008/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008 on waste and repealing certain Directives

EXAMPLES OF WASTE PREVENTION MEASURES REFERRED TO IN ARTICLE 29		
Measures that can affect the framework conditions related to the generation of waste		Examples and relevant reports
1	The use of planning measures, or other economic instruments promoting the efficient use of resources.	Landfill tax escalator Packaging Recovery Notes (L2m4-6: Incentives)
2	The promotion of research and development into the area of achieving cleaner and less wasteful products and technologies and the dissemination and use of the results of such research and development.	Technology Strategy Board Collaborative Research Programme, Defra- funded environmental theme. (L2m4-6: Incentives)
3	The development of effective and meaningful indicators of the environmental pressures associated with the generation of waste aimed at contributing to the prevention of waste generation at all levels, from product comparisons at Community level through action by local authorities to national measures.	BREW Metrics (common to delivery programmes) (L2m6: Metrics)
Measures that can affect the design and production and distribution phase		Examples and relevant reports
4	The promotion of eco-design (the systematic integration of environmental aspects into product design with the aim to improve the environmental performance of the product throughout its whole life cycle).	Envirowise DesignTrak Refillable retailing systems (EziServ) (L2m4-8: Other Business Support) (L2m5-5: Automotive)
5	The provision of information on waste prevention techniques with a view to facilitating the implementation of best available techniques by industry.	Envirowise (L2m4-8: Other Business Support)
6	Organise training of competent authorities as regards the insertion of waste prevention requirements in permits under this Directive and Directive 96/61/EC.	Not in scope of project.
7	The inclusion of measures to prevent waste production at installations not falling under Directive 96/61/EC. Where appropriate, such measures could include waste prevention assessments or plans.	Construction Site Waste Management Plans (L2m5-1: Construction)
8	The use of awareness campaigns or the provision of financial, decision making or other support to businesses. Such measures are likely to be particularly effective where they are aimed at, and adapted to, small and medium sized enterprises and work through established business networks.	WRAP's waste measurement tools WRAP's waste reduction projects (F&D) (L2m5-2: Food & Drink) (L2m4-7: Waste Minimization Clubs)
9	The use of voluntary agreements, consumer/producer panels or sectoral negotiations in order that the relevant businesses or industrial sectors set their own waste prevention plans or objectives or correct wasteful products or packaging.	WRAP's Courtauld/2 Agreement Easter Egg packaging reduction (L2m4-4: Commitments) (L2m5-4: Retail)
10	The promotion of creditable environmental management systems, including EMAS and ISO 14001.	(L2m4-1: Standards)

Measures that can affect the consumption and use phase		Examples and relevant reports
11	Economic instruments such as incentives for clean purchases or the institution of an obligatory payment by consumers for a given article or element of packaging that would otherwise be provided free of charge.	BRC's Carrier Bag Agreement (L2m4-6: Incentives) (L2m5-4: Retail)
12	The use of awareness campaigns and information provision directed at the general public or a specific set of consumers.	WRAP's Love Food Hate Waste campaign (L2m4-5: Communications)
13	The promotion of creditable eco-labels.	Defra's promotion of EU Ecolabel (L2m4-2: Labelling)
14	Agreements with industry, such as the use of product panels such as those being carried out within the framework of Integrated Product Policies or with retailers on the availability of waste prevention information and products with a lower environmental impact.	MTP's EuP panels (L2m4-2: Labelling) (L2m4-5: Communications)
15	In the context of public and corporate procurement, the integration of environmental and waste prevention criteria into calls for tenders and contracts, in line with the Handbook on environmental public procurement published by the Commission on 29 October 2004.	Defra's furniture reuse commitment (L2m4-3: Procurement)
16	The promotion of the reuse and/or repair of appropriate discarded products or of their components, notably through the use of educational, economic, logistic or other measures such as support to or establishment of accredited repair and reuse-centres and networks especially in densely populated regions.	CRR/WRAP's promotion under the BREW programme (L2m4-8: Other Business Support) (L3m2: Reuse & Material Use Efficiency)

BRC: British Retail Consortium

MTP: Market Transformation Programme

CRR: Centre for Remanufacturing & Reuse

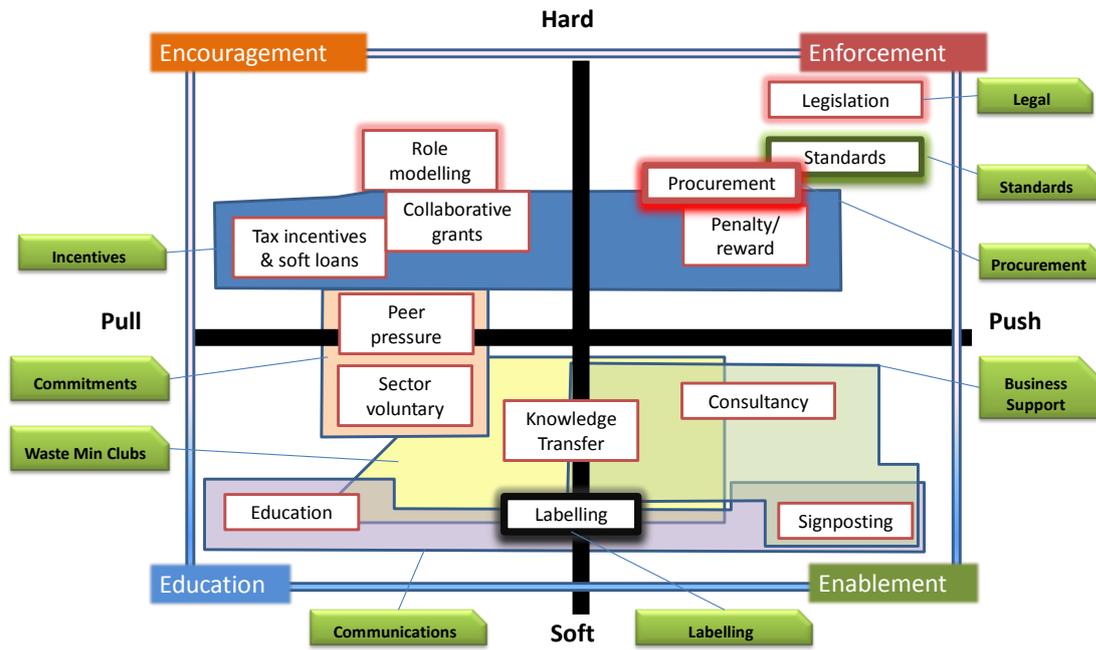
As an alternative perspective, Figure 2 shows a mapping of generic interventions used to effect change on a framework with hard-soft-push-pull axes. Boxes or highlighted colour have been used to show how clusters map onto our intervention analysis.

In general, the types of intervention tried to date produce a good coverage of the space. Arguably, the only under-represented tactic is that of role modelling. How best to sell waste prevention as an aspiration (beyond the promotion of case study materials whose deficiencies are highlighted in this work) might therefore form the basis of further study, noting that the reverse tactics – naming and shaming, league tables – have been used in other fields, such as education, and are a popular media tactic.

The current administration has already committed to filling the technology “exploitation gap” between research and commercialisation most obviously by the establishment of Technology and Innovation Centres (TICs)^a. The role of such bodies in fostering novel waste prevention techniques, or embedding dedicated high-knowledge staff bears scrutiny. This will be especially important if the aspiration of moving towards cleaner operations and greener products is to be realised since these approaches demand specific process capabilities and knowledge, which is beyond the reach of generic business support.

^a As of October 2011, only the High Value Manufacturing TIC had been established, with Cell Therapy and Offshore Renewable Energy near to foundation. A number of other themes, including Resource Efficiency, are under consideration. See <http://www.innovateuk.org/deliveringinnovation/technology-and-innovation-centres.ashx> [Accessed 14 October 2011].

Figure 2: Mapping of Interventions (and their components) mapped hard-soft/push-pull



Source: Adapted by Oakdene Hollins from Silver Pebble Consulting et al.

5 Bibliography

1. **Defra.** Background: understanding sustainable procurement. *Defra.* [Online] 2010. [Cited: 24 January 2011.]
<http://www.defra.gov.uk/sustainable/government/advice/public/buying/background/index.htm>. id 918.
2. **EEF.** *Resource efficiency - Business benefits from sustainable resource management.* London : EEF, 2009. id 341.
3. **Scott, K., et al.** *Meeting the UK climate change challenge: The contribution of resource efficiency.* Banbury : WRAP, 2009. id 388.
4. **Isusi, I.** *European SMEs and Social and Environmental Responsibility.* s.l. : European Commission, 2002. id 54.
5. **Peters, M. and Turner, R.K.** *SME environmental Attitudes and Participation in local-scale voluntary Initiatives: Some practical Applications.* Norwich : Centre for Social and Economic Research on the Global Environment, 2003. id 58.

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