



Caledonian
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Best Practice Focus Report: Print Management Schemes



SUSTAINABLE SOLUTIONS

Local Authority Internal Waste Management

May 2009

print08
print less & more efficiently

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 **Remade**
Scotland

Local Authority Internal Waste Management *Best Practice Focus Report: Print Management Schemes*

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Remade Scotland was the first UK market development programme for recycled materials. The programme has evolved to provide specific Scottish market intelligence, technical research and recycling performance support to Scottish Local Authorities and the Scottish Government. The Scottish Government contracts with the Caledonian Environment Centre (part of Glasgow Caledonian University) for the delivery of the programme.

The Caledonian Environment Centre is part of the School of the Built and Natural Environment, Glasgow Caledonian University and is supporting environmental research and policy development in Scotland.

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Contents

1.	Waste Minimisation in Local Authorities.....	1
2.	Paper Consumption in the Local Authorities.....	2
2.1.	Waste Generation	2
2.2.	Purchasing and Paper Consumption.....	2
2.3.	Potential to Save	2
2.4.	Print Management Schemes.....	3
3.	Fife – Print08.....	3
3.1.	Fife Local Authority	3
3.2.	Overview of Print08	3
3.3.	Benefits	7
	Financial	7
	Environmental.....	7
	Operational	9
3.4.	Contract.....	10
3.5.	Success Factors	11
	High Level Commitment	11
	Ownership.....	11
	Data.....	12
	Adequate Resources	13
	Behaviour Change and Education	14
	Operational	15
	Procurement	15
	Acknowledgements.....	19

1. Waste Minimisation in Local Authorities

In 2005 Local Authorities were funded to conduct internal waste audits and produce Waste Prevention Action Plans (WPAPs) funded through the Strategic Waste Fund. In 2008/09 support for local authorities on internal waste management was incorporated within the Remade programme. A survey of all local authorities in Scotland was conducted to assess how the WPAPs had been taken forward by Local Authorities. This work highlighted certain factors that contribute towards the success of internal waste management initiatives:

- High level commitment;
- Ownership;
- Data;
- Adequate resources;
- Behaviour change and education;
- Operational;
- Procurement;
- Recharge arrangements.

Remade is now developing a series of focus reports examining action Local Authorities can take to improve internal waste management and bring about waste minimisation. This focus report looks at **Print Management Schemes** as an approach to minimise paper waste generation as well as delivering savings in terms of reduced print consumables and energy consumption. The report:

- Identifies financial benefits;
- Identifies environmental benefits including potential tonnages diverted from landfill and waste minimisation potential; and
- Highlights key aspects of implementation linking with the 8 success factors.

The report illustrates these points in relation to the Print Management Scheme currently being implemented at Fife Council called **Print08**.

2. Paper Consumption in the Local Authorities

2.1. Waste Generation

Remade analysis of the results of the 2005 waste audits found that paper accounts for 52% of arisings¹ and therefore is a key area where local authorities can focus to impact on the volume of waste arising.

2.2. Purchasing and Paper Consumption

There is very little information available on the amount of paper purchased by Scottish local authorities. 15 of the 32 authorities used Scotland Excel (previously the Authorities Buying Consortium) to purchase paper until 2008. However, data obtained from Scotland Excel could not be reliably analysed as they were not able to guarantee that all paper was purchased through them. Discussions with councils raised a couple of issues regarding paper purchase. It is likely that in some cases certain council services, for instance schools, do not purchase all paper supplies centrally. In addition, alternative budgets may in some cases be used to purchase paper. Indicative figures are:

- Scotland Excel: paper consumption per full time employee - 3-12 reams/year.
- Waste audits by Shetland Council: paper consumption per full time employee - 3-40 reams/year (depending on service).
- Fife Council: per school student - 10 reams/year.

With the establishment of Procurement Scotland, Lyreco is now being used to supply paper. As of January 2009 22 authorities were using the paper agreement with more expected to join. Procurement Scotland will be collecting Management Information on usage for each individual product within the paper portfolio. This may provide a more complete source of data in the future (once authorities have been using for a complete year). However, it is still likely that within authorities some unmonitored purchasing will still take place.

2.3. Potential to Save

Gartner estimate that organisations can reduce their overall printing costs by up to 30 percent if they manage their print services². The main financial savings that can be realised through better print management are:

- Reduced expenditure on paper. Envirowise estimate that a best practice small office can use as little as seven reams of paper per person per year³.
- Lower energy consumption. This can be achieved through reduced printer use, fewer printers and replacement of with more energy efficient printers.

¹ Excluding roads maintenance and construction waste.

² Gartner (2004). User Study: Printers, Copiers and MFPs, Europe, 2003.

³ Envirowise (2002). Green Officiency: Running a Cost-effective, Environmentally Aware Office.

- Reduced print consumable costs. These include ink cartridges and toner cartridges.

2.4. Print Management Schemes

Print Management Scheme is the term used to encompass the integrated software and hardware systems used by an organisation to manage print services. Several authorities in Scotland have already implemented Print Management Schemes to varying degrees; for instance:

- Shetland has introduced compulsory duplex printing and is in the process of reducing the number of printers.
- Aberdeenshire have introduced a Print Management Scheme managed by Xerox. This is a smart card based scheme and has resulted in a reduction in the number of printers available.
- Argyll and Bute have implemented a print rationalisation programme.

3. Fife – Print08

3.1. Fife Local Authority

Fife Council is the third largest of Scotland’s local authorities. It provides the full range of local government services to the people of Fife. The Council employs over 22,000 people in more than thirty major business and service areas. The Council operates its businesses and services from over 500 sites. Its principal offices are in Glenrothes where around 1,500 employees occupy a number of office buildings in the Headquarters Campus. The Council also has significant concentrations of employees at its offices in Kirkcaldy, Dunfermline and Cupar as well as 19 high schools and 129 primary schools.

3.2. Overview of Print08

Fife Council is currently implementing a Print Management Scheme called **Print08**. The implementation phase of the project is being carried out over a 12 month period from September 2008.

The project aligns with and supports two of the Council’s Big 8 priorities⁴:

‘to be the leading green Council in Scotland’ – in terms of the environmental benefits that can be realised by the project.

‘Make Fife a top performing Council’ – more specifically, by enabling increased resource management utilising the information / print auditing systems proposed as part of the overall solution

⁴ The other Big 8 Priorities are: Improved educational attainment and achievement for all; Improved local conditions for economic development; Increased access to housing; Improved community safety; Targeted support to vulnerable people; Improved sport, leisure and cultural opportunities.

In addition, the project supports the Fife Environment Strategy that was adopted within the Community Plan in 2007. Conserving Energy & Resources is one of the Council's five key themes: *"To play its part in achieving UK Government targets of at least a 26% reduction in carbon emissions by 2020, Fife Partnership has identified conserving energy and resources as one of its key challenges."*⁵

The development of the project dates back to 2005 when an Output Strategy report was produced which examined different options for improving print services within Fife Council and the associated financial, operational and environmental benefits. The main project drivers for Fife Council were:

- Improving environmental performance; and
- Improved cost control and cost savings;
- Efficient printing with associated time savings;
- Secure printing;
- Provision of a better service including quality of output;
- Meeting future needs for document management.

A detailed Business Case was produced in 2007 to justify the undertaking of project, based on the estimated cost of procurement and implementation, against the risks and anticipated business benefits to be gained.

Full tendering commenced at the start of 2008; following an open tendering process Canon was successful in winning the contract for the scheme. Canon has the contract for implementation of the new technology involved and will provide a fully managed service for 3-5 years.

An overview of Print08 is given in Table 1.

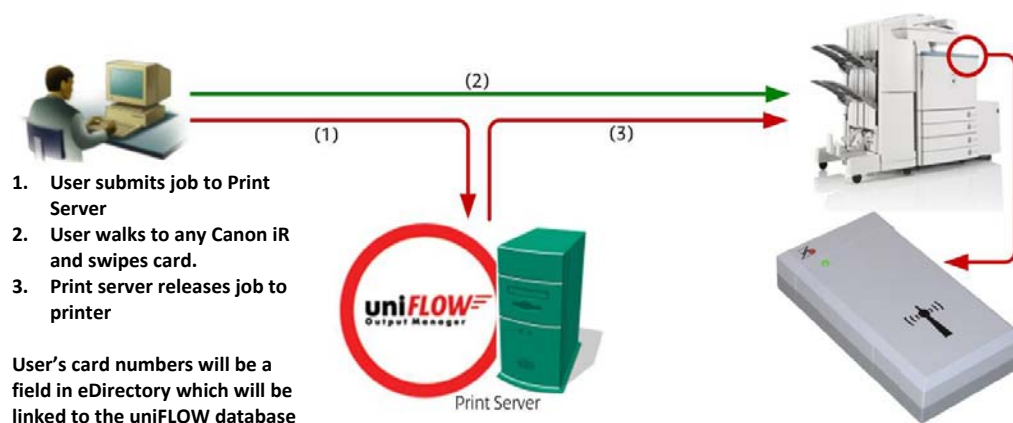
⁵ Fife Partnership (2007). Fife's Community Plan: A Stronger Future for Fife (2007 Revised edition).

Table 1 Details of Print08

Aspect	Details
Main Elements	<ul style="list-style-type: none"> • Integration and rationalisation of individual printers, scanners and photocopiers into multi-function devices (MFDs). MFDs can print, scan and photocopy. Fife Council had a recorded fleet of 690 photocopiers and over 8,000 printers. • Restructuring of the high volume printing capability within the Council. The high volume locations will be reduced from 24 down to 2 and will be equipped with digital reprographic devices. • Introduction of corporate printing, copying and scanning policies to encourage the best use of the new technology.
Financial Benefits	<ul style="list-style-type: none"> • £1.4 million saved over 5 years. • Savings achieved include: <ul style="list-style-type: none"> ○ reduced electricity costs; ○ reduced spend on consumables; and ○ reduced spend on paper.
Environmental Benefits	<ul style="list-style-type: none"> • Waste minimisation: reduced paper consumption, reduced paper waste, and reduced consumption print consumables. • Recycling: MFDs can use recycled paper, MFDs at least 65% recyclable, and toner cartridges capable of being recycled. • Energy consumption: 50% reduction in energy consumption expected.
Rationalisation of Existing Fleet	<ul style="list-style-type: none"> • Integration and rationalisation of individual printers, scanners and photocopiers into MFDs • Reduction from 8,000 to 1,000 devices. • All personal printers are being removed. • Canon is buying back Fife’s existing fleet and ensuring they are disposed of or recycled in compliance with the WEEE Directive. • Compact MFDs are being installed where space available is minimal. • A3 MFDs with colour where required. • Use of MFDs allows sharing of devices between different services.

Aspect	Details
Features of MFDs	<ul style="list-style-type: none"> • Printing is duplex by default, although mono sided printing is possible if required. • Colour printing limited to very specific locations and requirements. • The cost of each print is displayed to users at the MFD giving both transparency of cost and an incentive to reduce the number of print jobs. • ‘Pull printing’ means that prints are securely printed at a device after the user has authenticated using a Smartcard. Print jobs are held at the server and can only be retrieved at the device using an appropriate identification method and documents can be sent and then printed out at whichever device is most appropriate. This provides users with effective security mechanisms to control the output of sensitive documents. Figure 1 illustrates the process of print retrieval. • Large print requirements are forced to the central High Volume reprographics service. Users are notified automatically when they submit jobs if they are being sent to the High Volume service and given an estimate of cost. Users are also able to check up on the progress of any particular print job online.
Maintenance and Consumables	<ul style="list-style-type: none"> • Service calls can be booked and consumables ordered online. • The system will alert Canon so proactive maintenance can be carried out, faults can be fixed remotely or Service engineer dispatched. The system also keeps track of how much toner is being used. The aim is that this system will result in less time where the devices are out of action.

Figure 1 Retrieval of Print Jobs



3.3. Benefits

This section outlines the main financial, environmental and operational benefits of the project to Fife Council. While the financial savings will be realised at a corporate level the environmental benefits will be used to encourage employees to buy-into the new system.

Financial

Print08 will simultaneously reduce, and provide better control of, costs. Historically, printing and copying costs have not been recorded as a single cost category at Fife Council. However, the council have calculated that the savings as a result of the project will outweigh the cost of project implementation. Conservatively, full payback of the project costs is expected by the fourth year of implementation, and savings of **£1.40 million** are expected in the first **5 years**. Further savings are expected beyond the first period and are expected to include:

- **Reduction in electricity costs:** fewer devices, selection of energy efficient equipment and reduction in volume of printing.
- **Reduced spend on consumables:** no personal printers, mono print as standard and Toner Save can be set as default with prints and copies made with this feature using half the usual amount of toner.
- **Reduced spend on paper.**

Environmental

The project is expected in result in a range of environmental benefits which relate to the areas of financial saving outlined above:

Waste minimisation:

Prior to Print08 Fife Council estimated that prior to the project employees carried out 208 million prints per year and that 50% per year of prints were recycled.

- **Reduced paper consumption:** The Business Case anticipated that without intervention of the Print08 project paper consumption would remain static. Currently the Project Accountant expects paper reduction to be at least 40%⁶;
- **Reduced paper waste:** All MFDs will be set as standard to automatically duplex. There is an expectation that the use of Pull Printing will reduce the number of accidental and unnecessary prints resulting in a reduction in printer waste.
- **Reduced print consumables purchased, stored, disposed.** Outlined above and in addition all toner bottles and toner cartridges are capable of being reused or recycled.

⁶ Details provided by Canon UK Ltd.

Recycling

- All devices are capable of using recycled paper without impacting any other requirements.
- MFDs are at least 65% recyclable as stipulated by the WEEE Directive.
- Canon will manage the collection and recycling of toner bottles and cartridges.

Energy Consumption

Print08 will result in reduced electricity consumption through fewer and more efficient devices as well as an expected reduction in the volume of printing. A 50% reduction in energy consumption is expected⁷.

- MFDs (and other products such as Scanners and Large Format Printers) are Energy Star accredited. A key criterion for Energy Star compliance is the automatic 'power-down' function that reduces a machine's power consumption when it is not in use.
- The standby energy consumption of the Canon MFDs can be as low as 1w, compared to 690w for older devices.
- The MFDs use on-demand fixing technology which only heats up when required saving up to 75% of energy compared to traditional fixing technology⁸.

In addition, almost 17 Watt-hour (Wh) is consumed in making a sheet of paper from virgin pulp, and 12 Wh when it is made from recycled material⁹. So, a reduction in paper consumption will make a considerable contribution to the total carbon footprint of providing printing services.

Other

The MFDs have the **Blue Nordic Swan Ecolable**. The requirements that the appliances must fulfil before the Ecolabel can be granted focus on: power consumption, design, plastic materials and additives, recycling of discharged products, emission of pollutants (also noise) in working areas and performance properties e.g. duplex printing saving paper¹⁰. In addition, Canon has set an environmental goal, called Factor 2, which they aim to reduce by half the CO₂ burden per device produced.

⁷ Justin Adams, personal communication, March 2009.

⁸ Canon (2008). Canon Sustainability Report 2008.

<http://www.canon.com/environment/report/sustainability.html>

⁹ <http://www.eu-energystar.org/>

¹⁰ <http://www.svanen.nu/Default.aspx?tabName=CriteriaDetailEng&menuItemID=7056&pgr=15>

The conditions of contract required certain environmental criteria to be met by the contractor:

- **Compliance with RoHS Directive:** devices are compliant with RoHS Legislation. In addition to compliance Canon is eliminating the use of seven additional substances currently outside the scope of RoHS legislation: asbestos, ozone depleting substances, short chain chlorinated paraffins, azo dyes, tributyl tin oxide, polychloronaphthalenes, and polychlorinated biphenyls.
- **Compliance with WEEE Directive:** Contract ensures high percentage of equipment or their components are recycled in an environmentally acceptable manner. Existing printers will be recycled by MES based in Cumbernauld.
- **Compliance with Packaging legislation:** Removal and recycling of packaging materials is carried out. Canon set out in their tender how they are improving the environmental performance of their packaging materials including the use of cardboard rather than wooden pallets, use of pulp moulds to package smaller products and reduction in packaging size ¹¹.

Operational

Print08 should deliver a better service to the Council providing:

- an element in enabling the implementation of a Council wide document management strategy
- a means for giving an alternative to copying documents on paper – emailing the document to various recipients instead
- the ability to scan documents into workflow processes by routing them from a MFD to applications automatically
- a means of sharing resources better between services
- an improved services for mobile workers
- the potential to improve postal services through scanning
- a major reduction in the amount of printers on desks and tables, freeing up office space
- equipment better suited to open floor plans

In the longer term Fife Council expect that the potential productivity benefits could outweigh all the other benefits. However, these were not included in financial calculations.

¹¹ Information provided by Fife Council.

3.4. Contract

The contract for Print08 has been awarded and is in the early stages of implementation. The contract was awarded to Canon after a lengthy and detailed procurement process. The requirements of the service were worked out in some detail prior to detailed procurement (see Table 1). The requirements were reflected in the *Form of Tender* which requested detailed information on how the contractor would deliver the service within the General and Special Conditions of Contract. The Print08 project tender process used the Office of Government Procurement Buying Solutions (OGCbs) framework and has been held up as an exemplar by Audit Scotland's Best Value Audit of Fife Council.

Table 1 Fife Council Expectations of Print Management Service

Fundamental Requirements	Additional Requirements
<ul style="list-style-type: none"> • Maintain and improve the current basic services such as printing, scanning, copying. • Ensure that the infrastructure is sufficiently flexible to meet any future strategies and directions 	<p>Solution should:-</p> <ul style="list-style-type: none"> • Increase the organisation’s effectiveness and flexibility • Reduce the organisation’s costs and process cycle times • Reduce the organisation’s impact on the environment • Modernise Printer/Copier/Scan Fleet • Introduce Multi-Function Devices • Rationalise system • Standardise system • Deliver cost reductions • Enable cost control & accountancy • Reduce Carbon Footprint • Reduce Ink, toner, paper & electricity consumption • Ensure product and component Restriction of Hazardous Substances (RoHS) compliance & Waste Electrical and Electronic Equipment (WEEE) disposal • Provide a Secure Print Environment • Provide of a reliable Print Service

The contract has been awarded to cover Fife Council but may in the future be utilised by any of Fife Council's Community Partners who include NHS Fife and Scottish Enterprise Fife.

The contract was awarded on a ‘cost per copy’ basis. The cost per copy includes preventative maintenance, corrective maintenance, emergency call-outs, spare parts, staples and toner. At larger sites there will be on-site storage of some of the

frequently used spare parts and consumables to ensure that machine uptime is kept to its maximum.

3.5. Success Factors

Key aspects in the implementation of Print08 are highlighted below under each of the key success factors introduced at the start of the case study.

High Level Commitment

Leadership & prioritisation - Support from senior management
Organisational buy-in - Integrated in corporate aims and objectives
Allocation of responsibility & resources

High level commitment is given through the support of Stuart Nichol, Executive Director of Environment and Development Services within Fife Council, who is the Executive Sponsor of the Print08 Project and Chairs the Project Board.

The implementation of this project aligns with and supports two of the Council's Big 8 priorities¹²:

'to be the leading green Council in Scotland' – in terms of the environmental benefits that can be realised by the project.

'Make Fife a top performing Council' – more specifically, by enabling increased resource management utilising the information / print auditing systems proposed as part of the overall solution

Financial resources have been allocated to a dedicated team to implement the project.

Ownership

Staff given specific responsibility and ownership for delivery
Focus and facilitation
Regular input and continuity

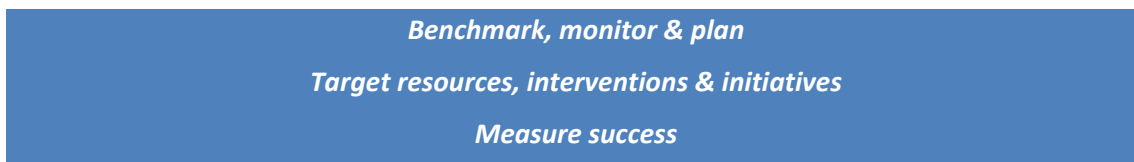
Print08 is being implemented by both a dedicated internal Fife Council team of staff as well as project teams within Canon.

Canon recognised from previous experience that the success of the project depends on the transition from one provider to another. They allocated one project team tasked with scoping project requirements while another is tasked with ensuring that the logistics, commissioning and training is delivered to time.

¹² The other Big 8 Priorities are: Improved educational attainment and achievement for all; Improved local conditions for economic development; Increased access to housing; Improved community safety; Targeted support to vulnerable people; Improved sport, leisure and cultural opportunities.

The Print'08 project internal council team of staff have responsibility for successful implementation of the project. This team includes an Implementation Manager, Technical Manager, Technical Lead, Education Lead and Support Officer.

Data



Targets have been set and indicators for the project will be measured at regular intervals and include:-

- Financial cost reduction;
- Carbon footprint reduction;
- Paper reduction;
- User Satisfaction improvements;
- % Delivery on time;
- Average time to respond to and resolve faults; and
- Average time to implement a change (including site survey).

Management information on print usage can be provided across the full range of MFDs providing accurate costs and data on number of prints.

Fife was the first authority in UK to get Carbon Trust Standard and is committed to reducing its carbon footprint. In future all internal new projects will have to be justified on carbon basis. The authority is putting in place a system of carbon accounting to integrate carbon as a second currency. Print08 has an accountant responsible, amongst other things, for carbon accounting of the project.

The Sustainability Team within Fife Council will be conducting monitoring on changes in energy consumption and paper usage as Print08 is rolled out across the council. **Table 3** gives information on the pilot study completed by the Sustainability Team. Key lessons have been learnt from this study that will help ensure successful implementation with the remainder of the project. The team will work with the project accountant to monitor the carbon footprint reduction and to compile carbon accounts for the project.

Table 3 Pilot Study on Energy and Paper Consumption Impacts of Print08

Pilot Study	
<p>A pilot study has been undertaken of the impact on energy and paper usage with the implementation of the new MDFs. This took place in one of the main council offices, which is occupied by Building and Environmental Services.</p>	
Monitoring	<ul style="list-style-type: none"> • Energy monitors were installed on every existing device and readings taken for 6 weeks. • Paper use was collected on a weekly basis. Recording included all printed, photocopied and fax paper used on the devices. • Monitoring was then carried out for a 6 week period after the new devices were installed. • Six of the existing printers were still in operation after the installation of the new equipment. The impact of these devices on the overall monitoring figures was calculated and lessons learnt for future roll out of equipment.
Results	<ul style="list-style-type: none"> • Energy use was reduced by over 70% during the period when comparing the new equipment to the old printers. • If energy use is compared including the printers that were not removed the reduction in energy use was much lower (27%). However, the potential energy savings potential of the new devices was still illustrated. • Only a small reduction in paper consumption was seen – due to the continued use of the old printing devices.
Lesson learnt	<ul style="list-style-type: none"> • Many staff transferred printing to the remaining old printers rather than the new devices. This illustrates both the importance of a clear handover process and the need for staff training. • Clear communication is needed to ensure the exact dates of printer removal are known. This is necessary for accurate monitoring and to ensure staff do not continue to use old devices. • Clear communication is needed to Fife council employees involved in the transition to Print08 printers. • The existence of old printers has significantly reduced potential savings.

Adequate Resources

Invest and sustain change – spend to save
Resources available for dedicated staff.
Resources for necessary additional capital outlay.

The council has invested financial resources to support and implement Print08. This investment will result in savings in year four, as outlined in **Section 3.3**. The financial commitment enables investment in new technology but also supports dedicated staff to ensure the project is implemented successfully.

The Business Case for the project identified the dedicated staff required to implement Print08 as well as the input required from existing staff in various departments; for instance, facilities staff to assist where there is a need to install additional data points to service MFDs and staff from the sustainability team to monitor energy and paper consumption.

The Print'08 project has a team to implement the project successfully, which includes an Implementation Manager, Technical Manager, Technical Lead, Education Lead and Support Officer. Other specialist resources are provided on an *ad hoc* basis from other Council departments; for instance, the sustainability team are conducting some of the monitoring of paper and energy use.

Behaviour Change and Education

Help users change and understand change

Overcome challenges to change

Training in induction procedures and targeted training for relevant staff

Appropriate material disseminated to communicate schemes and initiatives in place.

Clear labelling of facilities.

The project Business Case recognised that the realisation of benefits from the project would largely be down to new policies, and their enforcement by individual services. It was recognised that if Services do not control their own usage and undertake an element of business change within their service, then few of the benefits would be realised. A Project User Group has been implemented to develop the new policies. A service user representative from each service will attend User Group meetings.

Staff training and Key Users will be used to ensure that members of staff are properly prepared for using the MFDs. Key Users are employees who will represent individual floors (in larger buildings) or locations across the Council who will have face-to-face training on how to use the devices including basic fault-fixing and routine maintenance. They will be charged with cascading down this knowledge as appropriate. Staff at each site are expected to spend time familiarising themselves with new equipment and undertaking the training made available. Feedback mechanisms have been put in place to ensure that any issues or requirements are properly dealt with during and after each stage of implementation. Canon are conducting Help Days as devices are installed where “floor-walking” by Canon staff helps to ensure that personnel are aware of the changes and are happy with how to use the new devices. The pilot study carried out by the Sustainability Team illustrated the need for clear training and communication (see **Table 3**).

A dedicated website for the project will be set up to provide education and training support to staff. The site will contain User Guides, contacts, case studies of good practice.

Canon's web based training programme allows refresher training for staff. A web based training video is scheduled to be linked into Fife's e-learning facility and WebEx¹³ training is available if requested.

Standardisation of the interface, with all MFDs having the same control panel, will assist staff in learning to use the new facilities. Improvements to the service will be based on user surveys.

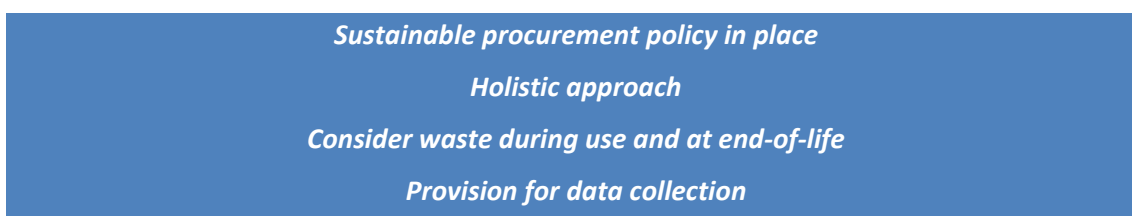
The monitoring carried out by the Sustainability Team underlined the need for effective training and education to ensure the best use is made of the new devices.

Operational



A site survey was conducted to identify the locations for new equipment and ensure that all equipment and software recommended within the solution was suitable for the site. The survey identified any infrastructure requirements e.g. network cabling, electrical points etc that may be required to allow the new devices to function as well as site access for delivery, space, and health and safety considerations¹⁴. Under the terms of the contract Canon had to confirm compliance with health and safety regulations.

Procurement



The procurement process included two phases to ensure all aspects of the project were correctly scoped. An initial tendering process requested pilot implementations for delivering an innovative and effective print service. The council retained intellectual property rights for these submissions and was able to use aspects of this information when developing the invitation to tender. The council tendered and requested costed options for:

- Outright Capital purchase of hardware / software;
- Lease and click; and

¹³ WebEx is a web conferencing company. <http://www.webex.com/what-is-webex/index.html>

¹⁴ Canon tender

- Managed service, with total cost per page across the council.

Vendors needed to demonstrate a commitment to undertake a detailed audit/design exercise throughout Fife Council prior to delivering the proposed designs at the required level of quality across all sites.

Fife Council pursued the option of a fully managed service as opposed to either Capital Purchase or Lease options. The advantage of this approach is that the maximum flexibility of the solution can be realised within an organisation that is becoming increasingly dynamic.

With the managed service the vendor quotes a page click price for both mono and colour output for each type of device installed (local or high volume). The click price is fixed throughout the terms of the contract. There will be a minimum volumes applied however these should be in line with the requirements of the business and if this is proven not to be the case it is incumbent upon the supplier to provide the council with a more appropriate device. The contract was awarded to Canon following the full tendering process.

Fife Council has a Sustainable Procurement Policy. This enabled a requirement to be placed in the contract for the project that all equipment shall substantially meet the requirements of the appropriate Nordic Swan eco-label Standard. The Fife Council Form of Tender documents included many clauses to encourage financial, environmental and operational performance of the project. Some of these are highlighted in **Table 4**.

Table 4 Examples of General and Special Conditions of Contract

	Environmental	Other
General Conditions of Contract	<p>Contractors must comply with the Packaging (Essential Requirements) Regulations 2003 (SI 2003 No 1941) ("the Regulations"). In particular:-Contractors must use the minimum adequate amount of packaging to maintain the necessary level of safety and hygiene for conveyance of the packed product to the Council.</p> <p>Contractors must use packaging which is designed and produced in such a way as to facilitate recovery, including recycling, and have a minimal impact on the environment when disposed of.</p> <p>Contractors must ensure that the use of noxious or hazardous substances and materials as constituents of the packaging material or of any of the packaging components are minimised.</p> <p>Contractors must ensure that maximum levels of ppm (parts per million by weight) as set out in section 6 of the Regulations (subject to any future enactments or amendments) are not breached with regard to lead, cadmium, mercury or hexavalent chromium.</p>	<p>Data:</p> <p>The successful Tenderer(s) will be required to supply the Council with Management Information on a regular basis. The nature of the Management Information will be discussed and agreed prior to the Award of Contract(s).</p>
Special Conditions of Contract	<p>Tenderers should provide a brief summary of their organisations environmental policy, in particular with regard to energy efficiency and the emissions of the products they are offering. Tenderers should include details of any recyclable components/materials contained in the products offered or the use of any components/materials that are derived from recycled materials that are used in the manufacturing process of the products offered.</p> <p>Tenderers should provide a brief summary of Power Consumption by</p>	<p>Training:</p> <p>Training for technical support staff and end users. Training solutions shall be agreed and signed off by Fife Council.</p>



devices offered.

Tenderers should provide details of the procedures your organisation has for the collection, handling, treatment and re-use of WEEE.

Responses should state whether your company have registered with the National Clearing House or with a compliance scheme and details of your registration should be included. Please provide full details if implementation of this Directive has any price implications that will be passed on to the The Council.

Under the Terms of the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC and 2003/108/EC Tenderers are required to provide details assist treatment and re-use of Waste Electrical and Electronic Equipment. This includes information on the components and materials in the EEE, and the location of any hazardous substances.

Detail any specific criteria that have been applied in designing this solution to enable lower environmental impact



Acknowledgements

Remade would like to thank all the local authorities who provided information to support this case study. In particular, Remade appreciate the assistance of Justin Adams, Print08 Implementation Manager at Fife Council, and Max Sykes, Canon (UK) Ltd for providing extensive information on the Print08 project.



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