

A packaging assessment case study





Packaging sustainability as a continuous improvement process

Product stewardship is integral to the Fuji Xerox 'closed loop' business model. At the end of their first life, various electronic devices and parts are collected from customers for remanufacturing at the company's Eco Manufacturing Centre in Rosehill, NSW. These parts are then packaged for distribution back to customers. While the environmental performance of packaging has always been considered, a project is now underway to formally integrate the Sustainable Packaging Guidelines (SPG) into the Eco Manufacturing Centre's design process. This will help to achieve continuous improvement in packaging.

This case study highlights

- That the SPG can be easily and effectively integrated into existing product development processes
- Priorities for SPG reviews should reflect a company's sustainability strategy and product positioning
- Even advanced companies like Fuji Xerox are always looking for and finding packaging improvements.

About the company

Fuji Xerox Australia is a regional subsidiary of Fuji Xerox Co Ltd, which is based in Japan. The company has shifted its business model from a commodity provider of technology through products such as printers and photocopiers, to a services and solutions provider. Product stewardship, which for them represents working with others in the value chain to minimise waste streams generated throughout the lifecycle of printing and photocopying equipment, is consistent with this approach and a driving principle for the business.

The Fuji Xerox Eco Manufacturing Centre takes back and remanufactures parts and sorts components for recycling. Through the Australian Packaging Covenant (APC), Fuji Xerox is adapting its product development processes to ensure that the packaging used for remanufactured parts as well as the packaging utilised throughout other areas of its Australian operations are designed to be resource efficient, sourced from responsible suppliers, and optimise reuse and recycling.

The case study

A two-part workshop was held at the Eco Manufacturing Centre to discuss options to formalise and document packaging reviews against the SPG. Participants included the corporate environment manager, staff from operations and procurement, and representatives from the APC. The objectives of the workshop were to:

- evaluate the **business case** for packaging sustainability within Fuji Xerox, in order to link the SPG to core business strategies and priorities;





- undertake a **gap analysis** of APC compliance;
- decide on an **assessment process** to integrate the SPG in design and procurement; and
- undertake a trial **packaging assessment**.

This case study documents the preliminary decisions from that workshop on how packaging assessments will be undertaken in future by the Eco Manufacturing Centre.



The business case for packaging sustainability

Sustainability and product stewardship are embedded in the Fuji Xerox business. It has a unique product repair and remanufacturing model that originated in Australia and was later extended to other regions. It reflects the ideal of a ‘circular economy’, which underpins [Japanese recycling laws](#). Many packaging decisions are made at the corporate head office in Japan, however remanufactured products are packaged locally (at the Eco Manufacturing site). This provides opportunities to assess and improve existing and future packaging solutions.

Continuous improvement processes within Fuji Xerox often address packaging. ‘Project Refresh’, for example, was implemented in 2012-13 with the aim to reduce costs and production cycle times, create a safer workplace, and to minimise double handling. The first stage explored opportunities to reduce waste and improve efficiencies through shipping, storage and handling of products. The first ‘win’ was a packaging innovation that reduced the amount of cardboard packaging for multifunction device side trays. The packaging volume was reduced by half, which saved 51 tonnes of material, reduced warehousing requirements and achieved annual savings of around \$57,000.



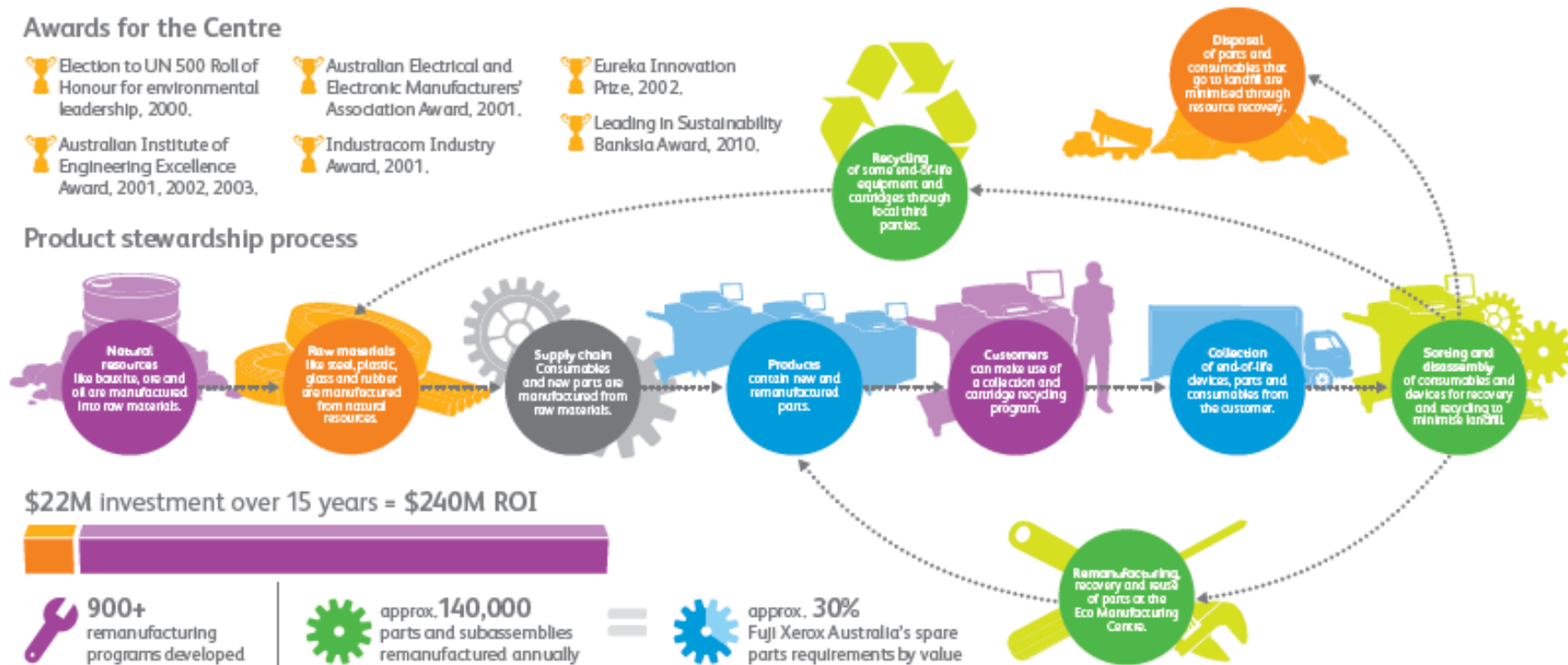
Case study – Fuji Xerox



Awards for the Centre

- 🏆 Election to UN 500 Roll of Honour for environmental leadership, 2000.
- 🏆 Australian Electrical and Electronic Manufacturers' Association Award, 2001.
- 🏆 Eureka Innovation Prize, 2002.
- 🏆 Leading in Sustainability Banksia Award, 2010.
- 🏆 Australian Institute of Engineering Excellence Award, 2001, 2002, 2003.
- 🏆 Industracore Industry Award, 2001.

Product stewardship process



An infographic showing the life cycle of a Fuji Xerox product



Gap analysis

Fuji Xerox has been an APC signatory for many years. While the Sustainable Packaging Guidelines are being applied in other parts of the business, Fuji Xerox acknowledges that they could be used more effectively to drive change. A more rigorous, documented process will be developed, initially for the Eco Manufacturing Centre. The Centre has not been involved in APC activities to date, although they are always looking for packaging improvements as an integral part of what they do.

Integrating the SPG and broader APC requirements into business processes

Signatories to the APC must show that they are implementing the SPG for packaging design and procurement. One way to do this is to include SPG packaging assessments in documented product development processes, with formal sign-off by the appropriate manager.

Fuji Xerox has a documented design procedure that must be followed for the development of all new products. This is a 'gated' process that requires sign-off by personnel in R&D, quality and production. The document includes a work flow diagram, which illustrates the process and the various gates where sign-off occurs. This is supported by the *Engineering development group project commission checklist*, which must be completed prior to the launch of every new product to demonstrate that all of the necessary preparatory work has been undertaken.

These processes and documents will be amended to incorporate packaging reviews against the SPG by:

- adding an extra step to the workflow diagram to show when a packaging sustainability review will be undertaken prior to launch;
- adding a new section to the checklist (see Figure 1 below) to confirm that a packaging sustainability review has been undertaken, and to summarise the environmental outcomes. This will be signed-off by the sustainability representative within the company;
- providing a separate checklist for SPG reviews that will be completed by the site team for each project; and
- ensuring that completed SPG checklists are included in the relevant project file.

The SPG checklist has been adapted to include questions that are most relevant to Fuji Xerox's packaging. For example, there is a particular focus on reuse to align with the company's 'closed loop' business model.





TO BE COMPLETED BY SUSTAINABILITY REPRESENTATIVE:

Packaging Covenant Checklist
Completed by:

DATE:

COMMENTS:

Upon completion of the above section please return to:

Figure 1: The proposed addition to the Engineering checklist to incorporate the SPG

Trial packaging assessment

A trial packaging assessment was undertaken at the workshop for xerographic drum cartons. The current practice is generally to copy the type of packaging used to import new parts from overseas suppliers, but this is often over-engineered for local distribution of remanufactured parts.

The Fuji Xerox business model is based on reuse and remanufacturing, so the company places a high priority on designing packaging for more than one use. Some boxes have already been redesigned in a 'pizza box' (re-closable) format, but many xerographic drums are still distributed in a RSC 'cut and tape' format, inhibiting reuse.

Guided by the SPG checklist, a number of opportunities were investigated for discussion with suppliers:

- replace plastic tape with folded closures to improve reusability and recyclability (see Figure 2 and 3 below);
- down-gauging the cardboard;
- reducing the amount of void space in the cartons;
- increasing recycled content in the cartons (it is assumed that they currently include virgin material for aesthetic reasons – to look the same as imported cartons, which require virgin material for protection during long distance transport);
- confirming that any virgin material is sourced from sustainable supply chains (e.g. FSC-certified);
- replacing expanded polystyrene (EPS) end caps with recycled cardboard.





Figure 2: A typical 'cut and tape' box



Figure 3: A folded box is easier to reuse

Lessons for other signatories

1. Don't duplicate existing business processes

The workshops at Fuji Xerox identified existing business processes that could easily be adapted to incorporate the need for packaging reviews against the SPG. This has a number of benefits:

- Everyone involved in a new product will know that packaging design must be considered and optimised as part of the product development process;
- Many companies have found that the systematic review of all new packaging identifies environmental improvements and cost savings;
- Environmental improvements will be documented, allowing them to be included in the company's APC and sustainability reports; and

If they are audited as a signatory to the APC in the future, Fuji Xerox will be able to demonstrate compliance by referring to a documented assessment process.

2. Prioritise sustainable design criteria to reflect your business priorities

APC signatories have to show that they are evaluating all packaging against the four principles in the Sustainable Packaging Guidelines. These cover fit for purpose, resource efficiency, low impact materials and resource recovery. There are almost always trade-offs between the different criteria, for example a higher percentage of recycled material may require a thicker board, so as not to reduce strength.

Companies can learn more about the SPG and how to manage potential trade-offs by referring to the APC's [Design Smart Material Guides](#). Trade-offs can also be managed by focusing on those strategies that support the company's sustainability policy and product positioning in the market. Fuji Xerox, for example, remanufactures parts for reuse and recycles any components that can't be reused. It is logical for their packaging to be designed according to the same principles, i.e. reuse and recycling. For this reason customers may be more likely to accept reused packaging that may not be in pristine condition, if they know that it has been reused along with the product inside.





Next steps

The next steps for Fuji Xerox are to:

1. Revise the *Engineering development group project commission checklist* to incorporate packaging assessments;
2. Review the APC's [Fibre-based Packaging Design Smart Material Guide](#) to identify further opportunities and refine the questions being asked of suppliers;
3. Meet with corrugated carton suppliers to discuss potential design improvements based on the SPG review.

Resources to help signatories achieve effective assessments:

[Packaging Assessment Guideline](#)

[Packaging Assessment Templates](#)

