

THE BUSINESS CASE FOR PACKAGING SUSTAINABILITY

D&D Technologies

The transition from clamshell to pouch-style packaging



Australian Packaging Covenant

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Summary

D&D Technologies manufactures quality, innovative gate hardware, primarily for swimming pool and general-purpose gates. This case study describes the company's ongoing transition from retail clamshell packaging to a stand-up pouch. It explores the business drivers and challenges associated with this transition, as well as the sustainability and business benefits that emerged along the way.

Benefits for D&D Technologies to date include an estimated \$200,000 reduction in annual packaging costs, a material saving of 3,600 kilograms (with associated environmental benefits in the supply chain), increased operational efficiency and a more user-friendly packaging design.



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Lessons from this case study

- Cost is often the initial driver for a packaging change, but additional benefits reinforce the business case.
- An existing product development process can be used to manage a packaging change. Benefits of this approach include:
 - Familiarity with, and confidence in, the process.
 - The ability to engage and obtain input from all business functions, including operations, sales & marketing and procurement. This helps to achieve multiple business benefits and overcomes any resistance to change.
- A multi-stakeholder process allows risks and benefits to be identified and addressed early in the process.

Figure 1: Clamshell packaging (left hand side) and the newly-developed pouch pack



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About the company

D&D Technologies has been manufacturing safety gate hardware for more than 25 years. The company was founded when David Doyle, inspired by a story on the ABC's *Beyond 2000* about rare-earth magnets (that never lose their magnetic force), invented the ground-breaking 'MagnaLatch®'. He established D&D Technologies with partner Neil Dunn, and the company went on to design and manufacture a complete range of polymer-based latches and hinges at their Sydney premises.

The company sells to retail, trade and commercial customers in Australia, New Zealand, Europe and the US, and recently started exporting to South America. The company is privately owned, with around 70 employees in Australia, and offices in California and Europe, and sales of around \$30 million in 2013.

Approach to packaging innovation

Genesis of the project

A packaging review was initiated in 2009 to find ways to reduce costs and material waste without sacrificing much in the way of perceived quality and value. It was undertaken by the 'Product Group – New' team, which has representatives from across the business (Australia and the USA) and meets weekly. Members include the Chief Operating Officer (COO) and representatives from sales and marketing, manufacturing, procurement, product development, quality, R&D and communications.

Consultation with stakeholders

The first step in the process was to consult with stakeholders (internal and external) on the current packaging to establish the objectives for a redesign. This identified a number of other important drivers:

- Retail customers had requirements for stacking and visibility on the shelf, and were also interested in cost savings and environmental improvement.
- While the Chief Operating Officer had always pushed the team to find cost savings, this had become essential to ensure that local manufacturing remained competitive.
- The manufacturing manager highlighted inefficiencies in the packaging process that were adding unnecessarily to costs. The existing 'clamshell' packaging (a PET shell with internal cardboard label) was slow to assemble and labour intensive. The new design had to be more efficient and compatible with increasing automation in the assembly and packing lines (e.g. auto-bagging).
- The Sales & Marketing Director wanted more 'real estate' on the pack to promote the features and benefits of the product. Folds and curves in the clamshell limited the space available for visual promotion.
- In 2009 the COO had signed the National Packaging Covenant, which was replaced in 2010 by the Australian Packaging Covenant (APC). D&D Technologies' obligations under the APC provided additional leverage for a packaging review.

Stakeholder requirements are summarised in **Figure 2**.

"Rather than seeing the Covenant as a constraint, we wanted to embrace it. We aligned our Covenant strategies with other business objectives."

Richard Zitzelsperger, Product Development Manager



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Figure 2: Stakeholder requirements for the new packaging



Concept Evaluation

An external design consultant combined all of these stakeholder requirements into a packaging brief, and developed a number of concept designs. The three main options were:

- A simpler, streamlined clamshell design.
- A flexible plastic box.
- A plastic bag (pouch).

These concepts were evaluated against the APC's Sustainable Packaging Guidelines. It was agreed that the packaging could address two of the key strategies in the SPG:

- **Material efficiency:** a simpler and lighter-weight pack could reduce environmental impacts *and* packaging costs.
- **Improved accessibility:** the clamshells were difficult and frustrating for consumers to open, and the redesign provided an opportunity to make the packaging more user-friendly.

D&D Technologies' APC Annual Report for 2013 included a commitment to replace all clamshell packaging with pouches by the end of 2015.



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Development

The project gained greater urgency in 2013 when a large Australian retail customer approached D&D Technologies to see if they could find a lower cost packaging solution. Based on their research on packaging alternatives, D&D Technologies was confident that they could achieve a solution that would meet the customer's requirements while achieving a range of other business objectives.

At that point a formal new product development (NPD) process was initiated. D&D Technologies has a strong commitment to quality and is certified to ISO 9001. Their documented stage-gate process requires review and sign-off by the Executive Team at each stage of a project.

The product development team decided to pursue the option of a lightweight bag because the other alternatives would not achieve the desired material and cost savings. They searched for inspiration beyond their own product sector and found a solution in the grocery industry, where stand-up pouches were already being used for a wide range of laundry and food products. They also talked to external stakeholders, including Arthritis Australia, who provided advice on accessibility.

The team worked with a new packaging supplier to develop a pouch that would meet their objectives for cost, quality, shelf display, product protection and sustainability.

Implementation

The new packaging was released into selected retail markets in November 2013, five months after the NPD process began. Over time the new design will be rolled out to other customers and markets, with the transition expected to be completed by the end of 2015. The decision to roll out the change progressively allowed D&D to work through their existing inventory to avoid unnecessary cost and waste.

Whole-of-business benefits achieved

Tangible benefits were achieved across the company (**Table 1**). An additional benefit has been the positive impact on staff morale: the investment in new packaging demonstrates that the company remains committed to innovation and intends to maintain its role as a market leader, with a goal to keep manufacturing in Australia.



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Table 1: Benefits of the packaging change

Function	Benefits
Sales and marketing	Met retail customer request for lower-cost packaging Maintained sales despite a major change in packaging Met product protection (including tampering) requirements Improved visibility on the shelf because of the larger surface area and strong design features More space on the pack to promote features and benefits of the product More flexibility to adapt packaging to retail customer requirements
Manufacturing	Improved packaging line efficiency Will support increased automation in the packaging process
Procurement	A forecast reduction in annual (direct) packaging costs of \$194,056 by the end of 2014 Less inventory as the previous packaging had multiple components (clamshell and board) A small number of pouch sizes (5) can accommodate the entire product range, so no need for individual packaging solutions
Sustainability	A reduction in packaging material of 3,628 kg (3%) by the end of 2014 Improved accessibility (open-ability) for consumers



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Selling the benefits to stakeholders: keys to success

- **Work with a cross-functional team to ensure that internal stakeholders are engaged in the process.** The management team at D&D Technologies were involved from the beginning and supported the change. Internal and external stakeholders were consulted early in the process which allowed them to respond to any risks or concerns as they emerged.
- **Show how the packaging solution will support future business improvement.** One of the benefits of the new packaging was that it would support D&D Technologies' journey towards increased automation and improved productivity.
- **Identify and manage any potential risks throughout the process.** One of the risks identified by the sales and marketing team at D&D Technologies was the potential for theft or product damage if consumers were able to open the pack in-store. This was addressed by choosing a robust material that cannot readily be torn open.
- **Ensure that you have a robust product development policy and process.** The documented stage-gate process at D&D Technologies ensured that all aspects of the business were involved in the development process and that all key requirements and risks were addressed in a timely manner. Their product change management policy and procedure also allowed them to manage obsolescence of existing packaging and implement a smooth transition (soft roll-out) of new packaged products into the market.
- **Establish and get agreement on the objectives for the packaging early in the process,** for example through a written brief. This is where the Sustainable Packaging Guidelines can be introduced into the process. Also consider **starting small**; for example:
 - Select a key account to implement and pilot the new packaging first. If successful it can then be rolled out to all accounts, or
 - Select a key product line first, implement it to the market and then phase in all lines soon after.

This can all be clearly articulated in the project brief via a well thought out product road map.

