
AUSTRALIAN PACKAGING: ISSUES AND TRENDS

A BACKGROUND PAPER FOR THE WORKSHOP *PACKAGING YOUR WORLD – PROTECT, PRESERVE, CONTAIN, INFORM*. THIS PAPER HAS BEEN ADAPTED FROM THE PACKAGING COUNCIL OF AUSTRALIA'S ISSUES PAPER 18, UPDATED JUNE 2005, AVAILABLE ON THE WEBSITE WWW.PCA.ORG.AU

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Packaging is an essential component of our modern lifestyle. Yet there is a lack of easily accessible and up to date information about the packaging industry and the major trends and issues affecting packaging. This paper is designed to rectify this deficiency, and provide a background for the workshop *Packaging Your World – Protect, Preserve, Contain, Inform*. It provides an overview of the packaging industry; basic facts; key economic indicators; the structure of the industry; key drivers and influences; and environmental issues. The paper is more than just a 'factual' description of the industry as it stands at the beginning of this new millennium. We have also sought to look ahead and address some of the major issues and trends likely to confront the industry in the next decade. Only time will tell whether our observations and comments prove correct. We hope that this paper provides some useful insights and information for the general community, media and policy makers. It should also serve as a useful educational tool for students undertaking class assignments, essays and theses.

Packaging—What It Is and Why We Need It

While packaging, in some form, has been in existence for centuries, the growth in its usage has been particularly rapid in the second half of the twentieth century in industrialised and developed countries and, more recently, in many developing countries. Packaging has evolved from a relatively small range of heavy, rigid containers made of wood, glass and steel to a broad array of rigid, semi-rigid and flexible packaging options increasingly made from specialised lightweight materials. Today, packaging is produced more quickly and efficiently than ever before. It is generally lighter in weight, uses less material and is easier to open, dispense from, reseal, store and dispose.

In Australia, packaging is an essential component of our modern life style. It touches every aspect of our daily life. It is fundamental to the way commerce is organised. Without packaging, materials handling would be messy, inefficient and costly, and modern consumer marketing would be difficult.

Packaging is a dynamic force in our society. There have been profound changes in packaging over the last 50 years—changes that have profoundly benefited our lives. We can now use packaging to extend the shelf life of products on our supermarket shelves. Packaging is now available to dispense the correct dosage of medicine at the 'right' time. We now have 'smart packaging' in which microchips can be incorporated to provide information about the packaged product and, in the case of food, facilitate supply chain management. Add to this the use of 'intelligent packaging' and

time/temperature indicators can be incorporated to provide effective monitoring of product quality from the producer to the consumer.

Packaging uses a vast range of materials—adhesives, metals, glass, paper/board, plastics, films and wood—either singly or in various combinations. The design range is also vast, ranging from tubes to pouches, cartons to corrugated boxes to bulk containers, cans to bottles to drums. Add to these materials and shapes an equal range of colours and special techniques such as holograms and the range of options increases significantly.

Consumer packaging has, by the time of its disposal, delivered significant benefits to the consumer. It has ensured the security of the product, delivered it in a clean, safe and saleable form and prevented spillage and spoilage. It has delivered substantial economies and thereby kept prices down by facilitating ease of handling, warehousing and distribution. Packaging has also reduced both the amount of solid waste going to landfill and the overall environmental impact associated with the production and distribution of goods which has been beneficial to society.

The Role of Packaging

Packaging has been defined as *'all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer'*. The ultimate test of packaging is whether or not it performs its essential task—to contain, preserve and protect the product and to provide information about the contents of the package.

In the past, this functional aspect of the role of packaging—preservation and product security—has been taken for granted by the general community. This has changed in recent years with a number of incidents in Australia involving the willful tampering and despoliation of packaged products. Product security is now a major global issue for all companies involved in the packaging supply chain.

Product security is just one example of the increasing demand being made of packaging. These demands are being driven by consumers, business pressures, a range of social and demographic changes, technological innovation and the need to respond to environmental concerns.

Consumers are certainly demanding more from packaging—convenience, differing product sizes, easy opening (but also child resistant closures and tamper evident) devices, respect for the environment, and minimal cost for packaged products. Convenience foods, individually packed small serves, microwavable meals, 'easy-opening' packaging, Home Meal Replacements, secure packaging for pharmaceuticals and hazardous substances are all examples of packaging playing a role in assisting and promoting our lifestyles.

Packaging has an important marketing role. It is the 'flagbearer' of branded products. Packaging plays an important role in differentiating competing products and can be decisive in influencing the purchasing choice made by consumers. The package as a deliverer of brand equity has to work not only on the retail shelf but 'online' as well.

Types of Packaging

Traditionally, three broad categories of packaging have been identified:

1. Consumer packaging or primary packaging i.e., packaging which constitutes a sales unit to the final user or consumer at the point of purchase.
2. Grouped packaging or secondary packaging i.e., packaging which constitutes, at the point of purchase, a grouping of a certain number of sales units, whether the latter is sold as such to the final user, or consumer, or whether it serves only as a means to replenish the shelves at the point of sale. It can be removed from the product without affecting its characteristics.
3. Transport packaging or tertiary packaging i.e., packaging designed to facilitate handling and transport of a number of sales units or grouped packaging in order to prevent physical handling and transport damage.

Increasingly, manufacturers are looking to merge—or better co-ordinate—the functions performed by these levels of packaging in order to reduce costs and facilitate good presentation. Packaging suppliers are helping to develop innovative ways to achieve this with the total cost being less than the sum of the original parts and with functionality either unimpaired or improved.

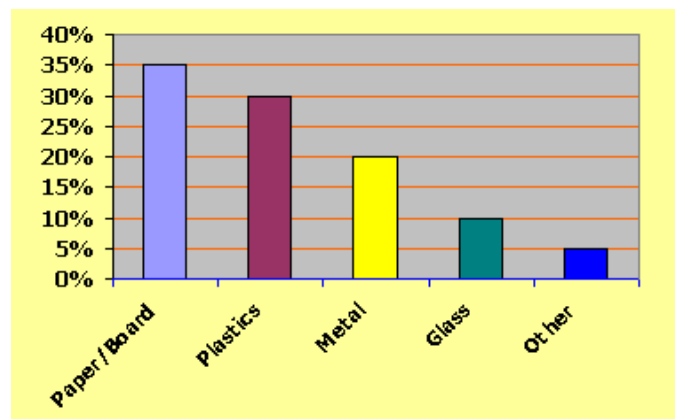
AUSTRALIAN PACKAGING—AN OVERVIEW

KEY STATISTICS

- The value of packaging produced in Australia is estimated to be \$AUD10–10.5 billion. By international standards the Australian market is extremely small. The value of world packaging is estimated to be \$US300 billion.
- The Australian industry accounts for slightly in excess of 1% of GDP.
- About 30,000 people are directly employed in the production of packaging in Australia.
- The two major packaging manufacturers in Australia are Australian owned as are a substantial proportion of small and medium enterprises (SME).
- Generally, most packaging produced in Australia (as elsewhere) is a high volume/low margin business.
- 'Value added' packaging is where the margins (and costs) are higher. The drivers for such packaging are, however, often in conflict with, and subordinate to, the pressures for cost reductions.

PACKAGING MATERIALS

The major packaging materials used in Australia are glass, metals (aluminium and steel), paper/board (cartons and corrugated), and plastics (HDPE, PET, PVC, polypropylene and polystyrene). Paper/board packaging is the largest single material constituting about 36% of the total Australian packaging market. Plastics has gained significant market share to be the second largest sector (30%), with flexibles increasing at the expense of rigid plastics. (In the early 1960s plastics had less than 10% of the share of the packaging market.) Metal packaging has lost market share in food applications but still accounts for 20%, with glass at 10%. Other types of packaging make up the remainder.



PACKAGING INDUSTRY

Size matters in the business of packaging. Concentration and consolidation have been a feature of the Australian packaging industry over the last decade. The degree of concentration of the Australian packaging industry can be seen from the following:

- **Glass containers:** There are now two glass container producers in Australia (O-I and Amcor). Amcor commenced producing wine bottles from its Gawler plant in South Australia in mid 2002.
- **Corrugated boxes:** Three companies (Amcor, Visy and Carter Holt Harvey) account for over 95% of the production of corrugated boxes.
- **Aluminium cans:** Two companies (Amcor and Visy) produce all the aluminium cans manufactured in Australia.
- **Liquidpaperboard cartons:** Tetra Pak and Visy produce all the liquidpaperboard cartons manufactured in Australia.
- **Steel cans:** There are approximately six companies producing steel cans/drums/aerosol containers/general line in Australia (Amcor, Huhtamaki, Irwin & Sheehan, Morris McMahon, National Can, and Visy).

- **Plastics:** Overall, the least concentrated packaging material sector (with the lowest barriers to entry), although in some sectors e.g., the manufacture of PET bottles, there are just a few producers.

Why is this trend towards concentration occurring? It is not unique to Australia. The manufacture of consumer products is an increasingly global business. The largest users of Australian packaging are, increasingly, multinational companies or Australian based companies with significant export markets who demand that the price and quality of Australian packaging meet international standards. This has led to rationalisation of the manufacture and purchase of packaging and has compelled packaging suppliers to think in terms of similar enlargement.

Will this trend continue? Overall, the answer is yes but with some important qualifications:

- Consolidation is most likely in the plastics sector where there are still numerous small operators.
- In many of the other sectors listed above, concentration has probably reached its limit with only two producers and with the competition authority, the ACCC, not likely to approve mergers or acquisitions by one of the other.

According to conventional wisdom, the future in the packaging manufacturing sector lies with the large, globally focused companies on the one hand, and small, agile, innovative companies on the other. Those caught in the middle are vulnerable.

Despite the concentration and consolidation in the industry, competition between companies and material types remains intense. Competitive pressures are produced by imports, competition from alternative packaging types and the demands by the major users of packaging that Australian packaging meet international best practice standards.

The Australian packaging industry has been criticised from time to time for being uncompetitive—high cost and poor in terms of innovation. Much of this criticism lacks substance and is self-serving. Nowadays the Australian packaging industry is outward looking and export oriented to an unprecedented degree. Like most manufacturing industries in Australia, some parts of the packaging industry suffer on account of scale. This means that the discounts attainable from long production runs are probably not available to users of packaging to the same extent as in the United States and Europe.

Packaging—The Drivers, Trends and Issues

Following are some of the major trends and influences that will affect the packaging supply chain over the next decade:

Electronic business processes

Electronic technology is having the most effect in business-to-business (B2B) rather than in business-to-consumer (B2C) relationships. Speed to market is crucial. New products are being developed faster and entering the retail market much more quickly. Electronic business processes are linking the entire supply chain—raw material suppliers, packaging manufacturers, packaging users, retailers and consumers. This provides immediate and accurate information, reduces costs and time delays, simplifies logistics and inventory operations and provides a better response to consumer demands. Packaging customers now have online access to their suppliers' manufacturing logistics systems and

vice versa. This enables relatively seamless progress from initiation of product requirements through to order placement, manufacturing, delivery, invoicing and distribution. The increasing implementation of packaging optimisation software will dovetail with developments in logistics technology to increase total pack efficiency. Deliveries within the logistics chain will become increasingly complex, with direct store delivery, central warehousing, distribution centres, product picking and robotic scanning. The role of the logistics professional will become increasingly important to the packaging industry.

Supply chain management

All companies in the supply chain are under constant pressure to drive down costs, including the cost of packaging. At every point in the supply chain, costs are added. Reducing those costs, simplifying the supply chain and increasing efficiency is now a major goal. Economies and competitive advantage are to be gained from a more integrated, collaborative, co-operative and long-term approach to the supply chain by the companies involved.

Convenience packaging

Consumers are demanding a wider range of products and greater segmentation (by size, flavour) within those products. Convenience/quick preparation foods providing smaller/single serve portions are in demand. Pre-cut, pre-portioned, smaller, ready-to-consume products are increasingly popular, reflecting the importance of convenience to today's consumers. Packs that go from the shelf or bin straight into the fridge or straight into the oven. Packs that are easy to open, dispense, reseal and store. Convenience packaging goes beyond the essential purpose of preserving and protecting the product. Consumers want conveniently packaged food products that can be quickly made into meals without sacrificing quality. This is obvious in the range of products displayed in supermarkets—microwavable products, salad kits, zippered pouches and modified atmosphere packaging—that extends shelf-life and maintains freshness. A by-product of this demand will be an increase in the amount of packaging per food unit.

Marketability

Packaging sells products. Many of the trends listed above—lifestyle changes, greater product differentiation, competitive pressures—are putting an even greater premium on the look, sales appeal and quality of retail packaging. Greater versatility of product presentation will also be called for as an expression of the increasingly diverse and sophisticated demands of consumers. There will be an increasing demand for higher quality graphics and promotional links between graphics and advertising.

Packaging for an ageing population

The proportion of the elderly (over 65 years) is expected to increase to 22% of the population in the first half of the century compared with the current 12% approximately. The 'greying' of the Australian population will increase the emphasis on the provision of easy-opening systems, consistent with 'tamper evident' closures. Readability of labels for the aged and visually impaired will also require attention in the designing and labelling of packaging. Given their numbers and affluence, marketing will reflect this changing composition of the population.

Other demands

The list of demands made on packaging will also include the following:

- **Freshness**—While consumers want convenience, they also want freshness. In the United States and Europe, sales of products in modified atmosphere packaging are increasing significantly. Other products to extend shelf life are also gaining ground.
- **Tamper Evidence**—The demand for tamper evident packaging will increase - that is, packaging which possesses a barrier to entry which, if breached or missing, will provide visible evidence to consumers that tampering had occurred.
- **Labelling**—The demands on labels to provide information will increase. Instruction details, nutritional information, promotional material, bar-coding, environmental aspects, etc., will all need to be included on a standard label.

There is 'tension' between these drivers with some pushing in opposing directions:

- There is some evidence to suggest that the range of packaging materials used by companies may be growing less compatible with existing post-consumer recycling services.
- The environmental and commercial demand for reduced packaging needs to be balanced against the paramount requirement for product security which can lead to an increase in packaging e.g., tamper evident devices.
- While commercial and environmental pressures are requiring a reduction in the amount of packaging, the requirement for convenience/quick preparation foods which are individually packaged in single or small serves is increasing and, in turn, is leading to an increase in the amount of packaging per food unit.
- The requirement for 'easy-opening' packaging can, at times, conflict with the demand that some products need to have child resistant closures.
- The requirement for packaging to be more sophisticated and meet a range of needs is also leading to an increase in cost.

The Environment

For several decades the environment has been a major issue for packaging companies. All packaging materials have their environmental pluses and minuses. A self regulatory Environmental Code of Practice for Packaging has been in operation for many years and has recently been reviewed and updated. It is designed to provide companies with practical guidelines to evaluate the impact of new and existing packaging. The driving forces behind the prominence of environmental issues for packaging are threefold—consumers, commercial factors and governments.

- **Consumers** are showing more interest in the environmental credentials of the products they buy and the companies they buy from.
- **Commercially**, supply chain factors are playing a role as companies respond to the environmental challenge. Some retail chains have banned what they consider to be environmentally unacceptable packaging such as polystyrene boxes. There will be more, not

less, of this type of action from retailers around the world. They are responding to pressure from their customers and from governments. Commercial reality will ensure that it will be comparatively rare for a company to package a product deliberately with more packaging than is necessary thus increasing cost and, thereby, making the product less competitive.

- **Governments** around the world, particularly in Europe but more recently in North Asia, have targeted packaging for environmental legislation. Government measures have ranged from container deposits, packaging levies, bans on certain types of packaging and mandating recycling rates. Pressure to introduce similar measures was undoubtedly building in the 1990s. The PCA decided, therefore, that in conjunction with government it would commence negotiations on a national packaging covenant.

The National Packaging Covenant

The first National Packaging Covenant was launched in August 1999. This Covenant was extensively reviewed in 2004 and revised in response to the findings of evaluations and a general agreement by stakeholders that the model needed to be significantly strengthened if it was to continue. A new and strengthened Covenant became effective in July 2005 and incorporates changes made to achieve substantially improved performance.

There are now over 450 signatories, of which over 400 are companies and industry associations in the packaging supply chain. All Australian, State, Territory (with the exception of the Northern Territory) and Local governments are signatories to the Covenant. Local Government organisations from all States except NSW are also signatories.

An up to date list of Covenant signatories, together with the text of the Covenant and supporting regulatory safety net (the NEPM), can be found on the Packaging Council of Australia homepage.

The Covenant is the voluntary component of a co-regulatory arrangement for managing the environmental impacts of consumer packaging in Australia. It is an agreement based on the principals of shared responsibility through product stewardship, between key stakeholders in the packaging supply chain and all spheres of government. Previous environmental policy for packaging had focused on packaging materials rather than the entire packaging supply chain.

The Covenant is designed to minimise the environmental impacts arising from the disposal of used packaging, conserve resources through better design and production processes and facilitate the re-use and recycling of packaging materials.

The Covenant establishes a framework for the effective life cycle management of consumer packaging and paper products that will be delivered through a collaborative approach between all sectors of the packaging supply chain, consumers, collectors, reprocessors and government.

The strengthened National Packaging Covenant has a term of five years (2005-10) and incorporates a number of changes designed to provide a more rigorous compliance and enforcement process including:

1. **Overarching Covenant Targets for 2010** (refer to Recycling section below for more details).
2. **Specific Covenant Performance Goals**

3. Key Performance Indicators

4. A Broader Scope

- The Covenant now includes the recovery and re-use of packaging materials consumed away from home – workplaces, commercial & industrial premises. Material collected in kerbside systems will continue to be a focus of the new covenant.
- Signatories must address in-house & distribution packaging and issues of litter, market development for recycled materials and consumer awareness in their Action Plans.

Recycling

Companies in the packaging supply chain have a long history of actively supporting recycling, including the kerbside collection system. They have also invested heavily in recycling infrastructure and the buy back of recyclates. The use of recycled content in packaging is now widespread. Recycled packaging is also used to make a variety of other (non-packaging) products. Companies in the packaging supply chain will continue to make significant investments in capital infrastructure for recycling.

Assessing the effectiveness of different recycling systems and the environmental impact of different types of packaging is a complex task. While recycling is widespread and popular it is not the sole test of the environmental credentials of all packaging. The first study conducted by the National Packaging Covenant Council was an 'Independent Assessment of Kerbside Recycling in Australia'. Among the conclusions of this Assessment were the following:

'... THE CURRENT KERBSIDE SYSTEM IN METROPOLITAN AND REGIONAL CENTRES PROVIDES A TOTAL NET BENEFIT TO AUSTRALIAN COMMUNITIES. THIS STUDY HAS ASSESSED THE FINANCIAL AND ENVIRONMENTAL COSTS AND BENEFITS IN METROPOLITAN AND REGIONAL AREAS BY AVERAGING THE COSTS FOR BOTH AREAS IN ALL STATES AND TERRITORIES. WHILST BY DEFINITION REGIONAL AREAS INCLUDES PROVINCIAL AND RURAL TOWNS AS WELL AS REMOTE COMMUNITIES, THE ASSESSMENT RESULTS HAVE TO SOME DEGREE BEEN LIMITED FOR RURAL TOWNS AND REMOTE COMMUNITIES DUE TO BOTH LOW DATA AVAILABILITY AND THE LACK OF KERBSIDE SERVICES IN MANY OF THESE COMMUNITIES.'

- Under the new National Packaging Covenant, an overarching recycling rate of 65% (currently 48%) has been agreed by Ministers by 2010, with contributions from:
 - paper and cardboard 70-80% (currently **64%**)
 - plastics 30-35% (currently **20%**)
 - aluminium 70-75% (currently **64%**)
 - steel 60-65% (currently **44%**)
 - glass 50-60% (currently **35%**)
 - other materials 25% (currently **10%**)

- no further increase in the amount of packaging waste disposed to landfill

In short, recycling will remain a prominent issue for companies in the packaging supply chain

The Outlook – What Lies Ahead?

For companies in the packaging supply chain there is one incontestable conclusion - the demands and pressures will not abate. Indeed, they will intensify. Globalisation is here to stay. The technological age with all its ramifications has only just begun. Tight controls on costs will remain in place. Australian packaging will need to be internationally competitive.

The specifics are as follows

- **Efficiency:** In the business world of the 21st century we can no longer expect to retain our customers' business unless we're continually increasing efficiency—efficiency in our processes, in our product cost and in our business transactions.
- **Packaging materials:** Lighter weight, higher performing packaging materials are under constant development, as are structural designs, which provide the same level of product protection at a lower cost.
- **Packaging suppliers:** Increasingly, major packaging suppliers are evolving toward becoming total packaging systems suppliers. Packaging systems and carton erecting machinery which cut labour costs are also becoming more commonplace. They're also becoming more tailored to meet the needs of their specific market.
- **Machinery:** Equipment suppliers are offering new machinery to rationalise packaging operations. Multi-function systems are reducing the space required for packing lines and the number of steps in the packaging process.
- **Packaging design:** Changing and more complex lifestyles have also strongly influenced packaging design. Pre-cut, pre-portioned, smaller, ready to consume products are increasingly popular, reflecting the importance of convenience to today's customers. Packs that go from the shelf or bin straight into the fridge or straight into the oven. Blister packs, microwaveable packs, zippered pouches, contoured shapes and carry handles on outer packs are just some examples of this trend.
- **Logistics:** Key logistics changes to the packaging industry will see increased customer choice, faster product delivery, increased manufacturing and inventory controls and increased supply chain management efficiency. In the very near future many packaging customers will have online access to their suppliers manufacturing logistics systems, as we will to theirs. This will enable relatively seamless progress from initiation of product requirement, through to order placement, manufacturing, delivery, invoicing and distribution.
- **New technology:** Smarter packaging companies around the world are already using new technology to take costs out of their own systems. And they're using Internet links to improve their relationships and performance with customers. And it's in our type of industry—business to business—that will see the biggest impact of computer technology and

e-commerce. It's those packaging companies who don't get proactive about their Internet strategies who will find themselves being passed over by their customers.

The first decade of the 21st century is likely to be no less frenetic than the last decade, with challenge and change being the order of the day. Companies that stagnate and look for the easy options simply will not survive. In order to survive and prosper, companies will need to be flexible and adaptable and invest, innovate and develop the appropriate skills base to meet the challenges ahead.

SUMMARY

- Packaging is essential in contemporary Australian society. It is an integral part of everyday life and brings real benefits to all Australians. It plays a key role in the production, preservation, distribution and marketing of goods. Consumer packaging has, by the time of its disposal, delivered significant benefits to the consumer.
- Convenience, safety and environmental friendliness are the key requirements of packaging, with safety being of paramount importance.
- Consumers are demanding more and more from packaging. Change is also being fostered by commercial pressures, social and demographic changes, technological developments and environmental concerns. Packaging manufacturers are being required to respond to these pressures by 'value adding' to their packaging.
- Some key statistics for Australian packaging are as follows: the value of packaging produced in Australia is \$AUD10-10.5 billion; about 30,000 people are directly employed; 65-70% of Australian packaging is used by the food and beverage sector; and paper/board is the largest single packaging material followed by plastics, metal and glass. Australian owned companies are the dominant packaging manufacturers.
- Increased concentration and consolidation have been hallmarks of the Australian packaging industry over the last decade. This trend is not unique to Australia. The plastics sector is the most likely to witness further consolidation. Some other sectors have probably reached the limits of consolidation. Competition between Australian packaging companies and material types is considerable.
- Major trends and influences on packaging over the next decade will be the need to add consumer value, electronic business processes, cost reduction/supply chain management, environmental issues and globalisation. Some of these trends and influences are pushing in opposing directions.
- The environment is a major issue for packaging supply chain companies. All sectors are contributing to programs and initiatives which minimise the adverse environmental effects of packaging. All packaging materials have their environmental pluses. Overall, the packaging industry has a strong record on recycling. The use of recycled content in packaging is now widespread.
- There are now over 450 signatories to the second National Packaging Covenant, The Covenant has led to greater activity by many companies to improve the environmental performance of their packaging.

The outlook for the packaging industry will continue to be challenging. Packaging won't disappear— but the demands on packaging and the companies that produce it will increase. More and more will be required of packaging by consumers, customers and governments. Companies will need to invest, innovate and develop the appropriate skills base to meet these challenges.