2  Overview of the Printing Industry

2.1  Market overview

The printing industry is the fourth largest manufacturing industry in Australia and the third largest manufacturing industry and employer worldwide \[^1\]. One of the key factors driving competition is the number of competitors and the size of the industry. In Australia, printing and related industries (excluding pulp and paper manufacturing) are comprised of approximately 3,800 firms, employing more than 104,000 people \[^2\][^3].

The printing industry within Queensland is very developed and competitive. It is predominantly populated by small to medium sized firms with only a few large operators. Consistent with the Australian market, the Queensland printing industry comprises firms that provide a complete in-house production service incorporating printing and binding functions, whilst other firms may specialise in certain types of printing and contract out other work including the binding function to specialist organisations.

The printing industry has undergone significant change with advancements in technology and the integration of printing equipment, graphic arts technical skills and revolutionised production processes. According to *Innovation in Commercial Printing Canada* \[^4\] technological innovation has virtually reinvented the printing industry. The pace of innovation is the biggest challenge facing the printing industry. Companies must continually reinvest in new computer-based hardware and software as last year’s technology becomes obsolete. They also identified that several craft-based skills and equipment have been rendered obsolete. New processes and new equipment are being introduced continually requiring continuous training and retraining of highly qualified people.

The printing industry is transitioning to print management by providing a holistic document lifecycle service. Print managers are undertaking this role for customers, enabling customers to focus on core business. In undertaking this role print managers are finding process, equipment and material savings for customers.

2.1.1  Size of the printing market and estimated growth

*IBISWorld Industry report* \[^3\] estimates that the total print industry revenue in Australia for the 2006/2007 financial year will be $6.3 billion as per Table 1 below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue $ Million</th>
<th>Growth%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>5,896.3</td>
<td>3.1</td>
</tr>
<tr>
<td>2005</td>
<td>6,040.9</td>
<td>2.5</td>
</tr>
<tr>
<td>2006</td>
<td>6,189.2</td>
<td>2.5</td>
</tr>
<tr>
<td>2007</td>
<td>6,279.7</td>
<td>1.5</td>
</tr>
<tr>
<td>2008</td>
<td>6,433.8</td>
<td>2.5</td>
</tr>
<tr>
<td>2009</td>
<td>6,526.8</td>
<td>1.4</td>
</tr>
</tbody>
</table>

*Source: IBISWorld Industry Report, February 2005*
The Queensland share of the total Australian market is approximately 10.7% which equates to $672 million [3].

2.1.2 Factors affecting the demand for print

*IBISWorld Industry report* [3], suggests that factors likely to affect the demand for print over the period identified in the table above include:

- the long term, underlying impact of developments in substitute technologies including photocopying equipment, office computer equipment and the internet which are expected to continue to dampen demand for traditional commercial and job printing activities such as pre-printed invoices and order forms. Internet marketing may also make incursions into printed advertising markets;
- new online printing services which will provide greater convenience and should bolster demand, particularly for short-run print jobs; and
- growth in ancillary services, such as in digital printing, graphic design, fulfillment management, warehousing, mailing services, desktop publishing, telemarketing, electronic file management, e-books, database management, photo CD services, digital print libraries, CD Rom services, multimedia services, web page production and digital rights management.

2.1.3 Competition within the industry

The *Printing Industry of Australia’s Industry Overview report* [5] identified that the absence of homogenous products and services makes entry and exit from the industry more flexible than other industries which results in a high level of competition between firms in the market. Such competition ensures that the industry is both efficient and innovative.

However, certain segments of the industry continue to require large establishment or set-up costs with large ongoing maintenance and equity requirements. These have acted as a natural barrier to increased competition by limiting the number of potential new entrants.

Competition between firms, especially smaller firms, continues to exert downward pressure on company profit margins with firms in the industry showing increasing tendency to compete against one another on the basis of price.

2.1.4 Profitability

The *IBISWorld Industry report* [3] confirmed profit margins have declined within the industry. In May 2003, the Printing Industries Association of Australia published a benchmarking study, 'Benchmarking for the Australian Print, Packaging and Visual Communication Industry'. The study collected and analysed financial and operating data from 169 companies covering 120 key performance indicators. The study found that profitability tended to vary between firms due to the area of specialisation of the firm (e.g., web feed printing), the size of the firm, management practices and/or the extent to which equipment is utilised. The best performers had tended, on average, to:

- be larger operators;
- have low manufacturing costs as a percentage of sales;
- have higher equipment utilisation rates;
• turn inventory and debtors over at a faster rate;
• have higher sales per employee;
• provide greater rewards for employees;
• have lower staff turnover;
• have higher value added per employee;
• have a greater emphasis on staff training;
• measure spoilage separately from overs;
• have newer equipment;
• spend more on repairs and maintenance of equipment; and
• spend more on marketing sales and distribution.

Organisations in the study generated an average margin of earnings before interest and tax to sales of:

Table 2: Average margin of EBIT

<table>
<thead>
<tr>
<th>Percentage of Industry Firms</th>
<th>EBIT%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 20 per cent</td>
<td>12.1%</td>
</tr>
<tr>
<td>Next 20 per cent</td>
<td>7.8%</td>
</tr>
<tr>
<td>Next 20 per cent</td>
<td>3.5%</td>
</tr>
<tr>
<td>Next 20 per cent</td>
<td>0.2%</td>
</tr>
<tr>
<td>Worst 20 per cent</td>
<td>-7.4%</td>
</tr>
</tbody>
</table>

Source: IBISWorld Industry Report, February 2005

Table 2 above indicates that approximately 60% of firms surveyed achieve a margin of earnings before interest and tax of 3.5% or less.

2.1.5 Technology

The Printing Industry of Australia’s Industry Overview report [5] identified technological advancement as a key factor that affects the printing industry. Some of the technological advances in the printing industry in the past 20 years have been:

• web-based job tracking systems enabling customers to request print jobs online, to obtain a quote online, to monitor a jobs progress, and to view the history of current and past jobs. Customers are demanding shorter print times and faster turnaround. With web-based job tracking they are able to request a job overnight and have it delivered the next morning [6];
• the focus is now on high quality multicolour printing with high productivity [7];
• digital colour copiers can now produce items comparable in quality to four-colour offset printing [8];
• many modern offset presses are using computer-to-plate systems as opposed to the older computer-to-film workflows, which further increases quality and productivity [9]; and
• printing presses have become more expensive, though more versatile, because of computerised controls and enhancements [10].
Traditionally documents were printed, bound and delivered in hardcopy to the customer. With the advancement of technology, documents can be transported and printed directly from disk, CD, and via the internet. Printing technology is continuing to evolve rapidly. Even though pre-press work and offset printing are becoming more computerised and efficient, it can still be more expensive than digital printing depending on volumes. Offset printing is still more cost effective for large volume print jobs.

2.1.6 Printing continuum

The continuum of the printing industry is wide ranging and covers the most basic print to the most sophisticated and integrated holistic approach to printing and associated activities. Appendix 3 graphically represents this continuum.

Specifically the continuum of print ranges from:

- photocopiers;
- multifunctional devices;
- personal computers and laser and inkjet printers;
- scanners;
- graphic design;
- printing presses and binding machines;
- electronic media;
- print management software as the interface between customers and print provider;
- holistic end-to-end or full document lifecycle services;
- multi-Service Document Business Process Outsourcing;
- end-to-end multiple-service solutions; and
- end-to-end multiple-service solutions which enable customers to manage their entire document life-cycle as an integrated process with a single global service provider.

Due to the diversity and the cost of providing the wide range of print related services many firms tend to specialise in particular niche markets such as specific binding styles or label printing.

An example of the diversity being offered by print companies is identified in Table 3 below and includes inbound, document facilities management and outbound activities [11].
Table 3: Document activities

<table>
<thead>
<tr>
<th>Inbound</th>
<th>Document Facilities Management</th>
<th>Outbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data capture</td>
<td>Mailroom management</td>
<td>Document composition</td>
</tr>
<tr>
<td>Indexing</td>
<td>Reprographics</td>
<td>Document conversion to alternative digital media</td>
</tr>
<tr>
<td>Scanning</td>
<td>Print centres</td>
<td>Print and mail</td>
</tr>
<tr>
<td>Document archiving and retrieval</td>
<td>Creative and presentation design services</td>
<td>Disaster recovery</td>
</tr>
<tr>
<td>Application processing</td>
<td></td>
<td>Digital printing</td>
</tr>
<tr>
<td>Near-shore and off-shore processing centres</td>
<td></td>
<td>Personalised direct mail</td>
</tr>
<tr>
<td>Research analytics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Judgement-based services</td>
<td>Global preferred supplier networks</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrated print management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warehouse kitting and fulfilment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Logistics and distribution</td>
</tr>
</tbody>
</table>

Source: Adapted by SDPC

In order to remain competitive, those in the printing industry are faced with the challenge to reinvest continually in new technological equipment, continually train and retrain highly qualified people, and attract new people to the industry.

2.1.7 Findings

The printing industry has transitioned from traditional print by undergoing significant change due to the rapid advancement in technology. The integration of technology with printing equipment has virtually reinvented the printing industry. Key changes within the industry include:

- the growth of the printing industry to be the fourth largest manufacturing industry in Australia;
- the competitiveness of the printing industry where entry and exit from the industry is more flexible than other industries resulting in higher competition;
- advancement in technology that has virtually reinvented the printing industry and the pace of innovation is the biggest challenge facing the printing industry;
- the impact of substitute technologies that has dampened the demand for traditional printing activities;
- introduction of the internet affecting the demand for traditional printing;
- introduction of web-based job tracking systems enabling customers to request print jobs online, to obtain quotes online, to monitor a jobs progress, and to view the history of current and past jobs; and
the continuum of print and related services are very diverse. Technology has played a major role in enabling the industry to transition from traditional print to this now diverse scope of activities. Print firms are tending to specialise in niche markets.

The industry comprises firms that provide a complete in-house production service incorporating printing and binding functions, through to firms that specialise in certain types of printing and contract out other work.

### 2.2 Offset printing vs digital printing

#### 2.2.1 Offset printing

Offset printing is a widely used printing technique where the inked image is transferred (or 'offset') from a plate to a rubber blanket, then to the printing surface. When used in combination with the lithographic process, which is based on the repulsion of oil and water, the offset technique employs a flat image carrier on which the image to be printed obtains ink from ink rollers, while the non-printing area attracts a film of water, keeping the non-printing areas ink-free [9].

Offset printing is considered extremely flexible and can produce a very high quality product. The primary downside is the setup process for a print run is more cumbersome than digital, and it is generally only economical to print products in very large volumes [12].

#### 2.2.2 Digital printing

Digital printing is the reproduction of digital images on a physical surface, such as common or photographic paper, film, cloth or plastic. Digital printing can be differentiated from offset printing in many ways, some of which are [13]:

- every impression made onto the paper can be different, as opposed to making several hundred or thousand impressions of the same thing from one set of plates, as in traditional methods;
- the ink or toner does not absorb into the paper, as does conventional ink, but forms a layer on the surface; and
- it requires less wastage in terms of chemicals used and paper in setting up.

Digital printing offers a similar range of products to offset printing. Digital is preferred to offset where products need to be produced quickly and quality can be sacrificed to achieve timeliness. However, the continual advancement in digital printing technology is ensuring the quality gap between offset and digital is rapidly decreasing.

Digital printing requires fewer staff than offset printing due to the number of processes involved in offset printing, such as plate preparation, printing and the binding and finishing function. Depending on the product, some digital equipment can produce a finished product online [14].

#### 2.2.3 Findings

Offset work generally involves higher volumes, higher quality and longer delivery times compared to digital printing. Digital printing involves the use of high speed, toner-based laser printing technology and offers products in black and white and in colour.
2.3 Future of the print industry

A Study of the Paper and Printing Industry in Australia [15] identified the industry as technologically intensive. The long term future for many printers and all manner of printing processes, from initial design phases to eventual distribution, will be driven and shaped by digitalisation and workflow automation. Drives towards convergence and the suitability of digital equipment to cater for short runs are existing trends however offset printing technology still has a role for very large runs and when dealing with added value processes such as special colours, varnishes and coatings.

2.3.1 Business model changes

The traditional business model of a print organisation is changing. Printers are supplementing their core ink on paper services with a broader range of communications and data services that their customers value.

Successful companies are not companies of a particular size, but companies of any size that ‘don’t think and act like traditional printers’. They are businesses that realise they are in the communications business [15].

Value-add services, such as information management, are increasingly required to compete profitably in the marketplace. The Print and Delivery Management sector has leveraged off their information technology and data management capability to expand their service offering into pure data services. By broadening its offerings and providing a full service menu of marketing tools, a printing company becomes much more than just a printer.

2.3.2 Findings

As previously mentioned the printing industry within Queensland is well developed, technologically advanced and competitive. Firms range from small to medium through to large and tend not to invest in equipment to produce the full range of printed products. Consultation and research identified that some printing firms produce the full range of product offerings whilst other firms specialise in certain types of printing and contract out other work. Firms specialise in producing a specific range of printing or binding related services to maximise the utilisation of their equipment.