Abstract
This paper presents the background to, and design of, an exploratory study into the strategic use of data in small business. We suggest that the paradigm of strategic information systems as it is currently applied to the larger organisation may not apply to the small business sector, rather, that small businesses may need to examine ways of making strategic use of data in existing transaction processing systems. It is proposed that outsourcing of small business data management may be one method that can enable strategic use of data, depending on the relative strength of the inhibiting and facilitating factors associated with the decision to outsource.

Introduction
The business environment in which the small business operates is of a harsh and fiercely competitive nature. Added to the nature of the marketplace is the additional burden of conforming to governmental regulation (Bickerdyke & Lattimore, 1997). As a consequence of this harsh environment, the small business must be continually striving for some competitive advantage; not only to prosper, but just to 'stay afloat'. In larger businesses Strategic Information Systems (SIS) offer a way for organisations to achieve competitive advantage. In the small business sector however, resources may not be available for the development and deployment of such systems, particularly when IT spending priorities may lie with other areas where more immediately tangible gains may potentially be made. Organisational data that may reside in 'lower level' information systems, like transaction processing systems, can, and should, be considered as being a valuable organisational resource that can have significant strategic value, and further, we believe that information systems do not need to be specifically designed as SIS to have strategic value. The small business then, may need to examine low cost and dynamic methods of extracting this data for strategic use. One method that could be considered is the use of outsourced data management.

What is a Small Business?
Small Businesses are usually defined as being those with less than a certain number of employees, and/or classified by the turnover from operations. These numbers differ between economies. The focus of this research is the Australian context, and so the definition used will be that which applies in Australia. Commonly accepted definitions of what constitutes a Small Business in the Australian context include the following features:

- Independently owned and operated
- Most of the business' capital is contributed by the owners and managers
- Less than 20 full time employees (Bickerdyke & Lattimore, 1997, p4)
- Turnover of less than $10 million per annum
- Agricultural firms where the value of agricultural operations is between $22,500 and $40,000 (Department of Workplace Relations & Small Business, 1998, p2)
A small business is hereafter defined as one with less than 20 full-time employees.

**Competitive Advantage and Strategic Information Systems**

At the heart of most definitions of SIS is the concept of competitive advantage. Porter's (1980) competitive forces model is well documented and is summarised below.

<table>
<thead>
<tr>
<th>FORCE</th>
<th>POTENTIAL</th>
<th>MECHANISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Competition among rivals</td>
<td>Change basis of competition</td>
<td>Compete or collaborate</td>
</tr>
<tr>
<td>2. Mobility of customers</td>
<td>Lock-in to firm</td>
<td>Differentiate or create switch</td>
</tr>
<tr>
<td>3. Supplier bargaining</td>
<td>Reduce bargaining</td>
<td>Erode or share power</td>
</tr>
<tr>
<td>4. Substitute products or</td>
<td>Innovate</td>
<td>Develop new product or add</td>
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<tr>
<td>services</td>
<td></td>
<td>value to existing product</td>
</tr>
<tr>
<td>5. New entrants to market</td>
<td>Create barriers to entry</td>
<td>Demolish or erect own</td>
</tr>
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Table 1: Porter's Framework of Competitive Forces (from Avison et al, 1996, p. 12)

As can be seen from Table 1, there are five 'competitive forces' that exist in a given marketplace. Competitive advantage can be gained by overcoming one or more forces. The strategies that Porter(1980) identifies to overcome competitive forces are - cost focus, differentiation of goods or services, niche marketing, new business focus, and alliance.

**Strategic Information Systems**

A commonly accepted definition of a strategic information system is an information system that has, as its primary objective, the achievement of competitive (or strategic) advantage for the organisation (Zwass, 1992), in effect, giving the organisation "...unique characteristics that enable...(the organisation)...to maintain a dominant position within its respective industry..." (Kettinger, Grover & Segars, 1995, p36). King (1978, p27) says "A strategic information system is a computerized information system used to support an organization's competitive strategy, its strategy for gaining advantage over its competitors."

Sethi & King (1994), when adopting a conceptual definition for their research into developing a measurement of the extent to which an information system provides competitive advantage, refer to "...changes in the firm's competitive position..." (p. 1604) as being central to their measurement, and meaning "...a variety of effects that enable a firm to compete better, such as gains in market share and attainment of parity with competitors." (p. 1604). Ward & Griffiths (1996) define four major classifications of SIS dependent on the manner in which they achieve competitive advantage for the organisation, which involve:

1. Changing the nature of the relationship between an organisation and its customers or suppliers through the mechanism of sharing information using computer based systems
2. Making more effective use of existing 'information' in the organisation
3. Enabling the development, production, marketing or delivery of "...new or enhanced products or services based on information"
4. Providing support for the decision making process within the organisation, with particular respect to the "...development and implementation of strategy..." (p.21)
Strategic Planning and Strategic Information Systems

It is the concept of a 'fit' existing between SIS and an organisation's strategic plans that several authors believe to be the most important aspect of these systems. Prakash (1998 p.59), for example, reviews several 'classic' SIS, including Otis Elevators OTISLINE, American Airlines SABRE, and American Hospital Supply's ASAP systems, concluding that "These systems are plain old-fashioned transaction processing systems that have been strategically positioned and exploited to gain competitive advantage. There was nothing inherently strategic about these information systems. What made the difference is the "fit" that the top management decided to give with the business strategy set." (Emphasis added)

Both Prakash (1998) and Kettinger et al (1995) seem to agree that the information systems that have become known as SIS, became such as a result of a strategic planning process rather than being developed with the primary objective of achieving competitive advantage for the organisation, and, that in many cases, these systems developed out of existing transaction processing systems. Kettinger et al (1995) believe that SIS should be seen as just one component of a developed business strategy. They also suggest that "...many of these early IS applications were initially conceived to satisfy internal problems...and only later were recognised as having strategic potential...there is a certain element of luck involved in determining which applications eventually produce competitive advantage." (p. 36)

With reference to smaller organisations, Hagmann & McCahon (1993) found that in small (up to 249 employees) to medium (250-1400 employees) firms, there was little linkage of "...IS planning to their competitive strategy" (p.183). One area of focus in this research is discovering the current level of strategic planning in small business.

Strategic Information Systems in Small Business

Much of the literature to date that addresses SIS is focussed primarily on large business (eg, Ward & Griffiths (1996), Sethi & King (1994)), or on small to medium enterprises (SMEs) (eg. Bergeron & Raymond, 1992). It would seem reasonable to assume that larger organisations are more likely than the small business to have the resources to be able to design, develop and deploy information systems specifically as SIS. As such, the authors question how applicable the body of literature in this area is to the small business sector.

Bergeron & Raymond (1992) proposed a methodology for planning information systems for competitive advantage (ISCAs) based upon a series of case studies conducted with SMEs. At the heart of this methodology is a 'strategic matrix' (see Table 2) that suggests that opportunities for ISCA can be identified in terms of Strategic Targets (i.e., Suppliers, Competitors and Clients) and Competitive Strategies (i.e. Differentiation, Cost, Growth and Organisational Activities).
<table>
<thead>
<tr>
<th>Competitive Strategies</th>
<th>Suppliers</th>
<th>Competitors</th>
<th>Clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differentiation</td>
<td>EDI with suppliers</td>
<td>Performance forecasts for customised products</td>
<td></td>
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<tr>
<td>Cost</td>
<td>Computerised selection of transport options</td>
<td></td>
<td>Computerised order entry and follow up</td>
</tr>
<tr>
<td>Growth</td>
<td></td>
<td>Marketing database</td>
<td></td>
</tr>
<tr>
<td>Organisational Activities</td>
<td>Raw materials handling</td>
<td>Production Maintenance Handling and Storage R and D Accounting and Finance HRM</td>
<td>Order entry Credit Approval Customer Services Distribution Sales Force Market Studies Pricing Shipping and Billing</td>
</tr>
</tbody>
</table>

**Table 2**

Matrix for Identifying Strategic Opportunities Adapted from Bergeron & Raymond (1992)

**Strategic Use of Data**

Using the objective of an information system to define whether or not it is strategic in nature is a difficult and restrictive exercise. Rather, it is the manner in which the data is used that is important. As Prakash (1998) opines... "What is critical is the issue of deployment of information systems and the strategic context of their use, rather than the mere information system itself" (p63). This is supported by Senn (1992) who believes that the acquisition of strategic value by an IS is dependent on the way in which the IS is used by the organisation.

A payroll system in itself, for example does not have the primary objective of being a SIS, yet if the data processed in that system was correlated with production or sales data by putting a simple query to a database, the results could have strategic benefit. In this case, is there a SIS at all? It is for these reasons that the authors believe that the phrase "strategic use of data" may be more appropriate than SIS, particularly in the context of small business, where the development of specific SIS may not be seen as being of primary importance to the day-to-day functioning of the business. As Kettinger et al (1995) point out: "Investments in strategic systems are typically costly undertakings. (The organisation) must be reasonably assured of significant gains in competitive position before undertaking the risk of systems development." (p.40)
It could be argued that if this holds true for larger organisations (the focus of the Kettinger research), this assurance of competitive position would be of even greater importance for the smaller organisation, where resources may be scarce. This argument may be strengthened by the work of Wenzler et al (1997), who, in a study of 77 small businesses found that there was an overall absence of IS designed and implemented with the primary objective of achieving competitive advantage for the small business sector. They discovered that "...small businesses are implementing IS for strategic reasons" (p. 312), possibly suggesting that small businesses are making strategic use of their IS resources without implementing IS specifically designed as SIS.

To recap, the authors believe that the 'traditional' paradigm of SIS as applied to large business may not be an appropriate model for small businesses who may not have the resources to utilise IS with the primary objective of achieving competitive advantage, preferring TPS with immediately visible returns on investment. As a result of this, more strategic benefit may be gained by deploying TPS that allow for strategic use to be made of the data contained within them. The level of strategic planning in small businesses needs to be determined.

Outsourcing

Outsourcing, in an IS context, can be defined as a process of using external entities to provide IS services (Teng et al, 1995), or "...when a vendor assumes responsibility for providing some or all of an organization's services" (Jones, 1997, p 66). As with the literature concerning SIS, small business is largely ignored with respect to outsourcing. The focus of the outsourcing literature has included foreign outsourcing (Ramarapu et al, 1997), outsourcing in the Australian public Sector (Marshall & Walsh, 1998), benefits and 'pitfalls' of the decision to outsource (Jones, 1997, Lacity & Hirscheim, 1993).

Facilitators and Inhibitors Effecting the Decision to Outsource

Increasingly, the decision to outsource IS functions is being seen as strategic (Loh & Venkatraman, 1992), in that "...few organisations are willing to commit enormous resources and risk the loss of control over an important management function..." (Teng et al, 1995, p 77), without potentially significant gains.

Grover & Teng (1993) present three 'risk factors' relevant to the decision to outsource: system maturity, competitive role of the application and relative capability of the inhouse IS staff. Mature systems with no strategic role, in companies with weak inhouse IS skills are suitable candidates for outsourcing. In the context of the current research, candidate systems would be mature TPS with no primary strategic role. Small businesses are less likely to have the skills necessary to design, develop and deploy strategic systems. It is suspected that very few small businesses (apart from technology based businesses) would have staff dedicated to IT functions.

Many authors describe benefits that can arise from a decision to outsource. These include;

- Reduction or control of operating costs (Jones, 1997)
- Increased access to "...leading edge technology and know-how." Ramarapu et al (1997, p 28)
- Increase economies of scale (for the outsourcing vendor) enabling a possible lowering of costs to the outsourcing client. (Teng, et al, 1995)
• Increase economies of scale (for the outsourcing vendor) enabling a possible lowering of costs to the outsourcing client. (Teng, et al, 1995)
• Improved business focus for the outsourcing client, in that the business is able to focus on core business functions. (Jones, 1997)

Some of the inhibitors associated with the decision to outsource reported by Grover & Teng (1993) include loss of control, loss of flexibility due to lack of control over infrastructure, alienation of staff displaced by outsourcing decisions, decreased security for sensitive organisational data, conflicts of interest between the vendor and the client and the risk of being caught in an unfavourable contract. This research will investigate the relevance of inhibiting factors associated with the decision to outsource in larger organisations to smaller businesses, and whether the potential strategic gains that may be made from the outsourcing decision are strong enough to overcome the inhibiting factors.

The Research Project

A questionnaire was prepared, drawing on existing instruments where possible, and modifying where necessary. These include the instruments of Raymond (1985), which looked at Management Information Systems (MIS) success in small business, and Franz & Robey's (1986) instrument for measuring the perceived usefulness of MIS. A list of inhibiting factors affecting the decision to outsource was drawn from the literature including Grover & Teng (1993) and Lacity & Hirschheim (1993). The instrument was evaluated by colleagues for readability and clarity. Once modified, it was then piloted using six small businesses. Further modifications were made, and the questionnaire was passed on to a medium sized accounting firm for distribution to their small business clients. This cohort was chosen as being representative of small business as up to 81% of small businesses make some use of an accountant. (Yellow Pages, 1995). The results of the survey are currently being analysed to determine:

1. Current and planned levels of strategic planning in small business
2. Current and planned levels of strategic data use in small business
3. Current and planned levels of outsourcing of business functions in small business
4. Facilitating and inhibiting factors affecting the decision to outsource in small business

It is expected the results will be available at the end of October.

Discussion and Conclusion

This paper has presented the background to, and planned implementation of, an exploratory study into the possibility of increasing the strategic use of data in small businesses through the mechanism of outsourcing data management. Discussion in the paper has centred around the relevance of traditional models of SIS and outsourcing decisions to the small business context. It is hoped that the results of the study will indicate areas requiring future research, particularly the facilitating and inhibiting factors associated with small business decisions to outsource.
References
Business and Technology - Proceedings of the Third Australia New Zealand Systems Conference", Gatton, University of Queensland, 1-4th October, pp301-312