

Business process management for SMEs: an exploratory study of implementation factors for the Australian wine industry

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Abstract

Gartner EXPPremier (2005) identified Business Process Management (BPM) as the number one business priority and building Business Process Capability as a major challenge for senior executives within the coming years. The focus of BPM in practice and related research has been its application in large organisations. The general value proposition of BPM, however, is also of significance for small and medium-sized enterprises (SMEs). SMEs within the wine industry have only recently begun to apply BPM principles to their business. The main motivating factors for this business improvement effort is a need to cope with consolidation trends and the global grape glut, which are forcing wine businesses to increase operational efficiency. The wine industry has been selected as a case study for this research not only due to its local significance, its growth driven by globalisation and its contribution to the economy, but also the relative immaturity in terms of establishing concepts of a process-oriented organisation. This study aims to explore and structure the major issues of BPM adoption and implementation as the first such research initiative for SMEs in the wine industry. The research was conducted in Western Australia and involved qualitative data collection including interviews and content analysis of existing documentation. The study shows that the lack of financial resources, time, and knowledge of BPM are the major factors inhibiting BPM implementation for SMEs in the Australian wine industry.

Keywords

Business process management (BPM); small to medium-enterprises (SMEs); strategic planning; inhibiting factors of adoption and implementation; wine industry; Australia.

Earlier version

There are no earlier versions of this paper published elsewhere.

1 Introduction

Business Process Management (BPM) is a structured method of understanding, documenting, modelling, analysing, simulating, executing and continuously changing end-to-end business processes and all relevant resources in relation to an organisation's ability to add value to the business. It is the current term utilised to encapsulate a process-driven approach to attain enterprise operational efficiency (Smith & Fingar 2003). BPM covers the entire business process lifecycle and consolidates methodologies and techniques from a number of previous approaches including Business Process Re-Engineering (BPR), Process Innovation, Kaizen, Lean Management, Total Quality Management and Constraint-based Theory. BPM utilises current technology to provide organisations with the ability to map and/or re-model their business processes, deploy processes as applications that are integrated with existing software systems, and provide managers with the functionality to monitor, analyse, control and improve the execution of those processes in real time. In fact, the BPM market, which includes all communication, telecommunication, computer, internet and software applications that support BPM system, was valued at approximately \$1.1 billion in 2005 and is expected to reach \$3.8 billion by 2012 (WinterGreen Research 2006). This shows the importance and international acceptance of BPM in the business world today.

BPM seems to encompass the most important strengths and advantages of its predecessor BPR without some of the limitations that would prevent it from being applicable on a universal scale (for a historical overview see Harmon 2003; Smith & Fingar, 2003). According to Puah & Tang (2000), TQM and BPR approaches are the two expressions of an increasing sophistication in management techniques and principles. Both approaches claim to establish a framework for effective management action, only that BPR is intellectually different in a fundamental way from TQM. By expounding on the two concepts and considering their differences in the context of business excellence, the principles of BPM are established. The most important insight that characterises BPM (as well as newer 'revisionist' variants of BPR) is a 'process view' of management that

eschews the functional boundaries of an organisation's various departments in favour of a more 'holistic' approach (Baker & Maddux 2005; Rosemann & de Bruin 2004). It is within this rubric that each step of the production value-chain, from supplier to customer, can be monitored and explicitly linked to corporate strategy, operational efficiency and competitive advantage (Harmon 2003). This implies a role for a cross-functional managerial team that oversees the value-adding process as it passes from department to department and eventually to the point of sale. In this way, shortfalls in customer satisfaction can be traced back to the offending step in the value-chain and dealt with appropriately.

Although the body of research into the adoption of process-oriented management paradigms is devoted primarily to large organisations (Baker & Maddux 2005), preliminary evidence seems to suggest that, despite some minor discrepancies in terms of relative importance, the aforementioned characteristics are also largely applicable to the Small and Medium-Sized Enterprises (SMEs) sector (Baker & Maddux 2005; Hale & Cragg, 1996; Murphy & Ledwith 2006; Perry 2005; Raymond et al. 1998). The benefits of a successful process improvement effort include: better operational efficiency; increased profitability; better customer relations; shorter process-cycle times; lower operating costs; increased accountability; and improved market competitiveness (Ahadi 2004; Raymond et al. 1998). However, the relative paucity of research that exists in relation to BPM implementations by SMEs has resulted in the widespread propagation of a false impression that process-driven optimisation frameworks are only applicable to large corporations (Raymond et al. 1998; Riley & Brown, 2001). Despite the prevalence of this assumption, it is evidenced in a few studies that BPM or process optimisation techniques can be equally effective when applied to SMEs (for example, Hale & Cragg 1996; Raymond et al. 1998; Fu et al. 2001; Riley & Brown, 2001). BPM is also often viewed from highly diverse angles ranging from a management strategy to a software system, so much so that there is still no common consensus even about the definition of 'Business Process Management' itself (van der Aalst et al. 2003). In spite of its obvious advantages, the diverse points of view on BPM cause major roadblocks for organisations moving towards BPM solutions. Thus, it is argued that the current upsurge of BPM adoption in organisations denotes an ideal time to conduct a study on the identification of issues which will be of critical importance to SMEs considering or embarking on BPM initiatives. The study would help organisations develop a realistic understanding of the challenges and problems they might face and serve to inform academia on what potential new research directions might exist in the area of BPM and related topics.

1.1 Research objectives

The aim of this paper is to identify the major barriers that are experienced by Australian SMEs in the wine industry in their efforts to implement BPM in their businesses. The definition of a small business in Australia is any business employing less than 20 people; and 20 or more but less than 200 people for a medium business (ABS 2004). The research question is as follows:

What are the major issues and challenges related to Business Process Management implementation in Small- and Medium-sized Enterprises of the Australian wine industry?

The research question is addressed by conducting an exploratory analysis of implementation studies for SMEs, and the extent to which BPM methodologies and approaches are being applied in Australia and in the wine industry. It is also hoped that the results reveal some of the major issues pertaining to BPM adoption by the wine industry would, by extension, apply to the SME sector in general. Hence, the current report will also ameliorate the relative absence of a substantive research corpus relating to BPM adoption by smaller entities and may well provide an agenda for a range of other research topics within this domain. Once this is done, it is planned that the factors identified that inhibit BPM implementation will be compared with the factors in other SMEs-driven sectors and, by extension, the corporate community at large. It is hoped that by determining the factors that influence implementation, these factors can be managed in the best interest of customers, employees and organisations.

To introduce the outcomes of the study, the paper is structured as follow: the paper reports on the first attempt to identify business process implementation factors for SMEs in wine industry by presenting a brief literature review. Next, the research design and case studies are briefly introduced, followed by discussion of the findings. The paper concludes by summarising the study's contribution, limitation and recommending further study.

1.2 Significance of the study

The role of BPM in SMEs is to improve customer services and gain greater business insights (Perry 2005; Fu et al. 2001). BPM is about automating workflow and processes that might already be in place, and alerting different users to activities that they are responsible for by providing them with timely and relevant information needed to carry out the designed activity. In addition, many BPM applications allow SMEs to monitor and then optimise business processes. However, it is important that SMEs are able to integrate BPM tools into their systems. Of the 2008 wine producers existing in 2006, 1045 (52.04%) exported wine. However, the top 20 producers accounted

for 87% of exports by volume, resulting in 1025 producers competing for 13% of exports (Winebiz 2006). Due to the global grape glut, and the competition amongst SMEs for the export market, wine producers should seek to increase operational efficiency. Consequently, it is becoming increasingly necessary for SMEs within the wine industry to adopt strategies such as BPM.

The adoption of a new system or technology by a company, greatly affects the way business is conducted (Kalakota & Robinson 1999), the way resources are utilised and how efficiently they are used. The proper utilisation of IT can increase the competitive advantage of firms, both large and small, but only if their end-users possess the skills and experience to operate such systems (Ihlstrom & Nilsson 2003). SMEs, unlike larger counterparts, have many limitations regarding time and resource allocation. As found by Ihlstrom & Nilsson (2003), the vision of management in SMEs, with regards to the purchasing and implementation of new technology, may not only be hindered by the price tag of the investment. The time taken off by staff for training and learning may significantly affect an SME due to the loss of operation time from key employees of the business. BPM implementation by SMEs is similar to technology implementation; it faces similar barriers, which may act as a deterring factor for managers to implement a value adding process.

According to previous scholars (see Chapman & Sloan 1999; Hossain et al. 2002; Spanos et al. 2001) the differences between SMEs and larger organisations in making the decision to implement change are as follows: 1) SMEs remain attached to functional methods of thinking and managing, while larger organisations adopt process-oriented frameworks such as BPM; 2) SMEs are subject to greater pressure in terms of cash flow constraints, working capital, and a lack of resource allocation potential, which would affect the uptake of BPM processes; 3) SMEs have a smaller number of employees as resources, and are less likely to contract out BPM since they are less able to divert employees to BPM processes. Therefore, SMEs are more likely to get off-the-shelf software and conduct BPM training in house. For there to be any change in the current acceptance levels of BPM by SMEs, implementers must provide relevant and practical information showing how the adoption of BPM will help increase efficiency, productivity and overall profitability. Research done by Parker & Castleman (2007) showed that in 120 journal articles, only 15 articles presented information on the benefits for utilising new technology in SMEs. Clearly, more study of this nature is needed to increase the awareness and adoption of a new system amongst SMEs.

2 Business process management and SMEs

A key reason for the limited adoption of BPM in SMEs is that vast majority of SME operators are not aware that BPM can help their businesses attain the aforementioned benefits (Riley & Brown 2001; Smith & Fingar 2003). Most SMEs remain attached to older (functional) ways of thinking and managing, much to the detriment of the long-term survival of their respective industries (Smith & Fingar 2003). As mentioned previously, they may also face greater risk and pressure in making adoption decisions, getting training, or collecting relevant information on BPM due to resource constraints. Due to the fact that the SME sector accounts for the vast majority of business activity that is conducted in most developed nations, this situation has resulted in much concern with governments and by policy-makers worldwide (Hale & Cragg 1996; Fu et al. 2001; Riley & Brown 2001). Indeed, the slowness of smaller companies in adopting newer process management techniques has been so endemic that it has even led the UK government to sponsor investigations into such SME-dominated areas as the construction industry (Riley & Brown 2001). Irrespective of the industries in which they operate, there is an increasing need for individual SMEs to keep pace with such developments as BPM in order to compete and survive in the increasingly 'globalised' environment of modern commerce. Failure to do so may not only result in less than optimal levels of efficiency and profitability for individual businesses (Smith & Fingar 2003), but may also create the possibility of a decline in the influence of SME-driven sectors as a whole.

Most IT, IS or EC research done on SMEs has focused either on how technology impacts a specific or a few areas of business functions (that is, marketing, sales, communication, data security, etc.) or how new technological innovations may be utilised in a business (Parker & Castleman 2007). The majority of IT or IS research has reported on the utilisation of new technology to its full potential by large corporations and some SMEs. BPM in this regard has rarely been studied in the context of supporting the entire business process management life cycle (Quiescenti et al. 2006). This study seeks to act as a catalyst for change by presenting information and understanding on the adoption behaviour of BPM in SMEs, particularly in the wine industry.

3 BPM feasibility and the wine industry

Western Australia has a diverse business industry made up of mining, manufacturing, construction, and agriculture, wholesale and retail trade, among many others (ABS 2003). The Australian Bureau of Statistics states that the exporting community is the most prominent industry segment within Australia. Furthermore, the export industry is dominated by SMEs, which comprise 86% of the industry. SMEs in Western Australia (WA)

account for 11% of the Australian export industry (Harcourt 2006). This figure is skewed by mining exports, as described by the Western Australia Technology and Industry Advisory Council (2006). Similarly, the wine industry is dominated by SMEs, with approximately 91% of wine producers in Australia, and a large proportion of businesses (93% in Western Australia), being categorised as SMEs based on the number of tonnes of grapes crushed being less than one thousand (Winebiz 2006).

The predominance of smaller organisational structures has been noted in a number of industries in Australia and this includes the thriving SME-driven wine industry, which has experienced a twofold increase in export volume over the past five years (ABS 2006). There are now 312 wineries in WA (Winebiz 2006) and exports have increased by over 200% in the five years up to 2006 (ABS 2006). The industry, through cellar door sales, complements the hospitality and cultural industries contributing to a dynamic wine tourism industry, which is increasingly in importance.

Despite the wine industry's growing importance to Australia's economy, some unique challenges have arisen in recent times, most notably:

- the consolidation trend that seems to threaten the competitiveness of some of the smaller operators (most of whom have fewer resources and a smaller capacity for debt financing);
- the financial exhaustion of related industry participants (Moularadellis 2007);
- the worldwide grape glut two years ago (oversupply situation) which depressed the market value of wine-related products in general; and
- the recent grape shortage because of long period of drought which doubled the price of grapes (undersupply situation) and led to low sales volume compared to other competing wine producing countries.

What seems to be needed are some industry-wide strategies that help companies cope with such diverse changes and that preserve the health of the sector as a whole. It is interesting to note that the increasing prevalence of wine tourism is unlikely to offset the influence of supply-side inefficiencies and a changing market dynamic. It is here that the potential optimisation framework such as BPM becomes apparent. In order for SMEs in the wine industry to cope with the recent entry of bigger entities (who are bypassing the traditional distribution channels and eroding the margins of the smaller players), a re-evaluation of current business processes and their levels of efficiency and productivity is essential. Only by developing innovative and efficient process-control mechanisms, alongside streamlined manufacturing and supply chain logistics, can the smaller entities hope to endure in the current economic climate of consolidation and cost competitiveness (Fu et al. 2001).

The Australian wine industry was also chosen for this study because it has a major focus on quality in process and products. Previous literature clearly identified quality to be a paramount issue for the wine industry, in terms of both competitive priorities and decision areas (Brownless 1993; d'Hauteville 1994; Dwyer 1992; Forbes & Spawton 1995; Orr 1999a). In the wine industry the meaning of 'quality' is represented by the characteristics of the wine as a 'premium' beverage (Samson & Sohal 1990). 'Product quality' of the wine arises from a production process that includes customer requirements and manufacturing capability, value for money, and customer perception of the brand (Duval 1993). This definition of quality is a moving target for the wine industry. It is up to the wine producer to monitor customer-led changes and adjust the process to accommodate these changes. This need for constant appraisal and adjustment makes the quality management term 'continuous improvement' very important for industries such as the wine industry.

It is proposed that BPM will not only help organisations run more efficiently, but will also allow these organisations to react more rapidly to the changes that are so common in the agricultural environment. Despite the constant and demanding challenges in the wine industry, there appears to be no studies to-date that explore the topic of BPM adoption *per se*. Given that the dynamics of the wine industry may well differ substantially from other SME-driven sectors or emerging industries in important ways, the lack of BPM-related studies addressed specifically to this area presents a unique challenge. Nonetheless, there exists a growing academic and business literature that deals explicitly with wine industry concerns and much of it is relevant to the theoretical underpinnings of this current paper. Examples include Stuart Orr's studies into the strategic aspects of wine production in Australia (Orr 1997; Orr 1999a; 1999b) and the implications of collaborative networks and strategic alliances amongst 'competing' wine businesses (Brown & Butler 1995; Harfield 1999). The scholars have commented on the need for increased emphasis on improved procedures and capacity management to ensure success in the future (Orr 1999a; 1999b). It also appears that little empirical research has been undertaken on this aspect of the wine industry, particularly regarding small and medium-sized wineries. Considering that 91% of wine producers in Australia can be categorised as SMEs (Winebiz 2006), the lack of research regarding SME wineries appears concerning.

Due to its importance to the economy, this study is timely for wine businesses in Australia, particularly WA, because it will help companies to gain maturity in the knowledge and skills needed to operate in the wine business efficiently and effectively. Australian SMEs in particular are expected to benefit from this study through better preparedness and better planning facilitated by learning the important issues that are experienced in *other* Australian organisations, before embarking on their own BPM projects.

4 Theoretical background

There exists a plethora of articles and publications that underscore the importance of an organisation's readiness for process-oriented management paradigms. A typical approach would consist of a literature review and/or case study of an organisation (or a number of organisations) accompanied by a list of pre-existing conditions that are deemed 'crucial' for any enterprise that is considering BPM adoption (for example, Raymond et al. 1998; Baker & Maddux 2005). Perhaps the most rigorous method, however, has been exemplified in the work of Rosemann & de Bruin (2004) who build upon such preceding prototypes as Pritchard & Armistead's Process Performance Index (PPI) and the Capability Maturity Model (CMM) drafted at Carnegie Mellon University. Their comparatively 'holistic' outlook has resulted in the genesis of the BPM Maturity Model Mark 1 (Rosemann & de Bruin 2004), which seems to circumvent some of the overly narrow assumptions of previous efforts (for a synopsis of the older CMM approach, see Harmon 2003).

Notwithstanding the recent development of such disparate approaches to measuring BPM maturity as CMM, PPI and the Maturity Model Mark 1, an implicit and broad consensus can still be discerned in the literature. This consensus relates to the ***organisational characteristics and preconditions that are thought to be necessary for BPM adoption*** to be a worthwhile pursuit and can be summarised in the following list adapted from Baker & Maddux (2005); Hale & Cragg (1996); Harmon (2003); Raymond et al. (1998); and Rosemann & de Bruin (2004):

- An information technology infrastructure that can support the adoption of a process-oriented architecture and philosophy.
- A solid understanding of process-oriented frameworks and their points of divergence from more traditional (functional) views of organisational processes and structures.
- A clear articulated mission statement with full managerial and personnel support for the impending cultural shift.
- Sound change management procedures with due diligence and a well-defined, repeatable methodology adhered to at each stage of the remodelling process.
- Clear lines of responsibility and accountability with appropriate business metrics or measurement protocols for assessing the outcomes of process-driven outputs.
- The alignment of each of the remodelled processes with the overall strategic framework of the organisation.

The preceding body of research that has informed the theoretical impetus of the current study can be summarised in Table 1 that lists the factors inhibiting business process implementation identified in the literature. Please note that the factors were identified from previous research into process-related initiatives (such as BPR) and BPM for large organisations and SMEs. Common factors are identified, but not ranked in order of importance. As can be seen from Table 1, the common factors reported by the researchers are the *lack of clarity on a strategic level*, *lack of IT expertise and infrastructure*, and the *absence of a cross-functional mindset amongst senior executives*. Table 1 shows that the *lack of clarity on a strategic level* is the most common factor inhibiting business process implementation in both large organisations and SMEs. The factors such as *lack of senior executives/leaders support* and *poor knowledge of process-oriented approaches* are also considered to be the common factors inhibiting the implementation of BPM. It should also be noted that, without exception, the businesses that attempted to implement BPM in the aforementioned studies desired the following set of benefits: increased operational efficiency; reduction in costs; increased productivity; and increased profitability and/or shareholder wealth.

There have been significant advances in many BPM research areas, and in particular on technology features that support process control and monitoring and application integration (van der Aalst et al. 2003). However, limited studies have been done to bridge the gap in understanding adoption or management issues which is imperative to the business aspect of any BPM projects. Indeed, unless the efforts towards BPM can clearly produce business outcomes, advanced technology deployments will only generate disappointments (Davenport 1993; Kettinger et al. 1997; Grover et al. 1998).

Reference	Area / domain	Organisational type(s)	Factors inhibiting business process implementation (not ranked in order of importance)
1) Al-Mashari et al. (2001)	BPR	Large Corporations	<ol style="list-style-type: none"> 1. Lack of clarity on a strategic level. 2. Lack of support from senior executives/leaders. 3. Poor knowledge of process-oriented approaches. 4. Fear of technological change.
2) Baker.& Maddux (2005)	BPM, BPR	Large Corporations	<ol style="list-style-type: none"> 1. The absence of a cross-functional mindset amongst senior executives. 2. Lack of support from senior executives/leaders. 3. Lack of clarity on a strategic level. 4. Poor knowledge of process-oriented approaches. 5. Lack of methodological rigor in execution.
3) Harmon (2003)	BPM, BPR	Large Corporations	<ol style="list-style-type: none"> 1. Lack of clarity on a strategic level. 2. Poor knowledge of process-oriented approaches. 3. An underestimation of work-flow disruptions due to change.
4) Rosemann & de Bruin (2004)	BPM	Large Corporations and Large Public Sector Organisations	<ol style="list-style-type: none"> 1. Lack of support from senior executives/leaders. 2. Lack of clarity on a strategic level. 3. Poor knowledge of process-oriented approaches. 4. Lack of Information Technology expertise. 5. Lack of adequate Information Technology infrastructure. 6. Lack of methodological rigor in execution.
5) Smith & Fingar (2003)	BPM, BPR	Large Corporations	<ol style="list-style-type: none"> 1. The absence of a cross-functional mindset amongst senior executives. 2. Lack of clarity on a strategic level. 3. Poor knowledge of process-oriented approaches. 4. Lack of Information Technology expertise. 5. Lack of adequate Information Technology infrastructure.
6) Spanyol (2003)	BPR	Large Corporations	<ol style="list-style-type: none"> 1. The absence of a cross-functional mindset amongst senior executives. 2. Lack of support from senior executives/leaders. 3. Lack of clarity on a strategic level. 4. Lack of defined business metrics and/or measurement protocols for assessing process management performance. 5. Poor knowledge of process-oriented approaches.
7) Raymond et al. (1998)	BPR	Large Corporations and SMEs	<ol style="list-style-type: none"> 1. The absence of a cross-functional mindset amongst senior executives. 2. Lack of support from senior executives/leaders. 3. Lack of skill diversity. 4. Poor knowledge of process-oriented approaches. 5. Lack of methodological rigor in execution.
8) Fu et al. (2001)	BPR	SMEs	<ol style="list-style-type: none"> 1. The absence of a cross-functional mindset amongst senior executives. 2. Lack of support from senior executives/leaders. 3. Lack of clarity on a strategic level. 4. Lack of well-defined responsibility and accountability.
9) Hale & Cragg (1996)	BPR, BPM	SMEs	<ol style="list-style-type: none"> 1. The absence of a cross-functional mindset amongst senior executives. 2. Lack of support from senior executives/leaders. 3. Lack of clarity on a strategic level. 4. Lack of Information Technology expertise.
10) Riley & Brown (2001)	BPR	SMEs	<ol style="list-style-type: none"> 1. Lack of clarity on a strategic level. 2. Poor knowledge of process-oriented approaches. 3. Lack of Information Technology expertise. 4. Lack of adequate Information Technology infrastructure.

Table 1: Factors identified as inhibiting business process implementation

This study focuses on the experience faced by Australian winery SMEs when implementing or considering to implement BPM. This is important because SMEs are experiencing the need for more integration and expecting BPM to fulfill these needs (Hossain et al. 2002). Most SMEs face problems when making decisions about which area, how and when to implement BPM initiatives. This is mainly due to their limited ability to gather accurate information about how BPM investment is going to help their company. Without this ability, they are also unable to assess the risk or uncertainty involved in such projects. Considering BPM decisions have complex and far-reaching implications, poor decision-making by SMEs can result in disastrous situations.

The background outlined in this section and the results of the study represent a further step towards understanding the implementation issues of BPM for SMEs. This study also takes a more general focus that explores overall BPM implementation efforts. It is in part motivated by the lack of empirical research in the field of BPM in Australia and also the relatively limited attention paid to BPM implementation in SMEs context. The issues that emerged from this study reinforce the perception by researchers that SMEs in Australian wine industry appear to be in the early stages of BPM adoption. The following sections present the research method and outcomes of the study.

5 Research method

The research question and results presented in this paper concern the main issues of BPM implementation experienced by Australian winery SMEs. The initial phase of the study is reported here – a field research case study with WA wine organisations. Field research involves the collection of primary data or information. This is collected through surveys and questionnaires that are made out specifically for a purpose, and involves direct observation by the researcher. Field research enables the researcher to gain a rich understanding of the users’ goals, attitudes and their working environments. Another advantage of applying a field research approach is that the researcher is not required to design or produce a prototype before data can be collected (Wixon et al. 2002). Field research also enables the adoption of a case study research method in order to gather data for qualitative analysis. A case study allows the examination of objects or properties within real world scenarios (Yin 2002). Such an approach is well suited to IS research (Benbasat et al. 1987), and is one of the most common methods of performing qualitative analysis in the field (Orlikowski & Baroudim 1991; Alavi & Carlson 1992). The overall design of the research project is shown in Figure 1.

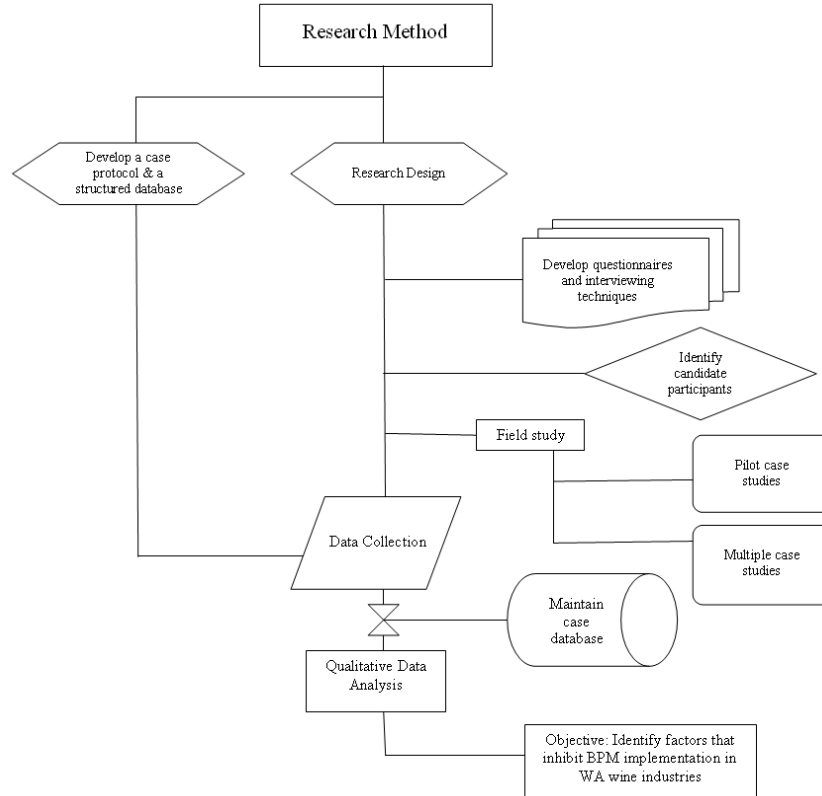


Figure 1: Overall research method and design

The case studies with organisations implementing BPM, together with an extensive literature review, constitute the initial phase that sets the groundwork for the identification of BPM issues faced by SMEs. Ultimately, the results from the current phase involving Australian organisations' experiences and perceptions will be utilised as input for instrument design of a future online survey to be carried out later as a confirmatory study. The following sub-sections elaborate on the research design shown in Figure 1.

5.1 Research design

This research adopted a field research approach to an exploratory inquiry into the organisational experience in relation to supply chain management, corporate strategy, technology, organisational structure, management systems and human resources when implementing BPM. The greatest advantage of the field research in the form of a case study is that the researcher is able to explore and illustrate specific issues in more detail in a real context. This method also emphasises qualitative analysis. Qualitative study may require the researcher to spend extensive time in the field, and labour over field issues to gain access, rapport, and an insider perspective. In addition, the researcher needs to find evidence to substantiate claims and to incorporate multiple perspectives from participants to provide a broader base for qualitative analysis of the study findings (Cresswell 1994). For example, in this study, the perspectives of the wine owner, grape grower, supplier, distributor, exporter, and wholesaler are collected to enhance the understanding of the industry and supply chain situation. Such a qualitative method, as employed in the current report, is an effective way of providing a set of preliminary findings in an emerging area of investigation with few empirical precedents (Lee 1989; Yin 1994). Since the adoption of BPM has rarely been studied in relation to SMEs (Raymond et al. 1998), an exploratory case study method seemed to be appropriate in this instance. Moreover, there did not seem to be any reports that addressed the implementation of BPM in the wine industry *per se*, thus strengthening the justification for the chosen research approach.

However, like other research designs, field research has its limitations because it lacks the sound basis required for making "scientific" generalisations, and because it is costly and excessively time consuming (Sarantakos 1998). In addition to several known potential weaknesses of the case study method (Benbasat et al. 1987), a case study protocol was designed, carefully documenting all procedures relating to the data collection and analysis phases of the study. Qualitative data collection mechanisms including in-depth interviews and content analysis of existing documentation were used to collect rich evidence about the BPM implementation experiences. Observations and documentation were used only to augment and corroborate interview data, which was the main input to the data analysis. Whenever possible, interviews were conducted with owners or senior executives of the organisation, namely the Directors, Chief Executive Officers and the Chief Finance Officer. The interviews were semi-structured and each were completed within 60-90 minutes. All interviews followed the same structure and format (as pre-specified by the case protocol), commencing with an open discussion on perceived motivating and inhibiting factors of BPM implementation in the business as a whole or in a specific functional initiative.

5.2 Sampling and data collection procedure

The researcher spent over four months in the field study at the WA wine regions in 2005. The target participants were selected from the Ray Jordan's Guide to WA Wine (Jordan 2004) because it consisted of the most up-to-date contact details of all wineries throughout Western Australia. Due to the small sample frame, an email was sent out to all SMEs listed in the guide with a brief objective of the study, the importance of BPM and its benefits to the wine industry, and the benefits of understanding of the study area attached to solicit participation in the study. Appointments for interviews were then arranged after the companies responded to the email with interest. Data collected during the field research was primarily from owners or senior executives of SMEs, using case study methods and face-to-face interviewing techniques to address the research questions of the study. The interviewees consisted of representatives from SMEs in WA that derive a significant proportion of their revenue from activities related to wine production and/or wine sales. During the face-to-face meetings, the perception of the participants about the recent changes in the industry as well as the organisation was also captured. The interviews explored both internal and external factors that drive the changes. A single pilot case study and subsequent multiple case studies were employed in this research, the primary goal being to substantiate the candidate inhibiting factors that were identified from the literature review.

5.3 Reliability and validity issues

Reliability was enhanced through the use of a detailed case protocol and a structured case database. As shown in Figure 1, all relevant data (interview transcripts, research memos, sample process models, documented modeling guidelines, etc.) were maintained in a 'case database' (Yin 1994; Mile & Huberman 1994) and close linkages between the research questions, evidence, interpretations and conclusions were maintained throughout the analysis. The qualitative data analysis tool NVivo 2.0 was utilised during this phase to capture, code and report the findings of the case study. Construct validity was strengthened within the study by using multiple sources of evidence, establishing a chain of evidence with a well-structured case database, and having key informants review draft case study reports at the end of the analysis. Predictive validity was increased through data analysis

techniques such as pattern matching and explanation building (Yin 1994). External validity, or extensibility of the findings, has been improved through the conduct of multiple cases studies. Since explicit or implicit counts are often reflected in qualitative analyses when judgments are made, analysis of the case study data was conducted mainly by coding the data (through the use of NVivo 2.0), thereby yielding counts and data points that were then analysed further. “Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study” (Miles & Huberman 1984).

5.4 Data analysis

The questions utilised in the semi-structured interviews were designed to ‘probe’ the participants for the main factors that tend to inhibit or constrain the implementation of BPM. The relative importance of these factors could thus be ascertained by two means: the number of interviewees that cited each factor; and the level of qualitative emphasis that was placed upon each factor. Although the level of emphasis was taken into account, in the final analysis, the number of interviewees that cited each factor proved to be a more suitable method of determining their relative importance. On the basis of the number of citations, the five factors that inhibited BPM implementation in the WA wine industry could thus be coded into a ranked-order list. Table 2 shows that there were 10 SME case studies conducted in WA and they are labelled as Company A to J to assure the confidentiality of the participating firms.

As each interview was completed, the main findings were summarised. All interviews were transcribed and analyzed in detail using the qualitative data analysis tool NVivo 2.0. The interviews were coded using a bottom up approach, where all inferences were derived purely from the data (no *a priori* notions or constructs were considered in the coding process), where, a node within the NVivo tool was created to capture details of each emerging issue. “Nodes” are folders in NVivo in which the researcher can store ideas and categories, and they are organised in a tree-like structure. More specifically:

- When a new issue was identified, a new set of nodes (folders) was opened to capture this.
- Statements that generally discussed a certain issue were grouped together.
- Statements that specifically mentioned the potential resolution for a certain issue were grouped under an ‘implementation factor’ node for each identified issue.

The detailed coding was conducted by two researchers. One first coded each of the interviews and created an initial node structure. The other re-coded the interviews against this created node structure. The created node structure from the first coder was used by the second coder in order to manage the difficulties with the terminology used in this type of context (BPM being a rather vaguely defined area) and bottom-up coding. The second round coding was conducted merely to further validate categorisation of the first coder. Only a few, very minor discrepancies existed and these were discussed and resolved by recoding as agreed to a common consensus. This resulted in a set of major BPM implementation issues as identified by the interviewees that are reported in detail in the next section.

The 10 enterprises that participated in the current study differed principally with respect to the areas of the supply chain in which they conducted their operations. These differences are highlighted in the summary paragraphs for each company in Table 2. The designations of the 10 interviewees within their respective companies are also reported in the table.

6 Results

6.1 Codifying the known inhibiting factors

In order that the factors inhibiting BPM implementation in the WA wine industry could be compared to that of previous studies involving SMEs, a review of the available literature was conducted. This resulted in an approximation of the *five most important factors that impede BPM implementation for the SME* sector as a whole. These can be summarised in the following list. For more description on the listed factors below refer to Fu et al. (2001), Hale & Cragg (1996), Raymond et al. (1998) and Riley & Brown (2001):

- Absence of Cross-Functional Mindset amongst Senior Executives.
- Lack of Support from Senior Management.
- Lack of Clarity on a Strategic Level.
- Lack of Information Technology Expertise.
- Poor Knowledge of Process-Oriented Approaches.

Company	Size	Interviewee	BPM Stage	Brief company background
A	Medium Business	Chief Financial Officer	Infancy	This company incorporates three wine business entities. Its operations include retail through cellar-door and wholesale. A portion of the business is also devoted to debt collection and cash flow management for trading partners. Forecast revenue is \$7.5m.
B	Medium Business	Chief Executive Officer	Growth	This firm is a self-sufficient wine producer, and wine and grape exporter. It has its own crushing, wine-making, storage and packaging facilities. It has established itself in more than 17 countries with one third of its exports going to the UK. Company B also has Hazard Analysis Critical Control Points (HACCP) accreditation and is ISO 9001:2000 compliant in its wine-making processes.
C	Small Business	Managing Director	Not yet implemented	Company C is a family-owned business with one full-time employee. It is involved primarily in grape production, with small export consignments being sent to the UK and USA. Surplus grapes are converted into wine through contracted manufacturers.
D	Small Business	Managing Director	Infancy	This company was founded in 1978. It employs a creative method of growing grapes that are preservative-free. The firm also produces quality sweet whites and dry red wines, harnessing advanced technology to aid the wine-making process. Company D exports mainly to the UK and USA, with small amounts also being sent to Asia. Cellar-door sales generate around 40% of the revenue and are growing in importance. Forecast revenue is \$2m.
E	Small Business	Managing Director	Infancy	This firm comprises a husband and wife team and 12 additional employees. The five vertically integrated business units are: café restaurants, product manufacturing (including a gift shop), garden and nursery, vineyard and cellar-door wine sales, and overheads and maintenance. It currently exports to Japan, Taiwan, Singapore, Malaysia, Hong Kong and the USA. Forecast revenue is \$1.5m.
F	Small Business	Managing Director	Infancy	Company F is a family business with 3 full-time employees. Grape picking and wine-making procedures are delivered by external contractors. The business exports wine to Malaysia and Singapore. There is no wholesale or local distribution in WA. Sales in WA take place via cellar-door arrangements, a few exclusive bottle shops in Perth and a top restaurant.
G	Medium Business	Chief Financial Officer	Infancy	The wine division of Company G has 15 staff with the remaining 65 staff employed in the accounting division. Wine staff are responsible for sales, marketing, vineyard management, branding and labeling. Both grape growing and wine making is contracted externally. As well as the domestic market, the firm also exports to the USA and Asia.
H	Small Business	Managing Director	Infancy	This company is a small business with 3 full-time staff employed in addition to the managing director. It is mainly a boutique firm with a very low volume of grape and wine production. It exports a few palates of wine per year to Malaysia.
I	Medium Business	Managing Director	Growth	Company I incorporates vineyard estates and wineries in both WA and Victoria, as well as a nursery business. It outsources bottling and packaging as well as labour and transportation. It has 56 full-time staff. Wine exports are currently directed towards the USA, UK and Europe.
J	Small Business	Managing Director	Infancy	Company J is a family business that employs 5 full-time staff as well as one TAFE trainee. It incorporates a vineyard, boutique wine cellar and a café restaurant. The firm wholesales to local restaurants and retailers with no exports in operation so far. Forecast revenue is \$1.4m.

Table 2: Case study participants

6.2 Ranking the inhibiting factors for BPM implementation in SMEs

To determine the most important factors that inhibit the successful implementation of BPM in the WA wine industry, a coding system was established that tabulates the number of interviewees that cited each factor. Since there were 10 interviewees, the maximum number of citations per inhibiting factor is also 10. The factors are ranked in descending order so that it is possible to recognise the most important issues and their relative weightings in the current sample. Table 3 illustrates the results of the content analysis in relation to this coding system.

Factors Inhibiting BPM Implementation	Number of Interviewee Citations
1. Lack of Financial Resources	7
2. Lack of Time	5
3. Lack of Support from Senior Management	4
4. Lack of Information Technology Expertise	4
5. Poor Knowledge of Process-Oriented Approaches	3

Table 3: Factors inhibiting BPM implementation in Western Australian wine SMEs (in ranked order)

The following sub-sections discuss the major factors inhibiting BPM implementation in more detail (please note that Lack of Financial Resources and Lack of Time are discussed in the same sub-section):

6.2.1 Lack of financial resources and time

The most prominent area of divergence of previous SME studies when compared to the findings of the current report is the absence of the two most important factors that inhibit BPM implementation in the wine industry: (a) *Lack of Financial Resources*, and (b) *Lack of Time*. On the surface, this seems to suggest the existence of inhibiting factors that apply only to the wine industry, but not to other SME-driven sectors. There exists, however, a plausible explanation for this difference. All the SME firms investigated in previous studies featured a permanent staff payroll that was in excess of 20 employees (Hale & Cragg 1996; Fu et al. 2001; Riley & Brown 2001) with one SME firm housing as many as 250 employees (Riley & Brown 2001). Furthermore, an examination of the staffing levels of the WA wine companies that participated in this study reveals that only 5 of the 10 firms employed more than 20 full-time workers with Company C employing just one full-time worker.

Thus, the most likely explanation for the prominence of *Lack of Financial Resources* and *Lack of Time* as the most important factors inhibiting BPM implementation in the wine industry is the fact that most of the firms in this study were exceptionally small. This precludes them from having a sophisticated capital structure that is flexible enough to accommodate a large outlay on IT-driven BPM tools. It also precludes them from having a pool of permanent employees that is sizable enough to allow the reallocation of a sufficient number of workers to carry out BPM-specific tasks. Doing so without the requisite human capital base will tend to result in disruptions to the fundamental revenue-generating operations of the company, as evidenced by an interview participant who asserted that his firm, which has just one full-time employee, would have to cease all business activity and “set aside two years” before BPM implementation would be feasible. Similarly, initiating a BPM project without sufficient financial resources and cash-flow provisions would threaten company solvency, especially for small businesses. As one interviewee posited, the wine industry is very “capital intensive”. Another interviewee provided further insight into this predicament by asserting that even though some of his peers are implementing BPM to “save on cost”, others are choosing not to implement BPM “because of the cost of implementing it ...a Catch 22 scenario”. Hence, the long-run cost savings that can be engendered by BPM regimens must be balanced against the competing needs of adequate short-run working capital. The smaller the firm is, the more acute this predicament seems to be.

6.2.2 Lack of support from senior management

One of the factors impeding BPM implementation that has been identified in both the wine industry and the SME sector in general is the *Lack of Support from Senior Management*. Indeed, 4 of the 10 interview participants asserted this factor to be a significant BPM inhibitor in their industry. An interviewee from Company B described the “total resistance” to BPM by “an autocratic gang of three people ... Chief Finance Officer, a Managing Director and a wine maker”. This made the transition from a traditional view of management to a process-oriented outlook a much more traumatic experience than it would otherwise have been. This finding is consistent with previous research into BPM adoption by SMEs in so far as support from senior executives or leaders is a crucial determining factor for BPM success in such firms (Raymond et al. 1998). Nonetheless, an examination of the interview transcripts reveals that there are aspects of senior management resistance that may be idiosyncratic to the wine sector to a certain degree. For instance, an interviewee from Company G points out that much of the reluctance to adopt BPM in the wine industry may stem from the fact

that the majority of the businesses are still quite “*traditional*” in their mindsets, and very “*family-oriented*” in their ownership and governance structures. It was also asserted by this interviewee that the attitude towards change within wine industry companies is largely one of scepticism and apprehension. As he put it: “*they have the mentality of - Why change the way things are when they work?*”

Another contributor to senior management resistance that may be largely related to sectors such as the wine industry is a lack of diversity in companies' operational functions and revenue streams. It can be discerned from the interview transcripts, for instance, that the firms experiencing the greatest levels of managerial support for BPM also have more vertically integrated business units, supply chain intermediaries, export markets, growth potential and ambitions for accreditation (with the single but notable exception of Company B). Thus, the considerable resistance to BPM by many senior managers in the wine industry may be partly explained by the relative lack of complexity in the companies' division of labour, source of revenue, inter-organisational communication and occupational health and safety concerns. This is also reflected in the fact that only two of the ten companies that took part in the current study have Hazard Analysis Critical Control Points (HACCP) accreditation and only one out of all participating firms in this study is ISO 9000:2002 compliant in its production processes.

6.2.3 Lack of information technology expertise

Another inhibiting factor for BPM adoption that is identifiable in both the wine industry, and the wider SME community as a whole, is the *Lack of Information Technology Expertise*. 4 of the 10 interviewees posited this to be a significant inhibiting factor. This finding is understandable on two grounds. Firstly, the wine sector is still an ‘emerging industry’ to the extent that much of it is still comprised of small family-owned operations, most of whom do not have the resources to employ specialist Chief Information Officers or knowledge management supporting officers (Daniel & Grimshaw 2002). Secondly, smaller enterprises are not likely to be able to afford the costs of hiring BPM technology specialists or information management consultants. Consistent with this view, a few of the companies interviewed in the current study stressed the fact that they were forced to utilise “*off-the-shelf*” products and conduct much of their BPM training “*in-house*” (as opposed to outsourcing customised services in both these areas). In such a ‘self-taught’ environment, it seems plausible that the level of IT competence required in SMEs may well be greater than for a larger company whose BPM-expertise needs were contracted externally.

Having said that, it should be noted that IT only plays an enabling role in BPM initiatives (Hammer & Champy 1993) by reshaping, automating, designing and managing process and strategy for the organisation. Its role in optimising business processes to help the implementing organisations to gain competitive advantage has been widely accepted. However, despite the accessibility of IT solutions to conduct BPM, there are companies that failed or experienced various difficulties in achieving intended business and management results (Martin & Cheung 2000; Spathis & Constantinides 2003). It was recommended that firms should take a holistic approach in business process issues (Zhao 2004) by recognising and emphasising that, technology *per se*, is not the only factor of implementation success. Integration and interaction of business processes strategy, management system and structure, and organisational culture are integral for the successful transition.

6.2.4 Poor knowledge of process-oriented approaches

As could be expected, *Poor Knowledge of Process-Oriented Approaches* was identified as a major inhibiting factor for the successful implementation of BPM in both the current wine industry sample and the SME community in general (Raymond et al. 1998; Riley & Brown 2001). 3 of the 10 interviewees identified lack of BPM knowledge as a major obstacle for companies partaking in wine production, grape production or wine sales. Company A complained that “*only three people in the firm understand BPM ... the wine maker, [the] accountant, and the Managing Director*”. This finding is not only consistent with the studies into BPM adoption by SMEs in general, but also with the literature into BPM initiatives in the wider corporate community (for example, Harmon 2003; Smith & Fingar 2003). A sound knowledge of process-oriented optimisation frameworks is essential to the success of BPM regardless of the size and influence of the firm in question.

However, the effect of a poor knowledge of process-oriented approaches on BPM implementation can also be elaborated in terms of the specificities of the wine industry and its lack of BPM ‘maturity’. Although 8 of the 10 firms surveyed were aware of the cost-reduction and efficiency benefits that tend to accrue to companies as a result of successful BPM programs (as evidenced in the interview transcripts), their BPM-related activities were adopted in a largely *ad hoc* and piecemeal fashion without much recourse to an implementation plan or strategic framework. This reflects a general lack of BPM education in the wine sector, especially amongst the smaller firms in the sample. Indeed, the lack of BPM knowledge is evident even in relation to the relatively sophisticated Company E which encompasses five vertically-integrated business units and wine export earnings derived from six countries. As the interviewee from the firm noted, “*most of [the employees] do not understand BPM. Only three of the staff would; the rest would not have a clue ... trying to get through to the staff [would be] a difficult*

task". Thus, it comes as no surprise to note that the state of BPM implementation in all but two of the firms surveyed was asserted by their representatives to be in its "infancy".

6.3 The absence of known inhibiting factors

Although at this stage it is hard to determine with statistical significance about the absence of known inhibiting factors due to the limited sample size, the following discussion helps highlight the discrepancy between the initial findings of this study with previous studies. On first inspection, the findings of this study seem to differ markedly from the findings of previous studies relating to BPM implementation by SMEs. The factors identified as inhibiting BPM implementation in the WA wine industry (*Lack of Financial Resources, Lack of Time, Lack of Support from Senior Management, Lack of Information Technology Expertise and Poor Knowledge of BPM*) do not match the five most important factors that inhibit the BPM implementation for SMEs reported by previous scholars in industries generally (*Absences of Cross-Functional Mindset amongst Senior Executives, Lack of Support from Senior Management, Lack of Clarity on a Strategic Level, Lack of Information Technology Expertise and Poor Knowledge of Process-Oriented Approaches*).

A major aspect in which the current study differs from other SME-related studies is the absence of two factors that are frequently acknowledged to inhibit BPM in smaller businesses: (a) the *Lack of Cross-Functional Mindset amongst Senior Executives*; and (b) *Lack of Clarity on a Strategic Level*. The absence of the first item is perhaps related to the fact that most activities within wine industry SMEs seem to be cross-functional due to the smaller size of the firms. Therefore, cross-functionality was not raised as an important issue during the interview sessions as it is so ubiquitous in the wine industry. Another explanation may be the relative lack of BPM knowledge exhibited by SMEs of the wine industry in general. Conceivably, this could also result in cross-functionality not being raised as an issue, as a company that did not know of its existence would not have the necessary framework for articulating it. The absence of *Lack of Clarity on a Strategic Level* from the purview of SMEs in the wine industry may be due to the fact that these companies tend to be so concerned with their short-term survival and solvency that longer-term strategic concerns are not prioritised. Only one firm mentioned "strategic planning" amongst their primary motivations for undertaking a BPM program in the first place. Whatever these explanations amount to, the absence of two factors that are known to inhibit BPM in non-wine sectors represents one area that could be further explored and investigated in future studies.

7 Discussion

7.1 The constraints of small business operations: implications for research design

One of the most important contributions of the current study lies in the finding that two of the most important factors identified as inhibiting BPM implementation for SMEs in the wine industry – *Lack of Financial Resources* and *Lack of Time* – do not seem to exert a similar influence in other SME-related process oriented studies (for example, Hale & Cragg 1996; Raymond et al 1998; Fu et al. 2001; Riley & Brown 2001). As mentioned previously, this discrepancy is probably a result of the fact that firms participating in the current study are exceedingly small with only half of the companies employing more than 20 full-time workers. By contrast, none of the SMEs that were investigated in the antecedent body of research employed fewer than 20 employees. Hence, it appears that firms of a certain 'marginal' size, or larger, are able to circumvent the majority of the limitations related to a lack of financial resources and lack of time (as evidenced in Hale & Cragg 1996; Raymond et al. 1998; Fu et al. 2001; Riley & Brown 2001). What that 'critical mass' might be in relation to a specific firm size remains to be investigated and this may well differ markedly from industry to industry. On the available evidence, however, this hypothetical 'marginal size' figure is likely to exceed the mean company size of 28.1 employees in the current study. However, it must be noted that research done on SME's implementation of new technologies has shown limitations of financial resources to be a key factor in the decision process of implementing new technology in SMEs (see, for example, Dholakia & Kshetri 2004).

Due to the importance of SMEs in the Australian wine industry, it is important to note that BPM implementations in this industry are under-reported and therefore merits further investigation. Indeed, the construct of 'firm size' may serve as an independent variable, correlative element or factor analytic dimension for future research, so that its *precise* influence on the success of BPM and other process-related regimens of change can be depicted and perhaps even quantified. In a more general sense, the topic of BPM implementations in SME firms of less than 20 employees may well provide another locus of further study. The degree to which these companies constitute a special sub-category of SMEs should be discerned so that future comparative analyses that involve these smaller entities can be informed by theoretical underpinnings (as opposed to expository and exploratory speculation).

The lack of knowledge displayed by SMEs on BPM (according to the findings in this study) and process-oriented approaches to business needs to be addressed for BPM to become more widely accepted amongst SMEs

and in the wine industry. With the increased acceptance of BPM and the growth in the BPM industry to-date, there is little evidence or research showing why there is still a gap in the level of understanding of BPM.

7.1 Contributions to BPM research

It has long been recognised that SMEs are subjected to greater pressure in terms of cash-flow constraints, working capital and a lack of resource allocation potential when compared to their larger counterparts (Daniel & Grimshaw 2002). However, the current study highlights this fact on a 'micro' level and with considerably more depth overall. Previous studies into BPM initiatives by SMEs have tended to emphasise the similarities of these undertakings with that of large corporations, and this assumed homogeneity of experience also extends to the factors that are presumed to inhibit BPM (Hale & Cragg 1996; Raymond et al. 1998; Fu et al. 2001; Riley & Brown 2001). Thus, the current study may serve to contribute to the momentum that exists for the development of a more nuanced BPM theory that takes into account a range of organisational structures and sizes, rather than the usual dichotomy of large companies versus SMEs.

The study's findings are expected to be of benefit to both the BPM research and practitioner communities, in terms of guidance for positioning their current research and targeting future research on BPM topics identified by industry as areas that need attention. The uptake of such topics may foster a stronger relationship between industry and academia through joint projects and educational training. In turn, industry can potentially benefit from the partnership in terms of obtaining guidance and possible solutions to the major BPM issues currently faced.

7.2 Contributions to industry practice

On a practical note, the current study has served to emphasise the fact that the wine production sector of WA constitutes an 'emerging industry', with all the unique problems and challenges that characterise such a community (Harfield 1999). Although BPM has been adopted by many of the firms in this SME-driven industry, the levels of implementation are still in their infancy. Most of the companies interviewed were too concerned with their immediate futures and having an adequate base of working capital to undertake BPM as comprehensive and methodical a manner as is required for success. Hence, the current report has served to illustrate the fundamental dilemma that is currently affecting wine industry SMEs in WA. Process optimisation frameworks like BPM must be adopted if firms are to sustain enough long-run cost reductions to enjoy a sustainable future. However, in order for firms to save on immediate costs and have sufficient operating capital in the short-run, such initiatives must be curtailed, delayed and even abandoned. It is here that lessons could perhaps be learned in relation to the various collaborative efforts that have taken place in both the USA and New Zealand wine industries (Brown & Butler 1993; Harfield 1999). If a 'collaborate to compete' model can be adopted in the WA wine industry and various inter-organisational networks can be exploited, then issues such as lack of time or lack of financial resources may dissipate and BPM may then be undertaken with greater ease and efficacy. The 'collaborate to compete' model may also assist in the transferring of BPM knowledge, its importance and BPM's ability to add value to a firm.

Another way in which the current study may contribute to industry practice is that it highlights a few of the peculiarities and idiosyncrasies of the wine sector, many of which may inhibit the implementation of BPM in their own right. For instance, the fact that wine industry SMEs may not be diversified enough in their operations for senior management to consider BPM to be worth supporting is a concern. All companies, whether they realise the fact or not, are engaged in value-adding activities that can be described as 'business processes' (Harmon 2003). It is a mistake to move from the seemingly accurate premise that companies in the wine industry are not diversified in their day-to-day processes to the false conclusion that, therefore, these processes are not worth optimising. The very survival of SMEs in the wine industry is reliant upon their ability to cope with increased consolidation and competition. BPM can assist SMEs in this regard, so long as they do not assume from the outset that the streamlining of operational processes is automatically irrelevant to their concerns.

On a related topic, the current study has also contributed some evidence to suggest that the knowledge of process-oriented approaches in SMEs of WA wine companies is inadequate for the successful implementation of BPM as a holistic solution. So far, BPM adoption by SMEs has been largely piecemeal and *ad hoc*, with little or no attention being paid to long-term planning or strategic frameworks. Hence, the current study serves to illustrate the likelihood of a gap between the process-oriented acumen required to succeed in BPM and the level of process-oriented knowledge that is actually possessed in the WA wine industry. Addressing this gap by means of education and publicly-sponsored initiatives may be a viable option.

Overall, this research has some lessons to offer to other wine companies that desire to utilise BPM to achieve 'quality' production and to become world-competitive companies. As for the future of SMEs and their role in the wine industry (or any other industry for that matter), it will be largely determined by the willingness and ability

of these companies to overcome the barriers of implementation before they could optimise their business processes.

8 Conclusion: limitations and future research directions

In addition to providing a better understanding of BPM from the perspective of SMEs, these findings have also set a foundation for further research concerning implementation issues. However, the findings and the emergent factors should be seen as tentative and requiring further investigation.

The most obvious limitation from the finding is related to the sample of 10 interview participants. It is difficult to discern whether the findings can be generalised to the entire wine industry, although there is reason to believe that the characteristics of small wine companies across other states of Australia to be similar with WA. Future quantitative research that incorporates a large-scale survey of randomly selected SMEs in the wine industry is required. Further research that incorporates different Australian states into the study to establish similarities and differences of BPM implementation experiences in the Australian wine industry is also recommended. In addition, the data collected at this stage of the study was limited to the Australian context, hence the study findings can only be generalised towards the Australian region at the current time.

The coding technique utilised in the data analysis phase has been derived from a qualitative procedure and can thus be subjected to all the familiar criticisms of 'analytical biases' that seem to apply to many hermeneutic or interpretive activities (Yin 1994). Nonetheless, this limitation must be seen in the context of the exploratory purpose of the study. The issues that have been identified are exploratory findings that can be studied with a more precise and quantifiable hypothesis in future research. For example, aspects such as *firm size* and *diversity of operations* can be coded as independent variables in relation to benchmarks of BPM success. Other constructs like *degree of support from senior management* can be transformed into a quantitative index to be administered as a psychometric questionnaire. The possibilities here are especially numerous. It must be pointed out, however, that there are numerous issues of relevance that the current investigation has only slightly illuminated. If the findings with regard to the factors identified as inhibiting BPM implementation in the wine industry can be best described as illustrative but preliminary, then the explanations provided for the absence of two known inhibiting factors from previous studies are largely educated guesses. It is in areas such as these that future empirical research can contribute the most to our current level of understanding.

The subject of BPM and its adoption in industry is indeed a vast and surprisingly diverse segment of inquiry. This has been confirmed in the current study, with the seemingly homogeneous phenomena of 'factors inhibiting BPM implementation' revealing a hidden layer at the level of very small firms. The finding that wine companies with 40 workers or less differ in important ways from other SMEs also provides an obvious area for future investigative work. From the evidence of the interview transcripts, it seems that very small firms have different operational priorities and latitudes for organisational change than their larger counterparts and this causes the inhibiting factors of BPM implementation to differ in composition. The point at which a firm is large enough to avoid shortfalls in resource allocation potential – especially with regard to the time and finances necessary to institute a successful BPM initiative – is yet to be discerned. Nuances such as these must be taken into account if BPM research is to be truly holistic in its scope and ecologically valid in its level of detail. Further research into areas which would be beneficial to the development of holistic BPM theories include input from cross-disciplinary fields such as organisational economics and corporate governance.

The Australian wine sector is a world-competitive industry with a strong growth in export. Despite the fact that quality and premium branding are the basis of its competitive advantage, it exhibits some significant weaknesses in cost and resource management. This research has some lessons to offer to other wine companies that desire to utilise BPM to achieve quality production and to become world-competitive companies. If the industry could move towards better planning and management of its business processes, it would further secure its position in the international export market. As for the future of SMEs and their role in the wine industry, it will be largely determined by the willingness and ability of these companies to overcome the barriers of implementation before they could optimise their business processes. It is also important to note that the industry has come through some pretty difficult times in the recent years, and the possible outcomes detailed previously could make the journey even more difficult, particularly with so many industry participants facing financial exhaustion. The successful implementation of any process improvement initiatives, from manufacturing to delivering the product to consumers, would add considerably to the organisation's long term competitiveness and survival.

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11 Biography

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