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Business Process Management for SMEs: An Exploratory Study of Implementation Issues in the Western Australian Wine Industry

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Abstract

Business Process Management (BPM) has been identified as the number one business priority and building Business Process Capability is seen as a major challenge for senior executives within the coming years (Gartner, 2005). The focus of BPM in practice and related research has been its application in large organisation. 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 factor for this business improvement effort is a need to cope with consolidation trends and the global grape glut, which is 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 research initiative for SMEs in the wine industry.

Keywords

Business process management (BPM); Small to medium-enterprises (SMEs); Strategic planning; Inhibiting Factors of adoption and implementation, Wine industry

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 their ability to add value to the business. It is the current term utilized to encapsulate a process-driven approach to attaining enterprise operational efficiency (Smith and 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, Process Innovation, Kaizen, Lean Management, Total Quality Management and Constraint-based Theory. As a consequence, the market for process-aware information systems is also accelerating. BPM systems provide organisations with the ability to 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, BPM engine markets at $416.4 million in 2003 are expected to reach $1.1 billion by 2009 (WinterGreen Research 2004). Indeed, BPM seems to encompass the most important strengths and advantages of its predecessor (BPR) without some of the limitations that prevented it from being applicable on a universal scale (for a historical overview, see Harmon, 2003; Smith and Fingar, 2003). The most important insight that characterizes BPM (as well as newer 'revisionist' variants of BPR) is a 'process view' of management that eschews the functional boundaries of an organization's various departments in favour of a more 'holistic' approach (Baker and Maddux, 2005; Rosemann and 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 organizations (Baker and 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[1] (SMEs) sector (see Hale and Cragg, 1996; Raymond, Bergeron and Rivard, 1998; Baker and Maddux, 2005). The benefits of a successful BPM or BPR effort include: better operational efficiency, increased profitability, better customer relations, shorter process-cycle times, lower

[1] Definition of Small- and Medium-sized Enterprises (SMEs) in Australia is any business employing less than 20 people; and 20 or more but less than 200 people for medium business. For further definitions of SMEs, please refer to http://sbdc.gov.au.

operating costs, increased accountability and improved market competitiveness (Ahadi, 2004; Raymond, Bergeron and Rivard, 1998). However, the relative paucity of research that exists in relation to BPM and BPR implementations by SMEs has resulted in the widespread propagation of a false impression, namely the assumption that process-driven optimization frameworks are only applicable to large corporations (Raymond, Bergeron and Rivard, 1998; Riley and Brown, 2001). Despite the prevalence of this assumption, it is evidenced in a few studies that BPM or BPR-informed process optimization techniques can be equally effective when applied to SMEs (for example, Hale and Cragg, 1996; Raymond, Bergeron and Rivard, 1998; Fu, Chang and Wu, 2001; Riley and Brown, 2001). 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.

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 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. This will be achieved by drawing relevance from the innovation diffusion theory to develop the theoretical model. 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 contribution, limitation and recommended further study.

BUSINESS PROCESS MANAGEMENT AND SMALL TO MEDIUM-SIZED ENTERPRISES

It is obvious that the vast majority of SME operators are not aware that process-oriented management frameworks such as BPM can help their businesses attain the aforementioned benefits (see Riley and Brown, 2001). 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 (see Smith and Fingar, 2003). 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 raised much concern with governments and policy-makers worldwide (see Hale and Cragg, 1996; Fu, Chang and Wu, 2001; Riley and 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 and 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 BPR and 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 and Fingar, 2003), but may also create the possibility of a decline in the influence of SME-driven sectors as a whole.

BPM FEASIBILITY AND THE WINE INDUSTRY

The predominance of smaller organizational structures has been noted in a number of industries in Australia and this includes the thriving SME-driven wine industry, which has experienced a threefold increase in export volume over the past five years (ABS statistics, 2005). There are now 242 wineries in Western Australia (WA) and exports have increased by almost 300 per cent in the past five years according to the Australian Bureau of Statistics. The industry, through cellar door sales, complements the hospitality and cultural industries contributing to a dynamic wine tourism industry, which is increasing in importance.

Despite the 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) and the worldwide grape glut (oversupply situation) which is depressing the market value of wine-related products in general. What seem to be needed are some industry-wide strategies 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 optimization 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 the current economic climate of consolidation and cost competitiveness (see Fu, Chang and Wu, 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 and 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 and Sohal, 1990). 'Product quality' of the wine arise 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 lead 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.

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 the current report. Examples include Stuart Orr's studies into the strategic aspects of wine production in Australia (see Orr, 1997; Orr, 1999a; Orr, 1999b) and the implications of collaborative networks and strategic alliances amongst 'competing' wine businesses (Brown and Butler, 1995; Harfield, 1999). Still, due to its importance to the economy, this study is timely for wine businesses in Australia, particularly WA, as it helps companies to gain maturity in the knowledge and skills needed to conduct 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.

THEORETICAL BACKGROUND

There exists a plethora of articles and publications that underscore the importance of an organization's readiness for process-oriented management paradigms. A typical approach would consist of a literature review and/or case study of an organization (or a number of organizations) accompanied by a list of pre-existing conditions that are deemed 'crucial' for any enterprise that is considering BPM adoption (for example, Raymond, Bergeron and Rivard, 1998; Baker and Maddux, 2005). Perhaps the most rigorous methodology, however, has been exemplified in the work of Rosemann and de Bruin, who build upon such preceding prototypes as Pritchard and 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 and 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 be still be discerned in the literature. This consensus relates to the ***organizational characteristics and preconditions that are thought to be necessary for BPM adoption*** to be a worthwhile pursuit and can be summarized in the following list adapted from Baker and Maddux (2005); Hale and Cragg (1996); Harmon (2003); Raymond, Bergeron and Rivard (1998); and Rosemann and 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 organizational 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 organization.

The preceding body of research that has informed the theoretical impetus of the current study can be summarized in Table 1. Please note that label of factors inhibiting the success of process implementation was derived from observations and literature analysis from previous studies. These factors are not ranked in order of importance:

Reference	Area / Domain	Organizational Type(s)	Factors Inhibiting Business Process Implementation
Al-Mashari, M., Irani, Z. and Zairi, M. (2001).	BPR	Large Corporations	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.
Baker, G. & Maddux, H. (2005).	BPM, BPR	Large Corporations	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.
Harmon, P. (2003).	BPM, BPR	Large Corporations	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.
Rosemann, M. & de Bruin, T. (2004).	BPM	Large Corporations and Large Public Sector Organizations	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.
Smith, H. & Fingar, P. (2003).	BPM, BPR	Large Corporations	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.
Spanyi, A. (2003).	BPR	Large Corporations	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.
Raymond, L., Bergeron, F. & Rivard, S. (1998).	BPR	Large Corporations and SMEs	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.
Fu, H., Chang, T. & Wu, M. (2001).	BPR	SMEs	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.
Hale, A.J. & Cragg, P.B. (1996).	BPR, BPM	SMEs	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.
Riley, M.J. & Brown, D.C. (2001).	BPR	SMEs	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 in Large Organizations and SMEs (Not Ranked)

As shown in Table 1, previous studies into the uptake of BPM by SMEs have not revealed significant divergences from larger corporations in relation to the inhibiting factors of such regimens. 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.

METHODOLOGY

The research question and results presented in this paper form a part of a larger study on the main issues in BPM implementation in SMEs. The initial phase of the larger study is reported here, *viz.* field research case study with WA wine organisations. 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 for SMEs. Ultimately, the results from the current phase involving Australian organisations' experiences and perceptions are utilised as input for instrument design of an online survey to be carried out later as confirmatory study.

Research Design

This research adopted a field research approach to the 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. Such qualitative methodology, as employed in the current report, is an excellent way of providing a set of preliminary findings in an emerging area of investigation with few intellectual precedents (Lee, 1989; Yin, 1994). Since the adoption of BPM has rarely been studied in relation to SMEs (Raymond, Bergeron and Rivard, 1998), an exploratory case study methodology seems to be appropriate in this instance. Moreover, there do not seem to be any reports that address the implementation of BPM in the wine industry per se, thus strengthening the justification for the current approach.

However, like other research design, field research has its limitations as it lacks the sound basis required for making "scientific" generalisation and is costly and excessively time consuming (Sarantakos, 1998). In attention to several known potential weaknesses of the case study method (Benbasat , Goldstein and Mead,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 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, each 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.

Sampling and Data Collection Procedure

The researcher spent over four months on the field study at the WA wine regions in 2005. The target participants are selected from the Ray Jordan's Wine Guide to WA (2004 – 2005) as it consist 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 to wine industry, and the benefits attached with the understanding of the study area attached, to solicit participation of the study. Appointments of interviews were then arranged after the companies responded our email with interest. Data collected during the field research are primarily from owners or senior executive of a SMEs, using case study method and face-to-face interviewing technique to address the research questions of the study. The interviews consist of representatives from SMEs in WA that derive at least a significant proportion of their revenue from activities related to wine production or wine sales. During the face-to-face meeting, the perception of the participants about the recent changes with 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 instantiate the candidate inhibiting factors identified from the literature review.

Reliability and Validity Issues

Reliability was enhanced through the use of a detailed case protocol and a structured case database. As stated before, all relevant data (interview transcripts, research memos, sample process models, documented modeling guidelines, etc.) were maintained in a 'case database' (Yin, 1984; Mile and 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 utilized during this phase to capture, code and report the findings of the case study. Construct validity was strengthened within the study through the use of multiple sources of evidence, establishing a chain of evidence with a well-structured case database, and by 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 analyzed further.

Data Analysis Procedure

The questions utilized in the semi-structured interviews are 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 can thus be ascertained by two means: the number of interviewees that cite each factor and the level of qualitative emphasis that is 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. There were ten case studies conducted in WA. These SMEs wine companies are labelled as Company A to J to assure confidence on the identity of the participating firms (as shown in Table 2 below).

Interview	Co.	Size Category	Participant	Brief Background
1	A	Medium Business	CFO	This company incorporates the 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.
2	B	Medium Business	CEO	This firm is a self-sufficient wine producer and wine and grape exporter, with 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 HACCP accreditation and is ISO 9001:2000 compliant in its wine-making processes.
3	C	Small Business	MD	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.
4	D	Small Business	MD	This company was founded in 1978. It employs a creative method of growing grapes that is 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 US, 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.
5	E	Small Business	MD	This firm is comprised of 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 US. Forecast revenue is $1.5m.
6	F	Small Business	MD	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, but there is no wholesale or local distribution in WA. Sales within the state take place via cellar-door arrangements, a few exclusive bottle shops in Perth and a top restaurant.
7	G	Medium Business	CEO	The wine division of Company G has 15 staff with the remaining 65 staff employed in the accounting division. Wine staffs 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 US and Asia.
8	H	Small Business	MD	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.
9	I	Medium Business	MD	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 on labor and transportation, but has 56 full-time staff. Wine exports are currently directed towards the US, UK and Europe.
10	J	Small Business	MD	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 thus far. Forecast revenue is $1.4m.

Table 2. – Case Study Participants

The ten 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 as shown in Table 2. The designations of the ten interviewees within their respective companies are also reported in the following table:

RESULTS

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 summarized in the following list. For more description on the listed factors below, kindly refer to Fu, Chang, and Wu (2001); Hale and Cragg (1996); Raymond, Bergeron, and Rivard (1998); Riley and 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.

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 are ten interviewees, the maximum number of citations per inhibiting factor is also ten. The factors are ranked in descending order, such 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 by SMEs in the Western Australian Wine Industry (in Ranked-order)

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 (see Hale and Cragg, 1996; Fu, Chang and Wu, 2001; Riley and Brown, 2001) with one SME firm housing as many as 250 employees (see Riley and Brown, 2001). Furthermore, an examination of the staffing levels of the WA wine companies that participated in the current report 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 that were sampled for the current study are 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 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.

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, four of the ten 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, Bergeron and Rivard, 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-organizational 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.

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*. Four of the ten 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 and 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 utilize "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 or BPR initiatives (Hammer and Champy, 1993) by reshaping, automating, designing and managing process and strategy for the organisation. Its role in optimising business process 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 and Cheung, 2000; Spathis and 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 organizational culture are integral for the successful transition.

Poor Knowledge of Process-Oriented Approaches

As could be expected, a *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 (see Raymond, Bergeron and Rivard, 1998; Riley and Brown, 2001). Three of the ten 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 and Fingar, 2003). A sound knowledge of process-oriented optimization 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 eight of the ten 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 [is] 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".

The Absence of Known Inhibiting Factors

On the first inspection, findings of this study seem to differ markedly from the findings of previous studies. 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 on the SMEs in general industries (*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 report 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. 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 in 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 prioritized. 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 study.

DISCUSSION

The Constraints of Small Business Operations: Implications for Research Design

One of the most important contributions of the current report 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 studies (for example, Hale and Cragg, 1996; Raymond, Bergeron and Rivard, 1998; Fu, Chang and Wu, 2001; Riley and Brown, 2001). As mentioned previously, this discrepancy is probably a result of the fact that firms participating in the current report 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 and Cragg, 1996; Raymond, Bergeron and Rivard, 1998; Fu, Chang and Wu, 2001; Riley and 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 report.

It is important to note the likelihood that BPM implementations in wine industry are under-reported and merit further investigation. Indeed, the construct of 'firm size' may serve as an independent variable, correlative element or factor analytic dimension for future research, such 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).

Contributions to BPM Research

It has long been recognized 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 report highlights this fact on a 'micro' level and with considerably more depth overall. Previous studies into BPM initiatives by SMEs have tended to emphasize 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 (see Hale and Cragg, 1996; Raymond, Bergeron and Rivard, 1998; Fu, Chang and Wu, 2001; Rileyand 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 organizational 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 practicing 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.

Contributions to Industry Practice

On a practical note, the current study has served to emphasize the fact that the wine production sector of WA constitutes an 'emerging industry', with all the unique problems and challenges that characterize such a community (see 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 optimization frameworks like BPM must be adopted if firms are to sustain enough long-run cost reductions to enjoy a sustainable future, but 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 US and New Zealand wine industries (see Brown and Butler, 1993; Harfield, 1999). If a 'collaborate to compete' model can be adopted in the WA wine industry and various inter-organizational networks can be exploited, then issues such as a lack of time or lack of financial resources may dissipate and BPM be then undertaken with greater ease and efficacy.

Another way in which the current report 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 realize 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 optimizing. 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 that the streamlining of operational processes is automatically irrelevant to their concerns. On a related topic, the current report 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 desires to utilise BPM to achieve 'quality' production and in becoming a world-competitive company. 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.

CONCLUSION: LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The most obvious limitation from the finding is related to the sample of 10 interview participants investigated in the study. It is impossible to discern whether the findings can be generalized to the entire wine industry. 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 point in time. The coding technique utilized in the data analysis phase has been derived from a qualitative procedure and can thus be subjected to all the familiar complaints of 'analytical biases' that seem to apply to many hermeneutic or interpretive activities (see Yin, 1994). Nonetheless, this limitation must be seen in the context of the exploratory purpose of the current report. The issues that have been identified are exploratory findings that can be studied with a more precise and quantifiable hypotheses 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 this 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 companies of 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 organizational 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 this 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 such as this would be beneficial to the development of BPM theorems while input from cross-disciplinary fields such as organizational economics and corporate governance would be beneficial in a holistic sense.

REFERENCES

Ahadi, H.R. (2004). An examination of the role of organisational enablers in business process reengineering and the impact of information technology, *Information Resources Management Journal, 17(4)*, Oct – Dec. 1-19.

Al-Mashari, M., Irani, Z. and Zairi, M. (2001). Business process reengineering: A survey of international experience. *Business Process Management Journal, 7(5),* 437-455.

Baker, G. & Maddux, H. (2005). Enhancing Organizational Performance: Facilitating the Critical Transition to a Process View of Management. *S.A.M. Advanced Management Journal*, *7(4)*, 40-60.

Benbasat, I. Goldstein, D.K. and Mead, M. (1987) The case research strategy in studies of Information Systems, *Management Information Systems Quarterly, 11(3)*, 369-386.

Brown, B. & Butler, J.E. (1995). Competitors as allies: A study of entrepreneurial networks in the U.S. wine industry. *Journal of Small Business Management, 33(3)*, 57-66.

Brownless, C. (1993). The winemakers, *Work and People*, *14*, 26–33.

d'Hauteville, F. (1994). Consumer acceptance of low alcohol wines, *International Journal of Wine Marketing*, *6,* 35-48.

Daniel, E.M. & Grimshaw, D.J. (2002). An exploratory comparison of electronic commerce adoption in large and small enterprises. *Journal of Information Technology, 17*: 133-147.

Duval, J. (1993). And how does it get there? *Quality Australia*, October/November, 23-28.

Dwyer, W. (1992). *An analysis of the Australian wine exporter*, University of Western Sydney, Discussion Paper Series No. E9208.

Forbes, J.D. and Spawton, A.L. (1995) *Risk Management in the Australian wine industry*, Office of Research, University of South Australia.

Fu, H., Chang, T. & Wu, M. (2001). A case study of the SME's organisational restructuring in Taiwan. *Industrial Management & Data Systems, 101(8/9)*, 492-501.

Gartner EXPPremier (2005) *Delivering IT's Contribution: The 2005 CIO Agenda*. Gartner, January.

Hale, A.J. & Cragg, P.B. (1996). Business process re-engineering in the small firm: A case study. *INFOR, 34(1)*, 15-28.

Harfield, T. (1999). Competition and cooperation in an emerging industry. *Strategic Change, 8(4)*, 227-234.

Hammer, M., and Champy, J. M. (1993) *Reengineering the corporation: a manifesto for business revolution*. London: Nicholas Brealey Publishing, Allen and Urwin.

Harmon, P. (2003). *Business Process Change: A Manager's Guide to Improving, Redesigning, and Automating Processes*. San Francisco: Morgan Kaufmann.

Lamont, J. (2006). BPM: from the user's perspective. *KM World, 15 (1)*, 14-15.

Lee, A, (1989). A scientific methodology for MIS case studies, *Management Information Systems Quaterly*, March, 32-50.

Martin, I. and Cheung, Y. (2000) SAP and business process re-engineering, *Business Process Management Journal, 6(2)*, 113-121.

Orr, S. (1997). Technology and process management in the Australian wine industry. *Benchmarking for Quality Management & Technology, 4(1)*, 18.

Orr, S. (1999a). The role of quality management in manufacturing strategy: Experiences from the Australian wine industry. *Total Quality Management, 10(2)*, 271-279.

Orr, S. (1999b). The role of capacity management in manufacturing strategy: Experiences from the Australian wine industry. *Total Quality Management, 11(1)*, 45-53.

Raymond, L., Bergeron, F. & Rivard, S. (1998). Determinants of business process reengineering success in Small and Large Enterprises: An Empirical Study in the Canadian Context. *Journal of Small Business Management, 36(1)*, 72-85.

Riley, M.J. & Brown, D.C. (2001). *Case Study of the Application of BPR in an SME Contractor. Knowledge and Process Management, 8(1)*, 17-28.

Rosemann, M. & de Bruin, T. (2004). Application of a Holistic Model for Determining BPM Maturity. *Proceedings of the AIM Pre-ICIS Workshop on Process Management and Information Systems* (Actes du 3e colloque Pre-ICIS de l'AIM). Eds. J. Akoka, I. Comyn-Wattiau, M. Favier. Washington, D.C., 12th December 2004, 46-60.

Samson, D.A and Sohal, A. (1990). The strategic status of quality: An Australian perspective, International *Journal of Technology Management, 5*, 29-42.

Sarantakos, S. (1998) *Social Research*, 2nd edition, MacMillan, Melbourne.

Smith, H. & Fingar, P. (2003). *Business Process Management: The Third Wave*. Tampa: Meghan-Kiffer Press.

Spanyi, A. (2003). Enabling execution: trade in that old, functional mind-set for a more contemporary, business process views of thinking and acting. *Strategic Finance,* 5, August.

Sparthis, C. and Constantinides, S. (2003). The usefulness of ERP systems for effective management, *Industrial Management and Data Systems, 103(9)*, 677-685.

WinterGreen Research (2004) *Business Process Management (BPM) Market Opportunities, Strategies, and Forecasts, 2004 to 2009*. Report # SH29821352.

Yin, R.K. (1994). *Case Study Research: Design and Methods (Second Edition)*. London: Sage.

Zhao, (2004). Management of information technology and business process re-engineering: a case study, *Industrial Management and Data Systems,104 (8/9),* 674-680.

ACKNOWLEDGEMENTS

Acknowledgements should follow the references. Do not start a new page. This document was adapted from the ACIS 2005 Instructions, which were an extension of the ACIS 2004 instructions, much of which was adapted from the ACIS 2003 and ACIS 2002 Instructions, which were based on the ACIS'98 Instructions (which was adopted from ACIS'97 Instructions). These in turn were adapted from an "Instructions for Authors" written by Roger Clarke.

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