

# **An Exploratory Study of Australian Agribusiness Organisations and Their Selection of E-Business Models for Conducting B2B E-Commerce**

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## **Abstract**

The increasing importance and complexity of selecting appropriate e-business models has seen the need to develop a framework to assist businesses in this process. Through depth interviews and case studies, this paper explores the behaviour of Australian agribusiness organisations in their choice of e-business models for conducting B2B e-commerce. The results show that the choice of model is a complex multi-stage process.

Author post-print of:

Ng, Eric and Lawley, Meredith and Summers, Jane (2004) *An exploratory study of Australian agribusiness organisations and their selection of E-Business models for conducting B2B E-Commerce*. In: 2004 Inaugural Academy of World Business, Marketing and Management Development Conference, 13-16 July 2004, Gold Coast International Hotel, Queensland, Australia.

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## **Introduction**

E-business continues to be of increasing importance and has played a significant role in the business-to-business segment where e-business has grown significantly (NOIE 2000) and is expected to reach US\$2.4 trillion worldwide by the year 2004 (eMarketer 2002). This trend has resulted in many organisations conducting their business activities in the electronic environment (Cunningham & Froschl 1999) and requires existing business models to be rethought to reflect the transformation required by organisations to take advantage of this environment (Barnes & Hunt 2001). The increasing adoption of e-business by organisations both worldwide and in Australia and the resulting lack of empirical research into issues related to the adoption of e-business models have resulted in the need to develop a framework to assist agribusiness in selecting appropriate B2B e-business models. Agribusiness organisations worldwide have capitalised on the many advantages of e-business to improve the marketing of their products (Allen Consulting Group 2000). In Australia, the agribusiness industry is regarded as a major contributor to the economy and this is particularly evident in Queensland, where it accounts for one-third of exports and employs over 80,000 people (Queensland Government, Department of State Development n.d.). The high reliance on accurate and timely information (such as weather and stock information) and large physical distances between producers and customers in this industry, have supported the rapid adoption of e-business by agribusinesses (Allen Consulting Group 2000). This exploratory research will *develop a preliminary framework for Australian agribusiness organisations seeking to select B2B e-business models.*

## **Literature review**

The choice of B2B e-business model is one of many strategic decisions that organisations make when conducting business activities in the e-business environment. The literature on strategic decision making and the development of B2B e-business models does not adequately address the many complexities facing today's agribusiness organisations considering e-business initiatives. The available literature addresses how organisations should make strategic decisions (Gulati, Nohria & Zaheer 2000), and the detail and development of e-business models (Timmers 1999; Wise & Morrison 2000) but the two disciplines have not been combined. Further, practical issues (such as resources availability, technology infrastructure and knowledge required) that impact such decisions, specifically for agribusiness organisations, have also not been addressed. In developing the framework, organisations need to have a good understanding of the types of models available for adoption. While there is no single unique classification system for the types of B2B e-business models available (Rappa 2001; Timmers 1999), B2B e-business models have been classified into four generic categories: merchant models (online storefront); manufacturer models; the buy-side model; and brokerage models (procurement portal, mega-exchange, distribution portal, e-speculator, solution provider, sell-side asset exchange, specialist originator) (Timmers 1999; Rappa 2001). Each of these models has different functional characteristics resulting in different models being more or less applicable to particular industries or markets. In addition, the focus of these models varies from buyer centric (such as the buy-side model) to supplier centric

(such as the manufacturer model) with some being neutral (such as the mega-exchange model). Based on these four categories, a recent study has identified 10 specific e-business models (see Table 1) as being used for conducting B2B e-commerce in the agribusiness industry (Ng 2002).

In addition to the types of models, many factors are known to influence the strategic decision making process of organisations, for example organisations that are competent in allocating *available resources* are likely to achieve significant savings, cost effectiveness and to improve productivity (Perrott 1997; Behrendorff, Goldsworthy, Corbitt & Perks 1996), while organisations that are equipped with adequate *technological infrastructure and knowledge* can reduce high procurement costs and ensure smooth receipt or delivery of materials and services that expedite the completion of business transactions (Behrendorff et al. 1996; Kalakota & Robinson 1999). The choice of e-business model is a strategic decision as the model chosen will form the framework for the organisation to pursue its business activities and also affects an organisation's overall strategic direction (Nwachukwu 2002; Malhotra 2000). The factors influencing the choice of e-business models can be classified as either internal or external (Papadakis, Lioukas & Chambers 1998). Of the 16 factors identified in the literature, recent research highlighted nine (see Table 1) as important (Ng 2002).

*Resources available and technological infrastructure and knowledge* were important in determining an organisation's capability to develop and support the selected e-business model. *Target market segment and market scope* were also important since customers' needs in different target market segments must be met with specific models. It was also critical that organisations select models that appropriately represented their intended *market position*. Organisations were not only expected to select models that matched the *nature of the products or services* they offered, but also attempted to align the adopted models to their *on and off-line marketing strategy and objectives* to better achieve their overall marketing goals (such as building customer relationship). An *understanding of e-business models* was essential for organisations to be able to determine the suitability of the model to be adopted. Finally, the *types of organisation and business strategy* adopted were important in setting the basis for the models to be adopted in order to achieve overall strategic goals. On this basis, research was conducted to explore the practical and operational issues concerned with selecting an e-business model.

### **Stage one: Depth interviews**

Initially, six depth interviews with e-business experts were undertaken to explore general issues associated with homogeneity within the agribusiness sector as well as potential frameworks. The findings confirmed the 10 models identified in the literature were used for conducting B2B e-commerce where five models (the procurement portal, manufacturer, mega-exchange, online storefront and distribution portal models) were more commonly used than the others (the e-speculator, solution provider, buy-side, sell-side asset exchange and specialist

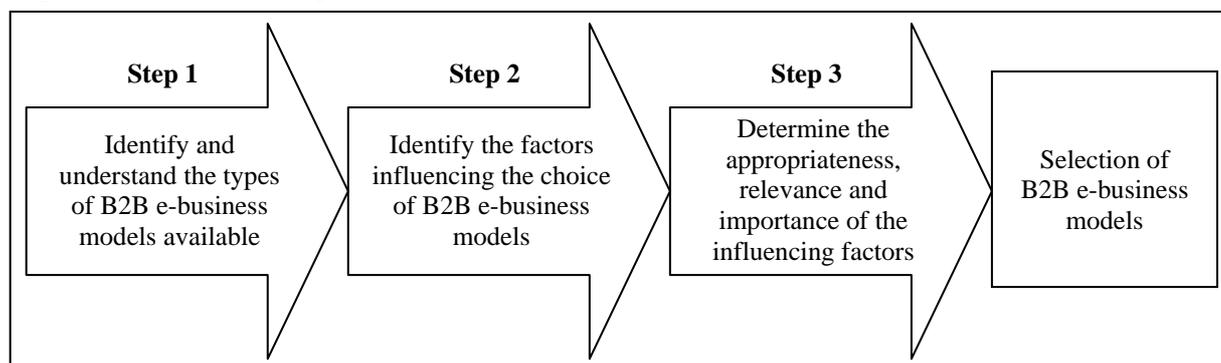
originator models). The results also revealed support for the 16 factors identified in the literature as potential influencing factors to the choice of models with the most frequently mentioned influencing factor being the type of industry and the least important, environmental factors. Furthermore, potential differences within agribusiness based on industry sector and organisational size were highlighted. These findings were then further investigated in stage two of this research to determine if different frameworks were needed by individual sector (grain and cotton) and organisational size (large enterprise and SME).

### Stage two: Case studies

The second stage of this research used case studies to confirm or disconfirm the preliminary findings. Six cases in the grain (3) and cotton (3) sectors with large (3) and small medium (3) enterprise organisations that were either intending to conduct, or who were currently conducting, B2B e-commerce were selected judgements. Two interviews were conducted for each case with the managing director or equivalent and a middle level or operational manager.

Findings suggested that selection of a B2B e-business model requires agribusiness organisations to go through a series of steps prior to making their decision (see Figure 1). Furthermore, each step requires an awareness and knowledge of a range of factors (see Table 1) that allow organisations to assess the relevance and applicability of the information used to assist the decision. In supporting the complexity of this process, a respondent commented that *“It is a complicated process that requires extensive planning and understanding on the various steps involved”*. The results showed no significant variation in opinions by industry sector or by organisational size.

Figure 1: The selection process of B2B e-business models



Source: developed for this research

Agribusiness organisations (regardless of sector and size) usually begin the selection process with the identification of the types of e-business models available for conducting B2B e-commerce (step 1). During this step, organisations identify and acquire adequate understanding of the different types of e-business models available (such as features and characteristics) so that considerations could be made to match the organisation’s goals and needs with the nature of these models (see Table 1). Through this, organisations could ensure

that they were aware of all the models available. This research identified and investigated 10 relevant e-business models, whilst only seven of these models (see Table 1) were subsequently identified by respondents as commonly used in the agribusiness industry. The remaining three models were not commonly adopted since they were complicated in nature and hence inappropriate for most of the agribusiness industry, which was relatively new to the e-business concept.

Once aware of the e-business models available for conducting B2B e-commerce and their characteristics, agribusiness organisations then indicated that they needed to make a decision to adopt a particular model by considering the impact of a range of internal and external factors (steps 2 and 3). In step 2 of the selection process, organisations identified a list of potential factors (both internal and external) that they would consider when evaluating models. This stage was seen to be quite important as indicated by one respondent where he commented that “*We can’t simply choose a model without knowing what (factors) will affect our decision*”. With the list of influencing factors identified (step 2), organisations indicated that they would then seek to evaluate each of the factors and determine their relevance and importance (step 3). The findings suggested organisations make their choice of model(s) after considering a combination of factors rather than any one single dominant factor and further that the level of importance of the influencing factors differs between organisations and situations.

Table 1: Guidelines on factors affecting the types of B2B e-business model

<i>Factors / Models</i>	<i>Online storefront*</i>	<i>Manufacturer model*</i>	<i>Buy-side model*</i>	<i>Distribution portal*</i>	<i>E-speculator*</i>	<i>Mega-exchange*</i>	<i>Procurement portal*</i>	<i>Sell-side asset exchange</i>	<i>Solution provider</i>	<i>Specialist originator</i>
<b><i>Resources required</i></b>										
High		✓	✓		✓					✓
Medium	✓			✓			✓	✓	✓	
Low						✓				
<b><i>Target market segment and market scope</i></b>										
Diversified / global	✓	✓	✓	✓		✓	✓			
Specific / niche market					✓			✓	✓	✓
<b><i>Nature of products or services</i></b>										
Commodity	✓	✓	✓	✓		✓	✓	✓		
Real-time information services / Digitised	✓				✓					
Complex / Specialised / value-added									✓	✓
<b><i>Technological infrastructure &amp; knowledge required</i></b>										
High					✓			✓	✓	✓
Medium	✓	✓	✓	✓			✓			
Low						✓				
<b><i>Level of selected e-business model understanding</i></b>										
High					✓			✓	✓	✓
Medium	✓	✓	✓	✓			✓			

Low						✓				
<b>Types of organisation</b>										
SME	✓			✓	✓	✓	✓	✓	✓	✓
Large enterprise	✓	✓	✓	✓	✓	✓	✓	✓		
<b>Types of possible business strategy pursuing</b>										
Joint venture / cooperative arrangements				✓		✓	✓	✓		
Concentric diversification	✓			✓	✓				✓	✓
Product / market development	✓				✓	✓			✓	✓
Focused differentiation									✓	✓
Corporate control		✓	✓							
<b>Potential on &amp; off-line marketing strategy &amp; objectives pursuing</b>										
Increase bargaining power, cost reduction				✓			✓			
Increase awareness, branding and image						✓		✓		
Enhance customer / business relationship	✓	✓	✓	✓	✓			✓		
Product / service customisation or differentiation									✓	✓
Channel disintermediation		✓	✓							
<b>Possible market perception</b>										
Innovative				✓			✓	✓		✓
Modern / technological advance	✓				✓	✓		✓		✓
Market nicher									✓	
Market leader		✓	✓							

\* Models commonly used in the agribusiness industry.

Source: developed for this research

In view of this complexity, guidelines were developed (see Table 1) to assist organisations to assess and determine the relevance and applicability of the influencing factors in relation to their choice of model(s) to be adopted. The factors in bold in first column (in Table 1) with levels or options could potentially help organisations to better understand and match their needs and adopted the appropriate model. For example, the level (high, medium or low) of technological infrastructure and knowledge required would impact an organisation's choice of e-business model since some models (such as the e-speculator model) were more complicated and require a higher level of knowledge than other models (such as the mega-exchange model).

This result is evident in the response where one respondent stated “*I don't think the choice will be affected by one factor, usually we have to consider a combination of factors. We also have to prioritise according to their level of importance*”. Thus, the findings of this research suggested that it is essential to incorporate the consideration of this combination of factors and for each organisation to determine the relevance and significance of these influencing factors in the guidelines (see Table 1) for their selection of B2B e-business models. In acknowledging this, agribusiness organisations can then take appropriate actions (such as resources allocation and business strategy to be adopted) according to the influencing factors and determine the suitability of the e-business model to be adopted. For example, an organisation with limited resources might choose to adopt the mega-exchange model since this model is

usually operated by a third-party, which greatly reduces establishment and maintenance costs incurred by the organisation. On the other hand, an organisation pursuing a defensive strategy (such as a joint venture) might attempt to adopt the sell-side asset exchange model as this model enables organisations to work in a form of partnership that allows them to swap orders among themselves.

### **Summary, conclusions and implications**

In conclusion, this paper has provided insight into the current practices of Australian agribusiness in relation to the selection process of e-business models for conducting B2B e-commerce. From the literature and the findings, guidelines have been developed to assist agribusiness organisations in the e-business model selection and the likely impact of each factor (internal and external) on each type of B2B e-business model is considered (see Table 1). The guidelines can assist agribusiness organisations to determine the level of resources, technological infrastructure and knowledge and the understanding of e-business models, required. Furthermore, agribusinesses can also use the guidelines to help evaluate their business and marketing strategies in relation to the appropriateness of the various models available for adoption. The guidelines can also provide indications of the type of models suitable for specific situations. For example, organisations with substantial resources that seek ultimate control and long-term relationships might choose to adopt either the manufacturer or the buy-side model as these models would be managed by the organisations themselves and give the ability to work closely with business partners. The steps that organisations take when selecting an e-business model and the information requirements of each step can be used as a checklist for agribusiness organisations. Since this study is exploratory, further conclusive research is required for generalisation and the guidelines developed in this study should also be tested in other industries.

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