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PARTNERING ONLINE: DEVELOPING A VALUE FRAMEWORK FOR E-TAILERS

Mini dissertation prepared in partial fulfilment of
the requirements for the Master of Commerce
Degree in Information Systems

Prepared by: Ian Munro, Information Systems
student, University of Cape Town

Prepared for: The Department of Information
Systems, University of Cape Town

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PREFACE

This research paper is not confidential.

I would like to thank Doctor Paul Licker, my supervisor in the Information Systems Department at the University of Cape Town, for his assistance throughout this research. I would like, especially, to thank Doctor Licker for his persistent encouragement during both the coursework and dissertation components of the Masters program.

I certify, except as noted above, that this research paper is my own work and all references are accurately reported.

Signed by candidate

Ian Munro

31 October 2002

SYNOPSIS

This research aims to develop a framework within which to analyse and discuss the “e-tailing partnership” – a “horizontal” partnership model in which e-tailers promote, sell and even bundle one another’s goods in a mutually beneficial partnership.

At the core of the framework is the concept of “value”. The research draws on marketing theory to structure value into a “value block” which enables firms to quantify gains or losses in e-tailing projects.

The paper discusses e-tailing partnerships within the value block framework. The partnership contract and the distribution of value between partners are both analysed. Design requirements for theoretical partnering systems are deduced and reported. Risks and implications for related systems are considered. Finally, three commercial software candidates are empirically evaluated in terms of the partnership models presented.

From this research it is apparent that the e-tailing partnership is worth serious contemplation and may prove to be a significant business model for firms in the New Internet Economy.

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CHAPTER 1

THEORY

Consider a world where online retailers routinely sell and cross-sell one another's products. Seamless integration means that shared products are promoted, discounted and sold through both partner's websites.

Consider further that online partnerships between retailers are rapidly created when opportunities arise and are speedily destroyed when the partnerships are no longer valuable.

Finally, consider a world where "value" is a term well understood by Internet retailers, and where partners have a reliable way of determining whether partnerships are, in fact, worthwhile or not.

This world is the inspiration for this research.

1.1 Introduction

Whilst the world described above is not yet a reality, this dissertation serves as a starting point for discussions. Harreld (2001) talks about "hyperpartnerships" as dynamic Internet-enabled partnerships between businesses. This research investigates hyperpartnering amongst online retailers, introducing frameworks and concepts to spark debate and encourage further research in the area.

Only about 3% of the millions of visitors that a site may receive actually make purchases (Betts, 2001). Still, website visits can be valuable to retailers even if they do not result in purchases. Consumers may need to make four or five visits to a website before they decide to purchase (Moe et al, 2000). In addition, websites can provide information that leads to purchases through other, more traditional channels, and a web presence can add to brand strength (Sterne, 1995).

Whilst one can argue that e-tailing sites are valuable beyond simple sales revenue, this value is difficult to identify and quantify. A major goal of this paper is to put forward a value-driven case for e-tailing partnerships. To support this case, a thorough analysis of value is carried out.

The value chain concept has been borrowed from management literature and has been applied to e-tailing by Treese and Stewart (1998). It is prominent in this paper as a means to motivate e-tailing partnerships, and is also the starting point for the development of a “value block” that may be used to value online efforts. The value block, partnership contract and partnership enabling information system are the central themes throughout this research, which is ultimately aimed at furthering interest in and understanding of e-tailing partnerships.

1.2 The topic – e-tailing partnerships

The concept of e-tailing – selling goods and services to customers using the Internet as a sales channel, has sparked many new and diverse business models over the past few years (Barabino et al, 1994). Yet another new business model, the “e-tailing partnership”, is the topic of this paper.

Anyone who has purchased physical goods online will know that online marketing and sales, online payments and physical deliveries are not new to e-tailers. They already have access to generic e-business software that enables them to perform marketing and sales functions through a website, that plugs into online payment systems, and that interfaces with fulfilment (delivery) systems. The main focus of this paper is, however, the partnership itself.

In order to keep discussions focused, the paper analyses a very specific form of the e-tailing partnership business model. This form involves two e-tailers, each with physical products that are purchased by customers online. Customers pay for the products using an online payment method and take physical delivery of their products at a chosen delivery address. This research explores the opportunities for e-tailers to market, sell, accept payment for and deliver their goods in partnership with one another.

The first major task of this research is to put forward a compelling value-driven case for the implementation of partnerships in e-tailing. Drawing from Treese and Stewart's (1998) online value chain, the "value block" (explained in detail in Chapter 2) is presented as a framework for predicting and measuring value realised by online retailers. Stemming from the value block, the "fund transfer grid" is proposed as a mechanism to distribute partnership-related value between the partners. Both of these are seen as fundamental in facilitating the e-tailing contracting process, thus the contract itself and contracting mechanism both fall into the scope of this paper. The market for partnership contracts is also closely analysed and various outcomes are simulated.

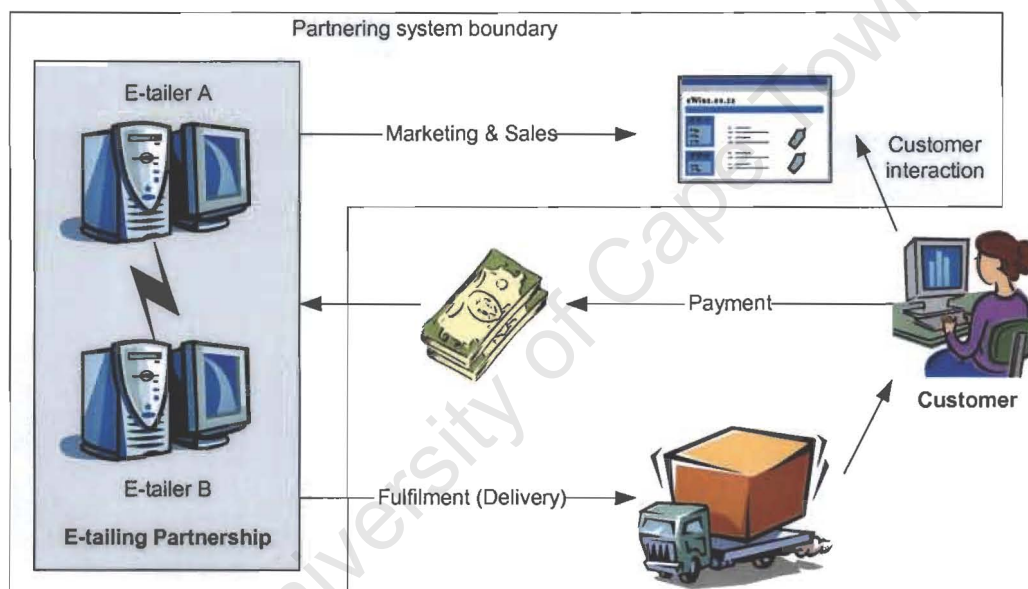


Figure 1-1: Topic scope – the e-tailing partnering system

The scope of this research is the partnering system. Figure 1-1 shows, in a very simplified manner, the relationships between the partnership and the customer. It is shown to encompass the partners, their marketing and sales efforts, the website interface and customer interaction with the site. This paper covers the partnership between e-tailers, including its nature, system design requirements and risks.

The partnering system's interfaces with, and impact on payment and fulfilment systems are also discussed. Because of limits on the length of the paper, treatments of payment and fulfilment systems are, however, fairly brief.

1.3 Research proposition

This research proposes to do three things.

1. Motivate, introduce and develop a framework within which to discuss e-tailing partnerships
2. Discuss and develop new concepts and ideas associated with the framework
3. Show the relationship between the theoretical framework and reality through empirical evaluations of commercial software, showing how each software candidate supports or does not support the concepts presented in previous chapters

Whilst a portion of this paper is empirical, it does not contain formal hypotheses. If it were to contain formal hypotheses, there would be a commitment to either prove or disprove them. However, we are not at a stage in the development of these concepts in the real world to test any hypotheses relating to the actual use of e-tailing partnerships. The major purpose of the research is to motivate, introduce and develop a framework within which to discuss e-tailing partnerships and to raise technical and business issues and to provoke debate on these issues. The most interesting parts of this discussion are theoretical. Such systems do not exist commercially and thus meaningful commercial testing will only be possible in the future. Conceptual testing, such as simulation of partnerships, is possible, but the concepts require further refinement and collaboration before test results become dependable.

In this research, new concepts are proposed and developed within the constructed framework. Hypothetical examples are used as tools for augmenting understanding of concepts. Discussion surrounding each example serves to substantiate the existence and correctness of related concepts. This is the second goal of this research – to discuss and develop new concepts and ideas associated with the framework.

Finally, an empirical component is included with the purpose of linking the theories to reality. This is not done so that readers can say, "Yes, the framework is correct" or "No, the concepts are false". Through the empirical section, readers will be shown how the new ideas tie in to and extend current software trends, enabling readers to formulate their own ideas, expand this research and further bridge the gap between theory and reality.

1.4 Research value

The importance of this topic is highlighted by Hammonds (2001): "The defining organisation (in the New Internet Economy) will be a porous network of partnerships". Internet partnerships are becoming increasingly commercially significant and Harreld (2001) agrees with Hammonds, stating that companies "must be poised to react to business opportunities at Internet speed, forming partnerships and executing (transactions) in seconds..."

This research looks specifically at e-tailing partnerships. Established business to consumer companies have set out to take advantage of the Internet and have found it to be "far more difficult and potentially destabilising than they had anticipated." (Willcocks et al, 2001) There has been fairly extensive research into online retailing, but concepts such as "value" still require much development and refinement in terms of how they apply online.

This paper scrutinises a very specific model, but the value of the analyses and discussions contained herein lies in their potential to spark debate, both in their own relatively small sphere and in related partnership and online scenarios. The frameworks and concepts presented are not developed to a point where they can be easily tested, but they do form bases for further discussion and research in both academic and commercial settings.

1.5 Overview of chapters

CHAPTER 2: LITERATURE REVIEW AND FRAMEWORK DEVELOPMENT

This chapter identifies the research framework and defines many of the components that are used in the development of theoretical models. It presents a detailed review of relevant literature, focussing on how this literature supports and substantiates theories developed in the chapter. Topics include current e-tailing models, the e-tailing partnership value proposition, development of the value block and fund transfer grid, and finally a discussion of partnership contracts and a theoretical market for these contracts.

CHAPTER 3: SYSTEM DESIGN

Chapter 3 extends the ideas in Chapter 2 by considering the requirements for e-tailing partnerships in the context of the proposed value block framework. Both data and user interface requirements are discussed, as well as further design challenges and limitations.

CHAPTER 4: RISK ANALYSIS

Chapter 4 segments risks associated with e-tailing partnerships. The major focuses are the risk of not achieving the value proposition in Chapter 2 and the risks associated with large-scale integration of systems.

CHAPTER 5: EMPIRICAL TESTS AND FURTHER RESEARCH

Chapter 5 outlines the possibilities of empirical testing and further research. The chapter is structured so that it considers topics in the same order as they are developed in the previous chapters.

CHAPTER 6: EXTENSIONS AND IMPLICATIONS OF THE MODEL

Chapter 6 shows the implications of this research for new business models, for search engines and shopbots, for payment and fulfilment mechanisms, and for branding and marketing theory. Non-partnership applications and implications are also discussed.

CHAPTER 7: EVALUATIVE FRAMEWORK

Chapter 7 formalises the requirements from Chapter 3 into an evaluative framework that can be used to gauge how close existing systems are to meeting e-tailing partnership specifications. The purpose of this chapter is to relate previously discussed theoretical concepts to real-world commercial software, thus facilitating debate in both the academic and commercial arenas.

CHAPTER 8: CONCLUSION

Chapter 8 draws theoretical conclusions based on the previous chapters.

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CHAPTER 2

LITERATURE REVIEW AND FRAMEWORK DEVELOPMENT

The literature found in this chapter has many origins. The first section (2.1 The research framework) is devoted to identifying those origins. The second section (2.2 Components of theory) serves the purpose of focusing attention and reducing the scope for ambiguity in the remainder of the paper.

Sections 3 to 13 are devoted to the development of an e-tailing value framework, substantiating theory by referencing and reviewing pertinent literature. New concepts and ideas connected to the e-tailing value framework are also introduced, discussed and validated with references to relevant material.

2.1 The research framework

The research presented in this paper stretches across many fields of study. The books, articles and research papers on which the arguments presented are based are drawn from the domains of Information Systems, Information Technology, Management Science, Marketing, Economics and the hybrid Information Systems Economics, labelled “Webonomics” by Evan Schwarts (1997).

The Information Systems and Information Technology sources are drawn from literature covering Internet-business related topics. These include both technology-focused topics and behavioural topics as they can be applied either narrowly to the World Wide Web (in the most focused readings) or broadly to the entire Internet and related technologies. Often Internet transactions are broadly grouped under the heading e-commerce. In recent literature, however, there is a tendency to approach the broader topic of e-business, which includes both e-commerce and e-marketing. These and other “e-concepts” are discussed in the following section.

Management related subjects are also a major contributor to this research. A large portion of the management theory examined is devoted to both financial and marketing strategy formulation and decision-making.

The traditional marketing arena has been reshaped by the advent and explosion of the Internet. This research draws on traditional, as well as, cutting-edge marketing theories about what the “Web” has to offer corporations, both large and small.

Finally, the field of Economics provides partnership theories that impact strongly on this research. Game Theory, specifically, plays an important role in predicting the formulation of contracts in even the most frictionless of commercial environments.

2.2 Components of theory

This section serves to describe or define the concepts that are central to a meaningful discussion of online retail partnerships. For easy reference, the list is ordered alphabetically. Where the logical thread is not alphabetical, some definitions may employ terms defined elsewhere in the list. These cases are cross-referenced appropriately.

2.2.1 Branding

Branding is the act of creating, maintaining, protecting and enhancing product or service brands. Consumers view a brand as an important part of a product, and branding can add value to a product (Kotler et al, 1999).

2.2.2 Bundling

Bundling is a marketing technique whereby a firm that sells two products requires customers who buy one of them to buy the other as well (Mansfield, 1997). For example, a bottle of wine and a small cheese platter may be placed in a bundle labelled “Cheese and Wine for Two”.

2.2.3 Cross-selling

Cross-selling is a form of directed marketing whereby the marketer markets products to those buyers who have purchased or are about to purchase complementary products. A rather technical definition of complementary products can be found in

Microeconomics (Mansfield, 1997): If products X and Y are complements, the quantity demanded of X is inversely related to the price of Y.

This concept is perhaps best illustrated by an example. Wine and cheese are complementary products. Cheese is often served with wine, so if the price of wine falls, more wine will be purchased and more cheese will be served. Cross-selling means that cheese sellers, in their marketing efforts, specifically target wine purchasers.

2.2.4 E-business

E-business includes both e-commerce (2.2.5) and e-marketing (2.2.6) as they are defined in this section. E-commerce is easy to understand and measure because of its financial nature. E-marketing is very difficult to quantify because of difficulties in cost allocation and the measurement of relationships which including future benefits. It is, therefore, much easier to analyse online partnerships from an e-commerce point of view than from an e-business point of view.

2.2.5 E-commerce

E-commerce can be defined in many ways, some broader than others. In this paper, e-commerce applies to commercial transactions that occur on the World Wide Web (2.2.12). "Commerce" is defined in the *Collins Concise Dictionary* (1988) as being: "The activity embracing all forms of purchase and sale of goods and services". E-commerce therefore always involves a real transfer or trade. Most e-commerce transactions involve the exchange of money for a good or service. This makes e-commerce transactions easily measurable in most cases.

2.2.6 E-marketing

"Marketing means managing markets (2.2.9) to bring about exchanges and relationships for the purpose of creating value and satisfying needs and wants" (Kotler et al, 1999). Typically, people think of marketing as advertising and selling, but this definition includes activities such as identifying customer wants and needs, setting appropriate prices and interacting with potential customers socially.

E-marketing means using the Internet (2.2.8) to build these relationships and achieve these exchanges. The bulk of e-marketing takes place on the Web (2.2.12) or via email.

A “marketing opportunity” is a chance for the organisation to add value to a customer relationship. The “Marketing value” of a marketing opportunity is the difference between the cost of creating, maintaining or enhancing a customer relationship, and the additional revenue that is generated as a result of the augmented relationship (ie. the additional worth of the customer to the organisation).

The following is a highly simplified illustrative e-marketing example:

eCheese.co.za is an online cheese retailer selling the “finest imported and local cheeses” to the South African public. eWine.co.za sees a marketing opportunity and request that eCheese.co.za display, on their website, a weekly review of a selection of eWine’s finest wines. If eCheese charge R100/week, and eWine has an additional R120 revenues then the marketing value of each week’s review is R20 (ignoring purchasing, manufacturing etc costs).

2.2.7 E-tailing

E-tailing is simply online (2.2.11) retailing. Retailing is by its nature a B2C (business to consumer) activity. Other types of e-business include B2B (business to business) and C2C (consumer to consumer).

2.2.8 Internet

The Internet is the physical network that links computers across the globe.

Applications that are found on the network are, for instance, e-mail and the World Wide Web (2.2.12) (Clark et al, 2000).

2.2.9 Market

The set of all actual or potential buyers of a product or service (Kotler et al, 1999).

2.2.10 More E’s

As with “online” (2.2.11), the prefix “e-” denotes “occurring on or across the Internet”. Some additional examples from the literature examined in this paper are: e-mail, e-advertising, e-opportunity, e-initiative, e-publication.

2.2.11 Online

In this paper, the word “online” is used to denote “occurring on or across the Internet”.

2.2.12 World Wide Web (WWW or the Web)

The World Wide Web was invented in 1991 by Tim Berners Lee and is now a widely used system for accessing and displaying words and pictures on the Internet (2.2.8) (Burnham, 1999).

2.3 The commerce value chain

As listed in the previous chapter, the first purpose of this research is to motivate, introduce and develop a framework within which to discuss e-tailing partnerships. The broad framework used to motivate e-tailing partnerships is presented by Treese and Stewart (1998) in their book *Designing Systems for Internet Commerce*. They refer to their framework as the “commerce value chain”, discussing its application to various Internet-related business segments. One section in their book is specifically devoted to the Internet consumer retail commerce value chain. The generic commerce value chain is shown in Figure 2-1 below.

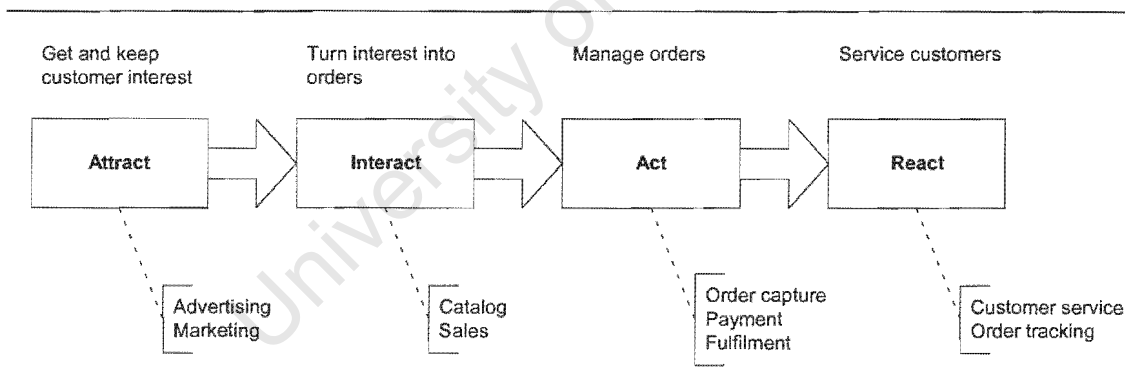


Figure 2-1: The commerce value chain (Treese and Stewart, 1998)

The components of the above value chain are summarised by Treese and Stewart (1998) as follows:

1. **Attract customers** → Market – get and keep customer interest
2. **Interact with customers** → Sales – turn interest into orders
3. **Act on customer instructions** → Order management – order capture, payment, fulfilment
4. **React to customer requests** → Customer service, technical support

Treese and Stewart (1998) argue that these are the basic steps during which online businesses add value. These steps, they also argue, are merely a part of the overall value chain describing the entire process from product creation to delivery. These four steps, however, represent the “value proposition” for Internet commerce.

The value proposition for e-tailing partnerships is discussed at length in this chapter, but first let us look at current e-tailing models and the nature of the e-tailing partnership model proposed in this paper.

2.4 Current e-tailing models

E-tailing has sparked the initiation of new and diverse business models. Still more business models are apparent in B2B and C2C e-business, but this discussion is limited to B2C e-tailing. In their article titled *Note on Marketing on the Web*, Barabino and Berkley (1994) describe the five basic web-based business models.

These include:

1. **Advertising support** – sites that earn profits through advertising revenues
2. **Subscription support** – sites that earn profits through subscription revenues
3. **Cost elimination** – sites earning profits because they eliminate costs (eg. Catalogue marketers who eliminate the cost of producing and distributing catalogues)
4. **Sales revenue** – sites who turn a profit through sales
5. **Information trading** – sites that collect and collate information about users and later sell it

These models are not mutually exclusive; many sites have multiple revenue streams. An example is a retail site that has additional advertising revenue. Even so, most sites can be classified within these models according to the sites’ primary source of revenue (Barabino et al, 1994).

Almost every e-commerce, e-marketing or e-business book or article has been based on the premise that drawing customers to your site is the first condition for having a successful online presence. This is not surprising given that every e-commerce

business model presented above relies heavily on Internet traffic across the business' site. Advertising, subscriptions, sales and information trading revenues are obviously dependant on the number of customers frequenting one's site. Whilst not as obvious, the same is true for cost eliminators; eliminating a cost is fruitless if you are losing customers. Kotler and Armstrong (1999) introduce another type of web presence which they call a "corporate website". Corporate websites do not, according to their definition, generate revenue directly, but rather enhance brands and goodwill - but still only for those customers who visit the site.

Barabino and Berkley (1994), and Kotler and Armstrong (1999), divide web-based business models according to the primary method of revenue-generation. Ghosh (1998) uses another dimension – level of business aggregation. All of the models discussed above are standalone – single businesses using the Web as a channel to trade or otherwise interact with customers.

Ghosh (1998) draws our attention to one of the earliest online business models, the product magnet. Product magnets exist as a way to cut out wholesalers and retailers. The product magnet site charges subscriptions to customers who can use the site as a centralised mechanism to shop directly from suppliers. Product magnets therefore form "partnerships" with multiple suppliers, aggregating an entire industry of businesses onto a single site.

Another example of an aggregated business model is a co-brander. In the case of a co-brander, multiple brands are sold from the same site, which attracts business because of its own brand (Sterne, 1995). Here, the separate brands support one another in a circular fashion. Hypothetically, a customer types in the branded www.electronicsbrands.com because he/she knows that they sell branded electronics. At the same time the electronics merchants wish to become affiliated with www.electronicsbrands.com because they know that people shop for branded electronics there.

In terms of the supplier, product magnets and co-branders present indirect e-business models, because, although their goods are being sold online, they do not maintain a

direct web site link with customers. In these cases, e-business strategy shifts focus from getting customers to the site, to providing excellent prices, service and delivery to online customers. However, the process of drawing customers to the product online is not trivial, it has just been outsourced to the magnet web site and paid for in terms of a subscription.

A further aggregated business model is apparent in online malls and many portal sites. In these cases each participating business has its own site, but purchasers search from a central location and usually only perform a single transaction when purchasing multiple goods, even if they are sourced from different stores.

The trends are therefore clear: either businesses “go at it alone” using one (or a combination) of the standalone business models, or they group into large malls or magnets, adopting whatever business models those malls or magnets have chosen. But what about small groupings of sites – two or three or ten sites that wish to partner for mutual gain?

This question is central to this paper. The e-tailing partnership model proposed in the following section is given as one solution to this problem.

2.5 The nature of e-tailing partnerships

A desirable situation is one that allows the autonomy of the standalone model as well as increased exposure of the aggregated model. Consider a world in which businesses can seamlessly form and destroy partnerships online and in real-time without power or autonomy being sacrificed by either partner. Harreld (2001) refers to these types of relationships as “hyperpartnerships”. In her writing, Harreld uses the term with specific reference to B2B applications, but the concept is easily applied within the realm of e-tailing.

Simply put; businesses own products, which may be physical, intangible or even services. The “owning business” makes a product available (under certain conditions) to a “hosting business” (which fulfils those conditions) which can display, promote and sell that product via its own (the hosting business’) retail website to add value to

itself or its customers. Using the eCheese and eWine example introduced in section 2.2.6: the cheese and wine businesses can create a partnership whereby one of the cheese company's products is sold on the wine shop's site. The wine shop offers more choice of goods to its customers (increasing traffic and hence exposure) whilst the cheese company gains from increased exposure and the wine shop's brand. The value of this partnership is increased even further if the wine shop agrees to cross-sell eCheese's Swiss cheese with its own fine wines. Bundling takes this even further. Of course, the relationship between two businesses may be characterised by multiple partnerships. One partner may be the owning business in all of the partnerships or, alternatively, each partner may host the other's products in a reciprocal relationship.

The question is now: why don't businesses do this today? The answer is: they do (although only a very small number of them). Quite simply, the systems, software and development time taken to create these partnerships have been too expensive and limiting. Also, the resultant partnerships would be complex and there is very little understanding of what they would entail. As has been observed by Rackham (2001), partnerships need to be well understood and have clear goals in order to succeed.

After nine months of working in an e-business software company, it is the belief of this author that the technology required to enable these partnerships has become viable. Successful e-business software uses meta data to describe and define products, thus the databases required to run sites are becoming more and more standardised, making integration significantly easier. The focus of this paper, however, is not a technological one. This research sheds some light on the partnership interactions that need to be understood before this potentially profitable business model can be adopted.

The model proposed involves many players. It is important for the purposes of this paper to be able to refer to elements of the model, including human and business elements, unambiguously. We have already distinguished between "owners" and "hosts", but the e-tailing partnership model includes many components from software to consumers. Very simply, software engineers, designers, developers or programmers develop partnering software to support e-tailing partnerships. They are referred to

simply as “developers”. The host and owner businesses must then identify their own requirements for the use of the software and tailor the software to these requirements. In this capacity they are referred to as “system users”, or simply “users”. Note that consumers or customers are referred to as “consumers” or “customers” (not as users) even though they are users in the sense that they use the e-tailing website. The term “user” is thus in this paper reserved for users of partnering software. In one capacity, the hosts and owners are also customers (if the partnering software is supplied by a third party) but here the term “customer” is reserved for web customers.

Online partnerships present many opportunities and some go as far as to say “The defining organisation (in the New Internet Economy) will be a porous network of partnerships” (Hammonds, 2001). The following section is devoted to the value proposition of e-tailing partnerships within Treese and Stewart’s (1998) commerce value chain framework.

2.6 E-tailing partnership value proposition

In this section e-tailing partnerships are examined in the **attract → interact → act → react** framework (Treese and Stewart, 1998). Each value activity is looked at with specific reference to e-tailing partnerships and the most important e-tailing partnership value propositions within each activity are presented.

2.6.1 Attract

E-tailing partnerships allow businesses new opportunities to create exposure for their products through branding and site loyalty both on their own and partner sites.

Historically, aggregated business models such as online malls have enabled businesses to increase exposure in this way, but aggregated models, whilst increasing “hit rates” also have disadvantages. Hits measure the number of customers or potential customers who visit a website or who are presented with information and site products. Members of an aggregated model benefit from an existing customer base, so less marketing effort is required to generate hits. Also, the members benefit from the aggregator’s marketing efforts. The value of hits must not be underestimated. Almost all e-marketing and traditional marketing literature focuses on coverage –

more coverage means more customers and more probability of making a sale or getting a marketing message across.

However, there are major limitations associated with aggregated models – the most important of these being lack of autonomy. Autonomy online means being able to define one's own business model and alter it in line with current trends. The ability to adapt rapidly is cited as a major advantage for online businesses (Lawrence et al, 1998, Schwarts, 1997). Secondly, an autonomous business model allows control over market positions, especially with respect to competitors. If one is involved in an aggregation such as an online mall, price comparison is very simple – direct price competition lowers margins and is undesirable for most organisations with the exception of mass discounters (Kwak, 2001; Brynjolfsson et al, 2001). Thirdly, limited control over integration with existing systems such as inventory management (especially if one wishes to be part of more than one aggregator) makes autonomy attractive. Finally, many malls and portals have specific requirements for site design and layout – again undesirable if one wishes to differentiate oneself in this way.

In addition to gaining access to an existing customer base on some else's site and benefiting from their marketing efforts, partnerships may also enable partners to attract customers by adding value through branding and loyalty programs. Branding increases the perceived value of the interaction itself (Kotler et al, 1999). For this reason, successfully branded sites can charge a premium for their products and services. Research has shown this premium to be in the order of 3% (Brynjolfsson et al, 2000). It therefore makes sense for less known vendors to partner with branded vendors to mutual gain – the vendor's customers benefit from increased product selection as well as better knowledge of the lesser known good's quality, signalled by its being available on the branded site. Branding is discussed in more detail in 2.7.2 Product distribution and 2.7.3 Market positioning.

Loyalty programs are also a good way to attract customers back to a site. The more purchases that a loyalty club member makes, the more loyal he or she becomes (Sterne, 1994; De Figueiredo, 2000). By offering increased selection of products the

loyalty program owner can increase the impact of its program. At the same time its partner site benefits from increased exposure.

2.6.2 Interact

In their book, Treese and Stewart (1998) the stress that site content, and specifically the site catalogue or product offering, is very important in the interact stage.

Partnerships allow businesses to add other's products to their existing catalogues to further meet the needs of their own customer bases. To augment the larger catalogue, partners can also use techniques of bundling and cross-selling during interaction with customers.

Cross-selling online is a form of marketing where sales of complementary products are encouraged by placing them together on web pages. If I search for "CD Player" I also get the option of purchasing the current top-charting compact disc. Placing related products together emulates the shopping experience where customers shopping in physical stores will see related products next to one another on the shelf. Bundling is an important form of added value, especially where products are difficult to differentiate (Sterne, 1994). For example, an online grocer in partnership with an online butcher might allow customers to purchase all of the ingredients for lamb and vegetable stew as a bundle of products.

Autonomous online retail partnerships allow partners to cross-sell and bundle one another's products without any loss of control over inventory because the two systems interact real-time with one another. Effectively the customer is purchasing from two different sites, in a single transaction.

2.6.3 Act

The act activity includes order capture, payment and fulfilment and occurs in response to customer instructions (Treese and Stewart, 1998). E-tailing partnerships present value-adding opportunities in all three of these steps.

The first step, order capture, involves the user selecting products for purchase and usually putting them into an online "shopping cart". Product bundling and cross-selling is not only useful during the interact activity, where customers can easily

locate complementary products and where businesses can market in a focussed way, but is also useful during the act stage where customers can easily give purchase instructions and where sellers can plan for complementary sales. For example, a customer may purchase a cheese and wine platter without having to individually find both a suitable cheese and a suitable wine on his/her own, and the partners can structure their inventories in such a way that complementary cheeses and wines are available to form part of the platter.

The second step, payment, may be streamlined in a partnership. In his article, *Five Steps to a Dot-Com Strategy: How to Find Your Footing on the Web*, Venkatraman (2000) states that “winners will be differentiated by their ability to execute streamlined transactions”. He cites Microsoft’s Passport (passport.com) as being successful in allowing customers a secure way to sign into multiple Internet sites using a single username and password. This is effective because customers do not have to waste time filling in their personal details at every site they enter, at the same time wondering whether their information is going to be used appropriately.

Passport users, however, still have to perform separate purchase transactions at each individual site. A simple retail partnership would streamline the purchase process by allowing the customer to effectively purchase multiple items from different sites in a single transaction.

Thirdly, fulfilment systems can be designed so that partners use one another’s delivery networks to avoid duplicated delivery to a single address each time a set of products is ordered from both partners.

The subject of fulfilment or delivery is analysed superficially in the paper, although it is certainly not trivial and in many cases will limit access to partnerships. For instance, if eCheese delivers only in Cape Town and eWine only in Johannesburg, then a partnership is not sensible. This does not, however, rule out the possibility for profitable partnerships completely – even bundles sourced at sites on opposite sides of the world can be delivered safely within periods shorter than a week. Fulfilment is discussed further in Chapter 6.

2.6.4 React

The react activity is probably the least affected by partnerships. After-sales service is likely to be provided by the partners on an individual basis, and many of the advantages here: greater service capacity, reduced error rates, richer information availability and self-help (Treese and Stewart, 1998) are apparent both in partnerships and outside of them. One case in which partnerships do add value in the react activity is when customers are looking for status information about a product delivery. If partners' fulfilment systems are meaningfully linked, then customers can be given status information about the entire set of goods purchased from multiple partners in one step, rather than searching for separate delivery statuses from each partner individually.

2.7 E-tailing partnership value proposition – further considerations

2.7.1 Subscriptions and advertising revenues

Barabino and Berkley mention subscriptions and advertising charges (1994) as being two important revenue streams for Internet sites. Typically publishing sites charge subscriptions, which are paid by customers who use their sites, but occasionally subscriptions also apply on retail sites (Ghosh, 1998). Advertising can be bought on many retail sites and portals.

Both advertising and subscriptions revenues are directly related to the number of visitors that frequent a site. Any increase in visitors translates into an increase in revenues. Entering into partnerships that increase traffic is therefore advantageous for sites using one of these two business models either exclusively or in combination with other models.

2.7.2 Product distribution

Lynch and Ariely (2000) present a very thorough treatment of product distribution theories in the “Manufacturer Market Share Returns to Distribution” section of their paper titled *Wine Online: Search Costs and Competition on Price, Quality, and Distribution*.

At the centre of their discussion is the theory that reduced search costs on the Internet will lead to easier price comparison, increased competition and lower margins on branded goods. They performed an experiment in which they showed this to be the case. Their argument then continues to say that stores are likely to stop stocking branded goods in favour of less-known exclusive brands, which are less price-sensitive.

This conclusion may have dire consequences for online partnering, where the same, undifferentiated good becomes available on partner websites. There are, however, further factors that have not been discussed.

Firstly, brands do not only provide easy comparison, they also provide important information about quality. Brynjolfsson and Smith (2000) conclude that even the most price sensitive of Internet shoppers are willing to pay a premium at a branded site. Whilst their study makes no mention of product brands, the intangibility of Web-based transactions make brands more important online (Kwak, 2001; Willcocks et al, 2001). This suggests that there may be important co-branding opportunities within the realm of web partnerships even though more than one site may have access to the same products.

Secondly, in the types of retail partnerships described here, the owner site has control over the products that it shares over the various partnerships. This includes control over price and inventory, so multiple prices for the same product will only arise where the owning site allows it. Also, sites other than the owner site profit from the relationship, although not directly from sales margins.

2.7.3 Market positioning

Tang et al (2001) cover the topic of "Store Choice and Shopping Behaviour: How Price Format Works". The argument central to their article is "nothing is more important than getting the pricing strategy right". Kotler et al (1999) substantiate this claim in *Principles of Marketing*. The implication of this idea for online retail partnerships is that partners' positioning must be similar if they are to take advantage

of the market of individuals visiting the partner site. Also, the sites' positioning should ideally stay aligned for the duration of the partnership.

Remaining with the cheese and wine illustrative example. eCheese is a fine (upmarket) cheese retailer and has partnered with eWine because of eWine's wealthy clientele. eCheese is likely to be unhappy and pull out of the partnership if eWine decide to reposition themselves as budget sellers. The same would be true if eCheese decided to lower their prices by purchasing second grade cheese, thus repositioning themselves as budget cheese sellers. This logic applies to both price and quality alike.

2.7.4 Implications of competition

Madnick et al (2001) make the statement that "Many (online organisations) are not prepared for open comparison with competitors". This sentiment is echoed by Venkatraman (2000) – "Indeed, the Net exposes the inherent weakness of high-cost competitors – whether they are big or small". Competition in most markets is fierce, and the Internet, though it is not "frictionless", does facilitate competition-aggravating actions such as price comparison (Brynjolfsson, 2000).

Competition online is almost unavoidable and efforts to avoid it, by hiding information and thereby exaggerating "profitable" search costs, may be self-destructive (Lynch, 2001; Betts 2001). It is usually preferable not to experience direct competition on a single site. To illustrate this, imagine the eWine cross-sold both eCheese and CheeseOnline products. eCheese would obviously be unhappy. In the extreme, if enough competition is experienced on a site, then consumers are drawn to the lower prices (driven down by competition) and greater product choice (many competitive products are in one place). Firms that do not compete in the new "market" begin to lose sales, so they join, even with lower profit margins. This cycle is self-enforcing and is termed, by Benjamin and Wigand (1995), the "market maker effect". They use the example of Schwab's Onesource mutual fund market, where increased marketplace competition attracted \$10 billion worth of assets. The market maker effect is, however, an extreme consequence affecting large electronic marketplaces. This research, therefore, does not consider it to have a significant effect on the competitive consequences of e-tailing partnerships.

2.7.5 Barriers to entry and exit

Barriers to entry and exit, as applied here, are factors that hinder the ability of one or both of the partners to either enter or exit the partnership. One of the barriers to entry in many technology partnerships is the significant start-up cost associated with integration. In the partnerships proposed here, however, technology start-up costs are considered to be negligible – integrating products into a website is a simple process involving a few clicks of a mouse to select which products should be made available. There are, however, costs associated with finding and researching a suitable partner, and subsequently contracting with that partner.

Even in an e-commerce world devoid of marketing considerations, there is a barrier to exit. Businesses prefer stable demand because it allows efficient output and/or inventory management (McMillan, 1992). Therefore, whilst the technological cost of exiting a partnership is negligible (deselecting the appropriate products or partner), there is likely to still be cost in terms of unpredictable inventory and output.

2.7.6 Expectations, satisfaction, shutdown and sunk costs

Retailers strive for customer satisfaction. Satisfaction is directly related to expectations. Specifically, if expectations are too high, then the customer is not satisfied (Kotler et al, 1999). Lynch et al (2000) show that customer satisfaction is increased if users are presented with relevant and accurate product information prior to purchase – effectively narrowing the expectation-delivery gap.

The implications of the expectation-satisfaction relationship for e-tailing partnerships are twofold. Firstly, customers interacting with the partnership are likely to associate dissatisfaction with both members of the partnership. It will impact badly on eWine if eCheese products fail to satisfy eWine's customers. It is therefore important that the expectations created by members of the partnership are in line with expectations of the partnership as a whole. This is closely linked to the market positioning observations made earlier about maintaining price and quality expectations.

Secondly, by introducing eCheese onto eWine's site, eWine is changing its own users' expectations of what is (and should be) on eWine's site. If eCheese suddenly

end the partnership for whatever reason then eWine customers will wonder where the cheese offerings have gone. They may expect to buy cheese and wine bundles and be dissatisfied with the fact that they cannot. Dissatisfied customers are likely to search elsewhere for what they require. eWine may lose customers at the end of the partnership with eCheese and the same is true for eCheese (whose customers expect to find eCheese products on eWine.co.za). There may therefore be a barrier to exit or shutdown cost for one or both members of a partnership.

Also, sunk costs such as advertising may inhibit the early or spontaneous destruction of partnerships. Imagine that eCheese spend a large amount of money advertising their new partnership with eWine expecting to recoup that investment over the first six months of the partnership. It is obviously not in eCheese's interests to allow eWine to terminate the partnership after three months when eWine are offered a better deal by CheeseOnline.

2.8 Online partnerships – the e-commerce 2x2 users model

The model described in this section serves only an illustrative purpose. It is simply shown to demonstrate the dynamics of monetary exchanges in a world devoid of any other considerations. This is an obvious oversimplification and is corrected in the next section.

E-commerce, as the term is used here, describes exchange transactions that are facilitated by the Internet. Because of the financially quantifiable nature of e-commerce transactions, an online partnership is easy to value in e-commerce terms. In fact, the only distinctions that need to be made in terms of users are 1) the site at which they shop (site choice) and 2) whether they purchase the shared product (purchase decision). Let us consider the eCheese and eWine example on the next page:

eCheese and eWine: 2x2 users model

eCheese enters into an agreement with eWine to sell its (eCheese's) products on eWine's site. eWine allows third-party advertising for which it charges R0.20 per visitor. eCheese receives R5.00 in sales revenue per product sold. The agreement does not include any transfer of funds between the two sites because they believe the gains on each side to be fair.

One month after the agreement is made, visitor statistics are as follows (shown as increases or decreases): Note that eCheese loses some visitors because they can now find their cheese products at eWine.co.za.

Visitor statistics

Purchase decision \ Site choice	No	Yes
eWine	+100	+50
eCheese	-70	-40

The value of the partnership for each can be easily calculated.

Value for eCheese

Purchase decision \ Site choice	No	Yes
eWine	R 0.00	R 5.00 (sales revenue)
eCheese	R 0.00	R 5.00 (sales revenue)

Value for eWine

Purchase decision \ Site choice	No	Yes
eWine	R 0.20 (advertising revenue)	R 0.20 (advertising revenue)
eCheese	R 0.00	R 0.00

To convert the matrices into values, multiply through by the visitor statistics and add them.

$$\text{eCheese: } (100 \times 0) + (50 \times 5) + (-70 \times 0) + (-40 \times 5) = 250 - 200 = \text{R } 50.00$$

$$\text{eWine: } (100 \times 0.2) + (50 \times 0.2) + (-70 \times 0) + (-40 \times 0) = 20 + 10 = \text{R } 30.00$$

This example shows that the gains from the partnership are not evenly distributed. However, if eWine charges eCheese R0.20 per cheese sale that is made through eWine.co.za, then eCheese must pay eWine R10.00 (50×0.2) and each site has partnership gains of R40.00.

2.9 E-business is more than just e-commerce – it includes e-marketing

In the previous section, online retail partnerships were considered from the point of view of the financial transactions making up the e-commerce component of the partnership. There has recently been a trend away from the term “e-commerce” toward the term “e-business”, which is essentially e-commerce as it is defined in this paper, combined with e-marketing (Feeny, 2001; Venkatraman, 2000; Willcocks et al, 2001). Feeny has a slightly different definition of e-business: its separate components being e-operations, e-marketing and e-service. Feeny’s definition is, however, very similar to the one used in this paper, except that e-operations is called e-commerce and e-service falls under the broader definition of e-marketing.

The two major flaws of the 2x2 e-commerce partnership model (see Section 2.8 above) are that it fails to account for marketing value that is created and distributed in the partnership, and that it ignores start-up, maintenance, marketing and shutdown costs, which are not directly related to the number of visitors frequenting a site. A thorough and accurate analysis must incorporate both of these.

2.9.1 Types of value

E-business involves both e-commerce and e-marketing. E-commerce value has already been discussed. It is financial and, for the most part, can be categorised into sales-related revenues, advertising revenues and subscriptions revenues (Barabino et al, 1994).

Note that this discussion does not include value that is transferred from one partner to the other in the form of payment. Such payments or fund transfers form part of the partnership contract and will be introduced later. Section 2.10 Measuring and tracking benefits from partnership is devoted to understanding value within an e-tailing partnership with an eye to later using contracts to distribute that value in the form of payments between the partners.

Marketing value is difficult to quantify because it is usually not financial and it often involves some prediction of future behaviour. Even so, the fact that it is difficult to quantify does not necessarily mean that marketing value is irrelevant or its measurement impossible. Measurement and tracking of e-marketing value is discussed later.

The most obvious marketing opportunity available in an e-business partnership is branding opportunity (Kotler et al, 1999). Brands help buyers to identify useful products and predict their benefits, features and quality. Merely seeing a branded product increases brand awareness, which in turn provides for a stronger brand (Kotler et al, 1999). The advantages of co-branding have already been discussed.

The partnership may involve many brands. Examples of these are: the brand of the product that is the basis of the partnership, the brands of bundled or cross-sold products, the company brands of each organisation involved, the brands of the individual websites and even the branding of the partnership itself. Of course, each partner is likely only to be interested in the value accruing to brands that he/she owns or controls.

In addition to branding opportunities, which add value to future transactions, there are opportunities to accelerate customers through the current buyer decision process: the process that leads to the purchase of a good or service. A typical buyer decision process is **Need recognition → Information search → Evaluation of alternatives → Purchase decision → Postpurchase behaviour** (Kotler et al, 1999). The most obvious opportunity to condense the buyer decision process is to make the product (and relevant information) as accessible as possible, shortening the “Information search” and “Evaluation of alternatives” processes (Lynch, 2001). Also, by bundling products, the seller has an opportunity to inform the purchaser of a need or desire that he/she might have, and at the same time suggest a solution – thus shortcutting stages in the decision-making process (Moe et al, 2000). For simplicity, marketing opportunities that allow the seller to accelerate or shortcut the buyer decision process will be termed buyer process opportunities.

Each partnership will have its own unique set of benefits in terms of financial and non-financial value. These benefits will also vary between partners. For example, in the simple cheese and wine case, eWine benefits from advertising revenues, a co-branding opportunity and a buying process opportunity (bundling cheese and wine into platters – helping customers to recognise a need).

eCheese does not profit from advertising revenues, but it does benefit from sales revenues, branding opportunities and a buying process opportunity (the eWine customer no longer needs to navigate to eCheese.co.za or even search for the product).

In summary, the diagram below shows the types of value that have been discussed. The list is not exhaustive. Additional sources of value may emerge, depending on the characteristics of each partnership. An example of such an additional source may be additional revenue from improved sales of complementary products or services. Note that contractual payments (fund transfers) between the partners are not included here, though they are obviously valuable and will be discussed later.

Financial value	Sales revenue, advertising revenue, subscription revenue
Non-financial value	Product brand value, corporate brand value, buyer process value, site brand value, related-brand value

Figure 2-2: Examples of types of value

In order to include non-financial value in a model of e-business, one needs to somehow measure that value and include estimates of its equivalent financial value. This will be discussed in more detail later. First, let us consider how marketing value can differ from user to user: each one having different characteristics and each interacting differently with the site.

2.9.2 User segmentation

“Markets consist of buyers, and buyers differ in one or more ways.

They may differ in their wants, resources, locations, buying attitudes, and buying practices. Through market segmentation, companies divide large, heterogeneous markets into smaller segments that can be

reached more efficiently with products and services that match their unique needs.” (Kotler et al, 1999)

Market segmentation is a key marketing concept that allows businesses to divide their markets into specific groups of customers with specific desires or needs. Marketers then evaluate each of these segments in terms of its current and potential profitability, subsequently targeting the most profitable segments with tailored products and/or marketing efforts (Kotler et al, 1999).

Once profitable market segments have been identified and targeted, the business will try reach its target audience as efficiently as possible. For instance, if “Cape Town students” represent a business’ most profitable market segment, that business may wish to advertise on campuses in the Cape Town area. This type of “directed” or “concentrated” marketing is especially important for small businesses with limited resources, businesses with strongly targeted marketing offerings and businesses with highly differentiated products (Kotler et al, 1999).

Markets can be segmented according to almost any consumer characteristic. Kotler et al (1999) suggest the following common segmentation criteria:

Geographic	World region or country, country region, city or metro size, density, climate
Demographic	Age, gender, family size, family life cycle, income, occupation, education, religion, race, nationality
Psychographic	Social class, lifestyle, nationality
Behavioural	User status, usage rate, loyalty status

Figure 2-3: Market segmentation criteria (adapted from Kotler et al, 1999)

Market segmentation is easily applied within the e-tailing arena because e-tailers often have huge information stores about customers and their actions: from addresses and interests often right down to their individual mouse-clicks during a given visit. Unfortunately these information stores for the most part remain untapped (Davenport et al, 2001). Cross-selling is a fairly common web practice, but it does not require any user information whatsoever – it is reliant on product relationships set by the store

administrator. For the most part, customer information serves the purpose of allowing the site to welcome users by name. Also, time spent retyping details such as delivery addresses can be reduced. Some sites ask questions about hobbies or interests, but this information is most often used to create targeted emailing lists. Very advanced sites use purchase histories to market products (Davenport et al, 2001). They use messages such as "Others who bought X also bought Y". As will be shown later, customer information stored in online databases can be leveraged to allow targeted e-tailing partnerships that can be automatically optimised for maximum mutual gain.

2.9.3 User interaction

When the marketing potential of the Internet was first recognised, organisations began to buy links and advertising space on popular websites. Initially these organisations paid for each impression of their advertisement or link that was served by the web server. Soon the organisations buying the marketing space realised that "number of impressions" was not a particularly good estimate for how many consumers were being reached. If a particular user navigated around a site or clicked "Refresh", a separate impression would be recorded for each action. Soon, organisations began differentiating between impressions and "click-throughs" – paying more when users demonstrated an interest in their products by clicking on an advertisement or link.

The fact that websites charge differently for links and advertisements, and for impressions and click-throughs, highlights the obvious difference in marketing value that each delivers. Each click or impression represents a user interaction with the site. When an impression is served, the user is assumed to have viewed the advertisement; when a click-through is recorded, the user has navigated to a new location via the link in question. Because of the nature of the e-tailing partnership under discussion in this paper, there may exist many additional types of interaction with the hosting site. Additional interactions on the hosting site include: cross-selling, bundling and purchasing. A cross-selling interaction occurs when the hosting site promotes the shared product by linking it to one or more other products and displaying it whenever those products are requested. Within the category of cross-selling interactions, some product relationships may be stronger than others. For instance, it may be more valuable for eCheese to have eWine cross-sell its Swiss cheese with expensive red

wine than with mid range red wine. However, both opportunities to cross-sell may still be valuable.

A bundling interaction occurs when the hosting site offers its customers a bundle of goods that includes the shared product. Once again, eCheese may value some bundling interactions more than others.

Finally, a purchase interaction translates easily into financial value. However, not all purchase transactions are alike. If a product is sold as part of a bundle, then it may be discounted to make the bundle more attractive. In the same way, certain customer groups are often offered discounts – for instance for repeat purchases. As with cross-selling and bundling interactions, purchase interactions need to be divided into categories depending on the amount of value that each delivers to the organisation.

2.10 Measuring and tracking benefits from partnership

“Internet portal Yahoo! records every click made by every visitor, accumulating some 400 billion bytes of data per day – the equivalent of 800,000 books... Companies are rushing to invest in technologies that enable them to track patterns in customer transactions.”

(Davenport et al, 2001)

The above excerpt illustrates that organisations are already attempting to track and predict the behavioural patterns of consumers. By tracking consumer behaviour, organisations can measure the success or failure of marketing and site design efforts. Predictions allow businesses to better focus their attention on profitable customers or opportunities.

Moe et al. (2000) have already done some work in predicting the purchase behaviour of consumers. The unit of analysis in their research is a visit. On any given visit, the probability of purchase can be predicted in real-time using previous visit data. This allows sites to direct visitors who are most likely to purchase, to a faster server.

Taking into account that online partnerships will involve the distribution of value between partners, it is reasonable to expect measurement and prediction will be of the utmost importance. As was stated earlier, distribution of value will be analysed later in a discussion of contracts. In this section, the goal is to introduce a model for measuring benefits as a basis for contracting. Once the contract is agreed, contractual payments between the parties must be included in their valuation models.

2.10.1 The partnership benefit model

In previous sections it has been shown that benefits from partnering are both financial and non-financial. Within each of these categories, there are still more differentiable types of value including sales revenue, advertising revenue and branding opportunities (see 2.9.1 Types of value). Any rigorous model of benefits needs therefore to include all types of value related to the partnership. At the same time, value is dependant on both the user segment of the visitor and the user's interaction with the hosting site.

In order for total benefit to be measured, individual benefit needs to be calculated or estimated for each value type within each segment-interaction pair. Once this process of assigning individual benefits is complete, the system can simply record the number of instances of each segment-interaction pair and resultant benefit can be calculated. Of course there are significant complications; these are discussed below.

2.10.2 Sessions and multiple interactions

Internet commerce applications, which require a series of actions by the customer and the server, require sessions to provide state to the stateless HTTP protocol (Treese and Stewart, 1998). Each session begins at the start of site visit and, if uninterrupted, ends at the visit's conclusion. A single session at an e-tailing site is equivalent to the time spent by a single shopper inside a bricks-and-mortar store.

If a single session includes multiple interactions, then this can be problematic. This is similar to the original problem of using impressions to measure coverage – ten impressions did not necessarily mean that ten consumers were reached. Fortunately, if each visitor is assigned a session number (as is most often the case today) then the problem is reduced – any number of impressions during a single session always

translates to a single consumer being reached. For simplicity's sake, therefore, any repetition of interactions during a single session can be ignored. (Of course, if an organisation using this model considers repeat interactions to be significant in terms of additional value, then systems can be design to include repeat interactions using a multiplication factor to make subsequent interactions less important than previous ones. For the purpose of explaining this model in as simple a manner as possible, multiple similar interactions within a single session will be treated as a single interaction.)

Even more problematic are multiple different transactions within a single session. For instance, if a visitor is presented with a bundle that includes the shared product (a cheese and wine platter, for example) then the interaction is immediately valuable to the owning business. If the customer then purchases the platter, that is also valuable to the business. The question is whether these two values should be simply added or whether the purchase is a conversion of the value created during the promotion of the product within a bundle. This is a difficult question that requires further research – especially when one considers that a product may be promoted in more than one way during a single session.

For simplicity (and because it is the suspicion of this author that total value during a session is not a simple sum of each interaction's value), each session will be considered to be characterised by a single transaction. In order to do this, interactions need to be ranked by importance. The most important interaction that occurs during a given visit will be assumed to characterise that visit.

2.10.3 Overlapping market segments

Once market segments have been assigned, these segments will form the vertical axis of the segment-interaction grid. If the assigned segments overlap in a way such that a given user can be a member of two or more segments, then those segments should be rank ordered by importance. Once again for simplicity, each session should allow interaction recordings for only the highest-ranking market segment.

2.10.4 The segment-interaction grid

The segment-interaction grid is the basic mechanism for recording interactions that occur. Applying the simplifications suggested in the previous two sections, each relevant session is to be characterised by a single block within this grid. Each block is in turn characterised by multiple benefits or values. An example segment-interaction grid is shown below. It is based on the eCheese-eWine example used earlier. The market is segmented by age (although any segmentation criteria or set thereof may be used).

	User interaction						
	Increasing rank →						
User segment	Display product	Cross-sell with red wine	Cross-sell with white wine	Display cheese and wine platter bundle	Click-through for product details at eCheese.co.za	Discount purchase (as part of platter)	Standard purchase
<20 yrs							
20-30 yrs							
30-40 yrs							
40-60 yrs							
>60 yrs							

Figure 2-4: eCheese and eWine segment-interaction grid example

The user interaction categories shown in Figure 2-4 are illustrative of the types of categories that conceivably exist in such a partnership. The major considerations when defining interaction categories are 1) to ensure that all possible interactions may be categorised and 2) to ensure that all interactions that fall within a specific category are characterised by the same benefits, both financial and non-financial.

Once the user segment-interaction grid is defined, it is necessary to identify and quantify the types and magnitudes of benefits that accrue when an interaction of each sort occurs within each user segment.

2.10.5 Value as a depth dimension

If only one type of value existed then a business could analyse all beneficial value within a single segment-interaction. This is not the case, however, and the existence of different types of value significantly complicates the model. One could conceivably analyse each different type of value within its own segment-interaction grid. Doing this is equivalent to adding a dimension of depth to the model, “piling” grids on top of one another to create a “value block” with each depth layer representing a different type of value.

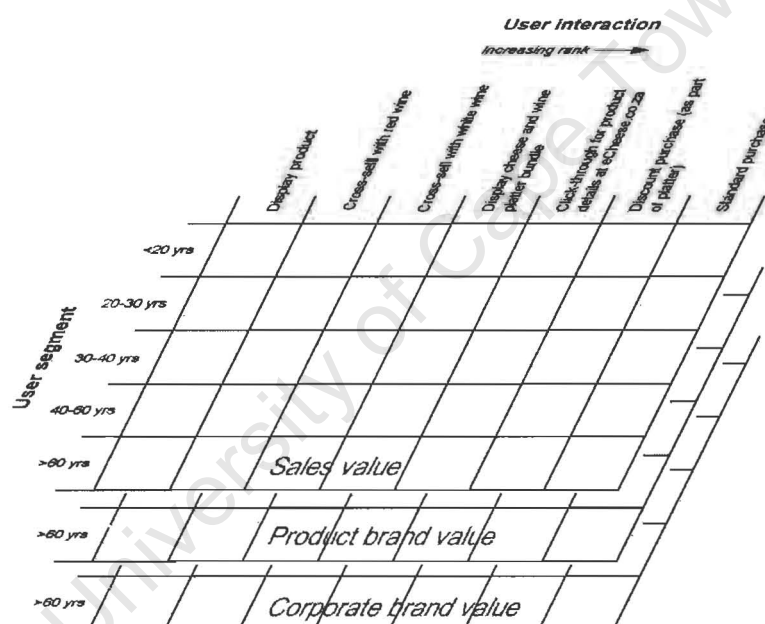


Figure 2-5: Introducing value as a depth dimension: forming the value block

2.10.6 Total benefit

The value block is a useful tool for analysing and measuring an e-tailing partnership for a number of reasons. Firstly, it is highly extensible along all of its axes. The category choices and level of complexity employed along each axis are entirely dependent on the requirements of the businesses that intend to track and measure their partnership.

Secondly, user segments or interaction categories can be easily summed, giving aggregations of value measurements for reporting purposes.

Thirdly, because the partnership contract involves aggregations, the partners need not agree on value types and magnitudes at all. In fact, each partner can use its own value block to evaluate its gains from the partnership without ever disclosing them to the other partner. The contractual usefulness of the segment-interaction grid is explained later.

Unfortunately, total value at each intersection of segment and interaction presents a difficulty. This is because total value is not necessarily a simple summation of individual value types, even if all value has been estimated in the same terms (financial). To illustrate this, imagine that eCheese realises an immediate financial benefit of R30 when a 25-year-old purchases the Swiss cheese platter. In addition to the immediate financial benefit, eCheese estimates an organisational branding opportunity worth 50 cents and a product branding opportunity worth 25 cents. The total benefit for eCheese is dependant on a number of factors including the need for immediate financial liquidity and the likelihood of continuing the brand in question. Ultimately, eCheese needs to decide how it plans to convert three layers of value type into a single value measurement.

The resultant value function, which is essentially a set of weightings – one for each value layer, can be used throughout the model to convert multiple layers of value into single measurements that can be summed along either one or both axes of the segment-interaction grid.

2.10.7 Time as a continuous variable

Time plays a significant role in this model for two reasons. The first is that individual value estimates and/or the value conversion function may adjust over time. Both internal factors, such as marketing strategy or organisational goals, or external factors such as inflation or changing market tastes may cause fluctuations. Because time is treated as a continuous variable, and because adjustments to the conversion function and value estimates are unpredictable over time, the relevant estimates and conversion

function must ideally be recorded for every interaction that the system records. (If requirements are not too stringent, or if the system variables are not considered to fluctuate significantly, then systems can be simplified by making the assumption of constant system parameters over a period of time – eg. one month)

2.10.8 Anonymous users

A further barrier to the accuracy of this model is the case of the anonymous user. If a site user is anonymous, then placing that user into a pre-defined market segment is obviously problematic. This problem can be dealt with in one of two ways. First, a separate anonymous user market segment could be created, thus allowing the business to evaluate these visitors using average values from the rest of the grid. Alternatively, anonymous users could be assumed to fall into the most popular (most likely) segment. The second solution is less effective than the first because of the inability to distinguish later between anonymous users and those that were assigned to the segment. Also, because figures must remain as accurate as possible for users in this segment, averages cannot be used and value measurements will be skewed toward the most probable segment.

Fortunately, as systems such as Microsoft's Passport become more popular (Venkatraman, 2000) and shoppers warm to the personal attention offered by sites, the problem of anonymous users declines with their numbers.

2.10.9 Multiple sites and partnerships

When looking at the overall value of a partnership, it cannot be viewed in isolation. There is a high probability that the formation of the partnership will not only draw new customers to one's product, but also draw existing customers from other sites. If these sites are owned by, controlled by, or have any impact on either the hosting or owning business, then that effect must be accounted for. Value measurements must be adjusted for losses incurred elsewhere.

The topic of multiple partnerships will emerge again in a discussion of market efficiencies.

The benefit model discussed in this section has a major impact on the formation of a partnership contract that allows minimum risk for both parties, whilst also reducing monitoring costs.

2.11 The partnership contract

There is no evidence to suggest that gains from the partnership will accrue to both partners equally, or that costs of the partnership will be equally divided. Even if costs and benefits were equally divided, there is no evidence to suggest that equal division is necessarily the final outcome of the contracting process in any case – one business may be more influential or more powerful than the other for reasons unrelated to the partnership.

Even so, a number of predictions can be made about the nature of the contract and the contracting process. These predictions are presented in this section.

2.11.1 The nature of the contract

The purpose of drawing up a contract between e-tailing partners is two-fold. Firstly, the contract acts as a “trust” mechanism (McMillan, 1992) enforcing a set of rules that minimise risk for both partners. Secondly, it provides a mechanism for the partners to agree on and influence the distribution of value within the partnership – by creating rules for the flow of money between partners.

In his book *Games, Strategies and Managers*, McMillan (1992) demonstrates that contracts are only sensible if they are enforceable – and only enforceable if they can be monitored. Unfortunately the cost of monitoring is often very high. One of the goals of the partnership contract should therefore be that it minimises monitoring costs. Another goal of the contract is that it minimises risk to partners. This goal is dependant on the assumption that neither partner is risk-seeking in the game theoretic sense. This is considered to be a fair assumption (McMillan, 1992).

The benefit model introduced in the previous section is a tool that allows each business involved in an e-tailing partnership the ability to first estimate and then track and measure benefits that derive from the partnership. The model allows each

business the ability to independently estimate and measure benefits, provided that interactions are being recorded accurately by the underlying host-based computer system. If interactions are being recorded accurately, then the partnership is being monitored at almost no cost. Also, because the segment-interaction grid can be set-up at any chosen degree of complexity, it can be designed to model reality increasingly accurately until a tolerable level of risk is reached. If reality is perfectly modelled, then there is no risk within the model.

Until now, the benefit model has been demonstrated as a measurement and estimation tool, not as a contractual starting-point. The conversion from measurement tool to contractual tool leads to three important considerations. The first is that both businesses must have identical segment-interaction grids. These identical grids form the recording framework for the underlying system.

The second consideration is that (even if the segment-interaction grids for both businesses are identical) value types, value conversion functions and value estimates will be different for each business. This is obvious if one considers that one business owns the product and the other is hosting it – very different functions in terms of value.

Thirdly, even if value types could be shown to be similar, businesses may not wish to share private value information such as sales margins with partners. Also, the value measurement model does not require that either business has any knowledge of the other's value estimates; thus eliminating the incentive for either business to alter its own figures.

The impact of these considerations is that, as a foundation for contracting, only the structure of the segment-interaction grid must be retained. The value estimates are only useful within the context of the value block. In the place of value, the magnitudes of fund transfers between the partners must be included. The resultant grid will therefore be a set of rules. These rules will state, for example, that for every 20-30 year-old who is presented with a cheese and wine platter on eWine.co.za, eCheese will pay 50 cents to eWine; for every 40-60 year-old who purchases a

discounted block of Swiss cheese on eWine.co.za, eCheese will pay eWine 5 Rand etc. The mechanism for reaching consensus on the magnitude and direction of fund transfer is discussed in the next section.

The segment-interaction fund transfer grid (FT grid) is the foundation of the contract. In addition the contract is likely to include fixed transfer amounts that compensate for costs incurred. Costs, which will also be discussed further in the next section, are not directly related to visitors or interactions but are rather comprised of start-up and shut-down costs, marketing costs and monitoring costs. As a result of a computerised interaction recording system, monitoring costs are lowered. There are, however, further terms and conditions that will form part of the partnership contract and these require monitoring. Further terms are likely to include time-scales and quality and cost windows that ensure that the partners meet customer and partner expectations.

2.11.2 Forming the partnership contract

As with any agreement, the partnership contract is the outcome of a bartering process.

The framework within which the bartering occurs is outlined in the previous section

2.11.1 The nature of the contract.

The contract, as described above, has two distinct sets of rules. The first is a set of fund transfer rules, which include the fund transfer segment-interaction grid and fixed fund transfers. The second set is one of terms and conditions, possibly with financial penalties or escape clauses if they are breached.

The magnitude of fund transfers within the boundaries of the segment-interaction grid cannot be decided until both partners agree on the categories that make up each axis of the grid. The market segment axis is likely to be dependant on the type of product being sold, the extent of information stored about current users and the functionality of the system being used to record user and interaction information. The interaction categories are defined by the functionality of the system and the marketing opportunities identified by the partners.

Once the grid is set-up, a fund transfer amount and direction needs to be assigned to each intersection point. According to game theory, these amounts will be specified so that the benefit of each interaction is spread between the two partners. This distribution of value will not necessarily be equitable or equal, but will rest at some point that is considered by each party to maximise its own gain under the given conditions. This is known as the focal point (McMillan, 1992). For clarity, consider eCheese and eWine.

Imagine that eCheese and eWine agree on the segment-interaction grid presented earlier. Imagine also that each individually values the sales of a cheese and wine platter to a 35 year old customer.

eCheese receives R80 for the sale of its Swiss cheese as part of the platter (10 % discounted from R88). Of this R80, R20 represents eCheese's profit from this interaction after packaging and shipping. In addition eCheese values such a sale at 50 cents in terms of organisational brand value and 25 cents in terms of product brand value. eCheese uses a simple value conversion function that is a straight sum of R20, 50 cents and 25 cents. eCheese therefore values this interaction at R20.75.

eWine, however, sells R50 worth of wine as part of the platter, R10 of which is profit. eWine also values the co-branding opportunity at 50 cents because customers may begin to view eWine as a sophisticated store, highlighted by the Swiss cheese. However, eWine are in the middle of a cash flow crisis and thus value profit today, twice as much as a branding opportunity – after all, they only have about a 50% chance of avoiding liquidation. Their current conversion function therefore results in a valuation of R10.25 ($R10 + R0.50 \cdot 0.5$) – roughly half of the value to eCheese.

Even with such accurate figures, it is very difficult to predict the magnitude of funds that will flow from eCheese to eWine for each cheese and wine platter that is purchased by a 30-40 year old customer. Remember, neither eWine nor eCheese can easily prove that their own value estimates are accurate or honest and it is likely that either will not want to expose their profit margins. It is fair to say, for a number of

reasons, that if any fund transfer occurs, eCheese will probably pay eWine (thus more evenly distributing benefits from the sale).

The first reason is that eCheese is selling a greater Rand amount of their product, so in the bartering process, the eWine negotiator will assume that eCheese is receiving more than half of the profit. Also, eWine is struggling to stay afloat and can argue that it is in the long-term interests of the partnership to be fair, even if eWine is weaker than eCheese in the short term.

“In the interests of fairness” the negotiator will say “eWine should receive its cut of the sale profits. We believe that that the sale is worth R30, we are currently realising about R10 of that and so will charge eCheese R5 for every purchase of a cheese and wine platter made by a 30-40 year old on our site.”

It is now likely that eCheese’s representative will rapidly look for a new focal point. “eCheese believe that the sale is more valuable to eWine than you suggest because of your cash flow problem. We also know that we are both putting products into the platter, and believing that new customers are being lured to your site, think that the deal should involve a zero cash transfer.” eWine accept because they are in a weak negotiating position and still have the opportunity to make a decent profit.

The above example is obviously contrived, but does serve to illustrate various points. Even if each partner could prove the value of the interaction to the other, this would merely facilitate the introduction of a focal point for the deal, but would not necessarily translate to fairness. Negotiating power and the negotiator him/herself both play a large role in any negotiation (McMillan, 2001). Even so, for both businesses to profit from the partnership, the funds paid by one partner to the other should not, in total, exceed the value of the partnership benefit to that partner over time. Another observation is that even if the partnership is completely characterised by zero fund transfers, this does not nullify the value of the benefit model. It can still be used, even by one partner alone, to evaluate the partnership on an ongoing basis.

The second set of rules within the contract relate to fixed fund transfers. These transfers are made to compensate for costs incurred as a result of the partnership. As has already been mentioned, costs include start-up, shut-down, marketing and monitoring costs. If either partner feels that he/she is bearing an unfairly large portion of the costs of the partnership, then he/she is likely to expect compensation from the other partner as part of the contract.

Terms and conditions within an e-tailing partnership contract are unavoidable. Benefits may not accrue in real-time and expectation gaps may arise. Quality, price and market positions need to be protected. Businesses are unlikely to simply hope that conditions meet their expectations. They are likely to create contracts to ensure compliance and recovery of partnership shutdown costs. At least three types of conditions will be important. These are discussed below.

2.11.3 Contracting to recover shutdown and sunk costs

As has already been mentioned, organisations may encounter costs associated with the termination of a relationship. These costs will not necessarily be evenly distributed and partners are likely to specify contractual conditions (McMillan, 1992). These conditions will likely state, amongst other things, the minimum duration of the partnership. By the same logic, duration-oriented conditions may well be required to avoid unnecessary losses from sunk costs.

2.11.4 Contracting to preserve a market position

The next type of condition required is one that preserves the current or planned market position of the partnership, especially if the minimum duration of the partnership is pre-specified for reasons already given. This type of condition is likely to place limits on price and quality variations, as well as specifying minimum service levels such as time for delivery.

2.11.5 Contracting to spread risk

Finally, it is quite likely that any partnership will involve a certain amount of risk for either one, or both, parties. McMillan (1992) shows, in fact, that spreading of risk is a major source of gains from trade.

To illustrate this point, imagine that eCheese is a tiny retailer relative to eWine. The partnership is potentially very valuable to eCheese, but is likely to involve a fairly large advertising expenditure. There is a chance, though, that the partnership will fail to meet goals set by eCheese, in which case it would not be able to recover its debt and would have to be liquidated. Imagine that the probability of R100 000 profit was equal to the probability of R50 000 loss, but eCheese could not survive that type of loss. According to game theory, the partnership is worth R25 000 and is therefore worthwhile.

Without the possibility of contracting, eCheese would not enter into the contract because a 50% chance of being liquidated is too high. If a contract exists, then eCheese could agree to share the risk with eWine. A R25 000 loss would be manageable for each company so both agree that they split the profits in half or equally split the losses in half.

In fact, if eWine is big enough to be almost risk neutral (a 50% chance of winning is equally preferable to a 100% chance of getting half the winnings) then eCheese could design the contract so as to offer eWine fractionally more than R25 000 of the winnings in return for eWine taking on R25 000 of the losses. This would leave eCheese with a 50% chance of losing R25 000 and a 50% chance of winning close to R75 000. This second contract would represent a massive gain from trade on eCheese's part (albeit a very small one for eWine) (McMillan, 1992).

The previous paragraph merely illustrates that contracts which spread risk may be highly profitable and therefore will probably materialise in the unchartered and risky world of online partnerships. Even if partnerships can be perfectly measured and gains perfectly evenly distributed, there is still a risk, especially if there are significant upfront costs, that the partnership is inherently not as valuable as hoped.

2.12 The partnership contract – further considerations

2.12.1 Contractual payments and the value block

The purpose of the value block, for each partner, is to measure the value that accrues to the components of the partnership. The value block and value conversion function are used to translate site interaction information into value information. The value block is primarily concerned with prediction and measurement of interactions that are beyond the direct control of either partner.

Contractual payments, on the other hand, are concerned with distributing the value measured in the value block by means of the FT grid. The contract and any payments that it specifies are under the direct control of the partners and are significantly influenced by measurements made within the value block. It is for this reason that contractual payments are separate from the value block and do not simply constitute one of the value layers within the block.

To illustrate the distinction between contractual payments and the value layers within the value block, imagine a pie. The value layers measure the size of the pie. The contractual payments indicate how the pie is to be divided into pieces.

The total value that accrues to each partner is of course a net sum of the benefits measured within the value block and the payments made between partners on a contractual basis – a function of both the size of the pie and each partner's share.

2.12.2 Partnership efficiency

The models presented thus far maximise the efficiency of the e-tailing partnership in two ways. Firstly, by recording relevant information about interactions with users, the underlying computer system drastically reduces the cost of monitoring the partnership. Secondly, accurate modelling of interactions drastically reduces the risk of being in the partnership. Without modelling, partners must predict both the value of each interaction, as well as user behaviour in terms of the numbers of interactions that might occur. If user behaviour is accurately modelled, then there need not be any guesswork – the partnership value is simply stipulated as a function of interaction value and user behaviour, which is monitored rather than predicted.

At the same time, there are at least two significant inefficiencies. First, in order to accurately model the real world the partners must incur the direct time cost of analysis and modelling and the indirect cost of possible failure to model correctly. Second, partners incur the cost of negotiating contractual payments and terms. A portion of the latter cost may be incurred regularly as contractual payments are revised throughout the partnership, but much of the cost of formulating the contract is incurred only at the start of the partnership. The costs of analysis and modelling are also incurred only once.

The efficiencies and inefficiencies are inter-related. As modelling becomes more accurate, so risk is reduced. This observation has already been made in 2.11.1 The nature of the contract. At the same time, the revision of the set of contractual payments and terms at regular intervals reduces risk for each partner – but the revision process is costly and may involve a complex negotiation process.

Three extrinsic factors affect the efficiency of this type of partnership: the number of individual interactions, the total value of all interactions and the duration of the partnership.

The number of individual interactions is important because, as the number of interactions grows, so does the importance of automated monitoring. Conversely, if there are few interactions, then these can be monitored manually at a low cost, decreasing the need for efficient, automated monitoring.

The total value of all interactions has a direct effect on the relative cost of designing the partnership and reviewing contractual payments. This means that more valuable partnerships can be made less risky through decreased costs (relative to total value), whilst at the same time justifying the relatively small cost of increased model sophistication and validity, and increased frequency of contractual term review.

The duration of the partnership is important because if the contract is short-term, then the cost of bartering payments and terms needs only to be completed once. If the

contract is long-term, then not only do the inefficiencies of revising contractual payments rise, but the negotiation process may be further complicated by the existence of long-term strategies. For example, one partner may offer another partner excellent terms at the start of the contract with the intention of increasing incoming contractual payments once the other partner's customers have grown accustomed to the new product offering.

In summary, low volume (few individual interactions) partnerships do not fully exploit the efficiency of automated monitoring. Low value contracts incur a trade-off between risk and the inefficiencies of accurate modelling, contract formation and contract revision. High volume, high value, short-term contracts stand the most to gain in terms of the efficiencies of this model.

2.12.3 Cheating the contract

In order for partnerships of this nature to work in reality, it is important that the contract cannot be easily cheated. There are a number of stakeholders in a single partnership: these include customers, the partners themselves and competitors. Each will be discussed in turn.

Customers are indirectly stakeholders in the partnership. If the partnership benefits the customer, then he/she will have an incentive to act in such a manner that causes the partnership to endure. There is, however, no direct payment or other incentive for interacting with the partnership that may induce the customer to try to cheat either partner.

Both partners have obvious incentives to cheat the contract themselves to try to maximise their own gain. The hosting partner has control over the site itself and the database that is used to store information about interactions. As such, the hosting partner can plausibly alter figures fraudulently, presenting the owning partner with incorrect interaction data thus "engineering" contractual payments. It is difficult to completely eradicate fraud, especially electronic fraud where no paper trail exists, but because these partnerships rely on live links between the partners' systems (real-time price data etc.) it is likely that both systems will record interaction data – thus

affording each partner the ability to verify the other. Of course, systems can conceivably be built to incorporate fraudulent transactions, but partners are likely to be aware of this possibility and implement measures to prevent it.

A partnership is described by contractual payments and terms that are known to both parties, but neither partner needs to know the other's value block data. The outcome of the contractual process is specifically designed to be independent of value block data because there is little way for either partner to verify or validate the other's block. Presenting invalid value data or profit margins, for instance, is not a mechanism for cheating or skewing the contracting process.

Competitors have an obvious incentive to cheat one or both partners. Because online customers can easily misrepresent themselves, or even be anonymous, it is very difficult to stop competitors, or any malicious party for that matter from creating false interaction data. This would be similar to trying to stop a competitor from relentlessly clicking on a link that is being paid for on a click-through basis on a typical Internet site. Two factors do, however, limit the scope of malicious attacks. First, interactions that are likely to involve the greatest value, and therefore the greatest contractual fund transfers, are almost certainly going to be purchases made by customers. Purchases cannot be easily simulated because financial transactions between customers and vendors online are closely monitored, usually by third party payment gateways. Secondly, because each session is only described by a single interaction, and session data such as the location of the browsing computer may be stored, it is easy to investigate cases where a user on a single machine generates large numbers of interactions.

2.13 The market for e-tailing partnerships

Businesses using the e-tailing partnership models presented here are not tied to a single partnership or a single partner. At the same time it is true that individual products can be involved in more than one partnership. Swiss cheese can be cross-sold with fondue sets at eKitchen.co.za and at the same time be bundled with red wine at eWine.co.za. Red wine can be bundled with Swiss cheese on eWine.co.za and can be bundled with crystal wine glasses at eKitchen.co.za. This section is devoted to an

analysis of the mechanisms that support multiple concurrent partnerships occurring in a market for e-tailing partners.

In this discussion, contractual payments between partners will be referred to as prices. The amount that eCheese must pay eWine per purchase that a >60 year old makes will therefore be referred to as the price of that interaction. The fund transfer segment-interaction grid is consequently a set of prices charged by one partner to the other. Negative figures in the fund transfer grid denote prices charged in the opposite direction.

Before the outcomes of the market for partners can be discussed, one needs to understand the mechanism that controls how partners are chosen.

2.13.1 Partner choice mechanism

The first assumption that needs to be made when considering the partner choice mechanism is that the partners both wish to maximise their own benefit. This is a defensible assumption and holds true when partners consider which partnerships to pursue and which to avoid. Partners are not necessarily concerned with the total value of the partnership, but with the share that accrues to each of them.

Fortunately for the e-tailer, he/she does not need to make an outright decision between whether to pursue one or other partnership. This is because any product can be involved in many partnerships and even a single partnership is ruled by a set of prices. Consequently, any product can be ruled by many prices, depending on the market segment, interaction type and partnership choice. Ultimately the partnership choice and interaction type can be decided automatically by the software driving the hosting e-tailer's website. If a 30 year-old female who enjoys skydiving and horse-riding logs onto the site, then the software can simply examine each partnership that the business has set up, examine all of the segments into which the customer fits, examine all of the interactions that are available at that time, and choose the one which benefits the business the most. It does not matter if a user belongs to multiple segments that overlap or clash, because, whilst only the most valuable one need be selected, all segments can be evaluated.

The net benefit from an interaction is equal to the sum of the price charged and the value of that interaction as it appears in the value block. This leads to the observation that the automated system should not simply choose the highest price from its set of interaction options, but should also take into account the intrinsic (value block) value of that interaction. This would obviously require that the value information be available to the software system, but it presents no requirement that this information be available to the other partner, customers or competitors.

According to basic economic theory, demand and supply control the prices of goods, providing that a number of assumptions hold true – many buyers and sellers, perfect price information etc. In a perfect market, prices eventually settle and an equilibrium price is reached (Mansfield, 1997). This is true in the market for e-tailing partners, except that an equilibrium value is reached. This is demonstrated by the fact that the hosting partner (who controls the partner choice for each interaction) will be indifferent between choosing an interaction for which it charges a price of 50 cents and attributes an intrinsic value of 75 cents and an interaction for which it charges 60 cents and attributes an intrinsic value of 65 cents – in either case, the hosting partner values the interaction at 125 cents, even though prices are different. If clashes occur, the host may randomly select a partnership, cycle through partners, prioritise partners independently of the partner choice mechanism or use any other technique. A clash denotes value equivalence, so the clash resolution technique cannot have an effect on value.

The implications of the partner choice mechanism for prices are discussed next, but first the distinction must be made between user-initiated interactions and site-initiated interactions. A site-initiated interaction can occur in the manner described in this section – a user logs on and the site decides whether to cross-sell peanut butter to that user, advertise furniture to the user or bundle cheese and wine for the user. Of course, whether the user purchases any of these options is entirely up to him/her and so an interactive response is termed a user-initiated interaction. Other types of user-initiated interactions may exist where, for instance, a business values an interaction more if a

user clicks-through for more information than if the user merely views the product – the presentation of the good is site-initiated, but the click-through is user initiated.

The partner choice model can only be valid as a mechanism for predicting price outcomes if the bulk of interactions are site-initiated – the site then has the opportunity to choose the most valuable interaction. Currently 70% of retail sites experience only a 2% conversion rate of visits to purchases showing that only a very small proportion of interactions are user-initiated purchases. (Moe et al, 2000) There is also likely to be a correlation between prices that a single partner is willing to pay within a particular market segment for a particular partnership – if eCheese is willing to pay a high price for a cross-selling interaction with a 60 year-old, eCheese is also likely to pay a high price for a click-through from a 60 year old. Therefore, the hosting partner would be likely to want to choose the same partner for site and user-initiated interactions if he/she could choose the latter. Because one often leads to the other – cross-selling of a good may lead to a request for more details; bundling of a good may lead to purchase – the partner choice model is likely to be a good estimator even outside of site-initiated interactions. User-initiated interactions with a certain partner are likely to be preceded by site-initiated interactions where that partner was chosen by the host software.

The subject of the following discussion is the opportunity. An opportunity can take various forms, but occurs whenever either the host site or the user has the option of initiating an interaction. An opportunity therefore exists almost every time that the web page is refreshed. As soon as a page is requested and a session is started, the site has the opportunity to initiate an interaction – specifically that interaction with the maximum value to the site for an anonymous user. If the site automatically recognises users and does not require a login process, then the chosen interaction can maximise the value for any market segment that includes the customer's profile. The site may not always have the entire set of site-initiated interactions to choose from. For example, product discounts may be given only to regular customers, but this does not impact the mechanism because the system will simply try to maximise value gained from the available set of interactions. The site obviously cannot choose from the set of user-initiated interactions, but because user-initiated interactions usually require the

previous existence of a site-initiated interaction (a product cannot be purchased or clicked before it is shown on the page), user-initiated interactions are likely to be part of the same segment-interaction grid originally chosen by the system to maximise value. This was mentioned in the previous paragraph and serves to show that user-initiated interactions are likely to approximate fairly closely the result of maximised value demonstrated within the site-initiated partner choice model.

In the following discussions of market outcomes, a simplifying assumption is made. Each host is assumed to have to choose a single interaction to initiate. For example, if a 30 year old, wine-tasting, jogging user logs onto the site, the hosting partner must choose to either cross-sell wine or running gear, it cannot choose to do both. Of course, this is not necessarily the case and the assumption is made for the sake of simplicity. In order to extend the model to include cases of multiple interactions being chosen at each opportunity, use the same logic as below, but choose the two or three or four etc. most valuable interactions to initiate rather than only the single most valuable one.

Similarly, the assumption of single session-single interaction will be maintained for simplicity, but inclusion of multiple interactions in a single session, perhaps interactions from different partnerships, is very similar to the inclusion of multiple interactions at each opportunity. Should the partners wish to allow multiple interactions per session, it will complicate the model, but the logic of the following arguments will remain.

The partner choice model is illustrated on the next page.

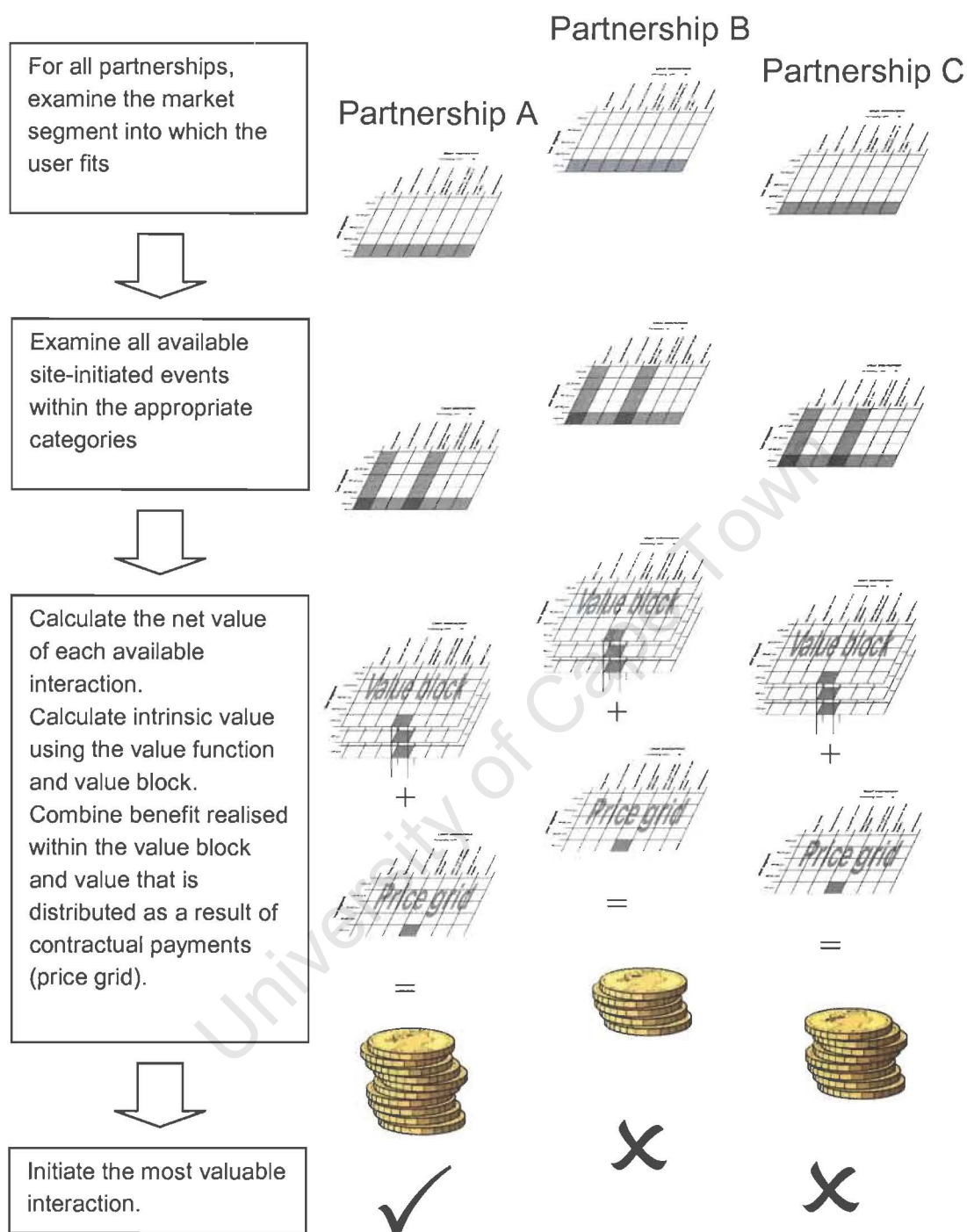


Figure 2-6: The partner choice model

2.13.2 Case 1: Single host – single owner

The case of a single host and a single owning business has already been discussed at length in this text. In fact, the single partnership case is the only case that has been approached in this text so far. It is unclear where equilibrium prices will lie in this case, except to say that the price paid by either partner will be less than the value that it stands to gain from the interaction. This is fairly obvious; it does not make business sense to pay more for something than the benefit that it is expected to yield. Even though the single host-single owner case has been analysed at length it is useful to take this opportunity to introduce an illustrative approach to the problem of equilibrium prices under various conditions.

The analyses that follow are almost entirely concerned with the contractual payments or prices that describe partnerships. Unless otherwise stated, inefficiencies such as contractual start-up costs, analysis and modelling costs are ignored. For efficient partnerships (high volume, high value, short-term contracts as demonstrated in 2.12.2 Partnership efficiency), inefficiencies may be so small as to make their exclusion defensible, but particularly as partnerships get less valuable, inefficiencies may have an observable impact on the mechanisms explained here. At the same time, the efficiency of the market itself and other convenient omissions such as fulfilment considerations may have a considerable impact on the “frictionless” functioning of market mechanisms.

The basic price constraints within a single partnership are shown on the following page for a single interaction's price.

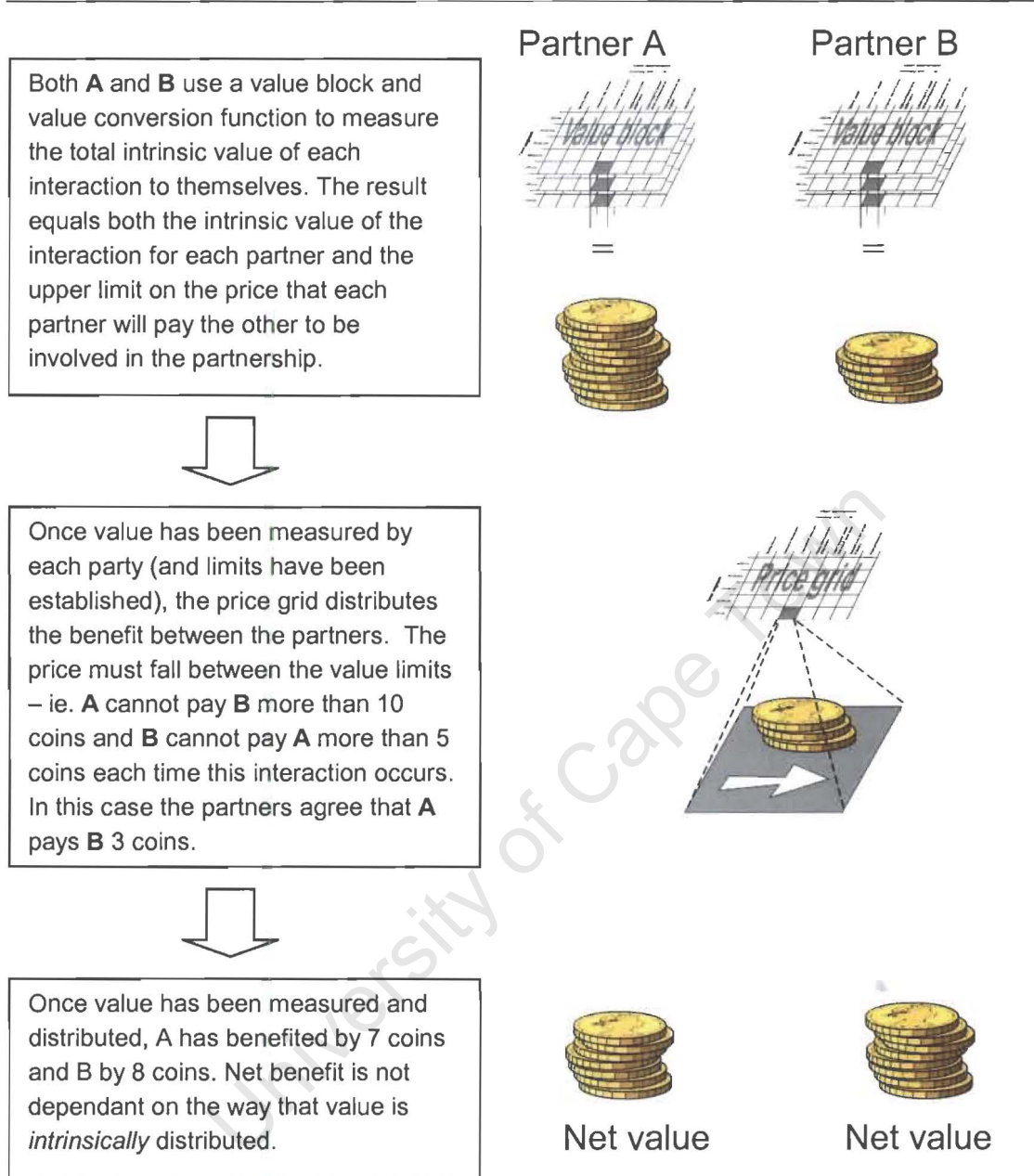


Figure 2-7: Price limits for a single interaction

The above example serves to illustrate the constraints applied to the price of a single interaction, but the same argument extends to all prices within the price grid. In the single host-single owner case, the distribution of value will not necessarily be equitable or equal, but will rest at some point that is considered by each party to maximise its own gain under the given conditions. As previously mentioned, this is known as the focal point (McMillan, 1992).

2.13.3 Case 2: Single host – multiple owners

The single host-multiple owners case is interesting because it illustrates both price pressure and value maximisation. The obvious difference between this and the previous case is that the single host may now employ the partner choice mechanism to maximise his/her own benefit. Once again, a single price is demonstrated and the argument is generalised to all prices within the price grids.

Imagine that there is one host “A” and two owners “P” and “Q”. Imagine that, at first, A enters into partnerships with both P and Q and in both partnerships agrees that no contractual payments are necessary – all prices are zero. This example is shown below.

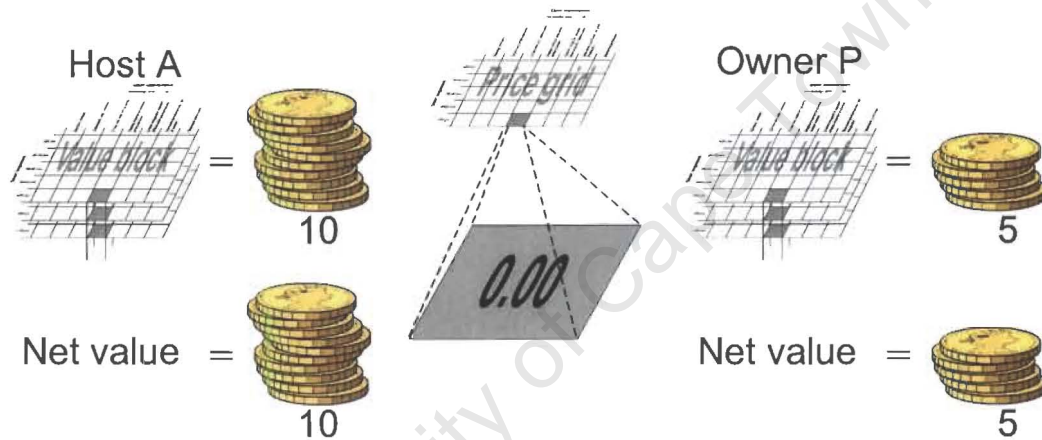


Figure 2-8: Partnership 1 (Host A-Owner P) – No payments

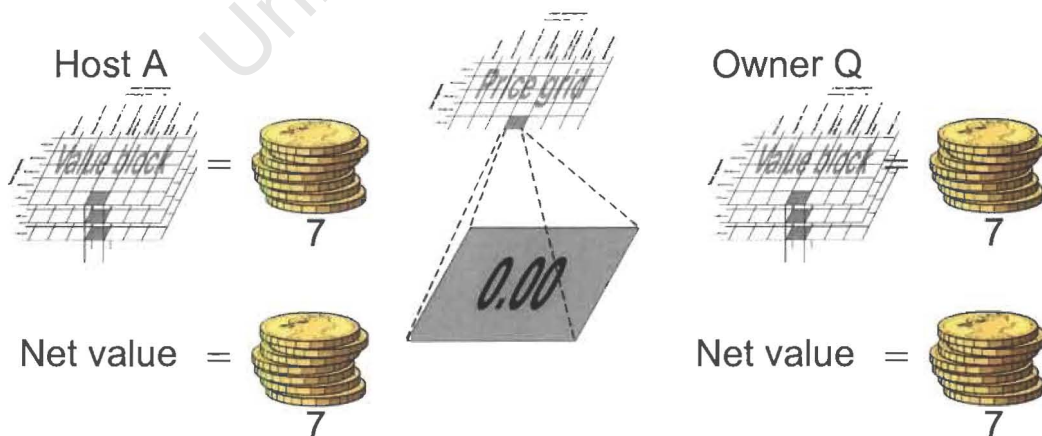


Figure 2-9: Partnership 2 (Host A-Owner Q) - No payments

The partner choice mechanism, which maximises value for A, initiates Partnership 1 for every user in the market segment shown – Q gets no exposure to this segment. Q may decide, however, that if he/she pays A the price of 4 coins for this interaction, then he/she (Q) can still benefit by three coins. This is shown below.

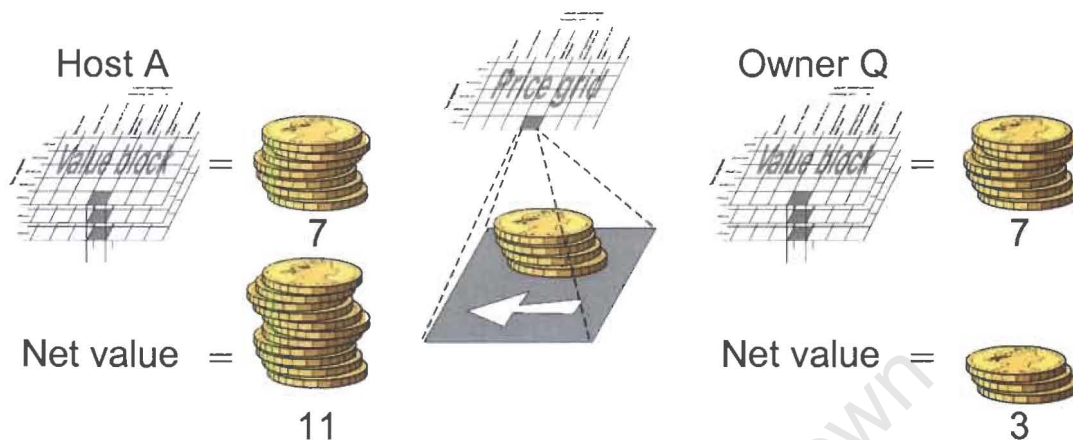


Figure 2-10: Partnership 2 - Q pays A 4 coins

Now A chooses to display Q's product ahead of P's because the net benefit for A has risen to 11 coins. Of course, there is now pressure on P to pay A in order to get coverage. If P pays A 2 coins then A benefits by a total of 12 coins – once again choosing Partnership 1. However, Q still has incentive to increase its payment to A until an upper limit of 7 coins. Ultimately P will have to pay A almost all of its value to A – eventually keeping only the smallest fraction – 1 coin – for itself. Once this happens, Q no longer has incentive to pay A because, unless Q pays all of its coins, A will always choose to partner with P.

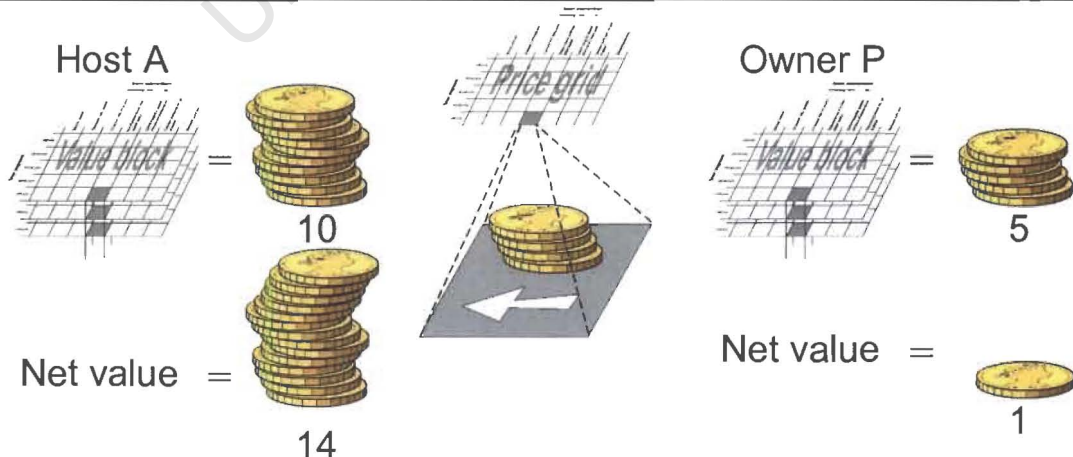


Figure 2-11: Equilibrium value - P pays A 4 coins

This example shows that, when there are multiple owners looking for partnerships, the price of each interaction is pushed up to the point at which the host partner receives almost all value. The host does not even need to negotiate, because, if he/she simply asks the system to initiate the most valuable interaction, then the price is automatically pushed upward for all owners who wish to get exposure. It is interesting to note that it is the equilibrium value realised by the host in the single host-multiple owner case tends toward being equal to the combined value of the most valuable partnership. The equilibrium value does not necessarily correspond to the highest price.

The previous statement is important because it shows that, as soon as there are multiple owners, they can fight amongst themselves for exposure. Without any bartering effort, the host can maximise the value of the entire partnership by simultaneously choosing the most valuable partnership and maximising his own value within it. If one partnership has significantly more combined value than all others then, using the partner choice mechanism, the host can only claim as much value as exists in the second most valuable partnership. If he/she wants more than that, then he/she will have to barter for it. If there are enough owners, however, this should not be the case.

This section has demonstrated the pressure on the price of a single interaction within a single market segment. Of course, a partnership constitutes an entire grid of prices, so one partner will not necessarily be chosen over others at every opportunity. This is true because different partners will prefer different segments and may even segment their markets in different ways. This model is not dependant on all partners having the same segment-interaction grid structure. To illustrate this, imagine that P is a sports equipment retailer selling tennis racquets and Q is a dedicated fly-fishing store. P segments its market by age and Q segments its market by hobbies. If a 30 year-old surfer visits A, then A will compare the benefit of showing tennis racquets to 30 year-olds with that of showing fishing lures to surfers. If a 30 year-old fisherman logs on, then A will compare the benefit of showing tennis racquets to 30 year-olds with that of showing fishing lures to fishermen. In each case, upward pressure is applied to the price that P is willing to pay. It may be the case that P's upper price limit and A's

value block combine so that tennis racquets are shown to surfers but not fishermen. Even so, when there are multiple owners, value is distributed almost entirely toward the host.

2.13.4 Case 3: Multiple hosts – single owner

The multiple host-single owner case is similar to the first case discussed. Each host has only one choice at every opportunity and so there is no upward pressure on prices that the host can charge. Unfortunately for the owner, even in a case where he/she exists alone, there is no pressure downward on the price that he/she must pay. The reason for this is simple – whereas the host must, at any opportunity, choose the single highest value interaction, the owner has incentive to enter every partnership from which he/she can extract any value. Imagine the following situation.

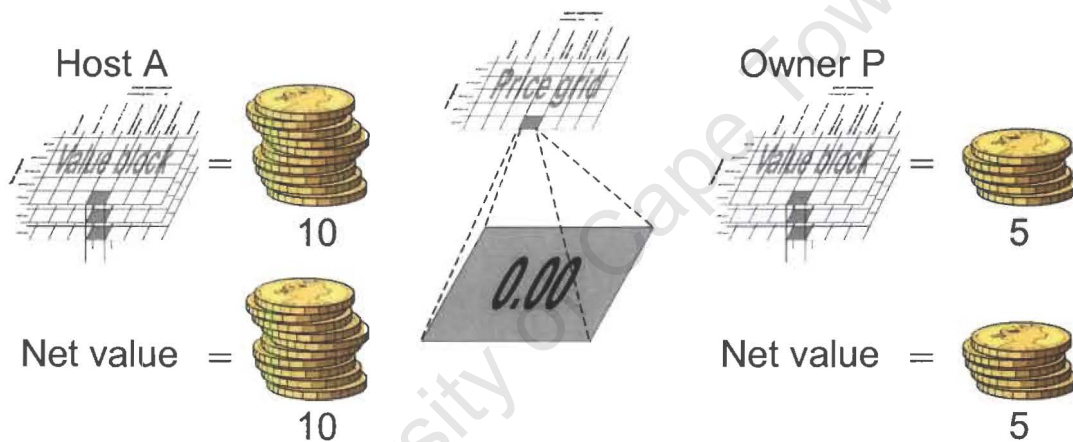


Figure 2-12: Partnership 3 (Host A-Owner P) – No payments

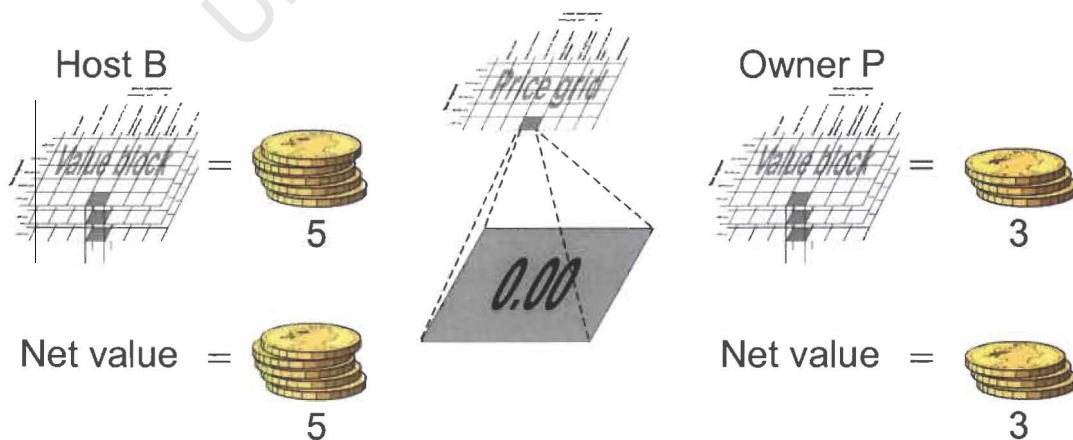


Figure 2-13: Partnership 4 (Host B-Owner P) – No payments

In the previous section, there was upward pressure on the price because owners P and Q competed with one another to get coverage on A's site. In this case, however, hosts A and B do not need to compete for a valuable partnership with P because P has incentive to enter both simultaneously as long as neither exceeds P's price ceiling. By the above partnerships with A and B, P can extract net benefits of 3 and 5 coins and A and B can extract net benefits of 10 and 5 coins respectively – every partner experiences incentives and there is no price pressure exerted by the market. Essentially, A is totally independent of B and two separate partnerships exist, each exhibiting the behaviour of the single host-single owner case.

In reality, the multiple hosts case is slightly more complicated than is suggested above. If the above were precisely true, then P should potentially enter into a negotiated partnership with every host that exhibited even the tiniest benefit potential. Unfortunately, for a number of reasons this may not be the case. Firstly, P may simply not have enough time or employees to successfully monitor large numbers of partnerships, even if the monitoring cost is very small. Secondly, P may not experience enough demand for his/her products to justify large numbers of partnerships. Because of demand considerations, P may value individual interactions less and less as the number of partnerships increases and each additional one becomes less significant.

The first consideration, which cites inefficiencies as a limiting factor in terms of numbers of partnerships, does not directly suggest a change in either the price constraints or benefit estimates. By limiting the number of partners, the effect of inefficiencies is to force the single owner to choose his/her 10, 15, 20...100 most profitable partnership options. In a similar way to the single interaction choice in the multiple owner model, the limitation of hosts in the multiple host model puts a certain amount of pressure on prices. In the latter case, however, pressure distributes value toward the single owner through a certain amount of price competition amongst hosts.

The second consideration: that benefit may decrease with additional partners, does not put pressure on equilibrium prices, but rather modifies price constraints (which are logically equal to value).

2.13.5 Case 4: Multiple hosts – multiple owners

The multiple hosts-multiple owners case, the case that is most likely to be found in reality, is a combination of the previous two cases. On one hand, owners are limited in the number of hosts that they can partner with at any time, thus forcing the owners into a price competition and putting downward pressure on the price charged by the host (or upward pressure on the price charged by the owner). On the other hand, scarcity of opportunities on host's sites put a large upward pressure on the price that hosts can charge per interaction.

On aggregate, price pressure is likely to be strongest in the direction of the host. This is because it is caused by simple market forces, rather than inefficiencies or demand considerations that may fluctuate wildly from business to business. Even so, if a retailer is in a position to differentiate him/herself significantly then he/she can influence the way that value is distributed by emulating the single host or single owner model.

Finally, it is interesting to note that neither partner can know for sure what the other's value block and value function look like. Each partner can only act in his/her own interests with his/her own information, yet a "frictionless" market in partners tends, without external intervention, to favour the most valuable partnerships.

In summary this chapter identified the research framework and discussed theoretical models and their basic components. Treese and Stewart's (1998) commerce value chain framework served as a basis for the value proposition of the e-tailing partnership models presented. Value resulting from e-tailing partnerships was shown to be added during the *attract*, *interact*, *act* and *react* stages (though only a small amount of value is added in the final stage).

Partnerships were shown to extend beyond financial e-commerce value into the realm of e-business where marketing concerns such as user segmentation and interaction are crucial. The measurement and tracking of benefits from partnerships are central to unlocking value and making partnerships viable for all concerned. Challenges in this area were addressed by the value block, which is both a tool for assessing individual

partner value and the starting point for the development of the fund-transfer grid central to the partnership contract. Ultimately, the dynamics of a theoretical market for partnership contracts was shown to favour the most valuable partnerships.

The following chapter addresses the subject of design, taking theoretical models from Chapter 2 and relating them to current e-business software.

University of Cape Town

CHAPTER 3

SYSTEM DESIGN

Chapter 2 talks about a new model of business that revolves around the identification, implementation, management and destruction of partnerships between e-tailers.

Chapter 2 contains descriptions and analyses of the various components of these partnerships as well as demonstrating the potential profitability of well-designed partnerships.

Chapter 3 takes the concepts in Chapter 2 and shows how they can be integrated into existing e-tailing systems. The purpose of this section is not that it act as a requirements or design document, but rather that it illustrate the feasibility of a generic partnering system; at the same time highlighting potential possibilities and difficulties.

3.1 Data requirements

The first stumbling block is to show that the data requirements for such an e-tailing partnership can be met. The requirements discussed here are those of a generic system for a single partner. The system should allow the business to act as a host, owner or both depending on its preference. The system must also allow multiple simultaneous partnerships of either sort and must include the possibility of implementing previously discussed functionality such as the partner choice model. Where simplifying assumptions have been made in previous sections for the sake of facilitating explanation, these will be discussed further in this section with a view to relaxing some of the assumptions.

It is simplest to present the data requirements in a progressive manner, starting with, in terms of this model, the most fundamental entities and relationships. As further entities are added, so the model becomes both more complex and more flexible. For each complexity that is encountered, there may be a multitude of design options. Each option must be evaluated in its own context. The various options are presented and discussed within the narrative accompanying each entity relationship diagram (ERD).

The last steps in presenting data requirements are to show how the partnership mechanisms tie into existing e-business software design and to describe how individual systems act in relation to one another.

3.1.1 Partners, partnerships and value blocks

Central to the e-tailing partnership model is the value block. It is important, therefore, to illustrate the relationship between the components: partner, partnership and value block. In narrative form it is easy: a business has one or more partners; each partner is involved in one or more partnerships and each partnership is characterised by a single value block. (This is not strictly speaking true because any given partnership is actually described within two value blocks, one for each partner. As was mentioned earlier, however, this text is at first concerned with the design of only one side of a partnering system.)

The value block is not a simple entity, but rather comprises value estimates and measurements in a three dimensional matrix. Because there is only one value block per partnership, the dimensional entities (VALUE LAYER, market SEGMENT, user INTERACTION) have direct many-one relationships with the PARTNERSHIP entity. Each individual value estimate or measurement (VALUE ENTRY) belongs to a specific location within the value block and as such is related to a single VALUE LAYER, SEGMENT and INTERACTION set. The relationships are shown in the diagram below. The value block entities are enclosed in a dashed line.

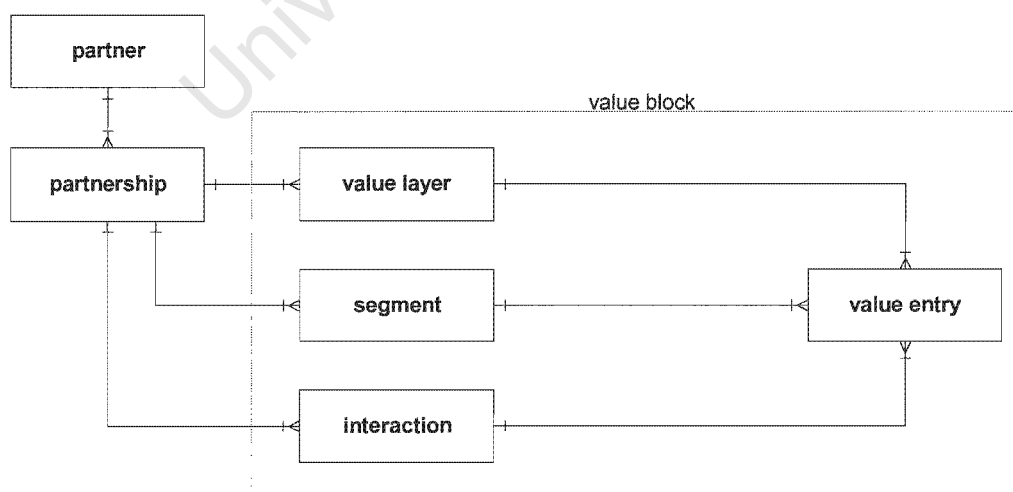


Figure 3-1: Partner, partnership and value block

The ERD shown above is the first step in developing the data requirements for the partnering system, but already there are a few significant observations to be made. The first observation is that so far the ERD accounts only for a snapshot. Of course, as time passes, values will change and the composition of the block will change. If information is not to be lost as time passes, then some method of historical data retention needs to be included. Historical data, an important part of the model, is contemplated again later.

Another observation is that there exists no specific entity labelled “value function”, so where is that data stored? The answer lies in the one-one relationship between a value function weighting and a value layer. The weighting for each layer is simply a characteristic of that value layer and may be stored as part of the VALUE LAYER entity.

A third observation is that there is no re-use in the suggested ERD. For each partnership a new value block must be defined and created. For each block new value layers, segments and interactions must be defined. No layer, segment or interaction may be found in more than a single value block. If the assumption of no re-use is always correct, then the current model is acceptable. If the assumption is incorrect, however, then the current ERD creates a significant amount of unnecessary duplication.

The assumption prohibiting re-use of entire value blocks is that of a “one-to-one partnership-to-value block relationship”. This is a defensible assumption because, even if two value blocks were to be exactly the same at a given point in time, or for a given period, there is no guarantee that this will be the case as time progresses and partnerships mature. The lack of re-use in the VALUE LAYER, SEGMENT and INTERACTION entities is not as defensible for a number of reasons.

In terms of the value layer, it is obvious that value blocks will share value types and therefore value layers. For example, most blocks will have sales revenue, and product brand value layers. In addition to the question of re-use, if value reporting or comparison is to be done across partnerships then value layers need to be re-used. To illustrate with an example; imagine that eWine’s directors wish to know the benefit of

their online partnerships with respect to the company brand over the previous month. This is very difficult to ascertain unless each partnership's value block includes a company brand value layer – in which case it is possible via a simple database query.

At the same time, however, it is important that each layer has a separate identity for each block in which it is included because each block may have a different conversion function weight. For instance, eWine may have a value layer labelled "goodwill". The weighting of goodwill may well differ from partnership to partnership, depending on the expected duration of the partnership and on the size and influence of the partner. If there is a requirement that weightings of specific layers be consistent across partnerships, then this can be coded into a function rather than being a property of data storage.

Taking the above into account, it makes sense to include a VALUE LAYER TYPE entity. The inclusion of this entity as shown in Figure 3-2 on the next page, allows both reuse and consistency of value layers across partnerships. In narrative form; a single partnership's value block is described by one or many value layers, each layer has a value layer type which can also define value layers within other value blocks. Note that the value function weighting for a layer needs to refer to a layer type within a specific value block, thus it must form part of the VALUE LAYER (not VALUE LAYER TYPE) entity. Note also that any instance of any entity mentioned so far must be uniquely described by its relationships. In other words, there cannot exist two value layers of the same type within a single partnership; there cannot be two value entries for a single value layer, segment and interaction combination.

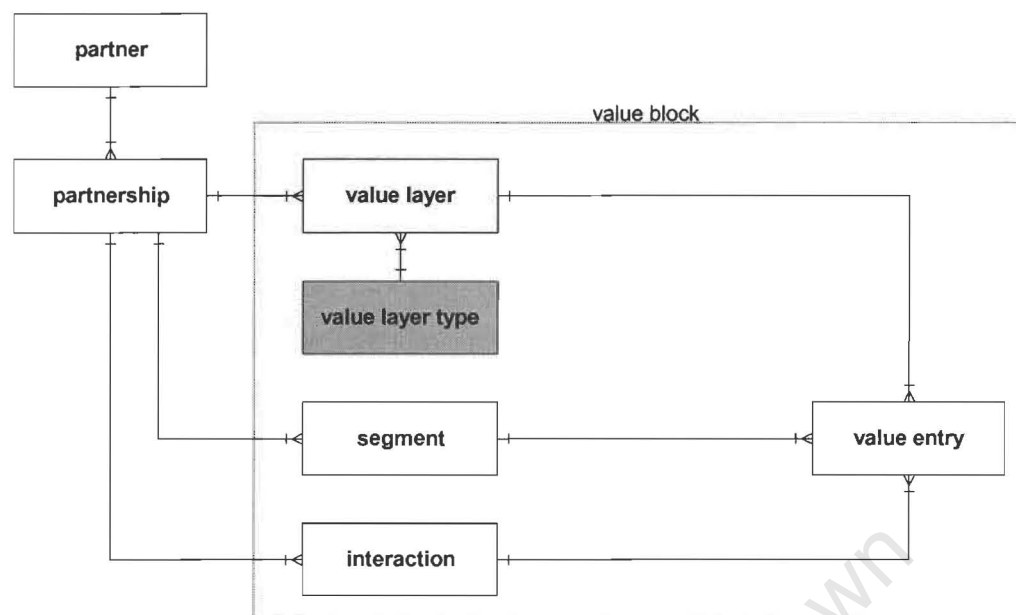


Figure 3-2: Introducing value layer type

A very similar argument applies to market segments and user interactions. There is likely to be reuse of market segment classifications, especially if more than one partnership is entered into with one organisation (whose marketing department may wish to be consistent across partnerships). At the same time, because market segmentation will depend to a large extent on current databases of customer information, segmentation across partnerships is likely to be similar.

User interactions will be fairly similar across partnerships because web site consistency and ease of use rely on the user knowing what to expect and knowing what is available. Expected and available interactions should therefore be fairly consistent independently of the partnership concerned.

Both of these challenges can be met by including segment type and interaction type entities as in Figure 3-3.

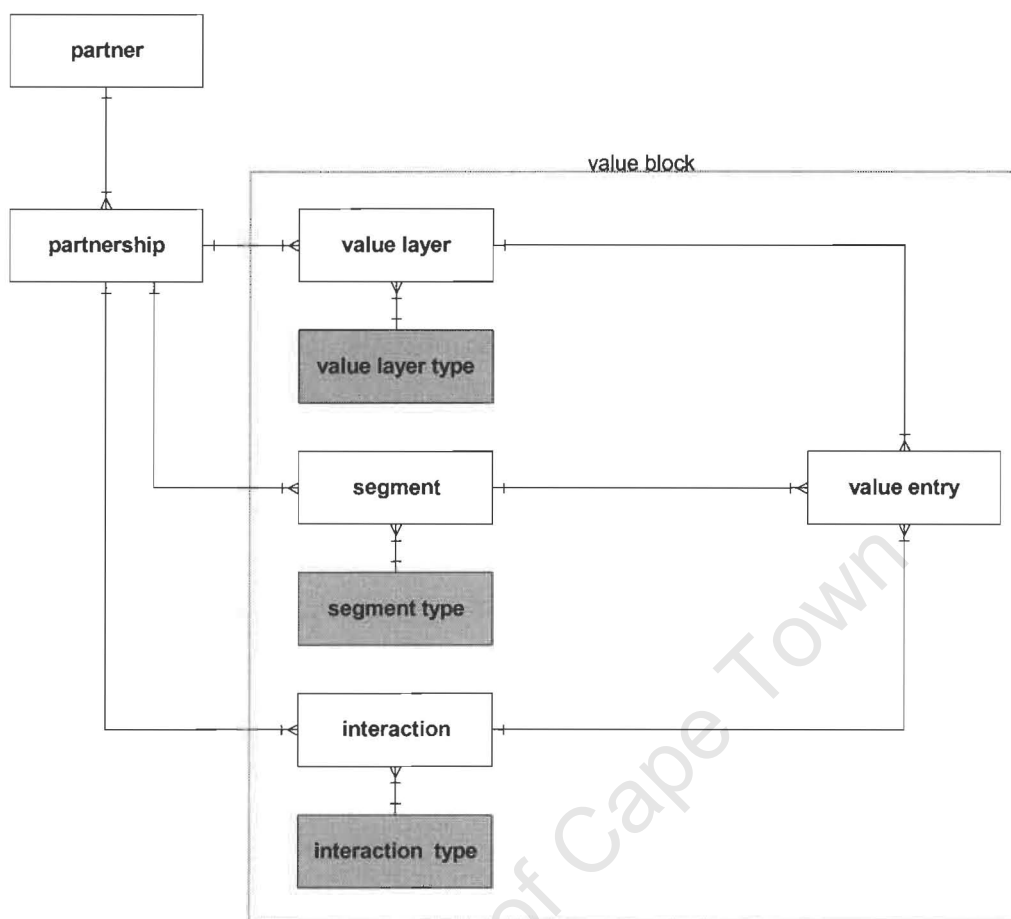


Figure 3-3: Introducing segment and interaction types

The value block is suggested as a framework for continuously evaluating the benefits accruing within a partnership and is an integral piece of the partner choice model. The other piece of the partner choice model is the segment-interaction fund transfer grid (FT grid).

3.1.2 Fund transfer grid

In order to avoid confusion with traditional usage of “price” within business software, “prices” within the FT grid are referred to as “FT entries”. The FT grid contains the set of agreed payments that will move between the two partners for any market segment-interaction pair that occurs within a session on the website.

The partner choice model requires that the FT grid comprises either the same segments and interactions or a subset of the segments and interactions that form the

axes of the value layers within the value block for a specific partnership. This means that the same SEGMENT and INTERACTION entities that describe the value block can be used to describe the FT grid. If the FT grid does not include all segments or all interactions, then the segments and interactions should be flagged according to their inclusion or exclusion in the FT grid. The FT ENTRY entity is equivalent to the VALUE ENTRY entity in the value block.

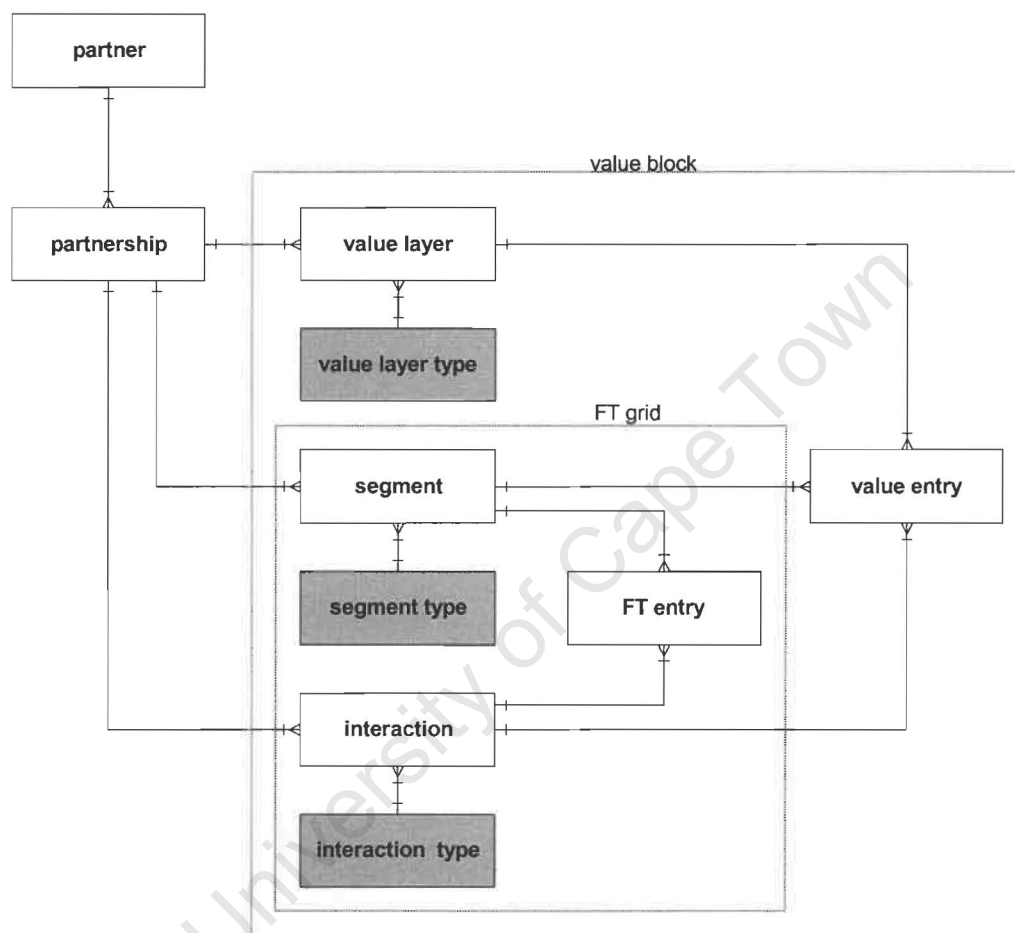


Figure 3-4: Introducing the FT grid

3.1.3 Sessions and interactions

One of the most important requirements of a partnering system is that it records user interactions with the site. It is this data, combined with the value block and FT grid, that lets the partners measure, analyse and evaluate different aspects of their partnerships and track funds transferred between partners.

Throughout this paper the assumption has been that a single segment-interaction pair describes each session. If this were the case then the SESSION entity should simply identify the VALUE ENTRY that characterised that session (the VALUE ENTRY in turn is related to a single segment-interaction pair). The VALUE ENTRY entity is preferable to FT ENTRY because FT entries may only include a subset of potentially valuable interactions and segments. Two businesses may, for example, only specify that funds will be transferred in response to exposure to the 30-40 year old market segment. The hosting business may nevertheless wish to record interactions with all market segments. Interactions may, after all, be user-initiated and thus no market segment can be ruled out even though no FT entries are agreed – they simply take on zero value.

The major concern with the design suggested above is that the single session-single interaction pair assumption is not justifiable, especially when multiple partnerships are considered. During a long session, the user may interact with many partnerships and each of these interactions is potentially valuable. The system may still be required only to record one interaction (only the most valuable) per partnership for reasons already given, but the possibility of interacting with multiple partnerships in a single session is still real.

A simple way to allow for a many-many relationship is to create a resolving entity called SESSION-INTERACTION. Each time a user interacts with the site, the session, time and segment-interaction pair (VALUE ENTRY) are recorded by the system. This method also accounts for users who may belong in multiple market segments, but for whom it is necessary to prioritise a segment during data capture. The relevant session and interaction entities are shown in Figure 3-5.

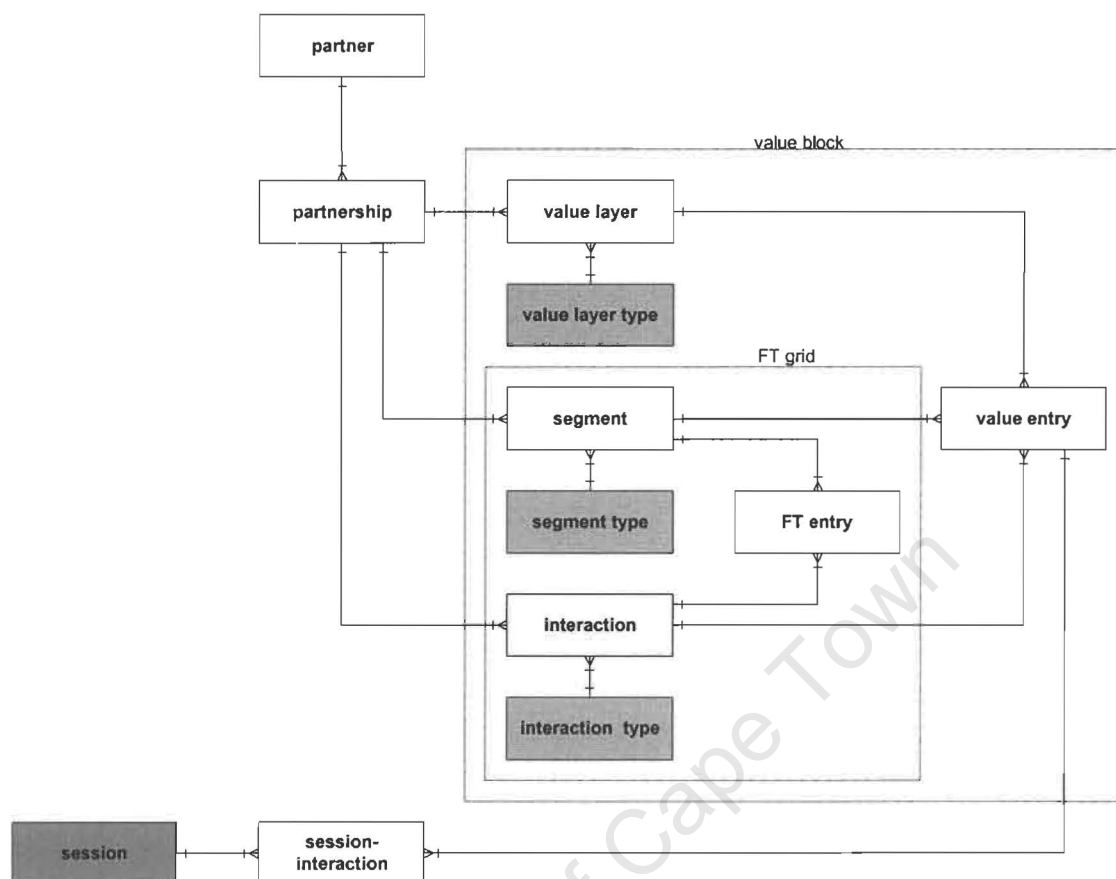


Figure 3-5: Introducing session-interaction

3.1.4 Users and segments

The SESSION entity introduced in the previous section is the first of three hooks into existing e-business software. The second entity that already exists in e-business systems is the USER. The user entity is often complicated, including custom characteristics and security information. As such it may not be implemented as a simple database table, but here it is shown as a single entity for simplicity and generality.

The USER and SESSION entities are logically related; each user may engage in many sessions and each session may belong to only one user (or none if it is an anonymous session). The relationship between users and market segments is slightly more difficult because a single user may belong to many market segments (both within a

single value block and from one block to another). At the same time a market segment obviously includes many users.

One of two methods can be used to resolve the user-segment relationship. The first technique is to use a resolving entity as in the previous section. This method is shown below and simply includes a USER SEGMENT entity. The USER SEGMENT entity records that a specific user is a member of a specific market segment. Many users can thus be related to many market segments.

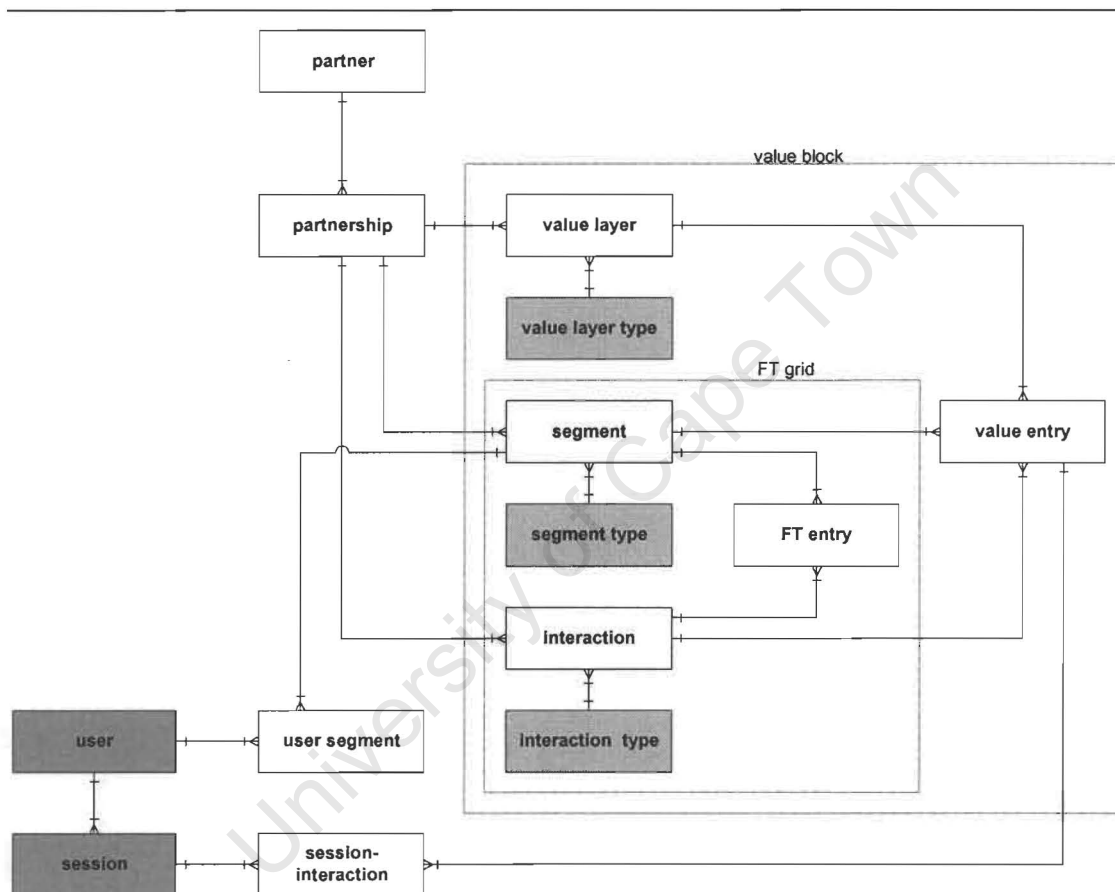


Figure 3-6: Introducing user segment

The major inhibiting factor of the above design is the possible rate with which the relationship between users and segments may change. Three major factors cause this change. The first is the fact that new segments may be created and defined with the development of new partnerships and value blocks. The second is that users may change their preferences and thus their market segmentation. Thirdly, time changes user classifications. Users cannot belong to the 30-40 year old market segment for

more than ten years. All of these relationships need to be created, renewed and destroyed without the user's knowledge and without unnecessary effort on the part of the site administrator. Imagine having to manually segment 500 customers by creating relationships between them and newly defined market segments.

In order to find a solution, look at how users are segmented in the first place. Imagine that eWine has a customer base of 500 wine purchasers. eWine will not segment this base manually, but will run an automated query dividing the users according to some condition. Provided that the underlying customer information is current and available there is little reason that users cannot be segmented in real-time according to pre-defined queries; eliminating the need for a USER SEGMENT entity. Of course, it is then important to store segmentation information, such as preferences, with each user record.

The advantage of creating a resolving relationship between users and segments is speed. There is no need to run a query each time market segmentation information is required. There is also no need to explicitly store segmentation information in the user record because it is implicit in the relationship. The drawback of having to constantly redefine relationships does still exist, especially because some are caused simply by the passing of time – not by any interaction with the site.

The best solution may be to use a mixture of both methods. Certain information needs to be stored for segmentation to remain current. An example is date of birth. One cannot simply record that Joe Bloggs is a 30-40 year old because that gives no clue as to when Joe moves to the 40-50 year old segment. Other information can be implied adequately in the relationship. Joe is a member of the skateboarding segment implies that Joe is a skate-boarder. In this case no more needs to be stored. The customer base could be regularly and automatically segmented according to a set of conditions, keeping relationships current and allowing the system to rapidly ascertain segmentation data without real-time querying.

3.1.5 Product

One of the foundations of this design is the one-many relationship between PARTNER and PARTNERSHIP. This relationship demonstrates that each partner may be involved in a number of partnerships, but what distinguishes one partnership from another? The answer is, of course: the product. Each partnership involves a single product this must be shown in the entity relationships. This is the first time that we encounter a problem caused by the dual-purpose nature of the system. If the system is acting as owner, then the product involved in the partnership is self-owned and is available within the business' own database. If the system is acting as host, then the system needs to form this relationship with an external product store, namely the owning partner's database. This topic is discussed further in the sections following this one. For now, the system can flag a partnership as being "hosting" or "owning" depending on whether this system is acting as host or owner. This flag will tell the system where to find relevant product information – externally or internally. The entities and relationships are shown below to give a holistic view of the partnering system.

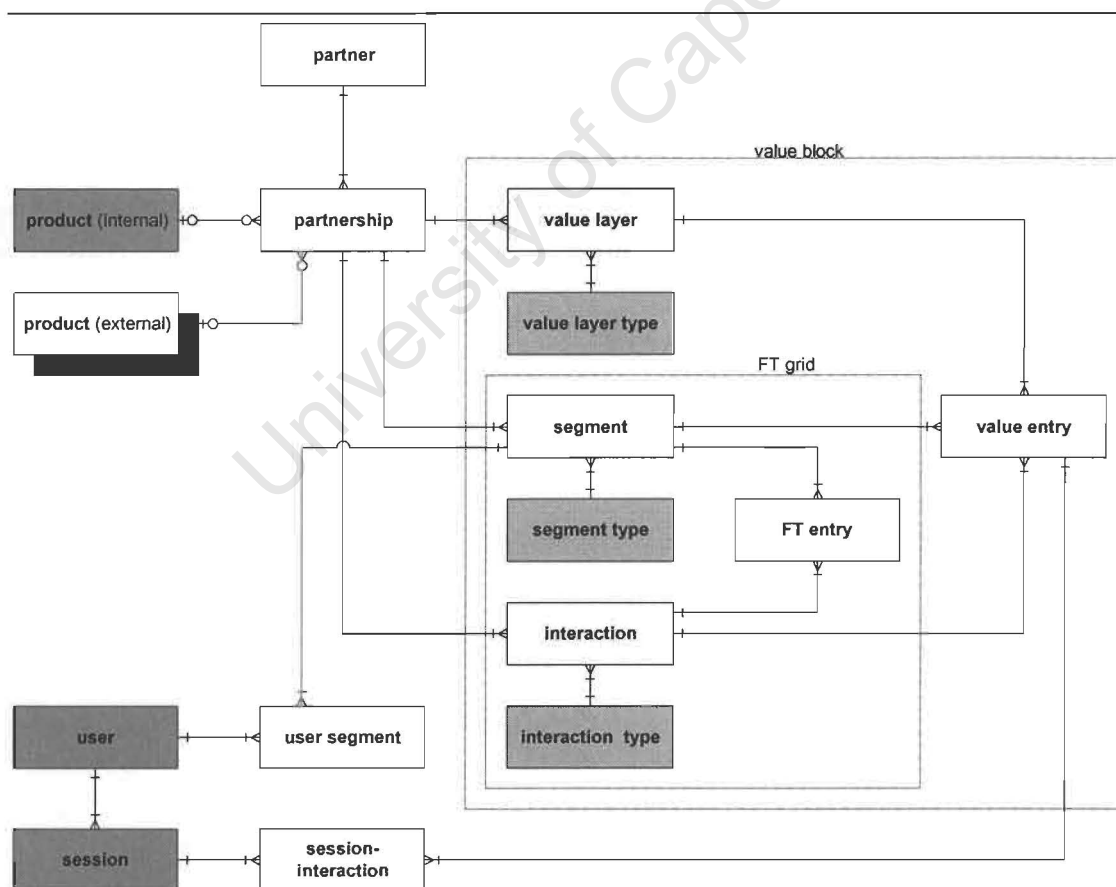


Figure 3-7: ERD - partnering system (without history entities)

3.1.6 Partner choice mechanism

The partner choice mechanism has two functions. The first is to find the most valuable available site-initiated interaction for the appropriate user and usage context. The second function of the mechanism is to act on the finding and to initiate the appropriate interaction. Both of these are complex functions and specific data is required to carry these out.

The greatest challenge for the first function is to ascertain which interactions are in fact available in the context of current usage. This requires that context data be stored with each interaction and that the system be aware of itself contextually. Given that a retail system has a finite and fairly small number of user processes, it is possible to make the system contextually aware – at least with respect to the user's interactions. Once that is done, data storage is simple.

Given the above, and given that the system is aware of which user is online, it can query the database for the set of market segments into which the user fits, attain the set of possible site-initiated interactions, calculate total value for each appropriate segment-interaction pair, include the FT entry and compare results. The most valuable available interaction is thus identified.

The system now needs to know what the initiation of the interaction entails. This command data can be stored as part of the INTERACTION entity.

3.1.7 User initiated interactions

The system proposed is designed to allow for the specification of any number of possible interactions, both user and site-initiated. It is important therefore that the system is not only aware of site-initiated interactions, but can also identify and record user-initiated ones. This requirement can be made possible by including the set of conditions that must be met for each user initiated interaction as part of the INTERACTION entity.

In summary of this and the previous section, the INTERACTION entity is complex and must contain data about its being either site or user-initiated. Additionally, if the

interaction is site-initiated then both contextual and command data must be stored. If the interaction is user-initiated then conditional data needs to be stored.

If the system is found to have contexts that are common across partnerships then both contextual and conditional interaction data may be part of the interaction type entity. This will avoid unnecessary duplication. Command data will still differ between partnerships and must be part of the INTERACTION, not INTERACTION TYPE.

To illustrate these concepts with an example, consider eWine, eCheese and eKitchen. Consider that eWine partners with eCheese and eKitchen. Both partnerships involve bundling and cross-selling, which can occur whilst a user is browsing or searching. Also, products may be purchased by clicking the “buy” button. So far, there is no partnership-specific information and all of the above can be stored as part of INTERACTION TYPE as either contextual (during browse and search) or conditional (when “buy” is clicked) information. Command data, however, is specific to a partnership. The eCheese bundle that must be displayed is different from the eKitchen bundle. The same is true for cross-selling. Commands therefore must be part of the INTERACTION and not the INTERACTION TYPE entity.

3.1.8 Interacting with other partnering systems

Consideration needs to be given to the combination of two or more partnering systems. This text is not concerned with implementation details such as security and protocol conditions, rather these are assumed to be surmountable obstacles for a proficient programmer. This text is concerned with design and feasibility analyses.

If two systems are to cooperate successfully, then they must be set up so that each can understand and react to the other’s actions and responses. Partnering systems need to cooperate in two ways. The first is that the host needs access to the owner’s product details and processes. Users must be able to view and purchase the owner’s products seamlessly, so the host system must be able to initiate and carry out, amongst other things, purchase transactions on the owner’s system.

Secondly, the two systems must cooperate when specifying and recording transactions related to the FT grid. Both systems must have identical FT grids and session-interaction data must be duplicated. Because the relationship is real-time, it is possible to synchronise and verify FT grid data. Duplication of data (identical data is stored on both systems) is preferable in order to protect against the risk of one partner modifying either structural or transactional data without the other's consent (it is also a possibility that a secure and trusted third party could store FT grid data on behalf of the partners).

Provided that these elements are identical on both systems and provided that both understand how to retrieve product information and trigger related processes, the partnering system can operate without entire systems being exactly the same. That said; e-business software is designed generically to appeal to multiple different types of e-tailers. Generically designed databases are the key to the wide application of such software and many e-business software vendors use very similar database designs with small modifications for additional functionality.

3.1.9 Histories

The importance of historical data was mentioned earlier. Transactional data is historical in nature. As a session-interaction record is captured it is immediately historical; it tells us about an interaction that happened in the past. Static data is not historical by nature because it specifies, for instance, the value that will be recorded or the segments that exist now. Static data changes as time passes and historical records are required for analysis, reporting and possible future verification of data.

Histories may be kept in a number of ways depending on existing software standards, hardware capabilities and the amount of historical data expected. The simplest method is to time-stamp every static data record. When updates occur, new records are created and time-stamped. The most current data can therefore be stored without worrying about loss of previous records.

Another method of keeping histories is to create a set of historical entities especially for that purpose. These will essentially map the current entities except that they

additionally store time-stamps. This method is similar to the first method suggested, except that the current records are stored separately for the sake of speed and ease of access.

Yet another method is to store historical values of all types in a single entity, carefully referencing the original location of each value and time stamping the record.

Any of these methods may be used, provided that the appropriate level of static data memory is attained.

3.2 User interface requirements

The purpose of this section is to highlight the potential possibilities and challenges that arise in the design of the e-tailing partnership system user interface. As with the previous section, therefore, this section is not a detailed design specification. Most interface elements are fairly basic and many, such as customer details, product details and reports already exist in e-business software.

3.2.1 Two types of user

Previous chapters and sections have described, at length, the concepts and mechanisms that are the foundation of a partnering system, but before one can meaningfully discuss the user interface, one must have a good understanding not only of the system, but also of its users.

In his book, *The User Interface Concepts and Design*, Barfield (1993) observes that some systems may be designed for more than one type of user. E-tailing partnership systems fit into this group. Barfield's example is a bank ATM. ATMs are "used" by the bank's customers for performing banking transactions. The bank's customers are, however, not the only users of the ATM network. The bank (for instance, through its back-end systems) also interacts with the ATM network. Designers of ATM's must take the bank's goals, as well as the customer's goals, into account.

E-tailing websites are similar to ATM's in that they must be designed to meet the goals of potential customers as well as the partners themselves. E-tailing partnership

systems are “used” by customers whenever an owner’s product is shown on a host’s site, whenever products are cross-sold or bundled and, in fact, whenever a relevant user interaction is identified and recorded by the e-tailing system. In this document so far, the “online customer” user has been largely ignored, from a design point of view. This is because one of the major advantages of e-tailing partnership systems is that they can be hidden from customers. If sites interact seamlessly, then it should make no difference to the customer, from a usability point of view, whether he/she purchases from one site or another.

This observation is the reason for the focus on the owner or host user. Whilst partnerships are seamless for customers, hosts and owners must design, manage and report on their partnerships.

3.2.2 The importance of understandability, usability and learnability

Norman (1998) asserts that if an interface between the digital and physical worlds is understandable and usable then all other possible goals of design will be by-products of this. Obviously the more complicated the system the more difficult it is to understand. Understandability is therefore an important consideration when new, complex concepts such as value blocks are introduced.

Further increasing the need for understandability is the fact that hosts and owners must not only know how to interact with the software, but must also know how to design value blocks and FT grids that map real-world relationships. The value block design process requires an understanding of the value block concept and how it fits into the whole system. The result of the design process must then be input into the software and this requires a good understanding of the user interface.

The above also highlights the goal of usability. Usability is a measure of the extent to which the software can be “used” to produce the required outcome. E-tailing software with a high degree of usability must allow for accurate mapping of real-world partnership scenarios that can be fairly complex.

Along with understandability and usability, the Common Front Group (1999) cites learnability as a major goal of interface design. The Common Front Group also recognises that there is a trade-off between learnability and complexity – the more complex a system, the more difficult it is to learn. E-tailing partnerships and the systems that support them are complex, so if they are to be adopted by businesses accustomed to fairly simple e-business software, care should be taken to make the systems as easy to learn as possible.

Various authors give tips as to how to design understandability, usability and learnability into user interfaces. Short-term memory has boundaries that make complicated interfaces difficult to grasp as one unit so screens should be kept simple enough to be handled unitarily (Thimbleby, 1990). For example, each value block and FT grid can be displayed on a separate screen.

Long-term memory affects interaction in a different way from short-term memory. The user's inability to easily forget affects interface design (Thimbleby, 1990). If a computer variable is assigned, the computer knows the new value, but has no recollection of previously assigned values. On the contrary, humans cannot easily assign new functions to the same actions for each different application. This is why standards are required even for the most proficient users of multiple systems (Thimbleby, 1990). Cooper also advocates the religious use of standards as a good method of retaining user control (Cooper, 1995).

Another method of maximising understandability, usability and learnability is the use of metaphors and idioms. Much of the success of GUIs is based on their extensive use of these (Common Front Group, 1999; Cooper, 1995).

3.2.3 The value block metaphor

The value block is a metaphor for describing and understanding value underlying customer interactions with an e-business website. It has been described as consisting of layers of value, each layer comprising a set of value entries in the form of a segment-interaction grid. The value block concept is therefore divided into the two simpler concepts of the segment-interaction grid and the value type. The advantage of

this is that each concept can be understood on its own, thereby making each easier to grasp (Thimbleby, 1990).

Both the Common Front Group (1999) and Cooper (1995) agree that metaphors are useful tools for aiding usability and understandability of interfaces. It is helpful therefore to employ the value block metaphor in the user interface of the e-tailing partnership software.

Previous discussions have shown that multiple different interactions may occur, multiple segments may exist and multiple types of value may be realised. It is therefore infeasible, on one screen, to concurrently show all of the value entries for even a single value block.

It is, however, feasible to show the value entries in a single segment-interaction grid. The following illustration shows an example of how the value layer metaphor can be maintained by presenting the layers in one frame and the value entries of the selected layer in another frame. Note that the conversion function weighting of each value type layer is shown next to each layer's name. This allows the user to incorporate the relative "importance" of each value type into his/her personal visualisation of the value block.

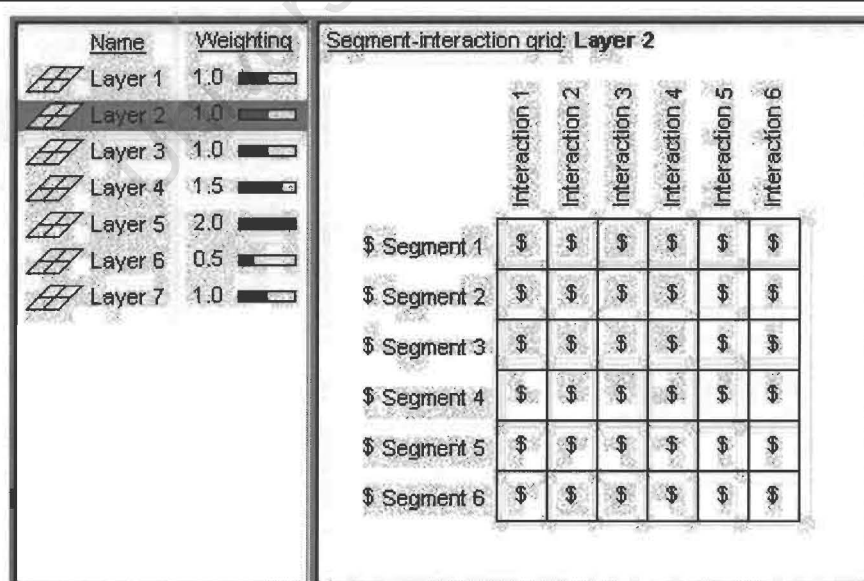


Figure 3-8: Interface design with the value layer metaphor

3.2.4 The fund transfer grid

The FT grid is not simply another value layer, even though it may have the same axes. Value layers map value that is determined outside of the e-tailing system. The FT grid stores fund transfer amounts that are negotiated between partners. The conceptual difference between value layers and the FT grid must be reflected in the user interface – the FT grid should appear as being distinct from the value layers.

3.2.5 Products

Current e-business software allows the storage of custom designed product characteristics and properties. In addition to these, products are arranged into a catalogue for navigation purposes. The integration of e-tailing partnership software will mean that additional partnership information is stored about products (which products are involved in which partnerships). This information should be accessible from the existing product interface because the product is the basis for each partnership.

3.2.6 Customers

Currently, e-business software encourages the storage of as much user or customer data as possible. Customers are often grouped according to some pre-defined method. All of this grouping and customer characteristic data is represented in customer or “user” interface screens. Partnering systems may require that further data be stored about customer segmentation. The implications in terms of data storage were discussed in 3.1 Data requirements. The implication in terms of interface integration is that, if user-segment database tables are used, this data should be accessible from the current customer interface screens.

3.2.7 Reporting

Reporting is an important part of any business software and published business-related software either has its own reporting standards or interfaces with third-party report generating software. Reporting requirements for a partnering system must, for the sake of consistency, adhere to standards already implemented in business reporting modules. The reports generated may be very complicated, especially considering that they will be representing three dimensional value data on a two dimensional report.

One exciting prospect for approaching such reporting problems is 3D interfacing, because of the rich opportunities of depth perception and humans' intuitive grasp of depth (Myers, 1998). With the help of research into 3D interfaces, designers will be able to cram more and more information onto the traditional screen (Halfhill, 1999). In addition to having an impact on the reporting interface, 3D interfacing will further promote the effectiveness of the value block metaphor.

3.3 Further design challenges and limitations

The focus of this chapter is design. Until now it has been narrowly restricted to design of the partnering system itself. If e-tailing partnership systems are to meet their goal of increasing business opportunity and, ultimately, profitability; then design challenges outside of the scope of the partnering system must also be considered. These include design of the website interface, payment systems, fulfilment mechanisms (both physical and virtual), partnership contracts and human roles and responsibilities.

3.3.1 Website interface

The challenge of data storage for products and their attributes has already been discussed. Once the data storage requirements are met, designers need to think about the website interface: What does the customer see? What product information should be made available to a browsing customer?

Current software ranges in its functionality with respect to product display. Simpler software aimed at less experienced users with lower budgets is often template driven. This means that the developer simply inputs product details and the system organises the product views according to the template that the developer chooses. More complex software allows the user control over how individual products are displayed, right down to choosing which product characteristics to show on which site pages.

The advantage of the complex software is that interface designers may optimise their site "look and feel" for their targeted customers. The disadvantage, in addition to longer development cycles, is that generality is lost and thus integration with other

systems is further complicated. Complicated integration implies a significant up front investment from one or both partners, a longer partnership set up period and, if integration interferes with the current system structure, then this may further complicate or even preclude future partnerships.

One solution to this problem can be found by comparing the simple, generic, template-driven software with complex customisable software. The major difference between the two is “template”. In the case of the complex software, the developer is essentially creating a “custom” template that describes how each product should be displayed. If each product’s template were attached to the product data whenever it was requested, then complex software would behave in a similar (and more generic) “template-driven” way to simpler software. Owners could then control the “look and feel” of their products even when they are displayed on host’s sites. The host could tailor the template as he/she sees fit. For instance, the host system could use the owner’s template for layout, but could assign background colours that match the rest of his/her site. Of course, there may be a conflict of interests here. The owner may prefer a bright pink background that attracts attention to the product, whilst the host prefers a grey background that matches the rest of the site. “Usage of templates” is therefore another section that may require inclusion in the partnership contract.

3.3.2 Payment systems

The questions of payment and fulfilment (discussed in the next section) have been avoided because of their magnitudes. In short, payment systems must be designed which allow two broad categories of payment: payments from customers and payments between partners. In the case of bundled goods, the payment from a customer may even need to be shared between the host and the owner.

From the customer’s point of view, the goal of streamlining payment is paramount (Venkatraman, 2000). If a customer buys a bundled product, then he/she certainly does not wish to execute a payment transaction individually with each e-tailer contributing to the bundle. At the same time, the customer must be able to trust that payment details will not be compromised (eg. Through credit card numbers being intercepted whilst being passed between partners). These dual goals of speed and

security present a major challenge to designers of payment systems supporting e-tailing partnerships.

The second type of payment, between partners, is also challenging because of the transaction costs involved. Currently micropayments (payments of very small amounts with almost no transaction fee) are still in a state of development, so the problem of small fund transfers between partners for each recorded transaction in the FT grid is intriguing. Given the present state of technology, partners will probably opt to perform batch online payments to one another in order to avoid disproportionately high transaction fees. The optimal frequency of these batched payments will obviously depend on the size of payments and the speed at which they accrue.

3.3.3 Fulfilment mechanisms

Fulfilment (delivery) presents another intriguing challenge to designers. Ultimately, physical products purchased in a single transaction are delivered to a single customer, so e-tailers who partner with one another can benefit from integration not only of their e-business software, but also of their fulfilment, delivery and/or logistics software. This integration can take on many forms. For instance, businesses could keep small inventories of one another's products, in essence becoming distributors for each other. Alternatively, partners could all deliver products to a central location, wherefrom the products are dispatched as a single package. There are many more possible fulfilment models, and many possible applications of integrated fulfilment software, but as fulfilment is not the focus of this paper, they are not detailed here.

Integration is not a necessity because each partner could simply deliver his/her own portion of a package individually. The downfall of such delivery tactics would be 1) that the customer receives his/her products in a disjointed manner and 2) neither business could take advantage of the opportunity to cut costs by performing a single delivery rather than two separate ones.

In the short term, fulfilment integration could be performed manually. For example: Joe Bloggs orders a cheese and wine platter from eWine. The eWine delivery service collects wine from eWine, cheese from eCheese, delivers both to Joe and divides the

delivery fee between the two e-tailers. Such simple delivery tactics can be used to overcome fulfilment concerns particularly in risky new partnerships with unproven success, where investment in further integration of, for instance fulfilment software, is an undesirable cost.

3.3.4 Contracts

The previous chapter discussed contracts as far as rules, terms and conditions are concerned. There are, however, more facets of the contracting problem that should be mentioned. Two of these are storage and access. It is logical that both partners will want unlimited access to contractual information. This information should obviously be the same for both partners, so there is a fairly good case for storing the contract online, allowing both partners unlimited access, and making amendments to the centralised contract. This does, however, pose questions for designers. There may be security concerns that prohibit the online publishing of contractual data. Designers need to ensure that the contract can only be amended with consent from both parties. Further, designers must decide whether to include contracts as part of the partnering system itself.

From a logical point of view, it makes sense to store contractual details in the partnering system because there is a one-to-one relationship with a partnership, both parties have access to the system, and the partnering software stores the FT grid entries, which already form part of the contract. In addition to this, if it is integrated into the system, appropriate contractual terms can be enforced automatically. These include limits placed on prices and discounts and the duration of partnerships. The implication for designers is that they need to consider the partnering relationship beyond data and interface requirements, right up to support for the contracting process. Designers who can predict the form and terms of contracts could even bundle pre-designed, customisable contracts that significantly reduce the need for negotiating, by suggesting terms and conditions, and thus significantly decrease the time and effort required to enter a new partnership.

3.3.5 Human roles

A final design challenge is to create human roles and responsibilities that ensure firstly effective and efficient identification of partnership opportunities; and then

ensure accurate design, implementation, monitoring, management and ultimately discontinuation of partnerships. Identifying and administering e-tailing partnerships will therefore require business-oriented and design-oriented employees as well as personnel who can monitor many concurrent partnerships. One of the advantages of online partnering: decreased need for manual monitoring, was cited earlier; so if there are few partnerships this role can be filled by one of the business or design oriented employees mentioned earlier. Of course, if a partnering business is run by a single owner/manager, then it is conceivable that he/she could perform all of these roles for a small number of partnerships. The skills requirements of partnership administrators are discussed in more detail in the next section.

To summarise, this chapter investigated the feasibility of theoretical e-tailing partnership models in terms of existing e-business software. First, data requirements were reviewed at a fairly technical level. Many of these were already met by current software. Where data requirements are not met, solutions that are easy to implement demonstrated the feasibility of the models. In a similar way, feasibility was also demonstrated in terms of interface requirements. Also, further design challenges such as the website interface and the contract itself can be met and the chapter has shown how. Meeting design challenges is not, however, sufficient if the risks presented by the solutions are too high. Risk is, therefore, the subject of the next chapter.

CHAPTER 4

RISK ANALYSIS

In this chapter the risks of e-tailing partnerships are presented and analysed. The purpose of this analysis is to provide insight into the types of risks to which e-tailing partnerships expose partners, customers and third-party software developers.

The chapter is divided into two sections. The first section is devoted to a discussion of non-technology business risk. Ould (1999), in his book *Managing Software Quality and Business Risk*, gives a useful definition of business risk – “a threat to the business case for a system”. The business case for e-tailing partnerships appeared in Chapter 2 under the guise of the e-tailing partnerships value proposition. Broadly therefore, business risks include any threat to the profitability of e-tailing partnerships – ranging from choosing the wrong partner to mapping value blocks poorly.

Of course, one of the greatest threats to the business case of an Internet application is technological. If the software doesn't function correctly, or if employees do not know how to use it properly, then the business case for implementing the technology is likely to be threatened, especially when dealing with complex e-tailing partnerships.

This chapter is divided into non-technology “business risk” – any non-technology threat to the e-tailing value proposition – and “technology risk” – any threat stemming directly from partnering technology, its development, implementation, maintenance or use. Note that the definition of technology risk used is different from McFarlan's definition in which “people” and “structure” are separated from “technology” [McLeod and Smith, 1996]. Note also that technology risk is actually a subset of business risk, hence the “non-technology” distinction. The categorisation of business and technology risks is clarified further in the sections that follow.

Ould (1999) shows that risk has causes and effects. The causes in turn have probabilities and the effects have sizes or impacts. Using these one can calculate the expected size or impact by multiplying the probability of the cause by the impact of

the effect. This is one example of a method of quantifying risks. Ould (1999) also states that the ability to quantify risks in this way is affected by experience, which is not available to this research. This analysis is, fortunately, not intended to be quantifiable in nature. It is included to provide insight to future researchers and practitioners as to the types of risks to expect in the e-tailing partnership domain.

4.1 Business risk

Business risk has already been defined as any non-technology related threat to the e-tailing value proposition. It makes sense therefore to discuss business risk within the **attract** → **interact** → **act** → **react** value chain framework, introduced in Chapter 2 and used previously in this paper to analyse the e-tailing value proposition.

There are obviously many risks that will not be covered by an analysis within this framework. One such risk is that exchange rates render a product too expensive to produce for foreign markets serviced by the e-tailing partnership. Whilst such risks are certainly not unimportant, this text looks specifically at those risks that occur within the framework introduced and discussed in previous chapters.

4.1.1 Attract

E-tailing partnerships allow businesses to gain access to partners' existing customer bases and benefit from partners' (and partnership) marketing efforts. In addition, taking advantage of branding and co-branding opportunities can attract further customers. These advantages are discussed at length in Chapter 2, and any threat to any of them is a threat to the value proposition.

The first major risk is that customer bases are poorly matched and that customers are irritated by the presence of the partnership, which offers them little. This is especially problematic if the partnership involves a significant amount of cross-selling or bundling and customers are regularly presented with options in which they have no interest.

Secondly, by partnering, partners are making customers form brand associations between their own and partner products. This is one of the benefits mentioned earlier,

but may also be a risk – if the partner's brand is unsuitable or if the partner's brand suffers for any reason (perhaps the partner is accused of illegal pricing practices and customers associate your brand with those practices). In such a case, poor partner choice leads to a damaged brand.

4.1.2 Interact

The main advantages during the interact value chain activity have to do with increased product selection and increased bundling and cross-selling marketing opportunities. Whereas during the attract activity it is important to get a good customer fit, during this activity it is important that partners' catalogues augment one another.

The risk is therefore that businesses have a poor product match and that the partnership does not reveal profitable marketing opportunities. This poor match may be in terms of price, quality, or even the type of product being sold online.

Another risk during the interact activity is that value is not correctly identified and apportioned. This could be as a result of poor design and mapping of a value block, poor identification or prediction of value figures or simply as a result of customer trends changing so that customers behave in an unpredictable way.

4.1.3 Act

Two major advantages during this value chain activity are threatened. The first advantage is that customers may make payment for products from multiple partners in a single transaction. The risk is that customers do not feel secure dealing with multiple payments at the same time, even though they appear as one. Even worse, customers could feel that one partner is trustworthy and secure, but because of their untrusting view of the other partner, the partnership drives these customers away.

The second advantage of acting in partnership is that there may be opportunities for decreased cost through cooperative fulfilment strategies. The risk associated with this is of the fulfilment strategies not being aligned, or of systems not being adequate to deal with this problem. The extent of this risk is only identifiable with further research in the area.

4.1.4 React

A final partnership business risk is that levels of after sales service are not aligned between partners. A misalignment here would result in a poor reflection on one of the brands involved.

In summary, the major non-technology business risks examined are a result of poorly matched customer bases, poorly matched brands, poorly matched product offerings, poorly matched after sales service and poor mapping and distribution of value within the value blocks and fund transfer grid. Researching potential partners before going into partnership can moderate the first set of risks. The risk of mapping and distributing value incorrectly is moderated by thorough analysis and accumulated experience.

In conclusion, good partner choice and correct upfront analysis of the partnership are good ways to moderate business risk within the e-tailing partnership environment.

4.2 Technology risk

Technology risk was defined at the beginning of this chapter as being any threat stemming directly from partnering technology, its development, implementation, maintenance or use. There is much literature on the topic of risk within the software development lifecycle, IS project management and software implementation (McLeod and Smith, 1996; Treese and Stewart, 1998; Ould, 1999). This paper is, however, interested in the technology risks that are unique to e-tailing partnerships. Obviously, the risks associated with development, management and implementation are pertinent and they can be found in the referenced literature. They include, for example, the risk of not involving users early enough, of not getting enough management support and of inadequate planning and analysis.

The unique feature of partnerships that is interesting and pertinent to this paper is the integration of systems, from the integration between partnering systems themselves, to integration with legacy e-business systems and payment systems, to the integration of fulfilment systems.

4.2.1 Integration with legacy systems

Integration with legacy e-business systems is one of the subjects of Chapter 3 in which the design of partnering systems is analysed. The first step is to ensure that data requirements are met, so that partnering systems can operate seamlessly with existing data about customers, products and sessions. If the partnering system is generic, then there is a large risk that it will not meet the exact data requirements of all legacy e-business systems. This risk can only be moderated by identifying the most pervasive e-business technologies and ensuring that their requirements are met. Too much alteration of current systems to meet the requirements of a partnering is likely to greatly increase the degree of risk associated with installing and using the partnering system.

The risk of lack of integration with current systems is problematic for both third party developers who wish to create generic software and for businesses that wish to implement the software. The rate of change associated with Internet applications increases this risk for developers who may experience a time lag from the analysis and design phases through build and testing to the final software product. If technology is changing too quickly, then software could be incompatible with newer products before it is even launched.

The same rate of change reduces the risk for partnering businesses choosing to buy rather than build their software. These businesses can simply decide whether marketed partnering software is appropriate or not. Internet-enabled software development businesses may have experience in dealing with change and already have structures in place to moderate this risk. There are therefore likely to be consequences for the classic “make or buy” software decision pushing businesses in the direction of a “buy” decision.

4.2.2 Integration with payment systems

Legacy e-business systems will almost certainly already cope with payments in an acceptable fashion. Unfortunately, partnering software cannot simply “plug into” the legacy system’s payment mechanisms because existing systems do not require the functionality associated with submitting payments from multiple sites in a single

transaction. Any two partners who wish to enter into business together must therefore have access to at least one payment mechanism that is supported by both systems. The risk is that partners may be excluded if they do not support the accepted gateways and methods.

This type of risk is very difficult to moderate because it is not easy to predict the direction that payment technology will take. As more and more systems are adopted, one may see a trend towards using specific payment mechanisms, but that cannot be known for certain until the systems are in use.

4.2.3 Integration with other partnering systems

The problem of integration between two partnering systems is very similar to the problem of predicting which payment standards will emerge. If there were a single provider of partnering software, then it could specify its own standards, but given the competitive nature of the software industry, this is unlikely to be the case. Much more likely is that standards will converge over time. The risk is that of choosing the wrong standards and later having to change one's systems in line with emerging trends. The extent of this problem depends on the number of partnering software vendors and the distribution of power within the vendor group. If there is one very powerful vendor, then smaller vendors are likely to follow their lead, allowing standards to emerge fairly quickly. If this is not the case, then partnering software may take longer to emerge – if a business can know that it is adopting a solid standard, then its risk is greatly reduced and it is more likely to adopt the technology.

4.2.4 Integration of fulfilment systems

This research has described the integration of fulfilment systems as one of the benefits of partnering. Unfortunately this possibility has not been properly explored, as it is not the focus of the paper. It is fair to say that as the number of partners increases and more and more fulfilment systems are required to interact with one another, the risk of failure is increased (McLeod and Smith, 1996).

In conclusion, the major unique technology risk of e-tailing partnerships is related to the emergence of system-to-system interface standards. As standards emerge, so the risk of adopting new technology will fall.

CHAPTER 5

EMPIRICAL TESTS AND FURTHER RESEARCH

Throughout this paper, partnerships have been shown to present profitable opportunities for e-tailers. At the same time, the challenges and risks presented in the previous two chapters may seem overbearing – to the point that these types of partnerships become infeasible or are deemed “not worth the effort”. This research has been aimed at formalising ideas and concepts into frameworks and theories. These frameworks and theories, which are intended to form bases for further thought experiments, must be further refined, extended and ultimately tested for accuracy and relevance. Before the true feasibility and profitability of e-tailing partnerships can be ascertained, pioneering systems need to be built and tested, pilot projects need to be run and researchers need to collect empirical evidence to support theories and frameworks.

Further, complementary research is lacking in the areas of fulfilment and payment. Systematic research and testing of these related systems will lead to a more comprehensive basis for learning and theory building around the topic of e-tailing partnerships.

This chapter follows the development of this paper, from Chapter 2 to Chapter 4, highlighting specific empirical testing opportunities and opportunities for further research.

5.1 The case for retail partnerships online

Chapter 2 shows that various factors may influence the success of an e-tailing partnership venture. All of these factors have to be predictable at least to a known degree for different types of markets, products and businesses. eWine, for instance, needs to be able to predict the advantages of co-branding with eCheese and be sure that they outweigh the costs. Research on co-branding, bundling and cross-selling has been reported by authors such as Kotler (1999) and Sterne (1994), but concrete empirical evidence specifically relevant to partnerships must still be collected. The

difficulty here is that, if researchers are to be sure of results, then they need to perform the tests on real systems – systems that do not yet exist commercially and commonly.

One of the ideas central to the e-tailing partnership concept is that businesses are able to rapidly form profitable partnerships with e-tailers in other markets, but perhaps with similar target audiences. The number of potential partners that are required before e-tailers commonly accept, implement and draw value from partnering systems is here labelled the critical mass of partners. The establishment of partnerships between e-tailers in different markets or segments is here called market or segment crossover.

Ultimately critical mass and crossover data can be collected through survey-type research. Armed with this information, e-tailers will be able to decide whether to invest in partnering software and systems based on empirical critical mass and crossover data that will allow them to predict the success of partnership ventures in their own markets and potential cross-over markets.

5.2 Measuring and tracking benefits from partnership

Under this topic there are two distinct components that require the attention of further research and testing. These are the value block structure and the value block content.

Value block structure is first dependent on the understanding and design or mapping abilities of the business users. Tests must be carried out to gauge the level of understanding of value concepts and the amount and types of training that may help business users to better design value blocks that yield realistic value measurements.

Even the most proficient business users need some empirical backing to aid their mapping of physical partnerships to virtual value blocks. Empirical data may be collected describing the types of value that can be expected by different e-tailers. Further data could survey the types of segmentation techniques most abundantly used in various e-tail sectors, aiding partners in collecting relevant customer information that may be used in future partnerships. Finally, research could reveal the types of

interactions that users perform, as well as the most likely interactive paths towards product purchase.

Once the value block and FT grid axes have been described, it is important that both owners and hosts input accurate value entries. At first, there are likely to be imperfect guesses in this arena. Guesses are likely to be based on current banner click-through and impression prices, but these may well not be accurate measures of value. Only longitudinal empirical research after system implementation will be able to provide the kinds of answers that are required, especially in cases where partnerships are only marginally profitable.

5.3 The partnership contract

The partnership contract is analysed in depth in Chapter 2. The analysis is very theoretical, merely suggesting and motivating contract terms such as review periods, customer service levels and minimum durations. As the true complexity and risks of partnering emerge, further terms may well find their way into contracts.

Research in this area lends itself to a case-study approach. Yin (1994) states that case studies can be used to build theory in an area as well as to find evidence of the applicability of these theories. Also, case studies can easily consider many variables and need not be designed to exclude the possibility of unidentified influences (Yin, 1994). Using case studies, researchers can build theories on how to moderate risks using contracts, and at the same time empirically analyse the success or failure of contracts as they are applied. The downfall of this approach is that it can only be carried out after implementation of partnering systems.

5.4 Market outcomes

Perhaps the largest gap that needs to be filled by empirical research lies in the very theoretical treatment of market outcomes in a market for e-tailing partnerships. The analysis in Chapter 2 showed the theoretical effect of numbers of hosts and owners on market outcomes. Of course, by implication of a critical mass, there are likely to be

multiple hosts and owners, but single-host or single-owner states can be approached through differentiation.

Predicting market outcomes based on a single variable is obviously not entirely plausible, so further research is needed to identify other variables that may have an influence on market outcomes and which long and short-term outcomes may arise. Information of this nature will allow partners to position themselves in the best possible way to take advantage of market conditions in a potentially highly competitive market for e-tailing partners.

5.5 System design

In Chapter 3, system design is divided into data requirements, interface requirements, and further design challenges and limitations. In each of these three areas there is a need for research and testing, both of the technology itself and of human responses.

When creating a generic integrated system, developers need to identify and research integration standards that have to be followed; at the same time allowing for quirky differences between software brands and installations. This type of research could include assessing the database designs of major e-business software vendors to see how generic the software in fact is, and predicting how well these offerings are able to communicate with partnering software. This is obviously very technical, technology specific research, and it extends all the way through to integration with fulfilment and payment systems.

Payment and fulfilment systems present another interesting research problem. Not only must they integrate with the partnering software, but also in an ideal world they should integrate with one another beyond the scope of the partnering system. This integration requires its own research and testing, independently of partnering software.

The next consideration is interface design. Studies in HCI and system design show that the ease of use and adoption of software are greatly influenced by the good or bad design of interfaces. Unfortunately, as Schneiderman (1999) points out, the study of

HCI has not yet revealed a methodology for creating scientifically optimal interfaces, so tests must be performed empirically in order to ascertain the understandability, usability and learnability of interface components. The same is true for customer acceptance of web interfaces as they are affected by partnering systems.

Finally, the performance of partnering technology must be proven, through research and testing, to adequately serve the requirements of the web audience. If systems are too slow, for instance, they may not gain widespread acceptance.

CHAPTER 6

EXTENSIONS AND IMPLICATIONS OF THE MODEL

This chapter is devoted to a discussion of the implications and extensions of ideas, models and frameworks that have been presented in this paper. The most obvious implications have already been examined as part of the analysis performed in the previous three chapters, but new business models centred on e-tailing and e-business partnerships present a number of new challenges and opportunities that have not yet been proposed. This chapter is dedicated to these.

In addition to challenges and opportunities presented through partnership concepts, there are a number of applications of theories demonstrated in this paper that are not limited to partnership scenarios. The most apparent of these is the use of value blocks as frameworks to measure and track the true benefit that individual e-tailing websites realise. There are further implications for traditional mechanisms such as search engines and shopbots. These are also discussed.

Finally in this chapter, the impact on payment and fulfilment mechanisms is assessed and various implications for brands and marketing theory are proposed.

6.1 New business models

The business model that has been at the centre of discussions and explanations has been the eWine-eCheese e-tailing partnership. The reason for this is to focus discussions, rather than to suggest that this is the only profitable model. Partnerships are, in fact, not even limited to B2C applications, but can be equally profitable in the B2B arena.

The key enabler for e-tailing partnerships is the fact that data and interfaces are separate. The driving force behind the eWine-eCheese model is the ability for each business to maintain its own database whilst using the other's interface (website) to market its products. What makes this fact more interesting is that the data and interface can be completely separated, meaning that a given owner can partner with

other e-tailers without having to design, maintain or even own his/her own website interface. On the flip side, hosts have the opportunity to operate profitably without owning any products of their own, but gaining revenue purely from partnerships.

These new business models are not that far fetched. The process of building and maintaining a website can be costly. Add to that the cost of marketing the site and many businesses have a compelling reason not to go online. If the process were as simple as installing partnering software and an Internet connection, and simply finding suitable partners, then even small businesses could easily have an indirect online presence to boost sales.

The model of being a host without owning products means that opportunistic businesses could focus on design and marketing aspects of an Internet presence without having to be concerned with manufacturing or inventory considerations. This model offers unparalleled freedom to respond rapidly to changes in customer tastes or to events such as Christmas and Mother's Day. This type of business would simply focus on short-term profitable partnerships that are contracted to end at the same time as the event in question.

6.2 Non-partnership applications

The value block concept, where interactions with customers are valued according to interaction type, customer segment and value type, is not limited to use in partnerships. Even within partnership discussions the value block is designed for each partner to measure and track his/her own value. The FT grid is the mechanism that, once value is measured by each partner, acts as a framework for the distribution of that value.

Businesses who "go it alone" online can still apply value block concepts to their standalone websites. Currently many sites collect tremendous amounts of customer data but most have little or no idea what to do with it (Davenport et al, 2001). Some even collect data about individual mouse-clicks, the equivalent of interactions within the value block, but at the moment there exists no solid framework in which to analyse or evaluate this data.

The value block presents an opportunity for businesses to continually monitor their sites and assess site alterations or new strategic directions taken. The value block concept is also generic enough that e-tailers can tailor their own implementations of the concept, and continually update and improve them.

6.3 Search engines and shopbots

Search engines and shopbots are built to help customers find what they are looking for online. Shopbots are even more specifically designed to help consumers compare similar product offerings on a number of different characteristics such as price and delivery duration. If e-tailers enter into multiple partnerships, then these shopbots and search engines will have to become even more intelligent. A search that returns ten results, nine of which are the same product, merely on different partners sites, will irritate customers, so shopbot technology will have to distinguish between owners, not hosts – as they currently do.

At the other side of this argument search engines and shopbots may become less necessary as products involved in partnerships will be more pervasive and will be displayed, cross-sold and bundled on many sites. In the extreme, technology may evolve to search vast partnership webs, for instance for the best bundling offers. Imagine searching for a camera that you wish to buy. The search leads you to the SuperCam 100 available at eCamera. A simple search query at eCamera ascertains whether the SuperCam 100 is available as a partnered offer at any other sites, perhaps as part of a reduced-price bundle. The answer to the query tells you that the SuperCam 100 is available as part of a bundle, which includes free films and developing, at ePhotos. This scenario is advantageous to both the owner, who sells a SuperCam 100 and the host, ePhotos, who may gain a valuable customer.

6.4 Payment and fulfilment mechanisms

Two of the greatest challenges of Internet retailing are secure payment procedures and physical product delivery after information-exchange has occurred between buyer and seller. Partnerships allow users to purchase goods from multiple sites using a single

transaction. As has already been mentioned, this has the implications that 1) the customer experiences a streamlined payment procedure and 2) rather than two or three deliveries, a single bundled delivery can occur. The advantages of these implications are 1) customers are more satisfied with the purchase transaction and 2) businesses can split the costs of delivery. The second advantage is only realised if the businesses' warehouses are in close proximity to one another.

Of course, there is nothing limiting partnerships to physical products. Products could just as easily be down-loadable books, magazines or music. As in the eCamera case in the previous section, products may be physical, but not delivered – think of photographic film developing. If products are delivered, however, partnering businesses will have to ensure that they take advantage of opportunities such as single delivery of bundles and other integration of fulfilment mechanisms.

Internet payment mechanisms will also have to be closely monitored. Advances such as payments from mobile phones and palm-top computers will not directly affect partnerships, but partners will have to maintain their technology at a level where customers are satisfied. Advances in micropayment technology may have a direct impact on real-time versus batch considerations in FT grid transfers, and may also affect the frequency of these payments between partners.

6.5 Branding and marketing theory

Branding and other marketing theories have been given a lot of attention in this paper because of their impact on e-tailing in general and e-tailing partnerships particularly. The question that has not yet been asked is “What impact will partnerships have on marketing theory?” This is an interesting question, the answer to which will only be known if and when e-tailing partnerships include a critical mass of online retailers. Conceivably though, partnerships have the potential to assume roles as marketing channels – channels that do not exist today. These may require their own channel managers and the accompanying theory on how to correctly optimise marketing through partnership channels.

Branding theory may also be affected. Will the partnership brands, host brands or owner brands be the most instrumental in signalling value and quality to customers? If partnerships do become pervasive then answers to questions such as these will surely follow.

The physical world is partly made up of corner shops that are conveniently located to fulfil immediate needs such as occur when the milk runs out or one has a thirst for a can of cola, and partly made up of shopping centres and department stores that are arranged to satisfy from a single location, as many shopping needs as possible. In the physical world, manufacturers, suppliers, wholesalers and retailers define how products are distributed based on economics such as cost of inventories and savings associated with specialisation. These are weighed off against customer's desires to not only find everything that they want in a single location (hence department stores and shopping malls) but also, amongst other things, their desire to be able to compare prices and characteristics of products.

Product distribution in the physical world is therefore, and fairly obviously, partly determined by physical phenomena such as locations, inventories, warehouses and shelf space. The Internet does not have these same limitations, yet many businesses have simply moved traditional marketplaces online in the form of either online malls or standalone sites. These traditional and well-understood structures are attractive because they permit control and ownership to be transported to the virtual world. Partnership initiatives allow businesses to retain control and ownership, whilst allowing them also to pander to customer desires.

Imagine that Joe Bloggs decides to look at new CD systems, but has also recently finished his supply of milk. This is a perfectly feasible scenario and Joe will probably find time to stop at the corner shop on his way to the electronics megastore. Ideally Joe would like to pick milk out of a fridge at the electronics shop, but even an audio equipment megastore cannot justify the cost of setting up milk fridges; and besides – what if Joe needed sugar not milk? In a physical world, floor space, logistical limitations and other physical phenomena limit business' ability to meet every customer want and need. This is not the case online. The CD megastore could pander

to every customer need by choosing the correct partners – but then who is to say that the CD megastore will be a logical and enduring online marketplace at all? The possibilities extend right to the extreme of having every site partner with every other, all products are available everywhere and the choice of shopping site is based not on what they offer (everyone has everything), but rather on the design of the background wallpaper. In this scenario, Formula 1 lovers shop at the hypothetical Formula1Lovers.com simply because the site has background pictures of Ferraris. Obviously this case is extreme, but it is not infeasible and it does serve to show that current online market structures that map closely to physical ones will not necessarily endure.

University of Cape Town

CHAPTER 7

EVALUATIVE FRAMEWORK

7.1 Background to the evaluative framework

As was mentioned in Chapter 5, many of the ideas, concepts and frameworks presented thus far in this paper are theoretical and do not exist commercially and commonly. As a result, there is a major difficulty in testing these concepts empirically. This chapter represents the empirical component of this research, and whilst the purpose of the framework is to test the readiness of e-business systems to take on the e-tailing partnership challenge, the purpose of this chapter is to define, present and empirically demonstrate the framework itself.

The evaluative framework is essentially a formalisation of requirements, deduced in previous chapters, into a structured list of *yes/no* questions. These questions are grouped into three sets of requirements as in Chapter 3: data requirements, integration requirements and interface requirements. All of these requirements must be met before a system supports every aspect of e-tailing partnerships as they are described here. At the same time it is debatable whether a system that, for example, does not store unique identifiers for products, is an e-business system at all; so even the most basic software is likely meet some of the framework's requirements. Different systems may support the requirements to varying degrees. The three empirical examples provided illustrate how these systems may be evaluated.

The framework is designed to facilitate evaluation of a system's ability to support e-tailing partnerships. For this reason, questions are limited to those that are specific to partnerships. Unfortunately, the requirements identified are either so specific to partnerships that almost no software has met them, or are necessary for partnerships, but are also necessary for running other parts of the e-business software, thus almost all software vendors meet them. This is unfortunate because it limits the extent to which the framework can be demonstrated in a varied way without dreaming up fictional software.

Still, the evaluative framework is useful in that it not only identifies whether software is capable of supporting partnerships, but it also allows software owners and vendors to ascertain the degree to which their software supports e-tailing partnerships in terms of the number of requirements it fulfils in each of the three areas.

7.2 Evaluative framework definition

The requirements for the following questionnaire are derived in Chapter 3, so explanations are not repeated here. Chapter references are included in brackets.

	Yes	No
1 DOES THE SYSTEM SUPPORT THE DATA MODEL? (3.1)		
a. Does the system support value block concepts? (3.1.1)		
i. Does the system incorporate different types of value?		
ii. Does the system incorporate market segmentation data?		
iii. Does the system record customer interaction data (beyond purchases)?		
b. Does the system combine value concepts into a customisable, reusable, three-dimensional value framework (value block) that can be interpreted using a conversion mechanism? (3.1.1)		
i. Does the system record customer interaction value of each value type according to customer market segment and customer interaction type?		
ii. Does the system allow customisation and re-use of value types, market segments and interaction types?		
iii. Does the system include conversion weightings for each value type?		
c. Does the system allow specification of how value is to be distributed between partners? (3.1.2)		
d. Is the system session-based? (3.1.3)		
e. Does the system store unique identifiers for users? (3.1.4)		
f. Does the system store unique identifiers for products? (3.1.5)		
2 DOES THE SYSTEM FULFIL INTEGRATION REQUIREMENTS? (3.1.8)		
a. Does the system record data about partner organisations? (3.1.8)		
b. Does the system have access to a partner system's product data? (3.1.8)		
c. Does the system initiate and conclude processes (such as purchase processes) on a partner system? (3.1.8)		
d. Does the system record value and transactional data in a manner that prohibits either partner altering that data without the other's consent? (3.1.8)		
3 DOES THE SYSTEM FULFIL USER INTERFACE REQUIREMENTS? (3.2 & 3.3)		
a. Can the website display products with characteristics that may be defined unpredictably? (3.3.1)		
b. Is product integration information available from the owner and host user's product data interface? (3.2.5)		
c. Is customer segmentation information available from owner and host user's customer data interface? (3.2.6)		
d. Does the system report partnership activity accurately? (3.2.7)		

Figure 7-1: Evaluative framework - requirements questionnaire

The framework questionnaire (Figure 7-1) does not cover any new ground, but rather it formalises requirements identified in Chapter 3. It is presented as a set of *yes/no* questions. This format adds to its ease of use as no qualitative decisions are required – either a requirement is met or not.

7.3 Evaluative framework interpretation

The framework shown above allows the evaluator to ascertain whether a candidate system adheres to requirements in each of three areas. If the question is complex (as in Q1.a. Does the system support value block concepts?) then sub-questions are provided to help in identifying the correct answer. The answer to such a question is only *yes* if the answers to all sub-questions are *yes*. Sub-questions have the same chapter references as their parent questions. Software owners and vendors can gauge how close they are to meeting partnering system requirements by looking at how many of the sub-requirements are met.

In many cases “plug in” components can be used to extend the functionality of systems that do not meet all requirements. The entire partnering system may, in fact, “plug in” to a legacy e-business system, provided that the user, session and product data are accessible and uniquely identified. This is demonstrated in Chapter 3.

7.4 Choice of e-commerce software candidates

The primary aim of the software candidate selection method in this section is to select software whose evaluation will reveal meaningful insights into the application of the evaluation framework. The evaluations performed below are not meant to represent evaluations of software in general, so there is little reason to use a non-biased, random selection method. In fact, the opposite is true; there is reason not to use such a method.

A non-biased, random method might yield several e-commerce software packages, all very similar to one another. It is unlikely that either the most or least highly specified software packages would be randomly chosen, given the large number of e-commerce software vendors that exist. If a few similar systems were to be evaluated then there

would be little scope for demonstrating varied aspects of the evaluative framework. Systems along the entire range of e-commerce software are, in fact, fairly similar with respect to their support of partnership concepts, thus even with a manual selection method biased toward dissimilar systems, evaluations are fairly alike. This can be attributed to the fact that e-commerce software vendors have not been exposed to the partnership concepts described (thus they do not attempt to comply with the given requirements), but are concerned rather with vertical partnerships – either upwards along the supply chain or downwards along the delivery chain. Reviews of e-commerce software at the Internet.com E-commerce Guide (ecommerce.internet.com, 2002) website, reveal that the reviewers talk of partnerships in terms of supplier partnerships, accounting system partners or payment system partners, not e-tailing partners.

The previous statement leads to the obvious question: “Why should e-commerce or e-business software be evaluated in terms of a model that it does not even attempt to support?” The answer is that an evaluation allows businesses that do wish to support the model (partner with other e-tailers) to gauge where they stand in terms of software functionality. These evaluations are therefore aimed not at a “How well do we support partnerships?” scenario, but rather at a “How far are we from being able to support e-tailing partnerships?” scenario.

From the above, one can summarise that 1) the purpose of the empirical evaluations is to demonstrate the framework from the “How far are we?” point of view and 2) a random, unbiased selection method is inappropriate. The major problem with using a random method – that software selected in this manner may not adequately demonstrate diverse aspects of the framework – is addressed by using a manual (and biased) method. The “How far are we?” issue is addressed by selecting software from a list that contains a wide range of reviewed software packages that are in current commercial use and which aim to address site design and operational problems faced by e-tailers. These are therefore the same systems that will require extension if e-tailers wish to partner with one another in the future. It is therefore logical to select software from such a list of commercial software, choosing dissimilar packages that permit diverse demonstrative evaluations.

The list containing software considered for this evaluation is taken from the E-commerce Guide section of Internet.com (see Appendix A) and includes 42 software packages in the category “Storefront Builders”. Storefront Builders is one of four categories under the “E-commerce Software” heading. Other categories include “Payment Solutions”, “Commerce Servers” and “Portal Sites”. Storefront builders represent the best fit with the definition of e-tailing software used so far in this paper. Each of the 42 software candidates is reviewed in the E-commerce Guide. The process of selecting a few candidates from a list of 42 involved reading each review and deciding which packages, and how many, would sufficiently demonstrate the average and the extremes (of system functionality) within the selection list.

Three software candidates were thus selected; one offering basic functionality, one offering mid-range functionality and one offering extended functionality.

7.4.1 Freemerchant.com (www.freemerchant.com)

Freemerchant.com is a hosted e-commerce solution offering basic functionality (catalogue, shopping cart, tax and shipping calculations) at a very low cost (\$14.95/month). Freemerchant.com requires business users to create their sites online using the Freemerchant.com website interface. Freemerchant.com has a set of design templates and a product catalogue can be uploaded to the site. Freemerchant.com does not accept payments itself, but as with most solutions, it outsources online payment responsibilities to a third party payment system provider.

Freemerchant.com enables its merchants to swap advertising banners with one another, thereby increasing coverage of each site in the banner-swapping group. Whilst this is not nearly as complex as the partnerships discussed in this paper, it is a rudimentary form of e-tailing partnership and serves to show that there is a commercial interest in functionally supporting relationships between e-tailers.

7.4.2 Actinic Business 5.0 (www.actinic.com)

(Based on Actinic 4.0)

Actinic Business 5.0 is an evolution of Actinic 4.0, which is reviewed in the E-commerce Guide. In the review, Actinic's package is described as being one of the few packages in its price group that "covers all the bases" of store design, product catalogue, transaction processing, store management and reporting as well as it does.

Actinic Business 5.0 is a good candidate because it is strong in terms of its functional support of e-business, but has not been explicitly designed to support partnerships or to be extensible in the direction of supporting partnerships. It is dissimilar to Freemerchant.com, which employs a far less flexible approach to e-commerce, but which explicitly tries to link its merchants in a manner such that they become basic partners in an online community.

7.4.3 Microsoft Commerce Server 2000 (www.microsoft.com/commerceserver)

(Based on Microsoft Site Server 3 Commerce Edition)

Microsoft Commerce Server 2000 (MCS2000) is more expensive and more advanced software than Freemerchant.com and Actinic Business 5.0. It has evolved from Microsoft Site Server 3 Commerce Edition, which is reviewed in the E-commerce Guide. MCS2000 is described on the Microsoft website as providing "a comprehensive set of features to let developers quickly build scalable, user-centric, business-to-consumer and business-to-business e-commerce sites".

MCS2000 is interesting, at least from the point of view of evaluation, because it is the only selected software candidate that explicitly supports complex partnerships, including execution of actions on other systems. Unfortunately, e-tailing partnerships as such are not supported, but the evaluation of MCS2000 shows that it is certainly closer to this functionality than the other systems.

MCS2000 is also a good candidate because it is the only software in the group to support different types of value (although not exactly as described in this paper) and because of its advanced customer profiling focus. These two elements map fairly closely to some of the value block concepts introduced in this paper.

7.5 Evaluation of candidates

The format of this section is dictated by its purpose. The evaluative framework is designed to enable e-commerce practitioners to determine the functional gap between their own systems and theoretical e-tailing partnership enabling systems as described in this paper. Each candidate, introduced in the previous section, is therefore evaluated individually. General observations and conclusions about the framework are then reported in 7.6 Evaluation of the framework.

7.5.1 Evaluation - FreemERCHANT.com

	Yes	No
1 DOES THE SYSTEM SUPPORT THE DATA MODEL? (3.1)		✓
a. Does the system support value block concepts? (3.1.1)		✓
i. Does the system incorporate different types of value?		✓
ii. Does the system incorporate market segmentation data?		✓
iii. Does the system record customer interaction data (beyond purchases)?		✓
b. Does the system combine value concepts into a customisable, reusable, three-dimensional value framework (value block) that can be interpreted using a conversion mechanism? (3.1.1)		✓
i. Does the system record customer interaction value of each value type according to customer market segment and customer interaction type?		✓
ii. Does the system allow customisation and re-use of value types, market segments and interaction types?		✓
iii. Does the system include conversion weightings for each value type?		✓
c. Does the system allow specification of how value is to be distributed between partners? (3.1.2)		✓
d. Is the system session-based? (3.1.3)	✓	
e. Does the system store unique identifiers for users? (3.1.4)	✓	
f. Does the system store unique identifiers for products? (3.1.5)	✓	
2 DOES THE SYSTEM FULFIL INTEGRATION REQUIREMENTS? (3.1.8)		✓
a. Does the system record data about partner organisations? (3.1.8)		✓
b. Does the system have access to a partner system's product data? (3.1.8)		✓
c. Does the system initiate and conclude processes (such as purchase processes) on a partner system? (3.1.8)		✓
d. Does the system record value and transactional data in a manner that prohibits either partner altering that data without the other's consent? (3.1.8)		✓
3 DOES THE SYSTEM FULFIL USER INTERFACE REQUIREMENTS? (3.2 & 3.3)		✓
a. Can the website display products with characteristics that may be defined unpredictably? (3.3.1)	✓	
b. Is product integration information available from the owner and host user's product data interface? (3.2.5)		✓
c. Is customer segmentation information available from owner and host user's customer data interface? (3.2.6)		✓
d. Does the system report partnership activity accurately? (3.2.7)		✓

Figure 7-2: Requirements questionnaire - FreemERCHANT.com

Q1. DOES THE SYSTEM SUPPORT THE DATA MODEL?

Freemerchant.com is a basic e-business system offering a simple solution to merchants who can afford to spend very little on their e-business. It does not incorporate the value block concepts of value types, market segments and customer interaction data and obviously, therefore, does not combine them into a multi-dimensional value framework.

Interestingly, Freemerchant.com does encourage partnerships amongst its merchants, enabling them to swap banners with one another and thereby generate additional traffic for both parties. Freemerchant.com, however, makes the simplifying assumption that all banners are equal. With this assumption in place, direct swaps make business sense and the system need not bother to measure or distribute value amongst the merchants involved (Q1.c). Even a simple banner swapping service can, however, become a more complicated partnership.

Imagine that eWine and eCheese are Freemerchant.com merchants, and that they decide to swap banners. Imagine that eWine is a great online success because of its reputation for excellent delivery and service, and that eCheese is struggling to launch its e-business. After one month, eWine realise that, whilst they have sent 1000 people clicking through to eCheese, only 100 users clicked on the eWine banner at eCheese. The simple reason for this is that eWine has 10 times as many users as eCheese.

Ideally, in addition to swapping banners, eCheese could pay eWine for the extra 900 click-throughs, which are, after all, generating sales at eCheese. This would be a beneficial partnership for both parties, but would require the answer to Q1.c. to be *yes*. By making the assumption that all banners are of equal value, Freemerchant.com may be ruling out mutually beneficial partnerships – if eWine cannot charge eCheese, then it is likely to simply find another more equal partner.

As with almost all e-business software, Freemerchant.com is session-based and it stores unique data per product and per customer. This alone is, however, not sufficient to support the partnership data model. Freemerchant.com needs to create data tables to

store different types of value, market segmentation and customer interaction data and relate these tables to one another in a meaningful way. Once value is measurable, Freemerchant.com requires further tables to store data about how value is to be distributed between partners.

Q2. DOES THE SYSTEM FULFIL INTEGRATION REQUIREMENTS?

The answers to all questions in this section of the Freemerchant.com evaluation are *no*. Freemerchant.com does not enable any interaction beyond banner swapping between sites. If Freemerchant.com is to enable its merchants to partner with one another real-time and interactively, then extensions are necessary in terms of fulfilling integration requirements.

Q3. DOES THE SYSTEM FULFIL USER INTERFACE REQUIREMENTS?

The answer to the first question in this section is *yes*. Businesses creating sites using Freemerchant.com can (unpredictably) define product attributes and Freemerchant.com will display these user-defined attributes whenever the appropriate product is shown online. This functionality is very common in e-business software. All of the other questions in this section of the framework are dependant on the system fulfilling integration requirements – there is no reason for having user interfaces to various aspects of a partnership that does not exist.

In conclusion, Freemerchant.com is seriously lacking in all three requirements sections. If current banner swapping partnership functionality is to evolve into full-blown e-tailing partnerships, then Freemerchant.com needs to extend its current data model, define and enable communication between its sites, and provide access to partnership information through an integrated user interface.

7.5.2 Evaluation - Actinic Business 5.0

	Yes	No
1 DOES THE SYSTEM SUPPORT THE DATA MODEL? (3.1)		✓
a. Does the system support value block concepts? (3.1.1)		✓
i. Does the system incorporate different types of value?		✓
ii. Does the system incorporate market segmentation data?	✓	
iii. Does the system record customer interaction data (beyond purchases)?		✓
b. Does the system combine value concepts into a customisable, reusable, three-dimensional value framework (value block) that can be interpreted using a conversion mechanism? (3.1.1)		✓
i. Does the system record customer interaction value of each value type according to customer market segment and customer interaction type?		✓
ii. Does the system allow customisation and re-use of value types, market segments and interaction types?		✓
iii. Does the system include conversion weightings for each value type?		✓
c. Does the system allow specification of how value is to be distributed between partners? (3.1.2)		✓
d. Is the system session-based? (3.1.3)	✓	
e. Does the system store unique identifiers for users? (3.1.4)	✓	
f. Does the system store unique identifiers for products? (3.1.5)	✓	
2 DOES THE SYSTEM FULFIL INTEGRATION REQUIREMENTS? (3.1.8)		✓
a. Does the system record data about partner organisations? (3.1.8)	✓	
b. Does the system have access to a partner system's product data? (3.1.8)		✓
c. Does the system initiate and conclude processes (such as purchase processes) on a partner system? (3.1.8)		✓
d. Does the system record value and transactional data in a manner that prohibits either partner altering that data without the other's consent? (3.1.8)		✓
3 DOES THE SYSTEM FULFIL USER INTERFACE REQUIREMENTS? (3.2 & 3.3)		✓
a. Can the website display products with characteristics that may be defined unpredictably? (3.3.1)	✓	
b. Is product integration information available from the owner and host user's product data interface? (3.2.5)		✓
c. Is customer segmentation information available from owner and host user's customer data interface? (3.2.6)		✓
d. Does the system report partnership activity accurately? (3.2.7)		✓

Figure 7-3: Requirements questionnaire - Actinic Business 5.0

Q1. DOES THE SYSTEM SUPPORT THE DATA MODEL?

Actinic Business 5.0 is a software package described in the E-commerce Guide as “covering all its bases”. Unfortunately, none of these bases is e-tailing partnerships. Still, Actinic Business does fairly well in covering at least one of the core value block concepts, customer segmentation.

Actinic Business does not use the term “customer segmentation”, but it does use the concept in, for instance, its “customer specific pricing”. Placing customers into groups for purposes such as specific pricing or emailing promotions is actually a process of segmentation. Customers who are expected, for whatever reason, to pay price x form one division or segment of the market base. Customers who are charged price y are members of another segment. Of course, this is not the only method of segmenting the market, but it is sufficient to provide a yes answer to Q1.a.ii.

In terms of other value block concepts, Actinic Business is very weak. The only form of value incorporated into Actinic Business is monetary value directly linked to a sale. Also, customer interaction data is only stored implicitly as part of a recorded sale. Even then, specific data about the sale, such as “What else did the customer search for?” or “Did the customer search the site or navigate directly?” or “What advertising did the customer see during the purchase process?” is not recorded.

Actinic Business does not attempt to enable any e-tailing partnering at all, so it is no surprise that an Actinic based system does not allow for specification of value distribution between partners. It does, however, fulfil the requirements of Q1.d, Q1.e, and Q1.f just as most basic e-business systems do.

Actinic business still has a way to go before the complete set of data requirements is met. The package has already enabled market segmentation, but needs to be more aware of customer interactions and the different types of value that they embody. Once value can be measured and captured for each market segment that already exists, Actinic Business can simply be extended to include value conversion and value distribution data, thus meeting the underlying data requirements for e-tailing partnerships.

Q2. DOES THE SYSTEM FULFIL INTEGRATION REQUIREMENTS?

Actinic Business is not designed to support partnerships. Once again then, it is hardly surprising that it does not meet requirements. Only the first integration requirement is met by virtue of the fact that the software is designed to store both personal and

company accounts. If data can be stored about companies, then data can be stored about e-tailing partners.

Q3. DOES THE SYSTEM FULFIL USER INTERFACE REQUIREMENTS?

Actinic Business's catalogue is fairly typical in that user-defined attributes for products may be built into it. When products are displayed on the website, the system requests information both about the attribute itself and about how to display it according to the desired template. In this way the system can display unpredictably defined attributes. Unfortunately, other user interface requirements are dependent on there being integration between partner systems. Without this integration, the answer to the remainder of the questions in this category is *no*.

In conclusion, Actinic Business is not a system designed to enable e-tailing partnerships, but does have, especially in the area of market segmentation, a good base from which to work. If the data model is extended to include value types and interaction information, then Actinic Business will already be able to offer its merchants strong tools for measuring the true value generated by their sites. Once this value is known, partnerships can be set up and value can be distributed between partners – with each still knowing the total value of his/her own site. Of course, the realisation of automated partnerships will only come once Actinic Business has also met the latter group of both integration and user interface requirements.

7.5.3 Evaluation - Microsoft Commerce Server 2000

	Yes	No
1 DOES THE SYSTEM SUPPORT THE DATA MODEL? (3.1)		✓
a. Does the system support value block concepts? (3.1.1)	✓	
i. Does the system incorporate different types of value?	✓	
ii. Does the system incorporate market segmentation data?	✓	
iii. Does the system record customer interaction data (beyond purchases)?	✓	
b. Does the system combine value concepts into a customisable, reusable, three-dimensional value framework (value block) that can be interpreted using a conversion mechanism? (3.1.1)		✓
i. Does the system record customer interaction value of each value type according to customer market segment and customer interaction type?		✓
ii. Does the system allow customisation and re-use of value types, market segments and interaction types?		✓
iii. Does the system include conversion weightings for each value type?		✓
c. Does the system allow specification of how value is to be distributed between partners? (3.1.2)		✓
d. Is the system session-based? (3.1.3)	✓	
e. Does the system store unique identifiers for users? (3.1.4)	✓	
f. Does the system store unique identifiers for products? (3.1.5)	✓	
2 DOES THE SYSTEM FULFIL INTEGRATION REQUIREMENTS? (3.1.8)		✓
a. Does the system record data about partner organisations? (3.1.8)	✓	
b. Does the system have access to a partner system's product data? (3.1.8)	✓	
c. Does the system initiate and conclude processes (such as purchase processes) on a partner system? (3.1.8)	✓	
d. Does the system record value and transactional data in a manner that prohibits either partner altering that data without the other's consent? (3.1.8)	✓	
3 DOES THE SYSTEM FULFIL USER INTERFACE REQUIREMENTS? (3.2 & 3.3)		✓
a. Can the website display products with characteristics that may be defined unpredictably? (3.3.1)	✓	
b. Is product integration information available from the owner and host user's product data interface? (3.2.5)		✓
c. Is customer segmentation information available from owner and host user's customer data interface? (3.2.6)		✓
d. Does the system report partnership activity accurately? (3.2.7)	✓	

Figure 7-4: Requirements questionnaire - Microsoft Commerce Server 2000

Q1. DOES THE SYSTEM SUPPORT THE DATA MODEL?

MCS2000 is the most advanced software candidate both generally, and in terms of partnerships. On the MCS2000 website, Microsoft claims that one of the goals of MCS2000 is “forging tighter partner relationships”. Whilst Microsoft is referring to vertical, rather than horizontal e-tailing partnerships, this commitment to partnering does provide a strong base for extensions in that direction.

MCS2000 is the only software candidate to support multiple types of value. In addition to monetary value associated with sales, Microsoft uses a value scoring system in its Content Selection Framework. The Content Selection Framework allows MCS2000 merchants to score (or value) content according to specific customer groups that are to be targeted. The system selects content based on this score, thus maximising value for each customer who uses the site. The customer profiling, grouping and targeting functionality of MCS2000 is essentially segmentation.

MCS2000 also stores specific customer interaction data such as a browsing history for each customer. This data can later be used to make recommendations of future product purchases. MCS2000 does not, however, combine interaction data into its Content Selection Framework, so Microsoft's framework is two- rather than three-dimensional. The answer to Q1.b.i is therefore *no*. The answer to Q1.b.2 is also *no* as MCS2000 does not allow for customisation of value types or interaction data, although it does permit user defined segmentation. MCS2000 could conceivably enable conversion of its content scoring mechanism into monetary or some other type of tangible value, but it does not.

MCS2000 enables vertical partnerships with, for instance, suppliers, but the system does not specify value distribution as it is intended in the e-tailing partnership framework. The MCS2000 partnership functionality is discussed further in the next section.

Once again, the answers to Q1.d, Q1.e and Q1.f are all *yes* as the system is session-based and products and customers are uniquely identified.

MCS2000 comes relatively close to meeting the data requirements for e-tailing partnerships, but is let down by its lack of customer interaction data storage, lack of a value conversion mechanism and lack of a value distribution mechanism.

Q2. DOES THE SYSTEM FULFIL INTEGRATION REQUIREMENTS?

MCS2000 is designed to integrate with partner systems, albeit vertically, and as such is the only candidate to meet the integration requirements. MCS2000 enables its

merchants to record data about, for instance, suppliers. It can also trigger events such as re-orders on supplier systems. MCS2000 uses the concept of Commerce Interchange Pipelines to manage interactions between business systems. Using these pipelines, the format and type of information to be exchanged is specified. Whilst these pipelines are designed for supplier-type partnerships, the flexible nature of the integration means that they may be adapted to enable many types of partnerships.

Q3. DOES THE SYSTEM FULFIL USER INTERFACE REQUIREMENTS?

MCS2000 has the standard catalogue functionality of being able to display products with unpredictable user-defined attributes. Partner product data may be accessed using a pipeline, but is not directly accessible from the other partner's product data interface. The same is true for customer data. There are, however, strong reporting tools available to MCS2000 merchants, so partnership activity is easily accounted for.

In conclusion, MCS2000 provides a strong base for extensions in the direction of enabling e-tailing partnerships. Value, segmentation and interaction concepts are well developed within MCS2000, but they need to be consolidated into a single framework before the total value of merchant's sites can be accurately measured and reported. This will also require the inclusion of a value conversion mechanism.

In terms of integration and user interface requirements, MCS2000 simply needs to focus its efforts towards enabling horizontal partnerships between e-tailers, as well as the vertical supplier-type partnerships it is currently attempting to support. Most of the requirements are already met in these areas.

7.6 Evaluation of the framework

As has been shown in the three demonstrative evaluations, the framework is a useful tool to be used in assessing the functional gap between current systems and theoretical e-tailing partnership systems. The framework conceptually divides requirements into data, integration and interaction, allowing the evaluator to structure his/her evaluation along those lines.

The data requirements section of the framework was perhaps the section best demonstrated in the evaluations. Data requirements are fairly specific, but can be difficult to interpret, especially when differences in terminology exist. This is well illustrated by the concept of segmentation, which is labelled anything from grouping to targeting to profiling.

The value type concept is also one that needs to be well understood before the framework can be meaningfully applied. If there is any form of automated decision-making, then this should be scrutinised to ascertain whether a non-monetary scoring or valuation system is in use.

In addition to probing the incorporation of value block concepts, the evaluative framework looks at whether they are meaningfully combined in the data model. They may even be partially combined, as with the MCS2000's Content Selection Framework. Sub-questions in the framework prove effective in helping evaluators to look beyond the surface requirements.

Integration and interface requirements are fairly predictable in that, if software attempts to support complex partnerships, then it will meet most interface requirements, and if not, it will meet very few. This is logical because, whilst value block concepts have valuation uses applying to both single entities and partnerships, integration requirements serve only to enable integration.

The evaluative framework outlines partnerships at a high level and does not serve to replace feasibility studies or design documents. It does, however, give a good overall understanding of a candidate's current partnership functionality and the gap between that functionality and that of a theoretical system as proposed by this research.

CHAPTER 8

CONCLUSION

Pundits claim that Internet partnerships are becoming increasingly commercially significant. This research looks closely at the e-tailing partnership as one form of such an Internet partnership in Hammonds' New Internet Economy (Hammonds, 2001).

Chapter 2 was tasked with motivating the formation of seamless e-business partnerships between retailers. Chapter 2 also raised concerns about how such partnerships could be facilitated given the current difficulty of valuing online efforts. Without the ability to value partnerships, Chapter 2 concluded that the proliferation of seamless partnerships is unlikely to occur. Partnerships will only occur where both partners can justify the value of the relationship. This in turn needs to be reliably determined.

The value block and fund transfer grid were proposed in Chapter 2 as suitable theoretical mechanisms for first determining value online and subsequently specifying how it is to be distributed between partners. Chapter 3 looked closely at the requirements for systems working within the value block framework, concluding that, whilst there are legitimate concerns, these can be overcome and e-tailing systems can meet the challenge of seamless partnering – at least theoretically.

Chapter 4 examined the risks of partnering seamlessly with other e-tailers. Risks were divided along the lines of business and technology risk. The first conclusion of this chapter was that business risk is best moderated through good partner choice and upfront analysis. Secondly, much technology risk exists as a result of consequence of integration with legacy systems, payment systems, fulfilment systems and other e-tailing systems. This risk will be moderated over time as integration standards emerge.

The purpose of the empirical section of this research, reported in Chapter 7, was to link theory to reality through the demonstration of an evaluative framework. Three

evaluations revealed interesting insights into commercial software. For instance, the concepts of value (other than monetary value), segmentation and interaction are already being developed within Microsoft's Commerce Server 2000 package. Unfortunately, a biased candidate selection method meant that no generalised empirical conclusions could be drawn, but the evaluative framework proved itself to be a useful analytic and evaluative tool.

The discussions in this paper are intended to spark debate and fuel further research amongst both academics and practitioners. The theoretical frameworks and concepts require further development and testing, but even in their immature state, it is apparent that partnerships amongst e-tailers are, at least, worth serious contemplation and, at most, a significant business model for firms in the New Internet Economy.

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University of Cape Town

APPENDIX A:

E-COMMERCE GUIDE STOREFRONT BUILDERS

The following is a list of “Storefront Builders” reviewed in the E-commerce Guide (http://ecommerce.internet.com/reviews/glance/0,3371,10412_3,00.html) and accessed during February 2002.

- | | |
|--|---|
| 1. 5click | 22. Jio 1.0 |
| 2. Actinic 4.0 | 23. Maestro Commerce Online |
| 3. Actinic Catalog 3.0 | 24. Maestro Commerce Suite 3.0 |
| 4. ActiveC | 25. Merchandizer 2.03b |
| 5. ActiveC 2.8 | 26. MerchandiZer 3.5 |
| 6. Carello 1.2 | 27. Merchant Builder 3.0 |
| 7. ClickCartPro v4.0 | 28. Net.Commerce 3 |
| 8. CommerceEdge | 29. Online Merchant Gold |
| 9. CustomCart by US Nexus | 30. Online Store Builder 2.1 |
| 10. EasyMarketPlace.com | 31. Prodigy Business Solutions |
| 11. ECware 4.0 | 32. ShopBuilder 2.6 |
| 12. EROL 1.0 | 33. ShopSite TX |
| 13. eSales Suite | 34. ShopZone 2.0 |
| 14. Freemerchant.com | 35. Site Server 3.0 |
| 15. FrontHost | 36. SoftCart 4.0 |
| 16. Goldpaint 3.945 | 37. Storefront 2000 |
| 17. iCat Electronic Commerce Suite
3.01 | 38. StoreSense 4.0 |
| 18. iHTML Merchant Pro 2.0 | 39. VisualCommerce Constructor 1.0 |
| 19. Impulse 4.2 | 40. Web Business Builder |
| 20. INEX Commerce Court 3.1 | 41. Web+Shop |
| 21. InterShop 3 | 42. WebSite Complete, Deluxe
Edition 2.5 |