

Bangor Business School Working Paper



BBSWP/10/017

UNDERSTANDING CUSTOMERS AND RELATIONSHIPS IN SOFTWARE TECHNOLOGY SMEs

By

**Sara Parry and Rosalind Jones
Division of Business Studies, Bangor Business School**

**Jennifer Rowley
Department of Information and Communications, Manchester
Metropolitan University**

**Beata Kupiec-Teahan
Scottish Agricultural College, Land Economy
and Environment Research**

August, 2010

**Bangor Business School
Hen Goleg
College Road
Bangor
Gwynedd LL57 2DG
United Kingdom
Tel: +44 (0) 1248 38227
E-mail: business@bangor.ac.uk**

Abstract

Purpose: Drawing on B2B Relationship Marketing and management theory, this research seeks to better understand customer-perceived value in B2B contexts, specifically what customers expect from their relationships with suppliers. The study therefore aims to explore the customer's perspective of the key attributes of relationships, in the software sector, and with specific reference to SMEs in this sector.

Design/Method/Approach: A two level analysis of customer perspectives on relationship attributes was conducted. First, semi-structured interviews were conducted with the customers of two case study firms. This process was used both to identify key attributes, and to generate insights into the nature and importance of those attributes. Using these attributes, a second study was conducted: a survey based on an online questionnaire generated data that was analysed using Adaptive Conjoint Analysis in order to identify the relative significance of the attributes.

Findings: A new Customer Relationship Attributes Model (CRAM) is presented which encapsulates the major attributes customers consider when entering into a relationship with their software supplier. The CRAM identifies five product-related attributes (price, functionality, bilingual capability, location, and software quality), and seven service related attributes (communication, understanding of the customer, trust, relationship, service, professionalism, and employee expertise). The most important of these attributes are: software quality, professionalism, understanding of the customer, and functionality.

Originality/value: Too much of the research and rhetoric on relationship marketing and management takes a provider side approach. This paper contributes to theory by offering a customer perspective on business relationships in a specific sector. Further, the CRAM can be used by software SMEs to inform the actions that they need to take in order to enhance their relationships with their customers in pursuit of improved business performance.

Keywords: Software technology SMEs, B2B relationships, Customer-perceived value Adaptive Conjoint Analysis.

Understanding customers and relationships in software technology SMEs

1. Introduction

It is widely accepted that Relationship Marketing and relationship management is important to business success (Gronroos, 1994; Gummesson, 2002; Reichheld and Sasser, 1990). Along with the recognition of the importance of relationships, the concept of customer value has received much attention within academic literature, (Eggert *et al.*, 2006; Ulaga, 2001; Walter *et al.*, 2001), particularly in relation to the notions of relationships and relationship quality (Lindgreen *et al.*, 2006; Ulaga and Eggert, 2006). However, thus far, perceived value has mainly been considered from the provider side. This study therefore aims to focus directly upon the customer and their expectations of relationships in a specific sector. This investigation can therefore make a useful contribution to the theory of B2B relationship marketing in the SME context, in software technology firms, and from the customer's point of view. This study also responds to recent calls for the increased use of more qualitative approaches to study relationship quality within service settings (Athanasopoulou, 2009) and for additional research into RM in specific industries (Das, 2009).

The importance of networking and developing close relationships have already been identified in the SME literature (Carson *et al.*, 1995; Gilmore *et al.*, 2001) and there is increasing interest as to how SMEs market technology products in highly competitive environments (Borg, 2009; O'Dwyer *et al.*, 2009). Yet, there is a paucity of research on marketing approaches used by software SMEs (Jones and Rowley, 2009) and the marketing of software technologies in general (Alajoutsijarvi *et al.*, 2000; Helander and Ulkinemi, 2006; Ojasalo *et al.*, 2008). One recent exception is the work of Westerlund and Svahn (2008) which examined relationship perspectives in software SMEs and acts as an important predecessor to this study.

This research, therefore, investigates marketing in the software industry in order to:

- Identify and prioritise the key attributes which customers value/expect in the software supply relationship;
- Develop an understanding of the nature and importance of key attributes;
- Propose a customer relationship attributes model that can be used by software SMEs to inform the actions that they need to take in order to enhance their relationships with customers and to improve customer-perceived value;
- Explore the use of Adaptive Conjoint Analysis (ACA) to identify the benefits sought and the tradeoffs made by customers embarking on B2B relationships with their software providers.

The paper begins with a review of the Relationship Marketing literature in the B2B sector followed by a consideration of SME software marketing. Then, the two stage research methodology is described. This describes the use of semi-structured interviews with the customers of two case study firms, to identify key attributes, and the use of these attributes in an online survey using Adaptive Conjoint Analysis, to identify the relative significance of the attributes. The key findings are then presented and discussed; five product attributes and seven service attributes are identified. The paper concludes with the presentation of the customer relationship attributes model suitable for use in software technology SMEs. Finally, research limitations, together with managerial implications and recommendations for future research are discussed.

2. Literature review

The literature review will firstly consider Relationship Marketing and management in a B2B context followed by a summary of the specific research relating to Relationship Marketing in the software industry. The importance of networking and alliances will also be discussed focussing on software SMEs along with a brief examination into the software industry and the importance of software quality.

Relationship marketing in a B2B context

Relationship Marketing is a concept which focuses on developing long term relationships with customers and other stakeholders. Gronroos (1994, p.9) contends that RM “is to establish, maintain, and enhance relationships with customers and other partners, at a profit, so that the objectives of the parties involved are met. This is achieved by a mutual exchange and fulfilment of promises”. The principles upon which RM is based include trust, commitment and customer satisfaction (Gil-Saura *et al.*, 2009). Other key factors linked with collaborative relationship success in the B2B context include cooperation, social bonding and communication (Pinnington and Scanlon, 2009).

The concept of RM has been drawn from a number of other interrelated concepts and paradigms. In particular, Services Marketing and IMP research and the literature relating to B2B relationships, partnerships, alliances and networks. Hence this paper acknowledges the work of researchers including Brennan *et al.*, (2007) in contextualizing this research.

Services in business markets are far less researched than those in consumer market places and in such research there is focus on the buying process rather than the post-purchase outcome (Tyler *et al.*, 2007). Hakansson and the Industrial Marketing and Purchasing (IMP) group (1982) made significant contributions to Services Marketing research from a business perspective. They viewed services in the business market context as service relationships and interactions with a systems view which encapsulated inter-dependent companies and which was based on the buying and selling processes over time. Using this approach they explored the interactions, relationships and network theories in business (Axelsson and Easton, 1992; Hakansson and Snehota, 1995). The increasing interest in the context of Industrial Services Marketing has led to increasing research of customer satisfaction within business services (Homburg and Rudolf, 2001).

The notion of value creation in business markets is a well-researched concept, and much of the literature examines relational value-based drivers and relationship quality (Ulaga and Eggert, 2006). However they are mainly examined from the supplier's perspective (Walter *et al.*, 2001). One notable exception includes a study by Lapierre (2000) who identified 13 value drivers from the customer perspective including product quality, product customization and flexibility. This study was conducted in the wider ICT industry, providing a foundation for this investigation.

In the B2B context, the complexity of products and the perceived risk of purchase mean that effective long-lasting relationships are paramount for creating mutual value and thus enhance the performance of firms (Caceres and Paparoidamis, 2007). However, there is limited literature into the management of these relationships (Pinnington and Scanlon, 2009), particularly the customer's perspective and expectations of these relationships. The RM literature generally focuses on potential benefits for suppliers who adopt RM approaches.

Effective RM strategy benefits the supplier in terms of increased cooperation, a better understanding of customer requirements and a dialogue with customers leading to the development of co-created and customized products and services (Ruokonen *et al.*, 2008). Financial benefits include reduced costs due to higher retention of customers, and increased profits as a result of customers' loyalty and reduced price-sensitivity (Gronroos, 1994; Reichheld and Sasser, 1990). Proposed benefits for customers include reduced anxiety and comfort in knowing their supplier, along with social benefits as a result of familiarity with employees, individualized and additional services and special treatment (Gronroos, 1994; 2007; Gummesson, 2002). Aspects of RM theory advocate developing long-term and commercially viable relationships with customers by listening to customer requirements and satisfying customer needs with the aim of retaining high value customers (Reichheld and Sasser, 1990). Much of the RM research activity to date has

concentrated on theory building. However, a recent study into RM research identified the need for more applied research within specific industries (Das, 2009).

Numerous studies have confirmed that the presence of trust and commitment have a positive impact on relationships (Barry *et al.*, 2008; Ivens, 2005; Melewar *et al.*, 2001; Takala and Uusitalo, 1996). According to Morgan and Hunt (1994 p.23), trust exists when “one party has confidence in an exchange partner’s reliability and integrity”. Relationship commitment is defined “as an enduring desire to maintain a valued relationship” (Moorman *et al.*, 1992 p.316). Both trust and commitment are founded upon regular communication within a relationship. In this case SMEs offer some advantage over their larger counterparts when developing business relationships as communications tend to be more frequent and often face-to-face (Chaston, 1997).

Relationship marketing in software SMEs

Little attention has been directed towards the marketing of hi-tech or software SMEs (Alajoutsijarvi *et al.*, 2000; Helander and Ulkinemi, 2006; Ojasalo *et al.*, 2008). However, the few investigations conducted point towards the benefits of developing relationships, networking and alliances in this sector. Helander and Ulkuniemi (2006) and Ruokonen (2008) consider the marketing of software as requiring a relational competency, viewing businesses which develop tailored software to be inherently relationship and service-oriented, and for that reason a deep understanding of both the customer’s business and the technology is key. In the software sector relationships with existing customers are necessary for not only generating future revenue but providing further business opportunities (Ruokolainen and Makela, 2007). Whilst word-of-mouth is prevalent in the sector (Jones and Rowley, 2009), lasting relationships with current customers facilitate a clearer understanding of customer requirements and learning how end-users use the software (Ahmed and Capretz, 2007).

Developing relationships with other stakeholders as well as customers can help facilitate research capacity in software SMEs' marketing and business (Jones and Rowley, 2009; Westerlund and Svahn, 2008). Moreover, a network approach to marketing in technology companies implies that relationships are built between buyers and sellers, and thus companies can learn more about the needs of their customers (Borg, 2009). Boussara and Deakins (1999) found that social networks of entrepreneurs and strategic alliances are wholly appropriate to this business context. Alliances provide technology firms with the opportunity to share resources and capabilities. Entrepreneurial owner-managers use networks to build business, marketing and innovation capacity (Stokes, 2000).

The nature of software and the software industry

The rapidly evolving nature of the software industry and fast obsolescence of products makes the software industry an extremely competitive market (Kulmala and Uusi-Rauva, 2005; Ruokolainen and Makela, 2007). The importance of relationships to satisfying and retaining customers is therefore combined with the importance of delivering quality software, which emanates from internal organisational processes and employee competencies. The software design project is a key element of the marketing process as achieving the desired functionality of the product is a precursor to its perceived quality and software project success (Agarwal and Rathod, 2006). However, definition of software quality lacks clarity; software developers, managers and customers often have opposing views as to what constitutes software quality. Wilson and Hall (1998) assert that customer service approaches to quality are more likely to represent quality, especially by customers or users in non-technical roles. Although software quality implies product quality and is achieved through a combination of product and process quality, other softer aspects of quality include employee competence and customer focus which can enhance the overall quality of the software service and supports the development of relationships with customers (Hall *et al.*, 2007; Isaac *et al.*, 2006). A display of professionalism is also an aspect of service quality as it relates to the manner of employees, service processes as

well as service tangibles (Gronroos, 2007). Software industry research emphasises the importance of the human elements of software delivery as well as technical expertise (Isaac *et al.*, 2006). However more research is needed to understand what specifically constitutes software quality.

In light of the aforementioned gaps in software marketing research, relationship marketing in SMEs and the customer's perspective of relationships in an industrial context, this research seeks to investigate the key attributes of successful relationships in the software industry, but from the customer's point of view. This research should therefore aid software SMEs in the development and management of relationships with their customers and improve their overall marketing.

3. Methodology

Introduction

A mixed methods approach was deployed. An initial qualitative stage supported the development of and understanding of the software industry, in particular, the roles, activities, and customer relationships of SME's. This involved both an ethnographic study of two case study organisations and interviews with the customers of those organisations. In order to provide context brief profiles of these organizations are offered below, but the full ethnographic analysis is presented elsewhere (Parry *et al.*, In Progress). For the purpose of this paper, the focus in the qualitative phase is on the interviews with the customers of these organisations. These interviews were used to both surface key attributes of customer perspectives on their relationship with the two case study software suppliers, and to offer elucidation of the essence of these key attributes. The second stage of the study used the key attributes identified in the first stage to inform the design of an online questionnaire that used a conjoint analysis tool to provoke respondents to make choices between attributes. The analysis from this process lead to the development of the

Customer Relationship Attributes Model (CRAM), with rankings of the relative priorities accorded to the different attributes.

The following sections provide more details of the research methods adopted.

Profiles of case study companies

Company A is micro software SME based in North Wales. The company started as a bespoke software solutions company, providing customized database solutions, but now has off-the-shelf products. There is a sole owner-manager and eight full time employees. The company has been operating for 8 years and has a customer base of 20. Core competencies include language support, bilingual software solutions and web-based information databases. Bilingualism is reflected in policies of many Welsh organisations and those companies that are in the Welsh market as they cater for both languages. There is also a particular demand for the advancement of the Welsh Language in the field of IT (Welsh Language Board, 2006). The marketing activities of Company A consists of networking at local and national business exhibitions, developing relationships with prospective and current buyers, a Gold partnership with Microsoft and collaborations with other Welsh software organisations. All contacts are managed through a CRM system however the system is not used to its full potential due to the SMEs lack of time and staff resources. This firm has won two awards based on their innovative capabilities and bilingual capability, helping them improve their perceived credibility in the marketplace.

Company B is a small business which developed software and is also located in North Wales. The company was founded in 2000 by two owner-managers and quickly grew to 14 full and part time staff. The SME offered one product and had two clients during its short lifespan. Company B's marketing activities were limited. The product was developed without market research or customer consultation. With regards to other marketing activities, there was no formal process of attracting and prospecting new customers. The

background and focus of the main decision makers in the firm was engineering and finance. This further hampered the marketing function of Company B.

Interviews with case study firm's customers

To investigate the important attributes of software suppliers as judged by their customers, in-depth interviews were conducted with customers of both of the case study firms (see table 1 for respondent data). All customers from both companies were approached to take part in an interview and were contacted via e-mail followed by a formal letter. The interview method was chosen to investigate the dyadic relationships between both firms and their customers, and to obtain a holistic view of each SME. Fifteen customers agreed to be interviewed. Two customers had more than one contact thus two respondents were interviewed in each of these cases. This resulted in a total of 17 interviews. Interviews remained flexible so as to encourage respondents to discuss the nature of their relationships with their particular software firm, their perceptions of the relationships and their expectations of software suppliers. The investigation of experiences and expectations of customers in a service context is supported by Gilmore and Carson (1996), as it can provide information about the reasons of opinions, attitudes and perceptions of customers. An initial list of themes to cover in interviews was compiled based on the RM literature and to provide some structure, however as an open approach to interviews was taken, a list of topics generally discussed in most interviews is included (see Appendix 1).

Table 1 Interview Respondent Data

Customer	Industry	No of Employees	Number of Interviews and Role of Respondent	Private/Public Sector
1	Financial Services	20	1-Managing Director	Private
2	Chemical	560	1 –IT Manager	Private
3	Information Services	10	2 -Managing Director and Head of Systems (separately)	Not For Profit
4	Government	9000	1 - IT Manager	Public
5	Government	20000	1-ProgrammeManager	Public
6	Public Services	50	1 –IT Manager	Public
7	Agriculture	1	1 –Managing Director	Private
8	Sustainable Development	5	1 -Managing Director and Website Officer (combined)	Public
9	Utilities	15	1 -Finance Assistant	Private
10	Manufacturing	350	1 –IT Manager	Private
11	Government	3000	1 –IT Manager	Public
12	Emergency Services	1700	1 -ICT Software Engineer	Public
13	Government/ Economic Development	1000	2 -IT Manager and Project Manager (separately)	Public
14	Government	50	1 –Research and Grants Manager	Public
15	Medical	2000	1-Project Manager	Private

Interviews were recorded and transcribed verbatim, and content analysis was used to analyse the data (Hill and Wright, 2001; Miles and Huberman, 1994). A list of attributes that customers deemed important when selecting a software supplier was also drawn from the data in order to investigate the ongoing relationship and why customers are likely to continue in the relationship with their software firms. This was used to inform the ACA.

Online survey using conjoint analysis

Conjoint Analysis can be described as a “favourite methodology” for the investigation of tradeoffs made by customers when making choices between products, brands and suppliers (Green *et al.*, 2001). These tradeoffs arise when competing products differ with regards to individual attribute levels and the desired levels of attributes allocated to different products create conflicts in the process of choosing. Mohr *et al.*, (2005) provide a rationale for the application of conjoint analysis in the high tech industry, and support is provided for using conjoint analysis in new product development (Kang *et al.*, 2007). Conjoint analysis has also been applied in the research of high tech SMEs in exploring strategy development and product offerings (Schmidt and Gary, 2002).

Twelve attributes were identified for business software suppliers via the interviews and between two and four levels for each attribute were defined (see Appendix 2 for a list of all attributes and levels). Adaptive Conjoint Analysis (ACA) developed by Richard Johnson (1987) of Sawtooth Software was applied. In the first, self-explication stage of the ACA procedure respondents expressed their preferences and ascribed importance ratings to individual attributes. Next they were asked to indicate preferred profiles and perform graded paired comparisons.

The ACA survey was computer assisted, with direct data input system which can handle a large number of attributes (up to 30). Another advantage of ACA is its ability to ‘adapt’ to each respondent’s answers as he or she goes along, and capture the areas of greatest interest. The composition of questions asked varies per respondent and assumes dynamic approach with active, explicit competitors as opposed to static assessment of pre-defined product profiles.

Other than the ACA procedure the survey involved gathering information about the role of respondent, size of organisation, industry and software purchasing behaviour. The survey was made available online and a link was e-mailed to decision makers responsible for software purchase in various organisations located in Wales. A reminder e-mail was subsequently sent resulting in two hundred and fifty six (256) surveys being completed.

Analysis was conducted by estimating the part worth utilities at the total sample level (aggregated data) with Ordinary Least Squares. In order to include individual differences the Hierarchical Bayes (HB) (Anlenby *et al.*, 1995) model was used to estimate the parameters which were used to underpin the development of CRAM.

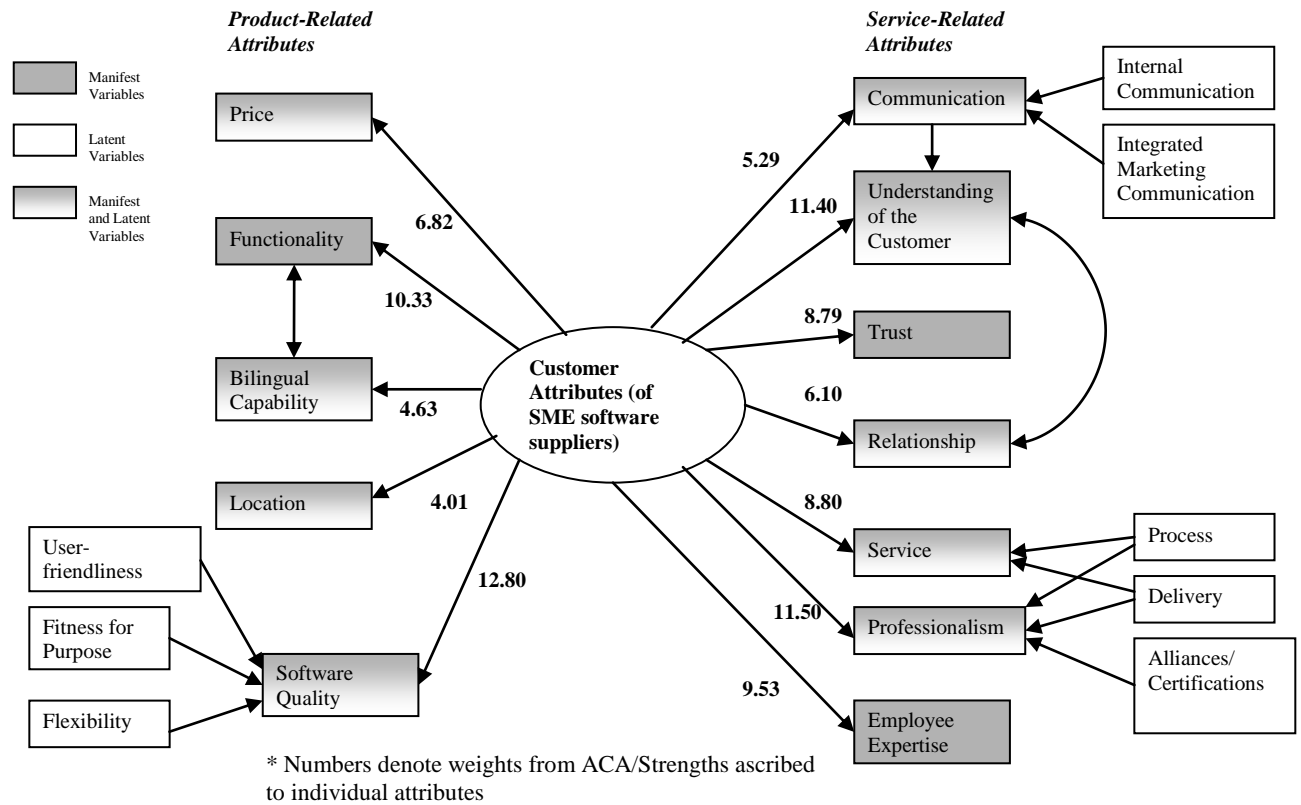
4. Findings and discussion.

The findings of both the qualitative research and the ACA survey are presented in a conceptual model displaying customer expectations of software suppliers, the Customer Relationship Attributes Model (CRAM), shown in Figure 1. The numbers ascribed to arrows represent the ACA average importances of the attributes and represent the weighting of each attribute in the mind of a customer. As the variables come from different realms, the model includes three types of variables: manifest, latent and a combination of both. Manifest variables are ones that have been measured quantitatively via ACA, and the latent variables represent the constructs derived from case study research and in-depth interviews. The latent variables are used to explain the manifest variables: in this model they demonstrate the specific challenges and issues pertaining to software SMEs in Wales. The key attributes in the model are discussed below and illustrated with statements from respondent interviews.

The ACA analysis provides insights into the relative importance of the key attributes from the customer's perspective. 'Software Quality' is the most important attribute perceived by customers. The second most important attribute is 'Professionalism', followed by 'Understanding of the Customer' and 'Functionality'. Most significantly, it is apparent that service-related attributes such as 'Professionalism', 'Trust', 'Service' and 'Employee Expertise' are equally important as the product-related attributes, such as 'Software Quality' and 'Functionality'. Interestingly, the factor of 'Price' is not perceived as a primary driver of software purchase. Scores relating to 'Relationship' and 'Communication' do not suggest that these are important factors, but as will be elaborated further below, it is reasonable to assert that other attributes with relatively

high ranking including 'Understanding of the Customer' and 'Trust' cannot be achieved and leveraged without an underlying relationship with the software supplier (Helander and Ulkuniemi, 2006). The least important attributes are 'Location' and 'Bilingual Capability', which seem to be desirable rather than essential attributes to prospective customers.

Figure 1: Customer Relationship Attributes Model (CRAM)



Software quality

'Software Quality' was ranked as the most important attribute; findings suggest that software firms and customers have differing views as to what constitutes software quality. Some firms focus on software development processes and the use of formal, rigorous approaches to software development, whilst others focus on the role of customer service or user participation, concurring with the need for a "shared understanding of quality" (Wilson and Hall, 1998 p.67). Respondent feedback indicates that business customers had different expectations of quality software products such as software scalability; easy integration with other products; ease of use; and, overall software design. Scalability, integration and testing are tangible facets of software quality, but the ranking of other attributes suggests that physical product quality is not all that customers expect. The service and intangible aspects of quality such as 'Professionalism', 'Relationship' with the supplier and 'Employee expertise' contribute to the decision making criteria to a large extent, indicating that software quality is a combination of service and product quality:

“The opportunity to build a relationship with them. This is important because if you have a good relationship with the company, you are a lot more likely to achieve your objectives because you can talk to them easily, they will understand you, you can build up the rapport, they will know where you’re coming from and you can both move forward together” (Customer 3, Company A).

This corresponds with some of the literature exploring software quality concepts and builds on the idea that the human element is necessary to achieve quality software (Hall *et al.*, 2007; Isaac *et al.*, 2006).

Professionalism

According to the ACA findings, ‘Professionalism’ is the second most important attribute. Professionalism includes being reliable and having formalised processes (such as working to project management guidelines and following established software development processes). Company A were working towards improving their project management procedures but some customers were still reluctant to enter into large contracts without a larger partner to diffuse the risk:

“Their smallness does show through their written document skills, their approaches to project management” (Customer 13, Company A).

“If we entered into a big software development project, we would want to formalise the arrangements and we would want a formal structure” (Customer 4, Company A).

Company A’s partnership strategy helped them to win contracts and illustrated their professionalism to prospective customers. Therefore, process, delivery, and alliances are included as latent variables in the model; they are linked to ‘Professionalism’ as well as to ‘Service’, as service quality embraces the employee behaviour, and service processes, as well as service tangibles (Gronroos, 2007).

Understanding of the customer

‘Understanding of the Customer’ was ranked as the third most important attribute for customers when using a software supplier:

“They understand what we are trying to achieve, they understand the way that we work and they bend over backwards to accommodate our wishes” (Customer 3, Company A).

These findings demonstrated that in order to develop understanding between parties, a dialogue and a relationship is necessary, especially when a customized software solution is under development, a view already supported by Helander and Ulkuniemi (2006). This also confirms the views of RM researchers who consider investment in long-term relationships as having a win-win outcome for both parties (Gronroos, 1994). Understanding of the customer is arguably even more important in the context of innovation (Hauser *et al.*, 2006) as an innovative solution based on customer needs is much more likely to succeed in the marketplace. More specifically, software firms need to develop an understanding of the end-user and use appropriate terminology which should be understood by all parties to encourage customer participation in the dialogue, a finding which aligns strongly with the work of Isaac *et al.*, (2006) and Saiedian and Dale (2000).

Functionality

‘Functionality’ was ranked as the fourth most important attribute. This is a product-related attribute as it refers to the actual software product itself: whether it meets the customer requirements and detailed specifications in terms of functionality and whether it solves the business problem for which it is developed. In terms of this study, the majority of in-depth interviewees and online survey respondents were IT managers who tended to have a clear idea about what type of software functionality they needed, stressing the requirement for SMEs to clarify what functionality their software offers and how it can solve the customer’s business problem. Achieving the desired functionality of the product has previously been identified as a vital criterion in defining software project success (Agarwal and Rathod, 2006) and is a basic requirement in delivering software:

“We have to know that if we give a spec to a software company, that they are able to perform, that we will get what we asked for and within the timeframe we’ve specified” (Customer 2, Company A).

This also emphasizes the necessity to deliver the desired functionality within a specified timeframe.

Employee expertise

‘Employee Expertise’ incorporates the technical skills and competencies of the employees, as well as their manner and approachability. Customer respondents considered that having confidence in the firm’s software employees and when using the actual product were both important. The findings indicated the significance of the relationship between software developers and the customer, which helped in gaining a detailed understanding of the customer’s needs:

“You also have to be able to work with the company day-to-day, so I guess the softer side that can’t be documented so the relationship, basically. Can you work with the people, the company, can they fit into the culture of your organisation?...You need to be able to get along as individuals” (Customer 8, Company A).

This finding confirms the literature which highlights the importance of ‘soft’, human elements as well as technical expertise (Isaac *et al.*, 2006). In the case study research, Company B’s employees did not communicate with their customers which resulted in a misunderstanding of customer requirements and a tendency for managers to relay incorrect information back to the software development team. In contrast, Company A liaised regularly with customers in order to develop a bespoke solution which fitted their requirements.

Service

‘Service’ was ranked sixth out of the twelve attributes, enhancing the argument that the quality of service provided by software companies is equally as essential as product quality. The ‘Service’ attribute includes after-sales service, which is of great importance to many software buyers in view of the fact that they may be faced with post-purchase technical or user problems:

“Software companies now have to look at the whole life cycle from the business process re-engineering, through to the delivery, from specification to delivery and ultimately the support and then the ongoing optimisation so they don’t just walk away when they’ve delivered” (Customer 11, Company A).

The importance of this attribute concurs with much of the Services Marketing literature, particularly the service experience aspect, which does not end once the product is delivered (Pine and Gilmore, 1999 cited in Gronroos, 2007). Moreover, this emphasises the importance of delivering a solution to the customer consisting of customer requirements definition, customization and postdeployment support, concurring with the work of Tuli *et al.*, (2007). However, as with ‘Software Quality’, the ‘Service’ attribute can be perceived differently by various customers. Service can include consultation, after-sales service, training and a helpdesk. In this study, professional processes and timely delivery of the software were also found to be important latent variables of the service attribute, and are thus included in the model.

Trust

‘Trust’ was ranked seventh out of the 12 attributes. This confirms the literature proposing that trust is a characteristic of partnership success (Barry *et al.*, 2008; Ivens, 2005; Melewar *et al.*, 2001). It is interesting that trust was rated higher than the ‘Relationship’ attribute, as a relationship must arguably be established before trust can develop. However, prospective customers may be inclined to trust a supplier based on recommendations from contacts or their established reputation and credibility in the marketplace. In this case, there is an element of trust before the relationship has begun. Openness, honesty and communication arose in the in-depth interviews as important constructs of Trust. Moreover, the in-depth interviews inferred that Company A’s realism in their capability increased trust as well as the SME’s integrity:

“they’re very clear about what they can and can’t do for us” (Customer 9, Company A).

Price

In the qualitative findings, the price of software for customers was identified as a critical factor in the software decision-making process, as business customers are forced to work within tight budgetary constraints. Interestingly, in the ACA findings, 'Price' was not a dominant attribute. Therefore, although cited frequently as an important attribute in the in-depth interviews, when traded-off in ACA against other factors such as 'Service' and 'Trust', respondents preferred the latter. The difficulties identified in SMEs were setting a price centred around competition and competitive tendering. Furthermore, a software SME without an established reputation and a narrow customer base should secure business to attract and retain customers and thus aim to price software as low as possible to attract customers, but not too low that the perception of the software's quality would be affected. From the customer's perspective, the price of software has to be competitive, and although total software costs can sometimes not be set in advance, particularly when developing a bespoke solution, the communication of costs to the customer throughout the software project is vital:

"People need to be happy with the costs and how the company communicates the costs...this communication is vital" (Customer 2, Company A).

Therefore once a software project is underway, the communication and transparency of costs among supplier and customer is vital in furthering the relationship. Interestingly, the assumption that as relationships develop and mature, customers become less price sensitive (Gronroos, 1994; Reichheld and Sasser, 1990) is not strongly supported by these findings.

Relationship

It is interesting to note that customers viewed relationships as important in the case study interviews but when respondents were faced with other options, other more definitive factors became apparent. These factors included 'Trust' and 'Understanding of customer requirement'. Therefore these elements have been identified as constituents of relationship management and marketing in the software industry context. This is

confirmed by the views of Barry *et al* (2008), Ivens (2005); Melewar *et al* (2001) and Mohr and Spekman (1996). Therefore, it can be argued that although potential customers do not explicitly demand a relationship as a main factor in their decision making process, it is certainly an important attribute which is linked to attributes that customers do rate as being very important, such as understanding, communication and professionalism (Brennan *et al.*, 2007).

Communication

‘Communication’ was a recurring theme throughout the study. Although communication was not ranked highly in contrast to the other attributes, the case research and qualitative findings indicated that implicit internal communication and external communication play key roles in furthering relationships within a software SME, as well as with its customers and other stakeholders. The importance of internal communication was highlighted in Company B, as a lack of information sharing, teamwork and weak leadership led to a de-motivated workforce. The lack of communication among both owner-managers resulted in poor external communications with customers and their conflicting ideas about the software product meant that no finished product was taken into the market. In contrast, in Company A employees were encouraged to share knowledge and ideas in order to collectively develop a successful software solution. Although ‘Communication’ is not rated as highly as other attributes, it can be contended that communication, like relationships, is intimately associated with other attributes that customers do value highly. These include understanding of customer needs and trust, and are facets of communication also identified by Hall *et al.*, (2007) and Hunt *et al.*, (2006).

Bilingual capability

‘Bilingual Capability’ is a function of software required by a number of firms in Wales. The attribute is therefore related to ‘Functionality’. Most of the in-depth interviews were

conducted with Company A's customers, and many of which cited a bilingual offering as an important factor in their decision-making process:

“Operating in Wales... It's important to be able to work with a company who understand the means of an audience (bilingualism)” (Customer 14, Company A).

However, the 'Bilingual Capability' attribute was traded off against almost all other attributes in the ACA survey. This could be explained by the fact that although it is essential for some organisations in Wales to practice bilingualism, particularly within the public sector, it is not mandatory for them to procure bilingual systems as yet. At present, bilingual software is a niche market in Wales, and bilingualism is not expected from all types of organisations. Company A has successfully entered this market with a unique offering, and although there is a strong demand from certain customers in Wales, the fact that it is a niche market justifies Company A's diversification into other markets in order to grow.

Location

The findings related to 'Location' of the software supplier were similar to those of 'Bilingual Capability'. 'Location' was ranked the least important attribute out of the 12 attributes. The in-depth interviews provided an insight into why certain customers prefer a local supplier, the main reason being the ease of interaction at short notice, which was deemed vital in developing a complex bespoke product:

“We were definitely after someone local who was within an hour or so distance from us, just to make the interaction between the customer and the supplier easier” (Customer 10, Company A).

Moreover, in some instances there was a need for software developers to work closely with customers' in-house employees, which was made easier if they were in physical proximity to each other. In conclusion, although 'Location' is not one of the pre-dominant factors in customers' minds when selecting a software supplier, it is an important attribute to a few customers.

5. Conclusion and managerial implications

This research makes a contribution to the theory of relationship marketing and management in B2B contexts by providing an insight into the customer-perceived value of relationships, in the software sector, and with specific reference to SMEs in this sector. A new Customer Relationship Attributes Model (CRAM) is developed on the basis of identified attributes representing customer expectations in the software sector. The Customer Relationship Attribute Model is a practically useful tool for SME software suppliers as it offers them important insights into the key customer attributes and their relative weightings. It can also be used by SMEs to plan in greater detail their approach to relationship management and marketing with a view to improve B2B relationships and business performance. In theoretical terms, the model provides “explanation” and “prediction” (Lee and Greenley, 2008 p.876) of the customer decision-making process in a specific industry on the basis that it prioritizes the attributes which are important to customers. The ACA method is a unique method in this respect as it forces respondents to make realistic trade-offs between attributes. This method could therefore be run with larger groups of customers in the future with the aim of advancing theory even further.

This research also furthers the developing research in software marketing and in particular the issues for software SMEs in relation to the marketing of software. Although SME researchers (Carson *et al.*, 1995; Gilmore *et al.*, 2001; Hill, 2001) observe that SME marketing is generally instinctive, unplanned and intuitive, there is evidence here to suggest that a more structured approach to marketing may offer greater opportunities in the long-term. Having guidelines to follow is valuable to SMEs who often have technical but less managerial competencies (Scozzi *et al.*, 2005).

On the basis of this research, SME managers should note the central significance of, software quality in customer evaluation of software suppliers; it includes elements such

as ease of use, level of testing and the software's flexibility. On the other hand, the weightings placed on other service-related attributes imply that service-quality is also highly regarded by customers (professionalism of the software supplier, their understanding of customer requirements and the opportunity to develop a long-term relationship with the supplier). In essence, the inherent nature of software purchase means that a human element in delivering the service solution is vital in achieving customer satisfaction and strongly supports the need for relationship management and marketing even for the smallest software organisations. This is particularly relevant for customers in the B2B sector requiring customized solutions.

Recommendations for further research include:

- Application and adaptation of the CRAM in SMEs in different industry sectors. This would improve the model's predictability, yield insights into the key attributes of successful relationship management and marketing in these sectors and contribute to relationship marketing theory by offering the potential for making cross-sector comparisons.
- Testing and application of the CRAM in larger software organisations.
- Further longitudinal case study based research with organisations that have used the model to inform their practice. Such research might offer insights into the challenges associated with responding to customers' expectations or relationships and any impacts on business performance.
- The product related attribute 'Software Quality' is clearly identified as important. However, worryingly there is evidence that there may not be a consensus on what constitutes software quality. Therefore, of specific interest to the software sector, might be further investigation into this key concept from the perspectives of different stakeholders.
- This work is instrumental in that it produces a set of criteria about what customers expect from a relationship with their supplier. However, further research into the notion of "attraction" in business markets (Hald *et al.*, 2009) would provide a more

holistic perspective of the nature of relationships and how to satisfy business customers.

Appendix 1: Topics covered in interviews

- Background to the relationship –how the relationship was formed and why this company was selected as a software supplier
- Description of the relationship
- Problems which may have arisen in the relationship -why they occurred, solutions to problems
- Satisfaction with the product, in terms of quality and features
- Satisfaction with the service offered by the company
- Communication, dialogue and feedback within the relationship
- Behaviour of the staff and their approach to customer service, including after-sales service
- Strengths and weaknesses of the company
- Overall impressions of the company –likelihood of recommendations and consideration of further purchases

- Responsiveness of the company to customer needs
- Relationships with other software companies-thoughts and comparisons with current company
- Important factors influencing choice when purchasing a software product/service
- Other important attributes in the decision making process-why they are important
- Expectations of the software product provided by this company
- Overall expectations of a software company
- Any other comments

Appendix 2: A list of attributes and levels used in the ACA survey

Attributes	Levels
1. Understanding of the Customer	The software supplier has a comprehensive understanding of customer requirements The software supplier has a good understanding of customer requirements The software supplier has a limited understanding of customer requirements
2. Price	Low Priced Software High Priced Software
3. Relationship	Mutual and long-term relationship with the software supplier. Future purchases likely. Transactional and short-term relationship with the software supplier. One off software purchase.
4. Functionality	Software has useful functionality Software functionality is limited
5. Bilingual Capability	Software supplier offering bilingual software Software supplier offering English software only
6. Employee Expertise	Software developers have extensive experience in the IT industry and recognised qualifications Software developers have extensive experience in the IT industry but no recognised qualifications Software developers have recognised qualifications but no practical experience in the IT industry Software developers have limited experience in the IT industry and no recognised qualifications
7. Trust	The customer has confidence in the supplier's reliability and integrity by means of past experiences The customer deems the supplier to be reliable and has confidence in the supplier through recommendations and references only The customer and supplier have no past experiences and trust is yet to be established
8. Software Quality	Well-tested software providing positive user experience User friendly software but not thoroughly tested Well-tested software but difficult for users to use Un-tested software which is difficult to use
9. Professionalism	Supplier is reliable and has high standard formal processes in place Supplier is reliable but has no formal processes in place Supplier has formal processes in place but can be unreliable Supplier can be unreliable at times and no formal processes in place
10. Location	Local software company Software company based anywhere in the UK
11. Communication	Structured communication with the software supplier Ad hoc communication with the software supplier
12. Service	Full end-to-end service offered including training and after-sales support. After sales support is included but no training provided by the software company Training is provided with the software, but no after-sales support offered. Software product delivered only. No training and no after-sales support included in the price.

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