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Relationship marketing in online business-to-business markets: A pilot investigation of small UK manufacturing firms

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Relationship marketing in online business-to-business markets

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A pilot investigation of small UK manufacturing firms

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Abstract *The Internet has the potential to alter many aspects of current marketing theory and practice. Most early research studies have focused on the role of the Internet as a promotional tool. More recently, case-based studies are beginning to emerge on how the Internet may alter the marketing management process. There is a need to compliment these studies with additional quantitative research. This study examines the influence of marketing style on the utilisation of the Internet among small UK manufacturing firms. Insufficient evidence was found to support the view that relationship-orientated firms, when compared with transactionally-orientated competitors, exhibit differing perceptions about the nature of online markets. Quantitative differences were identified, however, in relation to use of information management systems and the management of internal organisational processes. The implications of these findings are discussed and proposals made concerning the need for further research.*

Introduction

The scale of influence of the Internet on the world economy has been demonstrated by a research project commissioned by the American corporation Cisco Systems and undertaken by the University of Texas (Internet Indicators, 1999). The researchers concluded that currently within the US economy, the Internet generates annual revenues of \$332 billion and supports almost 1,400,000 jobs. These figures are made more dramatic if one realises that these US Internet-based revenues cause this sector by itself to be one of the top 20 economies in the world, ranked almost equal to the entire gross domestic product (GDP) of Switzerland. Another observation which can be drawn from these data is that although the World Wide Web was only launched approximately the five years ago, in terms of total market size, the Internet is already rivalling well established sectors such energy, cars and telecommunications.



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The USA has led the development of the world's Internet industry. Two sectors that have a natural affinity for the Internet are software and information services. They can both be ordered, paid for and delivered electronically. This is one reason why business-to-business markets, not consumer goods markets, are expected to continue to dominate the world of online trading. Another key factor is that firms in business-to-business markets, by using computer systems such as electronic data interchange (EDI), have already acquired a deep appreciation of the benefits of using electronic information to optimise the operation of supply chains.

The rapidity with which firms are finding new ways of exploiting the Internet has meant that many academic articles about the impact of the technology on marketing strategies have centred upon case-based examinations of single firm scenarios. It seems reasonable to propose that opportunity exists to compliment these writings with additional quantitative research about how the new world of electronic trading may influence marketing management theory. The purpose of this study, therefore, is to examine the issue of how marketing style might influence attitudes towards utilisation of the Internet among small, UK manufacturing firms. The focus of the study is directed towards examining firms' perceptions about e-markets, the utilisation of information management systems and the management of internal organisational processes.

Marketing and the Internet

It has only been a few years since the launch of the World Wide Web. Consequently it is only recently that a significant number of research-based articles have begun to appear in the academic marketing literature. As noted by Balabanis and Vassileoiu (1999), however, a significant proportion of these writings have been concerned with the use of the Internet in consumer goods markets. Similarly, most early research on the role of the Internet as a new advertising medium has also concentrated on the application of the new technology in consumer goods markets (e.g. Berthon *et al.*, 1996a, b). The same bias can also be found in most research studies concerning how Web page content might influence information communication effectiveness. For here again, researchers have mainly analysed data from consumer goods Internet sites (e.g. Ho, 1997; Briggs and Stipp, 1999).

Although the bias in the academic literature is towards consumer markets, it is in the world of business-to-business marketing where the Internet is having greatest impact. For example Smith (1999) noted that business-to-business online markets are generating sales revenue approximately four times greater than consumer markets. He further notes that by the year 2003, Gartner Group forecasts that global business-to-business annual sales could exceed \$4 trillion dollars.

Despite the difference in size between these two market sectors, many of the writings on the opportunities offered by the Internet have concluded that in both market sectors, the technology offers customers the benefit of a convenient, very rapid mechanism through which to obtain goods at the lowest available price. As such, the technology is presented as a new, effective way for both small and large firms to enhance their existing, transactional marketing strategies (Phelan, 1996).

In commenting upon the importance of price, Sinha (2000) has concluded that prior to the arrival of the Internet, sellers were able keep prices opaque and thereby able to command higher prices for goods and services. In an online world, however, the ease with which customers can “comparison shop”, assisted in many cases by search agents such as www.pricescan.com means that the Internet could result in commoditisation of many goods. It has also been noted that because the Internet reduces barriers to entry and permits major cost reductions, this situation could contribute to e-commerce driving down average prices on a global scale (*The Economist*, 2000a). These cost-based price reductions will come from savings in procurement costs, more efficient supply chains and reductions in inventory holding costs.

Anandarajan *et al.* (1998) concluded that many firms who were early entrants into business-to-business cyberspace marketing exhibited a transactional marketing orientation because they were committed to using the technology to reduce costs across all aspects of the transaction process from initial enquiry through to post-purchase product usage support. In their study of extranet-based systems, they identified a number of cost-saving opportunities when using the Internet to manage business-to-business supply chains. Across inbound logistics, online data integration reduces costs through a consolidation of the total numbers of suppliers utilised and reduction in the time taken over the administration of delivery processes. Inside the buying organisation, cost savings occur in relation to reducing the time taken by employees involved in both administrating the scheduling of manufacturing activities and the operation of production processes. Outbound logistic efficiencies are improved, resulting in cost savings for both absolute expenditure on freight services and the management of delivery documentation processes. Furthermore, with suppliers and customers in direct contact via an electronic medium, time is saved in terms of discussions about orders in-progress and the resolution of transaction errors. Additionally, with suppliers communicating promotional information via the Internet, customers can access these data at a workstation in their office. This ensures customers can obtain maximum benefit from price discounts being made available by suppliers.

The potential impact of technology to drive down prices is not a feature unique to the Internet. Earlier studies of pre-Internet technology such as EDI were also presented as offering opportunities for cost reduction activities such as permitting order automation and co-ordination of production schedules to

avoid out-of-stock scenarios. Although such benefits were achieved, in many cases small firm suppliers also found that adoption of technology was accompanied by major customers also expecting to be offered significant price reductions (Marcussen, 1996).

Marketing style and the Internet

Back in the early 1980s, long before the Internet began to impact world markets, studies of the marketing processes employed by both industrial and service sector firms led to the emergence of a new school of thought concerning how to avoid price-based competition. This new view of the marketing process focused on how organisations can exploit the effective, interactive exchange of information as a path through to build stronger customer loyalty. Collectively this new orientation, which has both American (Berry, 1983) and Nordic (Gummesson, 1997) roots, is known as relationship marketing. Supporters of the “new marketing” argue that in order to survive and grow in highly competitive, rapidly changing markets, organisations must move away from managing transactions and instead focus on gaining a very detailed understanding of customer needs. This knowledge can be used to construct long-term customer-supplier relationships (Webster, 1992).

Research on building stronger customer loyalty by the Nordic business schools revealed this is often achieved by the various actors within a market system exhibiting a preference for creating “networks” in which common goals are achieved through relationships based on co-operation, not confrontation (Hakansson and Snehota, 1989). Evidence of the superiority of information interchange networks over more conventional, transactional market relationships can also be found in the small business literature. Carson *et al.* (1995) have highlighted the importance of personal contact networks (PCNs). These are constituted of formal and informal co-operative relationships whereby individual owner/managers seek to build links with others in their market with the aim of obtaining the necessary information and knowledge to optimise organisational performance.

It is worth noting that this concept of community was also at the heart of the original Internet concept. Evolved by the defence and academic research communities, the early systems were designed to assist the rapid interchange of new knowledge. Gummesson (1994, 1997), one of the originators of the concept of relationship marketing, has already identified the potential conceptual links which exist between marketers using communities or networks to build relationships and the similar motives exhibited by the original designers of the Internet. He noted that electronic relationships are rarely discussed within the marketing literature. This led to his proposal that effective exploitation of the Internet would only occur once marketers ceased viewing the technology as a mechanism for supporting transactional

marketing and recognised that electronic information provides a foundation stone upon which to build closer relationships with customers.

Spekman *et al.*'s (1997) research on collaboration in business-to-business markets was supportive of this view. These authors noted, however, that successful electronic relationships demanded the active participation of both the seller and the buyer, with both parties willing to proactively share information with the other. This perspective is reflected by Chaston (2000a) who posits that in online relationship markets, customers will be seek to purchase specific, customised products and demand close, frequent interactions with their suppliers. In response, suppliers will be able to utilise the Internet to acquire detailed understanding of specific customer needs and be orientated towards using innovation to evolve highly customised product and services.

These observations about the nature of online markets lead to the first hypothesis; namely that:

- H1.* Relationship-orientated firms, when compared to transactionally-orientated firms, are more committed to using e-technology to communicate with their online customers.

Technology and customer relations

Without information sharing as the basis for evolving a customer-supplier partnership, relationship marketing would be an extremely difficult process to manage. Pine *et al.* (1995) concluded that electronic technology has a critical role in sustaining partnerships because information technology (IT) provides the basis for building stronger relationships with customers by exploiting the additional knowledge that is gained from recording every customer-supplier interaction. All phases of the interaction from customers seeking information, making a purchase and requesting post-purchase services can contribute to the expansion of the firm's databases. These can subsequently be interrogated during the development of future services capable of further deepening the customer-supplier relationship; thereby increasing long-term customer loyalty. All these data also create a switching barrier as customers will have to spend time educating a competitor before this latter organisation can offer a similar level of service responsiveness (Grant and Schlesinger, 1995). Additionally as the supplier gains a detailed understanding of customer need, this knowledge can provide the basis for electronically communicating to customers, additional products and service offerings which have a high probability of being of interest to the customer. In this way the firm is able to reduce the potential for customers defecting to the competition.

One reason why electronic technology permits a customised response is that as data processing costs decline, "data churning" to identify new relationships in customer buying trends has become an increasingly cost effective method through which to rapidly evolve new forms of highly customised service

provision. As customisation becomes embedded in the relationship, then this will lead to minimisation of customer defection rates (Ing and Mitchell, 1994).

The direct marketing computer firm Dell provides an example of how to harness the power of the Internet to create new business rules that can underpin a relationship marketing strategy. Customers contacting the Dell Web site can browse product and technical literature, configure and price alternative specifications online, place an order and monitor the status of product deliveries. In 1997, the company moved to deepen relationships with corporate customers by the creation of premium pages. This system provides one-stop shopping through a customised extranet application that is based around online catalogues containing customer-specific purchase agreements. By releasing Dell staff from managing purchase transaction, these individuals have more time to enter into a process consultancy role with customers (Seybold and Marshak, 1998).

More recently Zineldin (2000) has posited that recent advances in the application of IT to support more effective information interchange now means that relationship marketing offers the most effective path through which firms can achieve a differential advantage over less technologically sophisticated, transactionally-orientated, competitors. This can occur because the Internet permits the supplier to consider customers more as individuals and to then evolve products customised to meet specific needs. Furthermore the low costs of information exchange using IT means that relationship-orientated firms are able to enjoy the benefits of having to spend significantly less money on promotional activities to sustain customer loyalty than their more transactionally-orientated counterparts.

These observations on the role of IT in relationship marketing generate the second hypothesis; namely:

- H2.* Relationship-orientated firms place more emphasis on internal information systems to manage the needs of their online customers than their counterparts in transactionally-orientated markets.

Internal orientation

Gronroos (1997) suggests that in transactionally-orientated firms, there is a much lower level of inter-departmental interdependence. This situation he contrasts with relationship-orientated firms where the customer interface is much broader, often involving a large number of "part-time marketers" operating across the firm's various areas of functional activity. This interaction is necessary in order that employees can collaborate and support each other in the delivery of high levels of perceived service quality.

Brodie *et al.* (1997) have noted that one of the more recent roots of relationship marketing has been the advent of database marketing which provides the basis for a more effective monitoring of customer needs. Moller and Halinen (2000) have suggested that in online markets, the effective use of

databases is critically dependent upon ensuring active collaboration between all employees within supplier organisations.

Zineldin (2000) supports the importance of employees sharing of information when seeking to service the needs of online customers. He notes that relationship-orientated firms have been assisted in this objective by technology such as Intranets which permit the rapid sharing of both knowledge about customer behaviour and the internal activities being undertaken to respond to customers' placement of online orders.

In seeking to determine whether an orientation of internal data sharing is beneficial to online operations, Barua *et al.* (2000) undertook a survey of over 4,000 firms across all areas of the US economy. They concluded that a common attribute exhibited by firms involved in e-commerce which have achieved above average financial performance, is a strong commitment to employees sharing information and actively collaborating with each other when seeking to resolve customer problems. Additional support for the importance of a company-wide orientation to customer relationship management is provided by research undertaken by the consulting firm Arthur Andersen (2001). Their study of over 100 senior executives involved in online operations in major US companies revealed that 20 per cent of respondents already have a company-wide customer relationship management system in operation and that a further 45 per cent are in the process of embedding this type of systems orientation across their organisations.

These observations on the importance of internal organisational co-operation generate the third hypothesis; namely:

- H3.* Relationship-orientated firms place greater emphasis upon collaboration between employees to service the expectations of online customers than their counterparts in transactionally-orientated markets.

Methodology

Attempting to undertake empirical research in an emerging area of marketing theory is always difficult. This is due to the problems associated with evolving appropriate, validated measurement tools and identifying a sample frame that can generate a sufficient scale of response. Consequently the majority writings on the role of the Internet in the management of markets have tended to use case materials on individual firms as the basis for beginning to codify observed behaviours. These observations can provide the basis for evolving possible theoretical models applicable in the management of electronic transactions.

In view of this situation it does appear that a need exists to attempt to triangulate existing studies by undertaking further quantitative research on how the Internet is being incorporated into the strategic marketing thinking of commercial organisations. Given the opinions that have been expressed about the opportunities which the Internet offers for building stronger customer relationships, there would be benefit from a quantitative study across a large

number of firms. The aim of this study should be to determine whether, in business-to-business markets, the Internet is a technology that will be managed differently by firms that have adopted a relationship versus a transactional marketing orientation.

To develop a tool for assessing the degree to which firms exhibit a relationship marketing style, Chaston (1998a, b) used the academic literature to evolve a series of statements concerning the management of customer relationships. These statements were refined through focus groups and then validated using large-scale surveys of both industrial and service sector firms. The tool is comprised of five statements as described in Table I. Respondents are asked to comment about their organisation using a seven-point scale ranging from “very strongly disagree” (1) through to “very strongly agree” (7). Any measurements of relationship versus a transactional marketing style are reflective of a continuum. The recommended approach for classifying respondents is to select the overall mean for all scale attributes as the dividing point. Firms in a sample which have a mean overall score equal or less than the overall sample mean can be considered as being biased towards operating as firms exhibiting a transactional marketing style. Those firms which have a mean score greater than the overall sample mean can be considered as being biased towards exhibiting a relationship marketing style.

The problem facing the positivist researcher interested in studying the field of e-commerce is the lack of validated quantitative research tools for measuring the degree to which firms are currently exploiting this technology. A review of the literature revealed that Chaston *et al.* (2001) recommends the approach of assuming that participation in the Internet can be measured by determining the degree to which firms have moved beyond simple applications such as e-mail and have adopted an integrated, electronic communication system for linking with their customers and/or suppliers. This author has developed and validated a survey tool in which respondents are asked to comment on nine areas of online technology (see Table II) using a six-point scale ranging from “technology capability acquired over 12 months ago” (1) through to

Table I.
Factor analysis of
variables to assess
relationship
marketing
orientation

	Factor loadings
1. Firm maintains close regular contact with customers	0.75
2. Firm regularly meets with customers to obtain their views on product and/or service quality needs	0.64
3. Knowledge of customers achieved through building close working relationships over a number of years	0.75
4. New or improved products are developed by working in close partnership with customers	0.51
5. Firm delivers high level of service tailored to meet specific needs of each customer	0.42
Note: Eigenvalue = 4.28	

Table II.
Factor analysis of
variables to assess
involvement in e-
commerce

	Factor loadings
1. Using e-mail to communicate with individuals outside the company	0.78
2. Company has a registered Web site on the Internet	0.54
3. Web site permits customers to purchase goods or services online	0.68
4. Customers purchasing online receive automated e-mail confirming details of order	0.78
5. Web site permits customers to automatically check status of their order	0.62
6. Customers can configure and price customised orders online	0.74
7. Customers can obtain detailed pre- and/or post-purchase service/product utilisation information by contacting the Web site	0.48
8. Web site is linked to a system that permits customers to use e-mail to dialogue with company staff	0.52
9. Web site is linked to company call centre and customers can automatically request a call centre representative to contact them by telephone	0.59

Note: Eigenvalue = 3.09

“technology capability, if acquired, will not be adopted for at least 36 months from now” (6). In the survey tool it is explained to respondents that the purpose of the questions is to determine at what point in time each area of online technology has or will be adopted by their organisation.

The recommended way of using this tool is to classify respondents using the overall mean for all scale attributes as the dividing point. Firms in a sample which have a mean overall score equal or greater than the overall sample mean can be considered as being biased towards not yet being heavily involved in exploiting e-commerce technology. This is because for the majority of the described areas of activity, the firm is not considering adoption of the technology until somewhere between 12 months and more than 36 months from now. Those firms which have a mean score less than the overall sample mean can be considered as being biased towards having either already adopted, or are in the process of near-term adoption, of the majority of the described areas of technology. Thus these latter firms are considered to perceive online technology as an important aspect of their current marketing activities.

To gain an understanding of possible differences between relationship and transactional firms in relation to their perspectives about e-commerce markets and their utilisation of IT systems, statements proposed by Zineldin (2000) were utilised. These statements were reviewed in focus groups with 33 senior managers working in small firms known to be involved in exploiting e-commerce. The focus group respondents perceived the variables as relevant descriptions and hence, as described in Tables III and IV, they were utilised as the basis of questions to be posed in a mail survey. Respondents were asked to comment on each statement using a seven-point scale ranging from “strongly disagree” (1) through to “strongly agree” (7).

Table III.
ANOVA of firm
e-commerce
perceptions in
relation to
relationship
marketing
orientation

	Hypoth. sum of squares	Hypoth. mean square	F-value	Significance of F
1. The Internet provides customers with greater control and power over their purchase decisions	18.65	3.10	1.05	0.39
2. The Internet means customers expect suppliers to be more strongly orientated towards satisfying individual customer needs	7.59	1.26	0.51	0.80
3. The Internet means customers expect much closer relationships with their suppliers	29.75	4.95	2.08	0.55
4. The Internet means customers want more frequent interaction and communication with suppliers	8.07	2.58	0.52	0.29
5. The Internet means customers are much more aware and informed about offerings available from different suppliers	84.38	14.06	7.13	0.00*
6. The Internet means customers have greater expectations over service quality	12.32	2.22	1.05	0.39
7. The Internet provides the firm with much more knowledge about individual customer needs	32.41	5.40	2.37	0.03*
8. The Internet means a firm's marketing activities need to be more closely integrated with all other aspects of a firm's internal operations	46.62	7.77	3.50	0.00*
9. The Internet means specialist customer need market niches are easier to identify	37.10	6.18	2.49	0.02*
10. The Internet means firms have to focus on continually developing new products or services to survive	11.91	1.99	0.71	0.65
11. The Internet means the firm can develop	47.37	7.89	3.09	0.00*

Note: * Significant at $p \leq 0.05$

	Hypoth. sum of squares	Hypoth. mean square	F-value	Significance of <i>F</i>
1. Staff have access to complete databases on each individual customer	119.16	19.86	5.83	0.00*
2. The firm maintains detailed records on each customer and uses this information when interacting with individual customers	121.79	20.32	8.89	0.00*
3. Customer records are continuously analysed to identify new ways of delivering customer satisfaction	72.74	12.12	6.06	0.00*
4. Customer records can be analysed for patterns that identify opportunities for the development of new product or service opportunities	76.62	12.77	5.25	0.00*
5. Accounting, production and customer information systems are all integrated into one single centralised database system	28.03	4.67	0.96	0.45
6. The firm has effective systems for combining existing internal data with new information obtained from individual customers	114.96	19.16	6.97	0.00*
7. While dialoguing with customers, staff can immediately access the firm's customer records system	121.64	20.23	4.26	0.00*
8. The firm's customer databases are utilised to assist the development of customer-specific records system	36.04	6.00	1.19	0.07

Note: * Significant at $p \leq 0.05$

Table IV.
ANOVA of
information
management in
relation to
relationship
marketing
orientation

Research on internal customer management (Chaston, 2000b) was utilised to develop a series of questions concerning data sharing within organisations. Again these questions were reviewed in focus groups with 33 senior managers involved in e-commerce. The focus group respondents perceived the variables as relevant descriptions. Thus as described in Table V, these statements were utilised as questions in a mail survey. Respondents were asked to comment on each statement using a seven-point scale ranging from “strongly disagree” (1) through to “strongly agree” (7).

A significant problem confronting the Internet researcher is that one can expect variation between industrial sectors in terms of degree of involvement in utilisation of the technology. In an attempt to minimise the influence of this problem in this research study, it was decided to focus on a relatively homogeneous industrial sector. Following pilot testing, therefore, the survey was mailed to the managing directors of 1,000 small UK manufacturing firms selected at random from the 3400-3600 SIC code section of a Dun and Bradstreet data base. For inclusion in the sample, firms were required to:

- be manufacturers of mechanical or electronic components (thereby ensuring their primary area of activity is business-to-business marketing);
- have between 10-50 employees; and
- be autonomous trading entities (i.e. not branch plants of national or multinational organisations).

The reason for focusing upon UK small firms to generate research data is this sector represents a large database and offers access to managing directors who, because of the small size of the management team in such firms, can be expected to be closely involved in guiding the development of their organisation's utilisation of the Internet. Although the survey technique did not include any attempt to validate who actually responded to the questionnaire, earlier research on UK small firms with 10-50 employees (Chaston and Mangles, 1997) does indicate that in the vast majority of cases, either the managing director or another member of the firm's senior management team will be the respondent.

Initial usable responses were received from 203 firms representing a response rate of 20.3 per cent. A second, follow-up mailing to non-responders generated response from a further 95 firms, yielding a final overall response rate of 29.8 per cent (i.e. a total of 298 firms). A comparison of the profiles of initial versus subsequent responder firms revealed no apparent major differences. Furthermore, *t*-tests comparing initial versus subsequent responders, revealed no statistically-significant differences in the survey response information provided by these two groups of firms. Hence although the researchers would have preferred a higher response rate, it is felt that the comparative analysis did appear to indicate that only minor risk exists for non-response error generating erroneous conclusions for this project.

	Hypoth. sum of squares	Hypoth. mean square	F-value	Significance of <i>F</i>
1. The firm is orientated towards using technology to optimise meeting the needs of individual customers	93.42	15.68	7.24	0.00*
2. The firm provides the latest technology to employees who interact directly with customers	92.33	15.57	7.11	0.00*
3. The firm understands how to work with other organisations in the market to optimise the satisfaction of customer needs	182.60	15.39	7.79	0.00*
4. The firm uses continuous dialogue with customers to identify ways of delivering greater customer satisfaction	234.27	30.43	20.12	0.00*
5. The firm's employees work as a team in seeking to deliver customer satisfaction	235.08	39.04	48.94	0.00*
6. The firm expects employees to always act in a way that further enhances the delivery of customer satisfaction	205.83	39.18	45.17	0.00*
7. The firm's appraisal system is focused towards assessing how effectively each employee fulfils their role in serving the needs of customers	92.16	34.30	9.44	0.00*
8. The firm places great emphasis on using knowledge of individual customer needs as the basis for developing new products or services	106.47	15.36	7.91	0.00*
9. The firm's marketing activities such as promotion or price are designed to meet the specific needs of individual customers	131.57	21.93	10.09	0.00*
10. The firm carefully monitors competitors to learn from others how to further satisfy our customers' needs	37.97	6.32	2.96	0.01*

Note: * Significant at $p \leq 0.05$

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Table V.
ANOVA of Internet
organisational
process in relation
to relationship
marketing
orientation

Results

All of the 298 returned survey forms were used to calculate inter-item reliability for the relationship marketing scale. The reliability score of 0.84 exceeded the minimum reliability standard of 0.70 recommended by Ven de Ven and Ferry (1980) for scales used to measure organisational attributes. Further scale validation was achieved by using the procedure recommended by Allen and Yen (1979) that involves factor analysis and vari-max rotation of the scale items to assess dimensionality or “factorial validity”. If high item loading on a single factor occurs, this would suggest that although the items focus on different aspects of the behaviour being measured, they are empirically related and constitute a distinct, uni-dimensional orientation. For the five-item relationship marketing scale, all loaded above 0.4, indicating that it is probably appropriate to combine these latter items into a single scale (Table I). The calculated overall relationship marketing style mean for all firms in the sample was 4.84.

All of the 298 returned survey forms were used to calculate inter-item reliability for the scale to measure involvement in exploiting e-commerce technology. The reliability score of 0.71 exceeded the minimum reliability standard of 0.70. Further scale validation was achieved by using factor analysis. For the nine-item scale, all items loaded above 0.4, indicating that it is probably appropriate to combine these latter items into a single scale (Table II). The calculated overall mean for these nine items that measure involvement in e-commerce technology for all firms in the sample was 3.83.

To determine whether there was any difference between involvement in e-commerce between transactional versus relationship-orientated firms, a *t*-test was undertaken using the mean values for involvement in e-commerce technology and relationship marketing orientation. The generated value for *t* was not significant at $p \leq 0.05$. Hence it can be concluded that no difference exists between transactional versus relationship-orientated firms in relation to their involvement in e-commerce technology. The number of firms in the sample which appear to be biased towards a transactional orientation was 108 and the mean value for their involvement in e-commerce technology was 3.79. In contrast, 140 firms in the sample appear to be biased towards exhibiting a relationship marketing orientation and the mean value for their involvement in e-commerce was 3.88.

Using the relationship marketing style scale as the factor, an analysis of variance (ANOVA) was undertaken to determine whether the nature of marketing style influences respondents' perspectives about e-commerce markets. It can be seen from Table III that for six out of the 11 questions, there were no significant statistical differences between firms exhibiting a transactional versus relationship marketing style.

Using the relationship marketing style scale as the factor, an ANOVA was undertaken in relation to the eight questions concerning the use of information

management to serve customer needs. It can be seen from Table IV that for seven out of the eight questions concerned with information management, a statistically-significant difference exists for firms exhibiting a transactional style versus those firms exhibiting a relationship marketing style.

The relationship marketing style scale was also used a factor in an ANOVA in relation to the ten questions concerning internal organisational processes. It can be seen from Table V that for all ten questions concerned with the management of internal organisational processes, a statistically-significant difference exists for firms exhibiting a transactional style versus those firms exhibiting a relationship marketing style.

Conclusions

In relation to perceptions about customers and marketing activities, Table III indicates that firms exhibiting a relationship marketing style, when compared with their transactional counterparts, only have differing perceptions in relation to the five variables of:

- (1) customers are more aware of competitor offerings;
- (2) Internet provides more knowledge about customers;
- (3) Internet requires closer integration of internal activities;
- (4) Internet means market niches are easier to identify; and
- (5) Internet means the firm can develop closer customer relationships.

On the basis of the results in Table III, this research only appears to partially support *H1* that “relationship-orientated firms, when compared to transactionally-orientated firms, are more committed to using e-technology to communicate with their online customers”. This conclusion is based upon the fact that across variables such as the Internet providing customers with greater control, the Internet creating higher customer expectations and customers expecting closer relationships, there are no statistically-significant differences in the response of relationship versus transactionally-orientated firms.

Table IV indicates that in every area concerned with the management of information firms exhibiting a relationship marketing style differ from those of their transactionally-orientated counterparts. Within the former organisations greater emphasis is given to activities such as maintaining detailed records, integration of databases and providing employees with immediate access to relevant customer information. Hence on the basis of these results it seems reasonable to conclude that this research does support *H2* that “relationship-orientated firms place more emphasis on internal information management systems to manage the needs of their online customers than their counterparts in transactionally-orientated markets”.

This result would appear to suggest that it seems reasonable to propose that this study provides empirical support for the views expressed by Gummeson (1997) and Zineldin (2000) about the importance of effective management of

internal information systems in order that employees are able to effectively react to the needs of online customers. It is necessary to note, however, that the study cannot determine if relationship-orientated firms had already developed such systems to service the needs of customers in terrestrial markets or whether these systems were specifically evolved to support an entry into cyberspace trading.

Table V indicates that in every area concerned with the management of internal organisational processes, firms exhibiting a relationship marketing style also adopt a different philosophy than that of firms operating in transactionally-orientated market sectors. Data in Table V suggest that relationship-orientated firms place greater emphasis on activities such as dialoguing with customers, team-based activities, expectations over employee behaviour, focus of appraisal systems and customisation of products, prices and promotional activities. These results seem to suggest this research supports *H3* that “relationship-orientated firms place greater emphasis upon collaboration between employees to service the expectations of online customers than their counterparts in transactionally-orientated markets”.

Discussion

Although both transactional and relationship-orientated firms in this survey reported similar levels of involvement in adopting e-commerce technologies, what the data cannot resolve is why differences exist between these two types of small firms in respect to their use of information and the management of internal processes. One possibility is that transactional firms are aware that visitors to their Web sites are expecting their suppliers to exploit the capability of the technology to offer highly competitive prices, convenience and rapid response. If this is the case, it seems reasonable to suggest that transactional firms will perceive minimal benefit in upgrading IT systems or re-orientating employee behaviour because their customers do not perceive close relationships with their supplier is an important factor in the execution of purchase transaction activities.

Support for this perspective is provided by the fact that one of the fastest growing areas of Internet activity is the creation by large original equipment manufacturers (OEM) of online procurement sites using technology from firms such as Ariba and CommerceOne. These systems permit an OEM to rapidly communicate the specifications for required components and then make an immediate purchase decision based on the price quotes electronically submitted by their suppliers (Kelly, 2000).

Supply chain models based around a single OEM acting as a hub organisation are in some sectors, now being replaced by the formation of supply chain consortiums (Schwarz, 2000). On 25 February 2000, General Motors, Ford and Daimler Chrysler announced they were joining forces to create an e-commerce supply chain to manage their acquisition \$240 billion-

worth of components from tens of thousands of suppliers. Within days Toyota, Renault and Nissan indicated an interest in joining the programme. On 28 February 2000, Sears Roebuck and France's Carrefour announced plans to create an e-commerce procurement consortium for the retail sector. The venture, known as GlobalNetXchange will manage the annual procurement of \$80 billion-worth of products for stocking in retail stores. On 1 March 2000, Cargill, DuPont and Cenex Harvest said they will create Rooster.com to supply farmers and to sell their crops (*The Economist*, 2000b).

Sinha (2000) has reviewed whether the Internet is a technology that will radically alter purchase behaviour in transactional markets. In his view, the advent of the Internet means that large firms in business-to-business markets interested in lowering procurement costs will use the technology to rapidly compare prices, products and features of thousands of products. As this trend develops then these purchasers will cease to exhibit any degree of customer loyalty towards their suppliers or be interested in developing long-term relationships. Instead the performance of suppliers will be judged in relation the variables of an ability to offer standard components at low prices, speed of response to customer enquiries and an ability to minimise delivery time through optimising activities within their outbound logistics systems.

This situation can be contrasted with relationship-orientated market sectors where customers usually expect a much higher level of interaction with the supplier and tend not to use just lowest possible price as the only basis for reaching a purchase decision (Chaston, 2000a). One firm which was a "first mover" in recognising the opportunity to use the Internet to build closer relationships with business-to-business customers, and thereby avoid the potential commoditisation of their product range, was Cisco Systems. The company is the leading supplier of routers and network switches and in 1996 established an online facility permitting customers to configure products without the intervention of a Cisco sales engineer. By 1997 their online operations had already evolved to the point where over 25 per cent of the total annual sales of \$4.1 billion were via the company's Web site. The company's Web site contains an Internetworking Product Centre containing information on over 12,000 products. Cisco customers and resellers can use this facility to place orders on a 24-hours-a-day basis from anywhere in the world. A sophisticated sales-configuration software package actually evaluates the customer order for specification accuracy. This can be contrasted with their fax-based order entry system where 10-15 per cent of received orders were found to contain specification errors. This automation of online specification evaluation has assisted Cisco in reducing lead times from order receipt to delivery by at least two to three days (Bartholomew, 1997).

Cisco also offers their customers access to their Calico software, which enables them to examine a diverse range of product options and select that configuration most likely to fulfil the product performance specification that

they are seeking. This system also immediately confirms the actual price that would be charged for the specified configurations. Another aspect of the online system is the Status Agent software. This allows each customer to track the status of their order at every stage from original submission through to final delivery of the shipment.

A major competitor of Cisco is Lucent Technologies, based in Murray Hills, New Jersey. This company is also committed to utilising the Internet as the core of its business-to-business marketing operations. To achieve this goal the company is currently investing 6 per cent of total revenue to build ever more scaleable and flexible Web-based operating systems. Although the firm recognises the benefits of directing customers towards utilising online order placement facilities, Lucent's marketing strategy is that of seeking new ways of exploiting the Internet to enhance customer intimacy (Chen, 1999). This has involved the construction of software systems that can be used by customers during every phase of the purchase process. The primary vehicle for achieving this goal is the creation of an integrated customer extranet system.

Case materials on companies operating in online markets have caused many business commentators to conclude that the advent of the Internet offers exciting new opportunities to firms in business-to-business markets. It would appear, however, that in transactional markets the only significant outcome of online procurement will be that of driving down supplier prices. Should this prove to be the case, then as time passes, small UK manufacturers who utilise a transactional marketing style may find that participation in online marketing might have a detrimental impact on their business performance. In contrast, small manufacturers who have opted for a relationship marketing style would be in a much stronger position because without price dominating the purchase decision process, they will remain free to exploit the Internet's data exchange capabilities to sustain and further enhance supplier-customer relationships.

The need for further research

In order to avoid minimise variance in business behaviour between different sectors of industry complicating data analysis, this study focused solely on small manufacturing firms. Hence further research is required on firms outside of the manufacturing sector and also across different sizes of firm. Such studies are needed in order to determine whether the conclusions found in this study are applicable in the context of other areas of the UK economy. Additionally cross-border research is required to determine whether the findings of this study are applicable to firms elsewhere in the world.

The other critical area of research is to examine whether small firms exhibiting a transactional marketing style will over time, find that participation in online trading is eroding their profitability. Sinha (2000) has theorised that there are a number of strategic options available that can be used to avoid being forced into cutting prices. One is to seek to offer improved benefits and

services superior to that available from competition. Another approach is to bundle products together such that it is more difficult for buyers to determine the costs of any single item. A third approach is to invest in innovation that leads to the launch of new and distinctive products. Hence it seems reasonable to suggest that any research on intensification of price competition in online transactional markets should also examine whether such alternative marketing strategies are feasible solutions for small manufacturing firms seeking to protect their business from the influence of online customers attempting to drive down prices.

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