CHARACTERISTICS OF A GOOD CUSTOMER REFERENCE FOR A PROCESS EQUIPMENT SUPPLIER

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Abstract

The goal of the study is to increase the understanding about the characteristics of a good customer reference from an equipment supplier customers' viewpoint. An Internet-based survey study was carried out among the supplier's current customers. Statistical analyses were used to find out relationships between the variables of the proposed Reference Characteristics (RC) model. Customer reference characteristics based on factor analysis support the proposed model. Analyses did not reveal significant differences in the importance of customer reference characteristics between different respondent backgrounds or situational variables.

Keywords: Customer references, Customer relationships, Business relationships, Process equipment, Industrial marketing, Business marketing

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Introduction

The present study deals with the characteristics of customer references. Customer references is something that managers often consider successful deliveries of equipment, services, or projects to customers, as well as the names of existing customers. This is seen in business magazines where such terms as "customer references", "supplier references", and "user references" are often used.

It is easy to agree the idea that the use of customer references is an important managerial practice in industrial marketing. Customer references have many tasks, and in general they are expected to reduce the uncertainties of a potential buyer (Håkansson, Johansson, Wootz, 1979). References are used to re-establish credibility among existing customers (Salminen and Möller, 2006), as well as to maintain/reawaken sleeping relationships (Hadjikhani, 1996). Customer references have been found to serve as an enforcement to remain loyal to the supplier (Helm, Eggert, and Garnefeld, 2007), they establish insecurity and might even induce competitors to withdraw from competitive bidding (Gomez-Arias and Montermoso, 2007). Finally, references can create credibility among actors (consultants, financiers etc.) of the project "milieu" (Cova, Mazet, and Salle, 1996).

Although the use of the word reference varies in practice, a customer reference is considered here as "The supplier's relationship to its existing or former customer that can be evaluated by that customer in terms of the supplier's product, service, management, and cooperation performance." (Salminen and Möller, 2006). It is easy to accept the idea that a potential supplier that wants to see potential supplier's references is ultimately interested in the performance of an alternative supplier relationship, and thus customer reference research can be seen as a specific part of customer relationship research in B-to-B marketing. To decrease their perceived risk, however, potential buyers are interested in different levels of customer references: relationship level, delivery level, or product/service level. These levels and different reference lists are needed to communicate certain supplier/product attributes in practice to potential buyers. Reference lists can be application specific lists, product specific lists, technology specific lists, country/area specific lists.

There are several practices that can be used when communicating references to markets, e.g. reference lists, reference visits, company Web sites, press releases, brochures of success stories, articles in trade journals, promotional material, seminars, requests to promote the relationship. For an industrial supplier it is extremely important to know and select the best available reference customers for prevailing purpose of use. The problem is that the extant academic customer reference-specific literature is scarce. To be able to use customer references as effectively as possible in marketing and sales we need studies on the topic.

Specifically, we do not know what kinds of reference characteristics are involved in the potential buyer's decision making process when the buying company tries to reduce its perceived risk related to the buying of process equipment for its industrial plants. Therefore, the *purpose* of the study is to increase the understanding of good reference characteristics for a process equipment supplier. Consequently, our *research question* is: what are the characteristics of a good customer reference for a process equipment supplier? To acquire that knowledge, a Web-based survey study was conducted among an industrial process equipment supplier's current customers. The study contributes especially to the emerging customer reference relationship research in industrial marketing and purchasing.

In the first part of the paper, previous research on references is introduced. We continue by describing the selected process equipment supplier company and the proposed Reference Characteristics Model. Then the

methods of data generation and analysis methods of the survey are explained. This is followed by presenting the results of the survey. Finally, we summarize the conclusions of the study with implications to theory development and for practitioners.

Customer reference research – a specific part of customer relationship research

The present study is based on an important managerial practice – the use of customer references in industrial marketing, and takes therefore the concept of customer reference as its standpoint. It is acknowledged here that from a wide perspective customer reference research is related to such areas as word-of-mouth behaviour (Helm, Eggert and Garnefeld, 2007), referrals (Biggeman and Buttle, 2005), relationship equity (Low and Johnston, 2006), reputation effects (Johnston and Levin, 1996; Blois, 2004), market functions of extending customer base (Jacobs, Johnston and Kotchetova, 2001; Walter et al., 2003), network competence (Ritter, 1999), relationship promoters (Walter et al., 2001), and competence-based communication (Golfetto, 2003; Ritter, 2006). Aside the acknowledged importance of customer references for practice, the topics mentioned above show, except the relevance of customer references as a phenomenon for research on relationships, also the fragmentation of the research on reference related topics.

There are many academic studies on customer references in industrial marketing: customer recommendations as a marketing tool (Helm, 2000), success factors of reference visits in industrial marketing (Salminen, 2001), value of customer referrals (Helm, 2003), use of references in industrial bidding (Salminen and Möller, 2004), use of customer references in company Web sites (Jalkala and Salminen, forth.), problems of the first customer reference (Ruokolainen and Mäkelä, 2005, Gomez-Arias and Montermoso, 2007), role of references in Business Marketing (Salminen and Möller, 2006), taxonomy of customer reference communication (Jalkala and Salminen, 2006), third actors in initiating relationships (Aarikka-Stenroos and Halinen, 2007), and reference value of customer relationships (Jalkala, Salminen and Helm, 2007).

The research gap for the present study is based on the notion that very much attention has not been paid specifically on studying the use of customer references yet in academic research. This is probably due to the fragmented nature of the phenomenon, and from the academic point of view the customer reference concept's too "managerial" nature for conceptual and theory development. We have adopted the perspective that using customer references ultimately means the use of specific buyer-seller *relationships* for certain purposes discussed above. From the supplier's perspective the present study should provide new knowledge to such research areas as communicating customer reference relationships and supplier's competences (Golfetto, 2003; Ritter, 2006), initiating customer relationships (Aarikka-Stenroos and Halinen, 2007; Ruokolainen and Mäkelä, 2005), and utilizing customer references in industrial marketing (Salminen, 2001; Salminen and Möller, 2004). From the buying related perspective the study can be positioned to such area as perceived risk reduction (e.g. reduction of economic and performance risks of capital equipment) in industrial buying (Håkansson, Johansson, Wootz, 1979; Greatorex, Vincent-Wayne, and Cunliffe, 1992; Henthorne, LaTour, and Williams, 1993; Stone and Gronhaug, 1993).

Overview of the process equipment supplier

Industry and basic information

Minsys is a provider of filtration solutions and related services. The company consists of 12 subsidiaries around the world, e.g. in USA, Germany, the Netherlands, Australia, Poland, and Great Britain. The Minsys Group employ an average of 430 employees in 36 countries. The main customer segments of Minsys are the mining and metallurgical industry and the chemical process industry. Consolidation has been notable in Minsys customer industries.

Under the Minsys name, there is a range of different filters. In addition to the filters themselves, Minsys offers a comprehensive range of services. These include technical support, modernization and upgrade services, as well as spare and wear parts service. The company offers service cooperation agreements, which consist of combinations of the various service products.

The annual turnover of Minsys has in the past few years grown fairly strongly. The company's product portfolio consists of several filter types. The current net sales of Minsys have grown to 130 million euros, of which some 95 percent come from exports. The geographical division of Minsys net sales in 2006 was as

follows: Europe, CIS, Middle East, Africa (32%), North, Central and South America (44%), Asia and Australasia (24%). Strong growth has partly been helped by the recent rise in metal prices, which has a positive effect on the investments of Minsys customers.

The competition of Minsys is fragmented and undergoing consolidation. The company has only a few globally operating closely comparable competitors and many smaller local or regional ones. In the mining and metallurgical industry Minsys is a market leader in some applications.

Sales process

The sales process of Minsys equipment can be lengthy, which is typical to the type of large capital investment goods Minsys provides. The process can take up to two years from the first contact with a customer to securing of a deal. A typical contract value ranges from 1 up to 10 million euros. The company considers customer references very essential in its business as: 1) as a supplier of capital equipment it has a high need for customer references; 2) it is a middle-sized company and small compared to its competitors, 3) the company's location can be considered peripheral, 4) the company' operation mode is based on strong export/turnkey contracts and, 5) the company's level of growth of sales is high.

The sales process starts with finding out, who would be the potential customers, after which customers are approached selectively. At the pre-sales phase, Minsys references are presented to the customer. If the customer then is interested in Minsys as a filter supplier, the first negotiations begin. In negotiations the preliminary figures on cost and equipment need are worked out. It is also decided whether the figures are within the customers financial or other possibilities. After this, a test use is carried out with Minsys equipment at the customer's site, with the actual filtrated material in question. This helps in specifying the full equipment size. Process guarantees are also specified, such as energy and water consumption and product quality.

If the customer then requests, a full commercial quotation is provided. Among others, this includes a complete technical description of the full scale Minsys equipment the customer would need. Then, the customer goes through a budgetary phase, where a feasibility study of the investment is made, and typically the investment is submitted for approval by the customer's board. The customer then compares the Minsys offering with competing ones. If the customer then decides to select Minsys as its supplier, the equipment is tailor-built to the customer's needs and shipped, along with agreeing among others on legal and commercial terms. It takes an average of 18 months from first contact with a customer to closing a deal. The typical lifespan for Minsys equipment after having been installed is between 15 and 25 years.

Reference Characteristic (RC) model

Figure 1 presents the Reference Characteristic model (RC-model) that has served as the basis for the survey construction. The first part of the model consists of customer reference characteristics, which are divided into three categories: 1) Process and equipment characteristics, 2) Reference relationship characteristics, and 3) Reference customer characteristics.

Process and equipment characteristics are characteristics related to the filter and the process in which it is used in by the reference customer of Minsys. *Reference relationship characteristics* are statements about the characteristics of the relationship between Minsys and its reference customer. *Reference customer characteristics* are related to the reference customer company, factors of the company itself that might be seen and evaluated by an outside actor. The second part of the model includes *moderating variables* (Sharma, Durand and Gur-Arie, 1981). They have an effect on the buying situation, in this case the situation where a potential customer is considering making a purchase from Minsys.

The moderating variables Technical Complexity of the Product and Importance of the Product presented in the RC-model are proposed to have an effect on which customer reference characteristics the respondent feels are the most important for reducing buyer's perceived risk.

Buyer's perceived risk is a significant factor influencing the buying decision of the potential customer in an industrial setting (Möller and Laaksonen 1984, p. 10). Salminen and Möller (2006) propose that the reduction of the perceived risk is a major outcome of reference utilization. The RC-model proposes that the characteristics of the customer reference have a varying effect on reducing the perceived risk that the potential

customer feels in the purchase situation, depending on the moderating variables and the type of uncertainty/risk the potential customer feels.

The RC-model relates to the situation where a potential Minsys customer is evaluating a Minsys reference customer and the various characteristics that depict the Minsys equipment that the reference customer uses, relationship of Minsys and the reference customer, and the aspects of the reference customer itself. In this evaluation, the hypothesis is that the moderating variables, Technical Complexity and Importance of the Product that the potential customer is considering to buy, have an effect on what characteristics of the customer reference the potential customer regards as the most important in making the decision.

The respondents of the survey of the present study were guided towards thinking about the usual filter purchase situation in which the respondent's company usually finds itself when considering purchasing a filter from Minsys. Möller and Laaksonen (1984) have studied the situational dimensions and decision criteria in industrial buying. In their study, they present principal buying situation typologies as well as more specific situational characteristics of buying situations. The situational characteristics consist of product-related and uncertainty/risk-related characteristics (Möller and Laaksonen 1984).

The situational characteristics related to the product consist of the type of product, type of need, as well as what the perceived importance of the product is, and its level of complexity and standardization. Importance can be divided into the financial importance of a product and the importance of the product for the production process or for the end product produced. The complexity of the product can be seen to mean its level of technical complexity. (Möller and Laaksonen 1984). The respondents were asked to select the filter from Minsys their company would usually be considering in a filter buying situation. This was seen as defining the type of product and type of need present in the usual buying situation. The respondents were then asked to rate the technical complexity of the filter they would usually be considering on a five-point Likert scale. Next, respondents were asked to rate the importance of this filter according to its importance for the financial result of the respondent's company, and according to the filter's importance for the operation of the production process of the respondent's company.

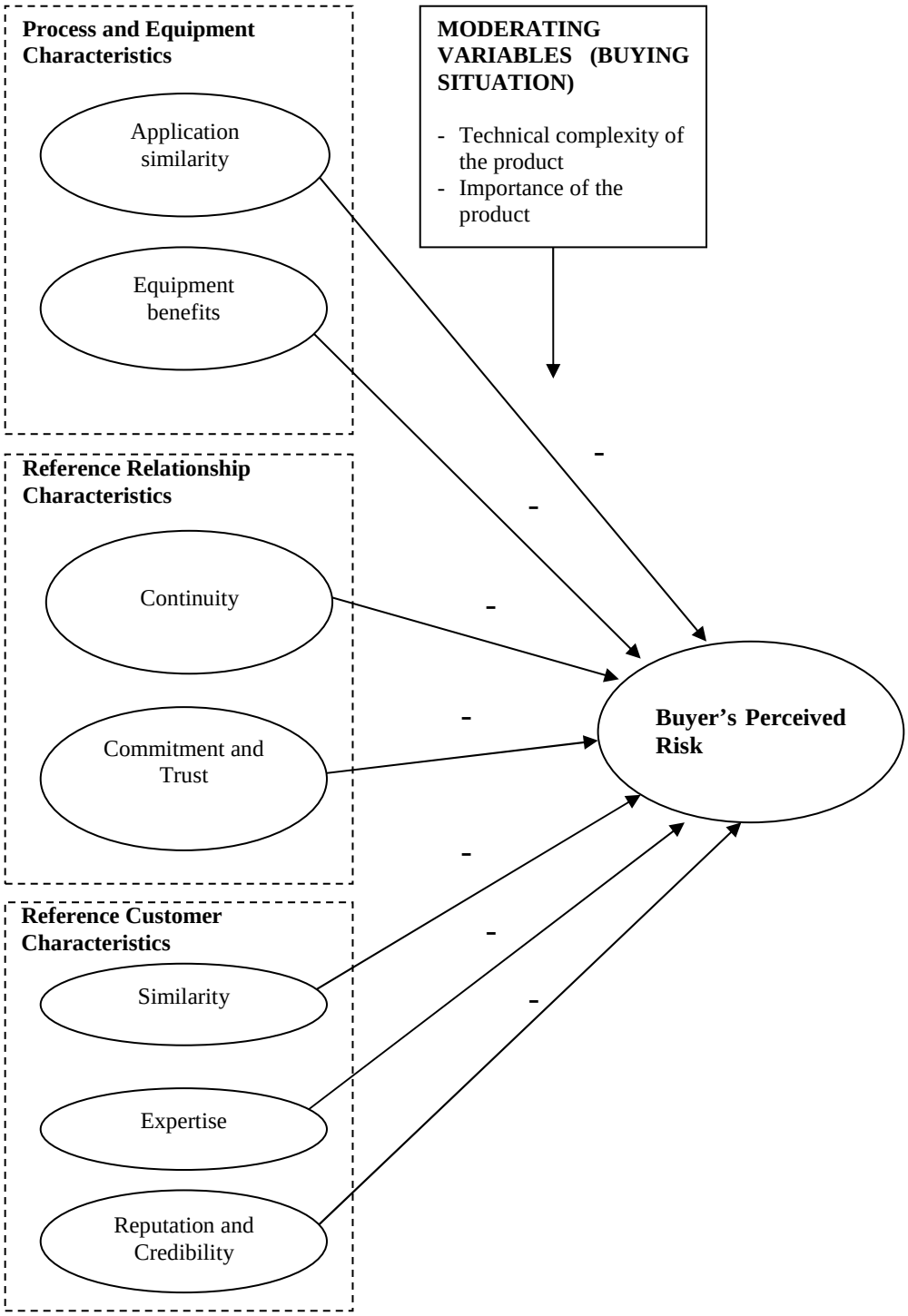

Figure 1: Reference Characteristics Model (RC-model)

These importance ratings were also given on a five-point Likert scale. The respondents were in addition asked to state when their company had made the first and previous filter purchase from Minsys. This was to represent partly the duration of the relationship between the companies as well as for finding out whether the respondent's company had made purchases from Minsys after its acquisition of new filter types in the beginning of 2004.

In the seven page questionnaire the word risk is not mentioned, although the perceived risk model includes this concept as a dependent variable. Often a distinction between the concepts risk and uncertainty has often been made (Stone and Gronhaug, 1993). Perceived risk as the definition by Bauer (1967) used in this study takes into account the possibly negative consequences of a person's actions, which have a possibly unknown

probability of happening. Stone and Gronhaug (1993, p. 40) present the thought that a person has limited cognitive capability which makes it difficult for the person to assign specific probabilities to the negative consequences of actions. This was seen as an easier concept for the respondents to evaluate, since the uncertainty does not involve giving probabilities to the outcomes of actions (Stone and Gronhaug, 1993).

Three categories of customer reference characteristics were created for this survey as presented in the Reference Characteristics Model: 1) the reference customer's process and filter characteristics, 2) characteristics of the relationship between Minsys and its reference customer, and 3) characteristics of the reference customer company. The characteristics were operationalized into statements that were evaluated by the respondents of the survey in terms of how important they are for reducing the potential customer's perceived risk related to the purchase of the filter. In evaluating the importance of the customer reference characteristics, the respondents were instructed to imagine themselves in a usual filter purchase situation they might be in when purchasing the filter type they had selected in the previous question, and to think about evaluating a customer reference of Minsys as part of assessing the suitability of Minsys as their filter supplier. Importance of the customer reference characteristics was evaluated on a seven-point Likert rating scale, where 1 stood for "not important" and 7 for "extremely important".

The reference customer's Process and Filter Characteristics are divided into two parts: 1) Application Similarity (meaning here the production process of the reference customer where Minsys filters are used), and 2) Equipment Benefits gained by using the filters. These customer reference characteristics are hypothesized to lower the perceived risk of the potential customer. It is hypothesized that the more similar the reference application to that of potential buyer's application, the more the potential buyer's perceived risk is reduced (Wangenheim and Bayon, 2004; Brown and Reingen 1987). Equipment benefits are based on Tullous and Munson's (1992) study about supplier selection criteria. It is hypothesized that the more benefits are expected to be gained, the more this perception would reduce the buyer's perceived risk.

Reference Relationship Characteristics are divided into two parts: 1) Continuity and 2) Trust and commitment. It is hypothesized that the longer the relationship between the supplier and its reference customer, the more credible and risk-reducing that reference relationship is from the potential buyer's perspective (Ford, 1980; Salminen, 1999). It is also hypothesized that the more the relationship between the supplier and its reference customer is based on trust and commitment, the more risk-reducing that reference relationship is from the potential buyer's perspective (Morgan and Hunt, 1994; Mainela, 2007; Plank and Newell, 2007; Vaaland and Håkansson, 2003).

Reference Customer Characteristics are divided into three parts: 1) Similarity of the reference customer and the potential customer), 2) Expertise of the reference customer, and 3) Reputation and credibility of the reference customer. It has been found that when the communicator's similarity with the receiver and the expertise of the communicator increase, the influence of word-of-mouth increases as well (Wangenheim and Bayon 2004; Gilly, Graham, Wolfinbarger and Yale 1998). Therefore, it is hypothesized that the more expert and the more similar the reference customer is to the potential customer, the higher is the risk-reducing influence on the potential buyer. Finally, It is hypothesized that the better the reference customer's reputation, and the more credible it is, the more risk-reducing that reference customer is from the potential buyer's perspective (Herbig and Milewicz, 1993).

Research process

Selection of customer contacts

The sample of contacts taken from the Minsys' CRM system was based on three criteria. The *first* was selecting companies that had an "operative" or "season operative" (meaning that the filter is not in use all the time) filter. *Second*, from these companies only those persons whose title included the words "manager" or "metallurgist" were selected, since Minsys representatives saw these as people who have likely been involved in purchasing their filters. As the *final* criteria, those persons who did not have an email address (required for sending the questionnaire) were removed from the list. This selection procedure resulted in 1105 contacts from altogether 60 countries (Figure 2).

In an attempt to increase the response rate of the survey, the 49 sales and service personnel of Minsys were asked to send a prewarning message to the respondents of this list that were in each sales or service persons

area of responsibility. After this, the questionnaire was sent to the 1105 listed contacts along with the covering letter containing information about the survey.

More than 300 of the email addresses acquired from the CRM system were not working; the questionnaire had gone through to 780 respondents which is here regarded as the eligible respondent amount, since others have not received the questionnaire at all, and there is no way of knowing whether those who have received the questionnaire actually are suitable persons to answer it (other than the assumption made when selecting those contacts from the CRM system). At the deadline only 30 answers had been received, and it was decided that the respondents should be contacted by telephone to give a prewarning about the survey in a further attempt to increase the response rate. Telephone numbers for the same respondent list were collected from the CRM system. Two persons took part in the calling during three weeks.

The amount of contacts to be called was 645, as the criteria were that the contact should have a working email address (as confirmed by the first sending of the questionnaire) and a direct telephone number. The respondents were given two weeks to answer the survey, although it was possible to answer also after this period. When calling the 645 contacts, 31 new contacts were received from the original contacts who did not want to participate. The reason for a respondent giving a new contact was mainly that the respondent felt that the new contact would be a better person to take part in the survey, because his/her work duties were more related to the subject of the survey. Of the 645 contacts, 208 people were contacted, either directly by telephone or by leaving a voice mail message briefly describing the survey or by leaving a message to a secretary or similar person who answered the phone. The number of direct contacts made was 189, with 19 indirect ones.

Of the contacted persons, 54 refused to take part in the survey, thus making the amount of sent questionnaires 154. A few of these sent questionnaires were however undeliverable by email, the amount of questionnaires sent successfully was 150. The figure 150 is here regarded as the eligible respondent amount since these persons have agreed to participate, and only they have received the questionnaire. In addition to this, there is no other way of assessing respondent eligibility. The problem is the indirect contacts, who had not agreed to participate, but due to practical reasons (it is not feasible to call them again and ask them to participate), they are included in the eligible amount. A total of 59 responses were received to the 150 questionnaires sent.

The problem is how to define the response rate for both rounds combined, since respondents were contacted in different ways. The eligible amount of respondents could be calculated as 780, since this is the amount of respondents who have received the questionnaire. Figure 780 includes the amount of contacts that were called in the second round. According to these numbers, the total response rate for the survey is (89/780)*100 = 11,4%.

Results of the survey

Descriptive analysis

The majority of the respondents are from chemical process industry (56/89, 62,9%). Turnover of the respondent’s company was for the major part more than 150 million USD (58/89, 65,2%). Roughly half of the respondents were European (46/89, 51,7%). This was in line with the entire contact list, in which slightly under half of the contacts were European. Most filter buying decisions were made on the plant or site level (65/89, 73,0%), while more than half of the respondents’ companies had plants or sites in more than five countries (51/89, 57,3%).

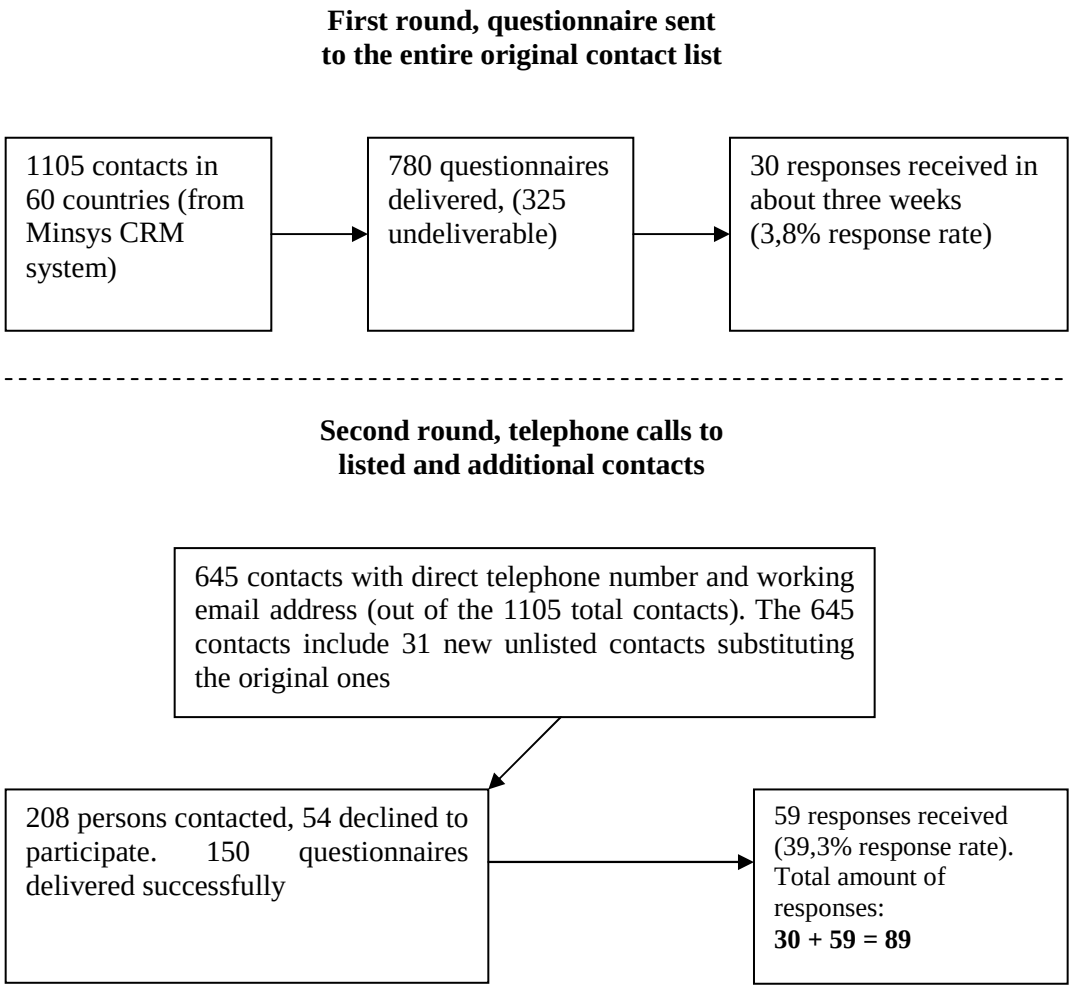

Figure 2: Implementation of the survey and the response rate

Over half of the respondents were of either middle or upper-middle management (57/89, 64,1%). Roughly three fourths (68/89, 79,7%) of respondents were most familiar with certain two Minsys filter types, and generally rated their technical detail knowledge of the filter selected as good (scale 1-7, mean 4,8).

It seems that a significant amount of the respondents' companies had had a fairly long history with Minsys, purchasing their first filter more than 10 years ago (46/87, 51,7%) and the last one quite recently (less than 3 years ago, 36/84, 40,4%). The most often considered filter types were again those two most popular Minsys filter types. The technical complexity of the most often considered filter was in more than half of the cases (46/85, 54,1%) seen as high or very high. The vast majority of respondents saw the filter as important or very important for their company's financial result (67/88, 75,3%), and almost all considered the filter important or very important for their production process (76/86, 85,4%).

The overall uncertainty felt by the respondents in a filter purchase situation was rated on a seven-point Likert scale. More than half (49/88, 55,7%) selected option 3 or 4, i.e. an average uncertainty. When rating the significance of three separate sources of uncertainty, the uncertainty related to the satisfactory performance of the filter received clearly the highest mean, 48,7 %.

When rating the importance of customer reference characteristics in reducing uncertainty in the process and filter characteristics category, the highest importance was gained by operational reliability of the reference customer's filter and the lowest by better environmental friendliness achieved by the reference customer by using the filter. In the reference relationship category, the most important characteristic was repurchases from Minsys made by the reference customer, and the least important the reference customer having acted as a pilot

customer for testing Minsys equipment. In the reference customer company characteristics, most important was the safety standard compliance of the reference customer and the least important was closeness of size of the reference and potential customer. However, nearly all customer reference characteristics received a high importance rating. Two thirds of respondents rated the importance of a reference visit before purchasing a filter as very high, selecting either of the two highest importance values.

Statistical analyses

Several of the questionnaire items were correlated. Table 1 presents the statistically significant correlations found between these variables, along with (+) or (–) denoting the correlation direction. Of the most interest are the correlations between the customer reference characteristics and uncertainty measures, between the background/purchase situation variables and the uncertainty measures and between the background/purchase situation variables and the customer reference characteristic Importance of the Product. Such correlations slightly support the hypothesized relationships presented in the Reference Characteristics Model.

As Table 1 shows, very few correlations were found between the customer reference characteristics and the uncertainty measures. With increasing performance uncertainty and overall uncertainty, mostly process and filter characteristic importance rises, along with the importance of geographical closeness of the two customers. The financial and production importance had several correlations with customer reference characteristics. Both were positively associated with the importance of safety standard and environmental legislation compliance, as well as with the importance of the reference customer knowing its business and having experience on the filters. Other correlations do not seem to form a pattern, although it seems that when the higher purchase decision level is reported, the importance of environmental legislation and safety standard compliance as well as better environmental friendliness increases.

Cross tabulation was used for examining the relationship between nominal scale background variables and overall uncertainty, but no dependence was found. When comparing the uncertainty measure ratings of different respondent groups (defined by background variables), the tests showed no difference in uncertainty ratings between respondents with different backgrounds.

Factor analysis on the customer reference characteristics produced an interesting result. The four factors formed were, with a few exceptions, comprised of characteristics that were a part of the customer reference categories of the Reference Characteristics Model, or a part of a category in one case. This suggests that the 21 customer reference characteristics can be reduced to four factors: 1) Application similarity and equipment benefits, 2) Expertise, reputation and credibility, 3) Continuity, commitment and trust, 4) Similarity of reference customer and potential customer.

The factors also seem logical, as each of them is comprised of customer reference characteristics used in operationalizing the RC-model variables (e.g. Factor 3 contains four out of five characteristics that were used in operationalizing the variables Continuity and Commitment and trust). The mean importance ratings for each factor were computed, and based on these, the highest characteristic importance ratings are of those in Factor 1 (5,26), the next highest those of Factor 2 (5,11), followed by Factor 3 (4,40), and Factor 4 (3,99).

Regression analysis was also attempted with the aim of finding out whether the customer reference characteristic Importance of the Product ratings could be used for explaining the uncertainty measure ratings. In this analysis, the results were disappointing, as the factors could not predict the uncertainty ratings with any certainty.

Table 1. Statistically significant correlations (p=0.05)

Uncertainty measure/purchase situation variable/background variable	**Customer reference characteristics and uncertainty measures**
Overall uncertainty felt	Lower operating costs achieved by the reference customer by using the filter (+)
	Geographical closeness of the reference and potential customer (+)
Performance uncertainty in the buying situation	Reference customer uses filter in similar production process as the potential customer (+)
	Reference customer has achieved better process

	results with the filter (+)
Importance of filter for financial result	Uncertainty on learning to operate the filter (+)
	Reference customer has acted as pilot customer (+)
	Reference customer shows no signs of switching supplier (+)
	Geographical closeness of the reference and potential customer (+)
	Reference customer knows its business and has experience in using the filters (+)
	Reference customer complies with safety standards (+)
	Reference customer complies with environmental legislation (+)
Importance of filter for operation of the production process	Reference customer shows no signs of switching supplier (+)
	Reference customer knows its business and has experience in using the filters (+)
	Reference customer complies with safety standards (+)
	Reference customer complies with environmental legislation (+)
Time since last filter purchase by the customer	Reference customer shows no signs of switching supplier (-)
Company turnover	Uncertainty on filter performance (+)
Company internationalization level	More than 10 year relationship between Minsys and reference customer (+)
	Reference customer has acted as pilot customer (-)
Respondents knowledge of filter technical details	More than 10 year relationship between Minsys and reference customer (+)
	Excellent operational reliability of filter achieved (+)
Respondent's work responsibility level	Reference customer has acted as pilot customer (+)
Respondent's company filter buying decision level	Better environmental friendliness achieved with filter (+)
	Reference customer complies with safety standards (+)
	Reference customer complies with environmental legislation (+)

In sum, it can be said that all of the customer reference characteristics that were included in the survey questionnaire are fairly important in reducing buyer's uncertainty felt in a filter purchase situation. Based on factor analysis and respondents' expectations from a good reference visit (answers to open questions), it appears that characteristics Process and Equipment Characteristics (related to equipment performance) stand out in importance. Statistical analyses other than the factor analysis did not prove any significant dependency between the background of respondents or purchase situation variables and the importance of customer reference characteristics. However, limited evidence based on correlations suggests that equipment performance is an important aspect in reducing uncertainty.

Theoretical implications

The focus of the study was on examining the importance of hypothetical good customer reference characteristics. Based on the survey, it would appear that all customer reference characteristics of the RC-model and the variables behind them are fairly important. No characteristic could be removed from the model based on its insignificance.

Some further implications on the RC-model can be drawn based on the results of the survey. Factor analysis results suggest that the customer reference characteristics can be represented by four factors. These factors

also support the category division of the RC-model, but small modifications could be made to the model. A new category for the similarity of the reference and potential customer characteristics could be formed based on Factor 4, and based on the open question answers, service characteristics could have their own category. If the RC-model is changed, thought should be given to balancing the customer reference characteristic categories in terms of characteristic amount (so that one category is not much smaller than others). It should also be considered whether some characteristics should be moved to another category, based on the factor loadings of the characteristics.

The used data from the supplier's current customers more or less confirmed the hypothesized RC-model. This could mean either that the model and its variables are so self-evident that any researcher having practical experience could construct such a model, or that the model has been constructed by using quite relevant buyer-seller literature taking into account the requirements for comprehensiveness and parsimony for a good model (Whetten, 1989). Generally it seems to researchers that the study's results are not interesting if there are no surprising or unexpected results. The results of the present study suggest that all the three characteristics (Process and equipment characteristics, Reference relationship characteristics, Reference customer characteristics) are significant for an industrial customer considering a purchase of process equipment.

Therefore, we feel that the RC-model itself is an important result, especially taking into account the RC-model's future potentiality. Due to the relatively low response rate of the study it was not possible to study the effects of the moderating variables. For the same reason it was not possible to find differences between respondents having different cultural, geographical etc. backgrounds.

Practical implications

Practical implications can be based on the factors formed in the factor analysis of the survey. The four factors divide the customer reference characteristics into parts, each of which is an important aspect for a good customer reference in the opinion of Minsys' customers. *Application similarity and equipment benefits* are the most important factor, followed by *Expertise, reputation and credibility*, then *Continuity and commitment and trust* and finally, *Similarity of the reference and potential customer company.* We propose some implications for practical sales work.

First, suppliers should always consider all aspects of RC-model when selecting a reference site or when communicating references to customers. They all are important in the use of customer references. The more all these characteristics are capable to reduce customer's perceived risk, the more effective impact these customer references are assumed to have on the potential customer's behaviour. For suppliers we propose the use of a short check list, where each of these characteristics is specified in a practical way.

Second, it would be extremely important to the supplier to be able to communicate the supplier's equipment benefits effectively to customers. The more similar the process application having important benefits, the easier it can be to communicate those benefits, especially in reference visits.
The respondents' expectations from a good reference visit provided some useful information for selecting reference visit sites (see Salminen, 2001), and can be seen as characteristics of a good customer reference. Such characteristics could serve as the foundation for a checklist for selecting reference visit sites. The explored characteristics are as follows: witnessing equipment performance, interaction with the reference customer personnel, getting information on problems and daily experiences in using the equipment, and seeing how service is working. The supplying company should have a list of typical equipment benefit types and values (such as lowered costs) related to each process application to evaluate how well the reference in question could fulfil referencing needs.

Service was related to good equipment performance, as it is vital in maintaining customers' performance, and service should also help in maintaining relationships with the reference customer through service calls. Thus it can be said that service benefits should be clearly demonstrated in a good customer reference, and service itself should be actively utilized and developed, as it helps in maintaining other good customer reference characteristics.

Third, characteristics Expertise, reputation and credibility of a reference customer are connected to recommendations of the reference customer in that sense that recommendations are probably more effective when made by an expert customer with a good reputation and high credibility. Therefore, selecting references should also be based on the consideration that the customer should have the aforementioned qualities while also being willing to give positive recommendations.

Finally, when looking at the factors, similarity between the reference and potential customer should be considered when utilizing references, as this aspect stood out from other customer reference characteristics in the survey. It can be assumed that a potential customer would like to see especially such reference customers that the customer can easily compare to its own operations.

Further research

When statistical analysis methods are used in survey studies, the amount of respondents and the response rate are important. A fairly limited amount of responses (89) and a relatively low response rate (11,4%) were received in the present study. This is partly due to the fact that the survey was carried out during summer, which is a common vacation period, limiting thus the amount of people that can be reached during that time. A higher response rate would make it possible to gain better results from the survey. As the RC-model, based the present study proved to be fairly valid, the study should be replicated in the same industries, or at least in an industry buying process equipment.

Furthermore, the effect of moderating variables on the importance of customer reference characteristics in reducing perceived risk as presented in the RC-model was not studied in depth in this research. An attempt was made to use regression analysis for that purpose, but the analysis could not be used effectively with the limited data at hand. A new study and data with higher response rate would make it possible study also the moderating effects.

Finally, the concept of a reference visit is worth mentioning here, as quite many respondents mentioned it as a response to open questions. Reference visit as a phenomenon has been studied from the supplier's perspective by Salminen (2001), and it might be worthwhile to study a reference visit topic further, but from the customers' perspective. Wilkinson (1995) in his study emphasizes that the potential supplier and the potential buyer should be aware of the significance of their important similarities/complementarities when selecting each other. We propose that these similarities/ complementarities (i.e. skills, competencies, other relations and resources) which are not immediately apparent (service issues) could be examined fast in reference visits by communicating interactively at reference sites (Salminen, 2001; Gladwell, 2005).

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