

# **Customer Value Assessment Practices in Solution-Oriented Business Markets – An Exploratory Study of Environmental Solution Providers**

Proposal for a work-in-progress paper in IMP 2011 conference, Glasgow, Scotland.

## **ABSTRACT**

This study examines the value assessment practices of firms providing customer solutions. Drawing from the literature on value in solution-oriented business markets and alternative value assessment practices, we develop an initial framework of backward-looking and forward-looking value assessment practices. This framework will be further refined through a multiple case study of three industrial companies providing environmental solutions. The paper contributes to the research on customer value by tentatively proposing a conceptual framework of backward-looking and forward-looking customer value assessment practices. In addition, this study contributes to solution business by advancing understanding of customer value assessment, which is considered a critical capability for firms delivering customer solutions.

**Keywords:** Customer value, value assessment, solution business

## **PAPER TYPE**

Work-in-progress

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## **INTRODUCTION**

Knowing the value of one's offering is of utmost importance for business suppliers, since it, to a large extent, dictates the return suppliers receive for their investments. Suppliers who are able to provide superior value gain higher margins and long-term competitive advantage (Porter, 1980; Woodruff, 1997; Slater, 1997; Khalifa, 2004; Anderson, Narus, & van Rossum, 2006). Understanding the formation of customer value and the ability to make credible customer value assessments is a critical prerequisite to providing the superior value (Payne & Holt, 2001; Ulaga & Chacour, 2001; Flint, Woodruff, & Gardial, 2002; Anderson et al., 2006). In order to make resonating value propositions that ensure an equitable return on the delivered customer value, suppliers need to be able to demonstrate that their offerings are actually delivering the promised value (Anderson et al., 2006; Sawhney, 2006). This is especially crucial for firms providing customer solutions, since their offerings are often complex and service-intensive, thus making it difficult to quantify their monetary value (Brady, Davies, & Gann, 2005; Sawhney, 2006; Sharma & Iyer, 2011).

The understanding of customer value is critical to firm performance (Woodruff, 1997; Anderson & Narus, 1998), and the topic has received increased attention in business markets (e.g. Ulaga 2001; Lindgreen & Wynstra, 2005; Ulaga and Eggert, 2006). Customer value management is centered on delivering superior value and getting a fair return for it, both which are capitalized through value assessment (Anderson and Narus 1998). However, value assessment is a challenging task, and in practice, only few suppliers are able to make credible customer value assessments (Wouters, Anderson, & Wynstra, 2005; Anderson et al., 2006).

Managerially, there is a need to develop more sophisticated value assessment methods, which take into account both the tangible and intangible value delivered for the customer (Cornet et al., 2003). The limited understanding of different customer value assessment practices is a critical matter, especially for firms providing customers solutions. Developing solutions requires deep investments from suppliers to begin with (Cornet et al., 2003; Davies, 2004), and in order for solutions to be economically viable, suppliers need to ensure an equitable return for the value they are providing (Cornet et al., 2003; Sawhney, 2006). Yet many solution providers are struggling to make their solutions profitable (Krishnamurthy, Johansson, & Schlissberg, 2003).

Although the importance of customer value assessment is acknowledged (Anderson et al., 2006; Sawhney, 2006; Anderson, Kumar, & Narus, 2008), a holistic framework of customer value assessment is lacking and more understanding about value assessment practices is needed. In order to increase understanding of this highly relevant issue, we need to empirically examine what kind of practises solution suppliers utilize to assess the delivered customer value. For this purpose our study addresses the following research questions: First, what are the practices that solution suppliers can use to assess the delivered customer value? Second, what are the factors determining the usefulness of different value assessment practices? We answer these questions through an in-depth case study of three industrial companies providing environmental solutions.

## LITERATURE REVIEW

### Value in Solution-Oriented Business Markets

Suppliers can claim value in business markets in a variety of ways (Slater & Narver, 2000) for example, by increasing product quality, delivery performance, personal interaction, flexibility or expertise (Ulaga & Eggert, 2006; van der Rhee, Verma, & Plaschka, 2009), adding supplementary services to the core offering (Lovell, 1995; Oliva & Kallenberg, 2003; Anderson & Wynstra, 2010), or decreasing operating costs, risk of failure or the purchasing price (Payne & Holt, 2001; Menon et al., 2005; Ulaga & Eggert, 2006). Besides economic, often product-related arguments, suppliers can also claim value by improving the environmental performance of their customers. This can mean reducing customer's resource inputs, energy consumption, waste production, or pollution (Guziana, 2011). Environmental arguments have gained increased attention (e.g. Drumwright, 1994; Gonzales 2005; Cagno & Trucco, 2008), but to be commercially attractive, environmental offerings need to improve customer's operational performance while reducing environmental load (Guziana, 2011).

As illustrated above, value in business markets can stem from multiple sources, but in general, literature suggests that value is a trade-off between all the relevant benefits and costs delivered by an offering through its lifetime (Flint et al., 1997; Menon et al., 2005; Ulaga & Eggert, 2006). In addition, value is often context-bound subjective perception, determined by customer, not by supplier (Zeithaml, 1988; Woodruff, 1997; Vargo & Lusch, 2008; Corsaro & Snehota, 2010), and evaluated in relative to competitive offerings (Ulaga & Chacour, 2001; Anderson et al, 2006). For customer value to be commensurable, literature suggest defining it in monetary terms (Anderson et al., 2008: Anderson and Wynstra, 2010). Thus, in the present study, we adopt the definition of Anderson et al. (1993), who define the value in business markets as “*the perceived worth in monetary units of the set of economic, technical, service, and social benefits received by a customer firm in exchange for the price paid for a product offering, taking into consideration the available alternative suppliers' offerings and prices*”.

### Relationship Value

Traditionally value has been considered to be related to the functions and performance derived from the product itself as a value-in-exchange (Vargo & Lusch, 2004), but recent advancements in customer value theory have emphasized relational approach, (Ravald & Grönroos, 1996; Payne and Holt, 2001; Ulaga & Eggert, 2006), proposing that the customer value is created in customer's processes as a value-in-use (Ramirez, 1999; Vargo & Lusch, 2004; Grönroos, 2008). In the relational view, customer value is delivered through establishing, maintaining, and enhancing customer relationships (Ravald & Grönroos, 1996; Payne & Holt, 2001; Ulaga & Eggert, 2006). During this process, the role of services becomes central, as they enable the supplier's continuous involvement in the customer's operations (Reinartz & Ulaga, 2008; Windahl & Lakemond, 2010). In addition, instead of considering services only as supplementary elements, service-dominant thinking argues that all combinations of products and services provided by the supplier are fundamentally services designated to support the customer's processes (Ramirez, 1999; Vargo & Lusch, 2004; Grönroos 2008). This implies highly intimate collaboration between suppliers and customers, and making customers to shift from evaluating individual offerings to evaluating the value of the relationship as a whole (Ravald & Grönroos, 1996).

Collaborative relationships provide greater opportunities for customer value creation (Anderson, 1995; Ulaga, 2003), and recent years have witnessed numerous attempts to

advance the understanding of relationship value in business markets (e.g. Cannon & Homburg, 2001; Lindgreen & Wynstra, 2005; Ulaga & Eggert, 2005; 2006; Henneberg, et al., 2009; Blocker, 2011). This research can be divided into two broad streams, focusing on conceptualizing the value in business relationships and assessing the value of the relationship (Corsaro & Snehota, 2010).

The first stream conceptualizes value in relationships either as the value of supplier's core offering exchanged for a price, or as the value of the buyer-seller relationships itself, including all the benefits and costs apart from those explicitly embodied in the offering, such as supplier's reputation, network, competence or resources (Hogan, 2001; Walter et al., 2001; Lingreen & Wynstra, 2005). Most of this research is still conceptual, but contemporary empirical research identifies core offering, sourcing process, and customer operations as the main sources for value creation, and argues that that customer value could be viewed through product-, service-, and relational value-based drivers (e.g. Cannon & Homburg, 2001; Ulaga, 2003; Menon et al., 2005; Ulaga & Eggert, 2005; 2006).

The second stream, the assessment of relationship value, is considered vital to the development of customer value theory and management practice (Payne & Holt, 2001; Anderson et al., 2006), but it's progress to date has been limited (Corsaro & Snehota, 2010; Blocker, 2011). This has been mainly due to lack of managerially sound conceptualization of relationship value (Ulaga, 2003; Ulaga & Eggert, 2006), and the lack of holistic approach to comprehensively capture the multiple facets of customer value (Payne & Holt, 2001, Ulaga, 2001; 2003). The variety of exchanged products and services together with the amount of interaction processes (Corsaro & Snehota, 2010) makes the assessment of relationship value challenging. In addition, the value in intimate collaborations abounds from combined activities of the supplier and the customer (Vargo & Lusch, 2008), making it difficult for both to evaluate the potential customer value in advance (Möller & Törrönen, 2003). This renders the usefulness of traditional, product- and exchange oriented assessment tools limited (Corsaro & Snehota, 2010), making it essential to develop holistic methods to comprehensively assess the customer value created in industrial buyer-seller relationships (Payne & Holt, 2001; Ulaga, 2003; Anderson et al., 2006).

### **Value-Based Pricing**

A solid understanding of customer value is also central to successful pricing (Hinterhuber, 2004; Ulaga, 2011) as industrial purchasers tend to evaluate competitive offerings by comparing the perceived value against price (Anderson, Thomson, & Wynstra, 2000; Ingenbleek, 2007). However, pricing complex and service-intensive offerings is more difficult than pricing simple products (Sawhney, 2006), and this is also evident in practice, where solution suppliers are struggling to index their costs to the price paid by the customer (Cornet et al., 2003; Sawhney, 2006; Sharma & Iyer, 2011).

Literature categorizes pricing strategies into cost-, competition-, and customer value-based strategies (Ingenbleek et al., 2003; Hinterhuber, 2008; Indounas, 2009), of which customer value-based pricing strategy is considered superior (Ingenbleek et al., 2003; Hinterhuber, 2008). It allows suppliers to set prices according to the delivered value, which is usually quantified through performance-related outcomes, such as usage or output (Hünerberg & Huttman, 2003; Sawhney, 2006). Customer value-based pricing is particularly suited for complex and service-intensive offerings, since they are tailored to specific needs and designed to provide value beyond the sum of their components (Hünerberg & Huttman, 2003; Sawhney, 2006; Sharma & Iyer, 2011).

However, in practice suppliers tend to rely on cost- and competition -based pricing strategies due to their simplicity (Hinterhuber 2008; Indounas, 2009). Implementing customer value-based pricing strategy is difficult as it requires a deep understanding of customer's business and systematic processes that incorporate all the relevant information and customer data to pricing decisions (Shipley and Jobber, 2001; Hinterhuber, 2004; Bonnemeier, Burianek, & Reichwald, 2010). According to Hinterhuber (2008) and Sawhney (2006), the main barrier to adopting customer value-based pricing strategy is the difficulty of assessing the delivered customer value.

### **A Review of Value Assessments Practices**

The development of sound measurement tools for capturing the delivered customer value represents a major challenge for customer value research (Anderson 1995; Payne & Holt, 2001; Ulaga 2001; Payne & Frow, 2005). To this end, we reviewed various streams of literature in order to identify relevant customer value assessment practices. In the following, we categorize the identified customer value assessment practices to either backward-looking practices which measure the delivered customer value, or to forward-looking practices which estimate the potential customer value.

#### **Measuring the delivered value**

Traditionally most firms have used value assessment practices which are more backward-looking in nature, and measured customer value based on customer feedback and data from previous customer deliveries. One of the earliest approaches to measure value was Miles's (1961, p. vii) value analysis, an engineering tool created specifically for the "*identification of unnecessary costs*". It aims to determine the target product's main functions and related sub-functions, and then evaluate whether they can be accomplished reliably at a lower cost by alternative means, such as with another material or with the application of other processes (Miles, 1961, p. 13-15). Gale (1994) updated value analysis to customer value analysis, taking into account the customer's buying preferences and competitive offerings. However, originally both analyses were designed for consumer-oriented products, they tend to suffer from poor costs estimates and rely heavily on price (Miles, 1961, p. 42; Gale, 1994, p. 43; Howden and Pressey, 2008).

Survey-based approaches are considered as one of the most commonly used methods to measure customer value or satisfaction, but their usual drawback is that instead of providing direct monetary estimates, they tend to indicate preferences and rankings. In their state-of-practice study, Anderson, Jain, and Chintagunta (1993) examined the usage of nine different survey-based value assessment methods such as field-value-in-use, focus groups, benchmark studies and importance ratings in the largest industrial firms in U.S. They found that focus groups and importance ratings were the most used methods. However, neither of these was considered being sufficient as a stand-alone method. The study concluded that the largest industrial firms tend to prefer methods which work best with simple and non-technical products, but have difficulties with estimating the value of complex offerings and lack the ability to account for intangible performance attributes, such as services (Anderson et al., 1993). However, service management literature considers assessing service quality paramount (Buttle 1996), and one of the key contributions of this stream is the development of SERVQUAL (Parasuraman, Zeithaml, & Berry, 1988; 1991; 1994), a widely applied survey-instrument to measure service quality. Despite its wide acceptance, SERVQUAL has

received extensive critique (Chronin & Taylor, 1992; Buttle, 1996) and its suitability is tested almost exclusively in consumer context (Parasuraman, 1998).

Later, Anderson et al. (2006) found that leading suppliers can demonstrate the delivered customer value by using value case histories, which illustrate the actual value that the firm has delivered to its reference customers. Previous customer deliveries are a strong indicator of supplier's performance potential (Möller & Törrönen, 2003), and suppliers can communicate these deliveries through their websites (Jalkala & Salminen 2009) or by providing prospective buyers with a list of reference customers (Salminen & Möller, 2006; Jalkala & Salminen, 2010). However, leveraging value case histories requires supplier's systematic efforts to document the delivered customer value and customer's willingness to share and disseminate the knowledge.

Finally, there is also a myriad of financial metrics in accounting literature, conventionally used for measuring investment performance, such as return-on-investment (ROI), internal rate of return, benefit-to-cost ratio and benchmark studies (e.g. Eccles, 1991; Kaplan & Norton, 1992; 2001; Shapiro, 2005). Although routinely used, the problem with traditional financial performance measures is that they are getting obsolete with complex investments (Kaplan & Norton, 1992; 2001). In addition, they are limited to income-based information and provide only a single measure, thus needing complementary analyses to give a comprehensive view of the business (Kaplan & Norton, 1992; 2001).

### **Estimating the potential value**

Although documented value evidence from previous customer deliveries is a strong sales tool (Anderson et al., 2006), it only displays the value that was realized for the given customer. Characteristics specific to the current customer's business are unlikely similar, causing differences in the value the supplier's offering delivers. Thus prospective buyer usually expect verified evidence or at least reasonable estimations of the value that the suppliers offering would provide in their specific setting, requiring suppliers to demonstrate the potential customer value in advance.

Purchasing and supply management literature introduces an activity-based costing (ABC) application, a total cost of ownership (TCO) analysis (e.g. Carr & Ittner, 1992; Wouters et al., 2005). TCO analysis is a strategic cost accounting tool, which aims to systematically calculate all the costs related to purchasing and operating a system or asset over its full life-cycle (Ellram, 1995; Degraeve, Labro, & Roodhooft, 2000; Roodhooft, Van den Abbeele, & Peeters, 2006). Depending on the purchase situation and available information, TCO analysis can utilize either monetary-based, more qualitative value-based or mathematical decision model -based approach (Hurkens, Van der Valk, & Wynstra, 2006). While TCO analysis is focused at quantifying total costs, it gives no consideration to benefits, thus possibly ignoring a more value-wielding, yet expensive alternative. Although TCO analysis is applicable to any type of purchase, its usage is limited in practice, mostly due to the complexity of account systems and lack of detailed data (Ellram, 1994; Ellram & Siferd, 1998).

Anderson and colleagues (1998; 2006; 2008) report that best-practise suppliers can estimate the potential customer value in advance by using value calculators and customer value models. Value calculators are typically IT-based applications, which demonstrate the likely outcome of using the supplier's offering with the support of customer data. Customer value models on the other hand, are usually summaries of value word equations, expressing the monetary differences between competing offerings. However, demonstrating value in such way requires detailed understanding of customer's business and an extensive amount of

customer data, and it has proven to be difficult and time-consuming in practice (Anderson et al., 2008). Another way astute suppliers can estimate the potential customer value is to conduct pilot programs at customer's facilities (Anderson et al., 2006; Anderson & Wynstra, 2010). Pilot programs require intimate cooperation with customers, being often costly and time consuming, but they allow customers to get "*tangible evidence of the value that an offering would deliver in their operations*" (Anderson & Wynstra, 2010), and it provides the supplier with firsthand data on the performance of its offering (Anderson et al., 2006). In addition, successful pilot projects can be later used as value case histories, demonstrating the delivered customer value. Table 1 summarizes the identified value assessment practices.

**Table 1.** Review of different value assessment practices.

| Value Assessment Practice  | Literature base (selected authors)   | Key weaknesses  |
|--|--|---|
| <i>Measuring the delivered customer value</i>                        |  |   |
| Value analysis   | Value engineering (Miles 1961; Gale 1994)  | Designed for consumer products, poor costs estimates, emphasizes price  |
| Survey-based assessments<br>e.g. focus groups,<br>importance ratings | Customer value (Anderson <i>et al.</i> , 1993)   | Indicates preferences and rankings instead of monetary estimates, has difficulties with complex offerings and services elements |
| SERVQUAL   | Service management (Parasuraman <i>et al.</i> , 1988; 1991; 1994),                     | Indicates preferences and rankings instead of monetary estimates, tested mainly in consumer settings                            |
| Value case histories   | Customer value (Anderson et al., 2006)   | Requires systematic documentation and customer's willingness to share knowledge   |
| Financial measures, e.g. ROI studies                                 | Accounting (Kaplan and Norton, 1992; 2001, Shapiro, 2005)                              | Obsolete with complex investments, limited to income-based information, provides only a single measure                          |
| <i>Estimating the potential customer value</i>                       |  |   |
| Total cost of ownership  | Purchasing and supply management (Carr and Ittner, 1992; Wouters <i>et al.</i> , 2005) | Requires complex account systems and detailed customer data   |
| Value calculators and customer value models.                         | Customer value (Anderson et al., 2006; 2008)   | requires deep understanding of customer's business and extensive customer data  |
| Pilot programs or pilot projects                                     | Customer value (Anderson <i>et al.</i> , 2008; Anderson and Wynstra, 2010)             | Require intimate cooperation with customers, and is often costly and time consuming   |

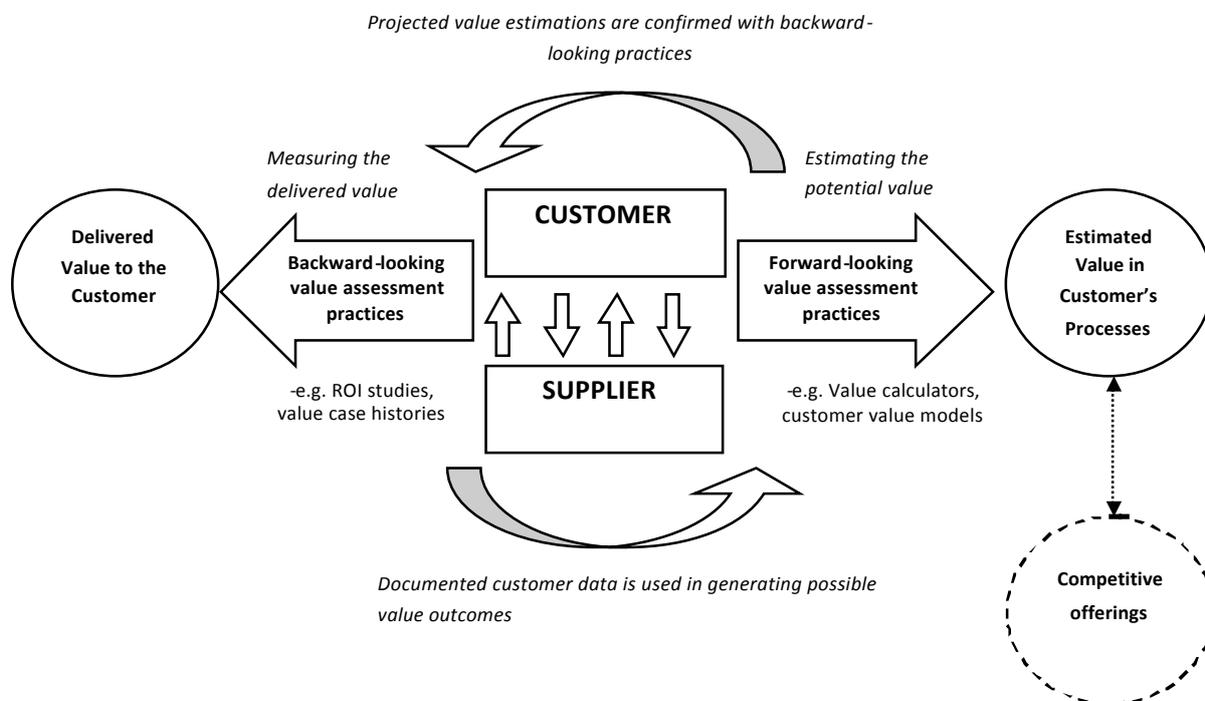
In summary, a number of different value assessment methods are present in the current literature, but their practical applications, considering especially technically complex offerings, are limited. The major shortcomings of the traditional value assessment methods seem to be the following. *Firstly*, they are designed for technically simple products, not for complex solutions. *Second*, they can't account soft factors like services. *Third*, they rely heavily on price, and *finally*, they cannot measure the worth of the customer relationships.

Consequently, there is a need for holistic methods to assess customer value (e.g. Anderson, 1995; Payne & Holt, 2001; Ulaga 2001), and as pointed out by Sawhney (2006), these value assessment methods are especially vital for companies providing customer solutions. Driven by such calls, our research aims to address this important gap by proposing a tentative framework for customer value assessment that systemically assesses the delivered customer value. We attempt to do this by first developing a tentative framework based on the literature review, and then refining it further through a case study of three firms providing customer solutions.

## Towards a framework of backward/forward–looking value assessment

Conventionally most companies have evaluated their performance by using customer satisfaction surveys or financial figures, and produced documented calculations such as ROI after their projects have been finalized. On the other hand, more seasoned suppliers have developed customer value models and value calculators (Anderson & Narus, 1998; Anderson et al., 2003) to project possible monetary gains from their offerings in advance. However, neither of these approaches is alone sufficient. Today’s purchasing managers face a trembling variety of alternative offerings, and in assessing their value, buyers examine both hard and soft evidence, and they want to know what they should expect to receive, how they will receive it, and whether they actually receive what was promised (e.g. Anderson & Narus, 1998; Barry & Terry, 2008, Anderson et al., 2008 Anderson & Wynstra, 2010). This suggests that suppliers should be able to not only accurately estimate the customer’s possible gains in advance, but also to be able to document and confirm the actual delivered value to the customer after the purchase.

Accordingly, we propose that suppliers should use both backward-looking and forward-looking value assessment practices to accurately estimate customer’s possible gains from their offerings (Fig. 1). Backward-looking practices include value case histories and ROI studies from reference customers, which document and confirm the value received by the customer, and forward-looking practices include systematic processes and IT-based tools, such as value calculators and customer value models, which project the possible gains from alternative offerings in advance. These practices are strongly recursive and closely interrelated as backward-looking practices confirm the forward-looking estimations and forward-looking practices involve customer data -driven value calculations, which are developed and adjusted based on documented data and knowledge from the previous customer deliveries.



**Figure 1.** Backward/forward–looking value assessment

No single measure of customer value works best in every circumstance, thus in order to maximize the accuracy of their value estimations, suppliers should use these practices systematically in conjunction. Specifically, a comprehensive and precise customer value assessment requires suppliers to methodically employ several measurement tools simultaneously to provide a complete estimation of the overall value of its offering. This is no easy task, but it will develop a greater understanding of the value potential of supplier's offerings (Anderson & Narus, 1998) and provides suppliers with several sources of value evidence.

## **METHODOLOGY**

This research is exploratory in nature, aiming to illustrate the practices that solution suppliers use to assess the delivered customer value. Our empirical investigation focuses on three industrial companies providing environmental solutions, i.e. complex and service-intensive offerings that aim to improve their customer's operational performance while substantially reducing environmental load. This is a highly relevant yet understudied industry sector, as environmental impacts are the focus of today's political and global economic discussions (Aurich, Mannweiler, & Schweitzer, 2010) and environmental factors have both direct and indirect effects on value propositions (Kowalkowski 2011).

Given that the prior knowledge on different customer value assessment practices is scarce, especially in the context of solution business, we chose to employ a case study research method (e.g. Eisenhardt & Graebner, 2007; Yin, 2008). The use of qualitative methods is recommended when the studied phenomenon is novel (Edmondson & McManus, 2007), and the case study research method is appropriate when the phenomenon is rather complex (Eisenhardt, 1989), such as customer value assessment practices in the context of solution business. In addition, a case study research method allows us to gain a deep understanding of the complex methods involved in different customer value assessment practices (Eisenhardt, 1989; Eisenhardt & Graebner, 2007). Given the lack of empirical research on value assessment practices, and on the other hand, the lack of prior knowledge on suppliers involving environmental arguments in their offerings, a detailed multi-stage process was used to carefully select the case companies.

In the first stage, we identified 12 companies from 11 different industries whose offerings involved environmental arguments, and we screened their websites and company reports from several years to ensure their suitability to our study. Based on this initial screening, we contacted the executives of 10 companies to gain insights into their offerings and their willingness to participate in a two-year research project. After a several rounds of telephone and face-to-face discussions, we chose three case companies operating in energy- and natural-resource intensive industries, such as power generation, forest products and minerals and mining, who subsequently became involved in a research project examining firms providing environmental solutions. All the case companies are international with headquarters in Finland. The selected three case companies (Table 2) are described briefly in the following.

**Table 2.** Overview of the cases.

| Case details                   | Alpha  | Beta   | Gamma  |
|--------------------------------|--|--|--|
| <b>Industry</b>                | Process technology   | Chemical industry  | Mining and construction, energy and environmental, paper and fiber technologies        |
| <b>Business Units</b>          | Non-ferrous Solutions, Ferrous Solutions, Energy, Light Metals and Environmental Solutions, Services | Paper, Municipal & Industrial, Oil & Mining, ChemSolutions   | Mining & Construction, Energy & Environmental, Paper & Fiber                           |
| <b>Sales (million EUR)</b>     | > 900  | > 2,100  | > 5,500  |
| <b>Employess</b>               | > 3000   | > 4900   | > 28 000   |
| <b>Primary customers</b>       | Mining and metal industry  | Water-intensive industries, including but not limited to pulp & paper, municipal & industrial water treatment, oil & mining, pharmaceutical and food industries. | Mining, construction, power, oil and gas, recycling, pulp and paper industries.        |
| <b>Environmental arguments</b> | Alpha's solutions help to save water, energy, and raw materials and reduce emissions and waste.      | Beta's systems aim to improve customer's water, energy, and raw materials efficiency.  | Gamma's solutions increase operational performance while reducing environmental impact |

Case company Alpha is a globally leading provider of process solutions, technologies and a wide range of lifecycle services for the mining and metallurgical industries. Alpha's deliveries range from single equipment sales to large turnkey plants, which are based primarily on proprietary technologies. Alpha operates through four business units, and based on OECD definition, more than 60 % of Alpha's technologies are classified as Environmental goods and Services. Alpha's environmental solutions are integrated in its processes and technologies, and their aim is to help to save water, energy and raw materials and reduce emissions and waste.

Case company Beta is a global chemicals company focusing to serve customers in water-intensive industries. Beta provides a wide range of chemical products and integrated systems that improve customer's water, energy and raw materials efficiency. Beta operates through four business units, which are further divided into sub-segments. Beta has a strong focus on water quality and quantity management, providing solutions that offer efficient use of water, water treatment, and recycling which help to prevent pollution and provide solution to water shortages.

Case company Gamma is a global provider of technology and services for the mining, construction, power generation, oil & gas, recycling and pulp & paper industries. Gamma operates through three business units, and its vast offering portfolio ranges from spare parts and special valves to integrated process automation systems, including a wide range of expert and lifecycle service. Gamma's solutions and services aim to increase productivity and gain environmental quality, and reducing the environmental impact is one the company's key development areas.

## RESEARCH FINDINGS

The preliminary findings indicate that the measurement of customer value is a strenuous and challenging task, and that firms providing customer solutions use a variety of complementing practices to estimate the potential value of their offerings. Based on the findings, value-assessments practices can be categorized into backward-looking and forward-looking practices. Backward-looking practices include value case histories and ROI studies from reference customers. Forward-looking practices include systematic processes and IT-based tools that are designed to evaluate the potential cost savings or additional revenue that customers can gain from the supplier's solution.

This study provides several contributions. First, it responds to several calls (e.g. Anderson, 1995; Parasuraman 1997; Payne & Holt, 2001; Ulaga 2001) to develop sound methodologies and tools to accurately assess the delivered customer value, and it contributes to the literature on customer value by extending the work of Anderson et al. (1993) through an empirical analysis of customer value assessment practices of solution suppliers. Most importantly, this study provides a conceptual framework of the backward-looking and forward-looking value assessment practices. Solution suppliers use a variety of complementing value assessment practices, and this framework represents an initial step to respond the calls to integrate different value measurement approaches into a broader framework (Payne & Holt 2001; Ulaga, 2001).

Second, this study advances the research on customer value in business markets (Anderson & Narus, 1998; Ulaga & Chacour, 2001; Anderson et al., 2006) by examining the practices of firms delivering customer solutions. Traditional value assessment practices have been criticized because of their inadequacies in accounting technically complex solutions and service- and relationship elements (Miles 1961; Anderson et al., 1993), but also because of their backward-looking focus. This study sheds light also on some of the more forward-looking practices and thus attempts to present a more balanced and systematic approach on customer value assessment practices. In addition, forward-looking value assessment practices are closely linked to customer-centered philosophies and customer value anticipation processes (Flint, Blocker, & Boutin, 2011). It is argued that anticipating future market needs is a critical capability in gaining competitive advantage (Day, 1994; Srivastava, Fahey, & Christensen, 2001), and forward-looking value assessment practices can contribute to the emerging research on customer value anticipation (e.g. Flint, Woodruff, & Gardial, 1997; 2002; Flint et al., 2011) by helping suppliers to understand customer's future needs.

Finally, the present study contributes to the literature on solution business (Davies, 2004; Brady et al., 2005; Davies, Brady, & Hobday, 2006; Tuli, Kohli, & Bharadwaj, 2007) by advancing understanding of value assessment practices, which are considered a critical capability for firms delivering customer solutions (Sawhney, 2006). The framework of backward-looking and forward-looking value assessment practices provides a first step towards a comprehensive and systematic approach to estimate and demonstrate the customer value of complex and service-intensive solution offerings, which to date has been difficult and cumbersome (e.g. Krishnamurthy et al, 2003; Brady et al., 2005; Windahl & Lakemond, 2010). Delivering solutions is costly, and suppliers need to capitalize their deep investments in order to stay competitive. This is possible only by making resonating value propositions, and backward- and forward-looking value assessment practices are one way to estimate and demonstrate customer's possible gains from the supplier's offerings.

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