The Business of Soul-Mates

A Social Network Approach to Assessing a Customer-Company Relationship: The Customer-Company Network Strength Model

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ABSTRACT

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A Social Network Approach to Assessing a Customer-Company Relationship: The Customer-Company Network Strength Model

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This thesis develops and tests a Measurement Model and a Structural Equation Model (SEM) to assess the strength of a customer-company network using an interdisciplinary approach. The research integrates recent principles from Social Network Theory, Service-Dominant Logic and Customer Engagement Theory. The model investigates the impact of three real companies' interactions with customers. The overall customer-company relationship is viewed from an interpersonal perspective. Relationship strength is defined by social network characteristics of tie directionality, tie reciprocity norms and network's actors' centrality. This framework looks at how the company's value proposition is directed towards a customer and how this perceived directionality impacts the relationship. Moreover, the model integrates the effect of reciprocal behaviour from both the customer and the company perspective. While company initiated reciprocity is viewed as directed towards both the customer and society as a whole, the customer reciprocity is assessed in terms of their expressed attitudinal loyalty and commitment to the relationship. The model also incorporates the impact of the company centrality in the customer's private networks

(e.g. friends) and of the customer perceived connection to the company's customer group(s). From a theoretical perspective, the interactions under investigation do not take into consideration the economic exchange and satisfaction derived from service/product usage. As a result this study breaks away all together from the traditional view of marketing and relationships. Additionally, the inclusion of non-customers in this research also shows that the relationship exists prior to an economic exchange. From a methodological perspective, we develop and assess a scale to capture the customer-company network interactions before evaluating a SEM that measures the impact of all the constructs on the customer *Reciprocity towards the Company*. The latter is viewed as reflective of the customer-company network strength. We find that *Directionality* has no direct impact on the customer willingness to reciprocate while *Overall Centrality*, *Reciprocity towards Society* and *Reciprocity towards the Customer* significantly and directly impact the customer-company network strength. The findings will allow companies to identify the network dimensions that matter to each customer or customer group(s). Companies can then dedicate resources to enhance the interactions that matter most.

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LIST OF ABBREVIATIONS

AVE: Average Variance Extracted

CE: Customer Engagement

CFA: Confirmatory Factor Analysis

CFI: Comparative Fit Index

CMIN: Minimum Discrepancy

C.R.= Critical Ratio

DF: Degrees of Freedom

GFI: Goodness of Fit Index

Indegreecentral: In-degree Centrality

Ingroupcentral: In-group Centrality

NFI: Normed Fit Index

NNFI: Non-Normed Fit Index

NPAR: Number of Parameters

Reciprocomp: Company Reciprocity towards the Company

Reciprocust: Company Reciprocity towards the Customer

Reciprosociety: Reciprocity towards Society

RMSEA: Root Mean Squared Error

S-D Logic: Service-Dominant Logic

SEM: Structural Equation Model

SET: Social Exchange Theory

SRMR: Standardized Root Mean Square Residual

χ^2: Chi Square Value

Chapter 1 : Introduction

"The Business of Soul-Mates" explores the strength of a relationship between a customer and a company. It looks at how various ties' patterns within the relationship ultimately impact its outcomes. Here the relationship is viewed from the customer perspective while the outcomes resulting from a specific "pattern of ties" are those valued by companies such as loyalty and positive word-of-mouth (WOM). We take a human approach to the relationship and use Social Network Theory (Van Den Bulte and Wuyts, 2007) to assess the strength of a match between a company and a customer. When does a relationship actually start? Is it a match made to last? Is the relationship taken for granted? How do other network actors such as the customer's friends and family as well as the company's friends (i.e. other customers) impact the strength of the relationship? Which reciprocity norms rule the relationship and impact its strength? The questions are many and in order to answer them, we borrow principles from various theories and attempt to integrate recent developments to propose an empirically driven framework to investigate the customer-company relationship.

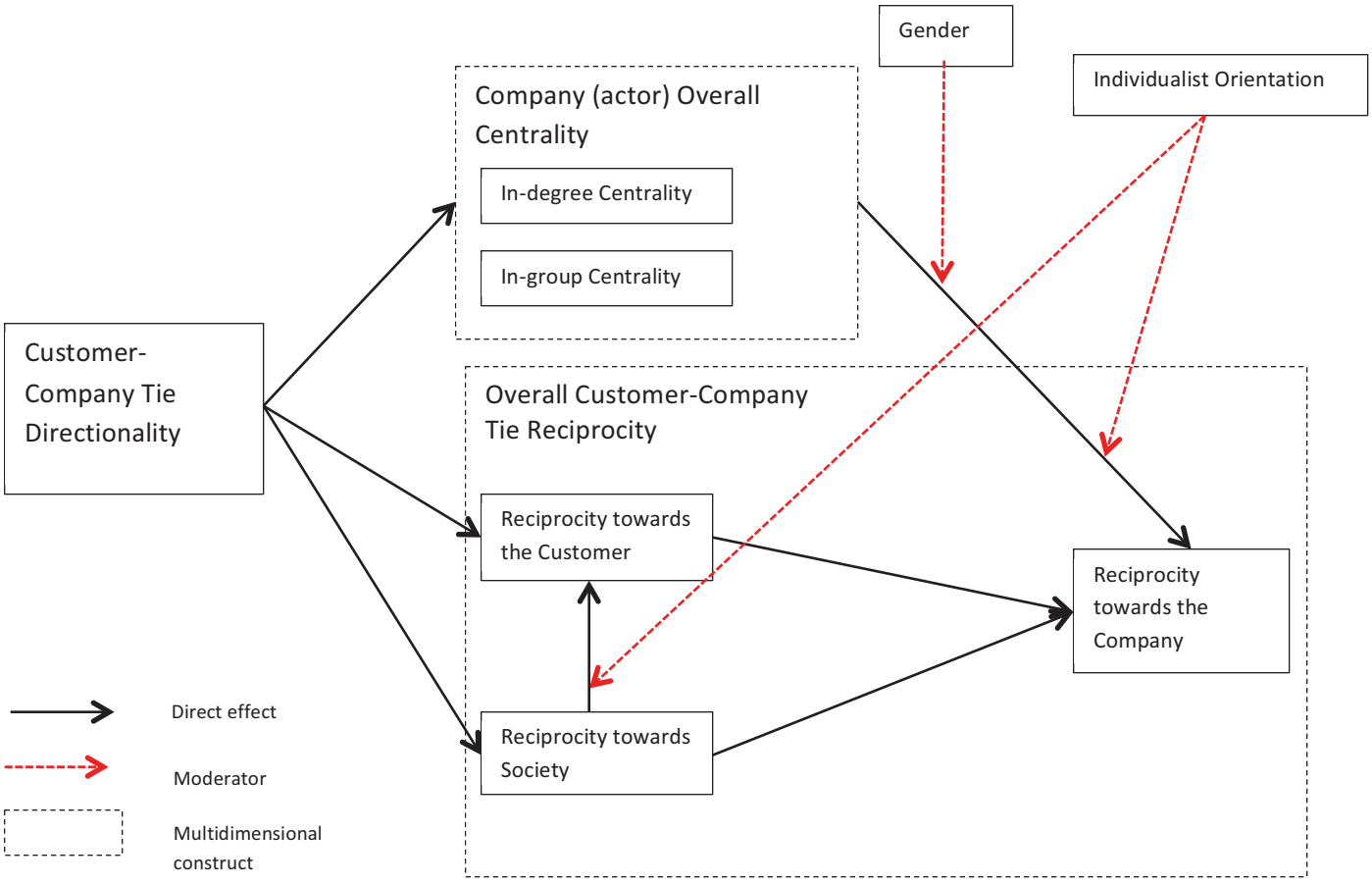
Marketing is undergoing a conceptual "revolution" (Vargo and Lush 2006, 2011) in terms of how to define the relationship between a customer and a company and the process

of value creation within that context. The shift from a product/exchange oriented view first started with the Service Management school of thought where the building and maintenance of relationships transcended the myopic transaction approach. In a Service Management or even Experiential Marketing perspective, value is derived from product or service usage as well as from other intangibles such as the relationship, its associated long-term binding benefits and the experience surrounding the usage of the product or service (Holbrook and Hirschman, 1982; Albrecht, 1988; Gunmmesson, 1999; Holbrook, 1999; Grönroos, 2000). The Service Management research focuses on satisfaction resulting from antecedents such as quality and relationships (Grönroos, 1994, 2000).

More recently, the buzz is on the "co-creation of value" as described by the principles developed in the Service-Dominant Logic (S-D Logic, Lush and Vargo, 2006, 2011) which further shifts the focus from the transaction to a more dynamic and inclusive approach of "value co-creation". Within this logic, relationships are inherent to the "co-creation" of value. Indeed, for the latter to exist at least two actors have to be actively involved and consequently value creation is ongoing, dynamic and can only be assessed at a given point in time. The customer is no longer a "consumer" in the literal sense of a "value destroyer" but rather an active actor in the creation of value. Vargo and Lush (2011) further argue that all transactions are Business-to-Business (B2B) as ultimately customers engage in relationships with companies to have access to resources which allow them to achieve some purpose and all actors are to some extent resource integrators. The authors describe the relationship actors as integrators which include "private" sources (e.g. family, friends), "market facing sources" (economic exchange entities) as well as "collective sources" that relate to governments and communities.

While the S-D Logic provides us with a new paradigm to think about value co-creation, rare are the empirical models that allow us to assess value within this context. Bolton (2006), for example, calls for models that would allow companies to assess relationship management practices and competitive advantage within the S-D Logic (Paulin and Ferguson, 2010). Lately, theories of Customer Engagement have built on the S-D Logic to show the all-encompassing nature of the relationship (Van Doorn *et al.*, 2010; Vivek, Beatty and Morgan, 2012).

Figure 1-1:Customer-Company Network Strength Conceptual Model



The purpose of this thesis is to develop a model that allows academics and practitioners to assess the relationship between a company and a customer and its

outcomes for companies in an empirical way. We endeavour to assess the relationship beyond the attributes of the exchange such as utility or satisfaction derived from the usage and experience surrounding it. We root our approach on the dynamic properties of the relationship (i.e. directionality and reciprocity) and the various actors involved (i.e. customer, company, customer networks, company's customers and society). We also contend that the relationship pre-exists the actual transaction (i.e. you do not have to be a customer to be in a relationship with a company). Finally, this thesis examines the impact of gender and individualistic orientation (Yamaguchi, 1994; Mourali, Laroche and Pons, 2005) in the Customer-Company Network Strength Causal Model.

We incorporate the effect of resource integrators (e.g. family and friends) on the relationship strength and their impact on outcomes deemed desirable for companies such as attitudinal loyalty. In order to do so, we rely on Social Network Theory principles and develop a Structural Equation Model entitled: the Customer-Company Network Strength Model (see Figure 1-1). Social Network Theory is not used extensively to define the customer-company relationship in a Business-to-Customer (B2C) context. However, it is studied extensively in Business-to-Business (B2B) research as commitment and trust are essential to healthy B2B relationships and have long been linked to network characteristics such as reciprocity norms (Morgan and Hunt 1994; Palmatier, 2008; Lush and Vargo, 2011).

This manuscript proceeds with a literature review (Chapter 2) covering the various theories that allowed us to develop the theoretical foundation for the Customer-Company Network Strength Model. We review concepts from Service Management research, S-D Logic, Customer-Engagement Theory and Social Network Theory amongst others.

Table 1-1 The Business of Soul-Mates Dimensions

Construct Labels	Construct Sub-dimensions	Conceptual Foundation (non exhaustive)	Definitions
Customer-Company Tie Directionality	**None**	Van den Bulte and Wuyts 2007 Lush and Vargo, 2008, 2011	Relevance of the company value proposition in terms of the customer's involvement with it (e.g. interacts with it, needs this type of proposition; company viewed as an economic or market facing resource integrator)
Company Overall Centrality	**Two**	Rogers and Kincaid, 1981 Walker, 1985 Burkhardt and Brass, 1990 Van den Bulte and Wuyts 2007	Centrality of the company in the customer-company network
	In-degree centrality (in-degree central, indegreecentrality)	Van den Bulte and Wuyts, 2007	Centrality of the company in the customer's social networks (e.g. friends, family or private resource integrators)
	In-group centrality (ingroupcentral, in-group central)	Cameron, 2004	Centrality of the company's other customers in terms of the customer's perceived association with them
Customer-Company Tie Overall Reciprocity	**Three**	Morgan and Hunt**,** 1994 Palmatier, 2008	The reciprocity norms ruling the customer-company tie (i.e. relationship, network) as perceived by the customer

Table 1-1 The Business of Soul-Mates Dimensions

Construct Labels	Construct Sub-dimensions	Conceptual Foundation (non exhaustive)	Definitions
	Reciprocity towards the customer (reciprocust, reciprocity customer)	Tidd, 2001 Sin, Tse and Yim, 2005	Company processes which are perceived by the customer as superior (e.g. innovation, personalization; company viewed as an economic or market facing resource integrator)
	Reciprocity towards society (reciprosociety, reciprocity society)	Caroll, 1999 Bhattacharya and Sen, 2003	Company's general ethical norms towards society as perceived by the customer (society or collective resource integrator)
	Reciprocity towards the company (reciprocomp, reciprocity company)	Dick and Basu, 1994 Zeithaml, 2000 Chaudhuri and Holbrook, 2001	Customer expressed attitudinal loyalty towards the company (e.g. positive word-of-mouth, long-term orientation)

In Chapter 3, we develop a measurement model where we identify the main actors that may impact the customer-company relationship and present the conceptualization of the model (see Table 1-1 for a summary of constructs' definitions). Our constructs stem directly from Social Network Theory and are namely: directionality of the company's proposition (how relevant it is to the customer), company centrality and reciprocity norms that rule the relationship. While directionality is viewed as one-dimensional, both company centrality and reciprocity are hypothesized to be multidimensional. Reciprocity is assessed from the perspective of the company reciprocity towards the customer, the company

reciprocity towards society and the customer reciprocity towards the company. Overall centrality is viewed as how central the company is in the customer social networks such as friends (in-degree centrality; Van den Bulte and Wuyts, 2007) and the saliency of the association of the individual with other company's customers (Social Identification Theory; Cameron, 2004).

Chapter 4 presents the hypotheses for the interactions between the various dimensions and the moderating effect of gender and individualism (collectivism) within the Customer-Company Network Strength Causal Model (see Figure 1-1 for conceptual representation of the model).

Chapter 5 reviews the chosen methodology to test the model in an empirical way followed by the data analysis for a first-order and a second-order measurement model and for the causal model (Chapter 6). We use a final sample of n=436 students from a major north-eastern university and three companies (Blackberry, Apple and Samsung) to validate the solution using Confirmatory Factor Analysis and SEM (Amos 20).

Though students can limit the generalizability of the results, we feel that the surge of interest in Millennials (individuals born between 1977 and 2000) and their ever-growing purchasing power provides insight that is valuable from both a managerial and theoretical perspective. About 27% of participants in the sample were not customers and their inclusion in the analysis did not impact the model fit hence supporting the idea that a relationship with the company can pre-exist an actual transaction (in line with Customer Engagement Theory).

Chapter 7 is dedicated to a discussion of the results. Finally, Chapter 8 will provide the reader with a summary of the theoretical and managerial implications of the present research as well as some of its limitations and future research avenues.

Chapter 2 : Service Management, Social Network Theory, Service-Dominant Logic and Customer Engagement Theory

This chapter introduces the theoretical background for the development of the Customer-Company Network Strength. It starts with a review of some of the basic Service Management principles that have allowed for a shift in focus from transactions to a more inclusive relationship approach and discuss the assessment of relationship value in the marketing literature. The following sections then introduce the principles of various theories that allow for a dynamic co-creation approach to the understanding of value and view value as derived from the characteristics of the relationship rather than derived by usage or direct experience with attribute features of the value proposition. This chapter presents principles from Social Network Theory, Service-Dominant Logic and Customer Engagement Theory before proposing an integration of these principles in the Customer-Company Network Strength Model (see section 1.4). This integration allows for the accountability of various characteristics of the relationship (other than the value proposition attributes such as quality) in the larger network while incorporating the impact of various actors on the customer's perceptions of the overall customer-company

network; ultimately determining the customer-company network strength as expressed by customer's attitudinal loyalty.

2.1 An Overview of Service Management

The Marketing literature has evolved from a transaction perspective to a more encompassing relationship approach. This section elaborates on how Service Management laid the ground for the more inclusive relationship approach in determining both the antecedents and outcomes of customer-company relationship value. We will first define Service Management and how its encompassing philosophy which focuses on all aspects of the organization and on "service" rather than "transaction" have shaped our understanding of the customer-company relationship. Second, we briefly discuss the measurement of antecedents and outcomes of valuable relationships from both a customer and firm perspective. Finally, we introduce the usefulness of Social Network Theory in the assessment of relationships which will be discussed further in section 2.2 of this chapter.

Service Management

Service Management research is broad and studied across various disciplines and definitions vary. Grönroos (1994, 2000) argues that Service Management relates to the assessment of the customer's utility derived from the usage or consumption of goods and services and utility derived from other intangibles. Service Management envisions the total quality perception in customer relationships over time; the organizational ability to provide this utility; the organizational development and management which enables utility value or quality; the organizational operations that build utility or quality, and the objectives of all stakeholders (customers, organization, society, employees, etc.). A more succinct

definition by Albrecht (1988) is: "Service Management is a total organizational approach that makes quality of service, as perceived by the customer, the number one driving force for the operations of the business" (p. 20). Service Management considers services to be at the core of all organizational functions and is guided by an overall management perspective and not by customer service only. This aspect of Service Management leads to a holistic approach whereby collaboration is cross functional and Service Management is customer-driven and not internally driven by economies of scale as in a Good-Dominant Logic.

Slywotzky and Shapiro (1993) point that in a long-term perspective marketing efforts are not viewed as expenses but rather as investments. In B2B marketing literature, the avail of long-term relationships has long been studied and research shows that a company's competitive success greatly depends on the nature of the buyer-seller relationship (Doney and Cannon, 1997). Service Management research has shifted from a transaction focus to a relationship focus. This shift is best described by Webster (1992, p.10):

> "*from an academic or theoretical perspective, the relatively narrow conceptualization of marketing as a profit-maximization problem, focused on market transactions, seems increasingly out of touch with an emphasis on long-term customer shifts from products and firms as units of analysis to people, organizations, and the social processes that bind actors together in ongoing relationships".*

Though this proposition dates back to 1992, and as we will see in the literature review, the focus of many marketing frameworks is still on the exchange in terms of product quality and satisfaction derived from product quality. Rarely is the relationship

assessed in the larger network. More recently, a number of frameworks are being developed which view the customer-company relationship as more encompassing and well beyond product or service assessment. However, these frameworks still lack empirical evidence. As we will demonstrate, our model allows for an empirical assessment of various interactions beyond those relative to the actual offerings except in terms of the offering's overall relevance not the assessment of its attributes or features. We also look at the actor's (the company in our customer oriented framework) position within the Customer-Company Network and how it impacts reciprocity towards the company as well as the impact of other forms of reciprocity that rule the relationship. In order to better understand how reciprocity encompasses some elements of the Service Management approach, one has to look at how researchers have approached the concept of relationship value that is often linked with desirable outcomes such as profit and loyalty.

Customer Relationship Value

Customer relationship value can be defined from a firm, an inter-firm relational approach, a firm network perspective or even an actor-to-actor network. The firm perspective focuses on the "investment" made with the objective that the relationship will contribute to the overall profit of the firm. It is a "utilitarian" value of the relationship that is considered (Palmatier, 2008). Other authors focus on the understanding of customer motivations because they believe that those will impact the firm's long-term business relationship (Bendapudi and Berry, 1997; Gwinner, Gremler and Bitner, 1998). Bendapudi and Berry (1997) argued that long-term relationship maintenance depends on four drivers that can be grouped under environmental variables, partner variables,

customer variables and overall interaction variables. We believe that all variables are interaction variables.

Guinner, Gremler and Bitner (1998) evaluated the benefits associated with long-term relationships and identify the most important ones as confidence (reduced anxiety etc.), social (increased recognition), and special treatment (savings etc.). While the authors contribute to the understanding of customer's motivations to maintain long-term relationship with companies, this point of view does not take into consideration the social network perspective and the actual relationship dynamics in terms of actor's position based on his centrality in the network and the reciprocity norms of the relationship.

The inter-firm relational approach expands from the "firm perspective" to include the drivers of customer relationship value in a business-to-business context (Palmatier 2008). According to Palmatier (2008), understanding the antecedent of a firm relationship value would likely improve the management of the value creation process and ultimately the company-relationship value would be a driver of the customer relationship value (i.e. customers who value the firm relationship would likely be more loyal, profitable etc.). Palmatier (2008) relies on Social Network and Exchange Theory to define value from three antecedents: relationship quality, contact density and contact authority. Relationship quality is a holistic construct that requires a degree of trust and commitment. It is a way to qualify the ties between two parties other than just economically. Content density relates to the number of relational ties with exchange partners. Contact authority represents the synergy between relationship quality and content density; it is close to the Network Theory's "attractiveness and social capital of network partners, which captures

the extent to which network partners have unique knowledge, skills, and capability to influence resource decisions" (Palmatier, 2008, p.78).

While relationship value is extensively studied in inter-firm relationships, as Grönroos (1999) notes, rare is the research that addresses a company value to the customer and, even then, most of it is transaction based. More recent frameworks attempt to improve on this transaction view such as the S-D Logic and theories of Customer Engagement. So far, the value of a company is rarely assessed in terms of the utility derived from the relationship but rather in terms of utility derived from usage of a company's product or service (such as satisfaction, or perception of quality). Again, our view takes a different approach by moving away from the value perspective and taking a Network Strength approach as both an antecedent of positive outcomes associated with traditional views of a value (commitment, WOM, loyalty etc.) and an outcome of those exact processes. As mentioned in the introduction, we view these aspects of the relationship as part of a three dimensional assessment of reciprocity. As a result, reciprocity towards the company (commitment, WOM, and loyalty) is in fact an outcome of overall reciprocity within the larger network, centrality and directionality.

This argument led to the development of a framework to investigate Customer-Company Network Strength, which is partly inspired by Palmatier's (2008) development of the antecedents of customer relationship value and is rooted in Social Network Theory. Understanding and measuring relationship strength from a network perspective will likely improve the management of the value creation process in S-D Logic and ultimately the Network Strength would be a driver of the "customer relationship value" for companies (i.e. customers who value the firm relationship would likely be more loyal, profitable

etc.). In our framework, these antecedents can all be measured through the basic tie properties as explained previously.

The outcomes of valuable relationships are extensive. A valuable relationship is one that is continued (long-term orientation), that is willingly maintained, and that is preferred to other similar relationships (first choice). We assess these variables through a construct that we label reciprocity towards the company (reciprocomp). The Service Management perspective and the assessment of value from both the customer and company perspective emphasises the importance of the relationship, we have briefly introduced the usefulness of Social Network Theory when attempting to assess relationships from a dynamic perspective and we further expand on these concepts in the next section.

2.2 Social Network Theory and Social Exchange Theory

Authors have relied extensively on Social Networks principles and Social Exchange Theory (SET) to investigate various marketing relationships antecedents and outcomes. This is partly due to the shift from a transaction focus to a relationship focus in the marketing field. Indeed, the pattern of ties between social actors can shape an actor's beliefs, perceptions, decisions, and actions (Granovetter, 1983). For example, research shows that an organization's network of ties is associated with customers' perception of quality and can impact a firm's reputation (Podolny, 2005; Van den Bulte and Wyuts, 2007). Social Exchange and Network Theories can also be useful in global marketing when trying to break into new emerging markets, for new products and innovation, and when the utility of a product increases with the networks size (e.g. facebook is only

appealing if others are using it, direct effect). Moreover, an organizational internal network has an impact on the firm's performance in terms of knowledge flow and employee satisfaction that are both critical in terms of employees' retention and its impact on service quality (Heskett et al., 1994).

SET views any exchange as involving a series of interactions that generate obligations that are interdependent and contingent on the actions of another person (Cropanzano and Mitchell, 2005). Homans (1961) argues that social exchange involves an exchange or activity that can be either tangible or intangible and rewarding or costly: where cost is assessed by the actor's forgone opportunities or alternatives. A network is a sequence of nodes (entities) and ties. Within social networks, entities are often labeled actors (e.g. individuals, organizations etc.) and, ties are viewed as relationships. According to Van den Bulte and Wyuts (2007) these relationships include: buying and selling, information sharing requests, resources transfer such as emotional or monetary support, affiliations to given groups or organizations, and formal relationships such as chain of commands, and accessibility. To better understand the usefulness of Social Network and SET, one needs to focus on the properties of ties within a network approach and we briefly introduce how the pattern of ties in a network can impact the relevant actors. We will expand on the operationalization of tie properties within the Customer-Company Network Strength Model in Chapter 3 and 4.

In a network, ties and actors have properties which are defined as (non)directionality, multiplexity, reciprocity and centrality. These will be further discussed in the context of the development and operationalization of the Network Strength framework. Briefly, directionality is defined as a flow from A to B, reciprocity is defined

by a flow from A to B and from B to A (does not have to be through the same network); multiplexity is the number of different ties between A and B (friendship, work etc.), centrality refers to the actor's position in the network (e.g. how popular the actor is in the network); and strength refers to the intensity of the ties as defined by its perceived directionality, reciprocity, multiplexity and actor's centrality (Van den Bulte and Wuyts, 2007). Both weak ties (such as network of acquaintance) and strong ties (such as a network of friends) have a part in the outcomes associated with social networks. Granovetter (1983) points that networks that are predominantly made of strong ties can be deprived from information available in the larger social network and accordingly their perceptions, beliefs, decision and actions will be contrived. To illustrate this point, the author uses the case of job searching. He argues that individuals belonging to networks that are made of strong ties only would lack relevant knowledge and information that may limit them in the job market. Indeed, such individual may be unaware of the latest relevant fashions and may lack timely knowledge of available job openings outside of his network. It is argued that "social systems lacking in weak ties will be fragmented and incoherent" (Granovetter, 1983, p.202). The actor's approach to social capital posits that actors use social networks to capitalize on some benefits or interests (Coleman, 1990, Van den Bulte and Wyuts, 2007). As such, different structural patterns of a network can be viewed as yielding different value to given actors.

Based on this premise, social networks can be useful to investigate value creation when one has to consider multiple stakeholders and the dynamics between them. As best underlined by Payne and Holt (2001, p.177) no longer can "[…] value creation be viewed just as part of an individual customer transaction; value will be created over time and will

be subject to the influences of other external and internal stakeholders." The author continues his argument by referring to Gummesson (1999) who points, in line with recent SD-Logic principles, that "*mutual* value will become the core focus of both customers and suppliers and other stakeholders in the relationship so that value is *jointly* created between all the parties involved in a relationship." (Payne and Holt, 2001, p.177). The idea of joined value creation is essential to a network perspective of relationship assessment as both actors are directly involved in value creations. The Service-Dominant Logic (S-D Logic, Lush and Vargo, 2006) offers us new tools to think about the customer-company relationship in a dynamic approach that is consistent with a network approach. The next section focuses on first briefly defining S-D Logic followed by an attempt to integrate and contrast S-D Logic principles and the Customer-Company Network Strength principles before turning to a discussion of Customer-Engagement Theory in the final section of the theoretical background (a summary of the propositions is presented in Table 2-1 at the end of this chapter).

2.3 S- D Logic vs. Customer-Company Network Strength

Recently, Marketing is breaking away all together from the Good-Dominant Logic (transaction focus). Lusch and Vargo (2006, 2011) coin this approach the Service-Dominant (S-D) Logic. The latter argues that all economies are "service" economies. In other words, whether the exchange is based on a physical good or not, the exchange is based on the operant resources (i.e. knowledge and skills) that are embedded in the good or service. Indirect exchange, which involves goods, institution, and money, masks the basis of the exchange that remains the skill or knowledge that one of the parties offers.

Consequently, in S-D Logic, goods are viewed as a distribution mechanism for services. Moreover, the good itself does not provide value to the owner and it is, rather, its usage or the service it provides which creates value in line with experiential research (Holbrook and Hirschman, 1982).

While the S-D Logic breaks away from the traditional view of satisfaction as being "delivered" to the customer, it still assesses value in terms of its usage. We believe that Customer-Company Network Strength can be measured through other aspects of the relationship which do not involve "usage" per say. In the Network Strength framework, the "service" usage and its derived satisfaction is never accounted for, it only looks at interactions in the larger network. It evaluates aspects of the relationship that do not involve assessment of the value proposition through usage per say but rather through relevance and implication of other actors that are part of a customer social network amongst other aspects. Based on this premise the relationship can pre-exist the adoption of the value proposition and "being a customer" is not a pre-requisite to the relationship. This aspect of the framework is critical as the focus of Marketing studies is mostly on existing company customers thus not tapping on potential customers which may already have several ties with the company that only need to be enhanced to pass the threshold of becoming a customer.

As explained previously, in S-D Logic, knowledge and skills are the primary source for building a competitive advantage. This is a fundamental point, as it means that products or services offerings derive their appeal or competitive edge from the knowledge or skills that allowed for their development. Because in the S-D Logic, the customer is viewed as a co-creator of value, companies can only make a value

proposition; they cannot deliver it (Lush and Vargo, 2006). Hence, it is only when the customer accepts the value proposition and starts usage that value is ultimately created. This aspect of the S-D Logic is viewed in the network as "perceived directionality", indeed if the value proposition is not relevant (even though if familiar with it, we contend that there is still an interaction) the tie will be perceived as less directional. For the tie not to have any form of directionality, the customer would have to be completely unaware of the value proposition existence.

Similarly to the Service Management approach, customer and relationship focus are intrinsic to the S-D Logic. The two other basic propositions of the S-D Logic approach are that "all social and economic actors are resource integrators" and that "value is always phenomenologically determined by the beneficiary" (Lush and Vargo, 2004; p.11). This is clearly a critical aspect of the value co-creation process as described in this school of thought. In the Customer-Company Network Strength framework, this aspect is a measure of the centrality of the organization or company in the customer network and how other players such as the company's customers and customer's friends interact to weaken or strengthen the Customer-Company Network Strength.

S-D Logic does not imply that organizations have to relinquish control over the value creation process once they have applied the skills and knowledge to a value offering. Rather, it appears critical that organizations monitor the ongoing value co-creation process. Organizations will need different types of skills and knowledge at various level of the process and will be provided with the opportunity to impact the value creation prior to, during and after the value proposition acceptance or usage. Our framework allows for companies to do just that. Indeed, companies need to be able to identify which aspect of

the Customer-Company Network Strength can be further enhanced and this may vary from one customer to another. However the basic principle of tie properties and their assessment remains the same. In the next section, the Customer-Engagement propositions that stem from the S-D Logic approach are discussed in terms of their fit within the Customer-Company Network Strength approach.

2.4 Customer Engagement vs. Customer-Company Network Strength

In line with S-D Logic development, Customer Engagement views the relationship well beyond the purchase or actual customer experiences with the product or service per say. Customer Engagement (CE) looks at the interaction in the larger network. CE is defined as the "intensity of an individual's participation in and connection with an organization offerings or organizational activities which either the customer or the organization initiates" (Vivek, Beatty and Morgan, 2012; p. 133).

CE looks at how customers perceive experiences and identify with a company in the larger social context. It also contends that for CE to be present, the existence of a customer-company transaction is not necessary. In other words, you do not have to be a customer to display CE. This is in line with the conceptualization of the Customer-Company Network Strength that only posits that directionality has to be present in order for the relationship to exist. Indeed, if the customer is unaware of the company's value proposition existence then the individual and the company are not actors in the same network. Next, we summarize the propositions emanating from the CE theory.

Based on qualitative studies Vivek, Beatty and Morgan (2012) made a series of propositions regarding the make-up of CE. We believe that, as with the S-D Logic, our

approach offers flexibility and measurement potential by operationalizing this process through network ties properties.

First, C.E theory views centrality as an antecedent of customer engagement, within their framework, the authors define centrality as the degree to which the customer participated in the value co-creation per say. In this case the network approach differs from this operationalization. We view participation in the value creation process (i.e. personalization) as part of overall reciprocity and more specifically reciprocity towards the customer. When the customer is involved in the value creation process whether through input in problem solving or opportunities to customize, we believe these processes to enhance network strength through the enhanced perceived reciprocity of the tie rather than its centrality. This is what we refer to as reciprocity towards the customer.

The second CE proposition is that engagement is relative to the customer involvement. In our framework this is defined as perceptions of directionality. The construct of involvement is the "perceived relevance of the object based on inherent needs, values, and interests" (Zaichkowsky 1985, p. 342). Our directionality construct as will be explained in the measurement model development focuses on aspects of actual involvement through basic interaction, time spent reviewing the offerings (this could be viewed as an expression of interest) and finally the customer perceived need of the offering. The next CE proposition is that when the customer is involved in the creation process he derives both intrinsic and extrinsic value. We agree with this aspect and again we believe these processes that allow for the customer participation in the value creation process (e.g. personalization) to be part of reciprocity towards the customer.

According to Garber, Hyatt, and Boya (2009), CE offers opportunities for interaction at the macro-level. The latter incorporates customers but also society as a whole. As explained in the previous discussion of reciprocity, individual actors reciprocate partly due to guilt associated with violating reciprocity norms. The author goes on to hypothesize that customer would have heightened positive value perception when the reciprocity norms are present. This is our view that overall reciprocity is a three dimensional concept which also integrates reciprocity towards others (i.e. society). Also, we move away from viewing it as a value creation process but rather as another way to assess Network Strength. The authors also draw largely on Morgan and Hunt (1994) to describe how reciprocity and trust are related and how perceived self-interest may violate these norms. We do not expand on this aspect as we have already covered it in previous discussions. They hypothesize that "CE will be positively associated with an individual's trust in the organization he or she associates with his or her focus of engagement" (Vivek, Morgan and Beatty, 2012, p. 135).

Another proposition is that affective commitment expressed though customer's loyalty and feeling of belonging to the company's customer group (e.g. Harley Davidson) will be positively associated to CE. We agree with this view but feel these aspects are separate. The feeling of belonging is more of a process of Social Identification (Cameron, 2004) and we believe it to be a measure of the centrality of the company. This aspect is referred to as in-group centrality. In our framework, centrality is two-dimensional: (1) how central the company is in the customer social networks (in-degree centrality) and (2) how much the customer associates with the company's customers (in-group centrality). This said, we view affective commitment as a result of several tie properties within the

network and we incorporate this dimension in the reciprocity construct. Indeed, affective commitment expressed through loyalty, WOM and overall commitment is both a result of the perceived network reciprocity but also of the overall network characteristics through the company directionality and its centrality. The authors make separate propositions for WOM and loyalty but again our model views it as part of reciprocity towards the company.

Finally, the authors point to the definition of the community components as established by Muniz and O'Guinn (2001, p. 419):

> *"(1) consciousness of kind, the intrinsic connection members feel toward one another and the collective sense of difference from those not in the community; (2) presence of shared rituals and traditions; and (3) a sense of moral responsibility to the community as a whole. Through the notion of shared understanding, shared concerns, and shared beliefs, "members feel part of a large unmet, but easily imagined community"*

Again we are in agreement that all these aspects are essential to what we refer to as Network Strength. We view in-degree and in-group centrality as measures of the organization's position in the overall network and a measure of its strength. We also integrate the moral responsibility aspects in the reciprocity towards society. Basically reciprocity in the model is an assessment of how much the organization's care and how much customer reciprocates based on overall perceived reciprocity but also perceptions of centrality and directionality. We also agree as stated previously that as opposed to previous school of thoughts the Network Strength approach does not require the individual to be an actual customer but rather to have some type of interaction ties with the company, their frequency or intensity is then associated with the overall Customer-Company Network Strength. Our discussion of CE shows how the Network Approach

allows for the plug in of various aspects of the relationship within three basic tie properties: directionality, centrality and reciprocity. This allows for a simpler way to assess the relationship with the organization while incorporating the impact of other actors as well as more subjective views such as customer belonging. Both S-D Logic and Customer Engagement allow us to better understand the relationship between the company and the customer when considering an all-encompassing and dynamic approach. The propositions of both CE and S-D Logic are summarized and compared to the Customer-Company Network Strength approach in Table 2-1.

Table 2-1:**Customer Engagement, S-D Logic and Customer-Company Network Strength Propositions**

S-D Logic propositions (Lush and Vargo, 2006, 2011)	**Customer Engagement Propositions (Vivek, Beatty and Morgan, 2012)**	**Customer-Company Network Strength Propositions**
Service is the fundamental basis of exchange	CE is defined as the "intensity of an individual's participation in and connection with an organization offerings or organizational activities which either the customer or the organization initiates"	Directionality is the fundamental basis of the exchange as defined by the company proposition relevance to the customer in terms of its purpose in enhancing some aspects of the customers' activities (same as in B2B)
Indirect exchange masks the fundamental basis of exchange	Centrality is the degree to which the customer participates in the value co-creation	There is no indirect exchange, all interactions are part of the relationship and define the strength of the relationship Centrality is a measure of the actor's position in the network while allowing customer participation is a way for the company to express reciprocity norms
Goods are a distribution mechanism for service provision	When the customer is involved in the creation process he will derive both intrinsic and extrinsic value	There are no distribution mechanisms, only network interactions that are assessed by the customer Customer reciprocity interacts with other dimensions within the network and is a dimension of overall perceived reciprocity

Table 2-1:**Customer Engagement, S-D Logic and Customer-Company Network Strength Propositions**

S-D Logic propositions (Lush and Vargo, 2006, 2011)	**Customer Engagement Propositions (Vivek, Beatty and Morgan, 2012)**	**Customer-Company Network Strength Propositions**
All economies are service economies	CE will be positively associated with an individual's trust in the organization he or she associates with his or her focus of engagement	There are no services only relationships driven by relevance and perceived strength of interactions Focus of engagement is determined by Network Strength and the greater the overall strength the greater the positive outcomes for companies
The customer is always a co-creator of value	CE will be positively associated with an individual's word-of-mouth activity in regard to the organization he or she associates with his or her focus of engagement CE will be positively associated with an individual's loyalty to the brand, organization, or offering he or she associates with his or her focus of Engagement	Once the relationship starts through directionality, the customer is an inherent part of it. There is no creation of value per say but rather interactions which result in further interactions which are perceived strong or weak due to (dis)confirmation following interactions Positive or negative WOM results from this process and is a form of reciprocity. Loyalty is an expression of the customer reciprocity towards the company
Value is always uniquely and phenomenologically determined by the beneficiary All social and economic actors are resource integrators	Increased brand community involvement by the individual will be positively associated with his or her (a) participation and (b) involvement with the focus of engagement	Value cannot be determined, it is a dynamic concept that evolves over time and thus cannot be determined by one actor only. At any point of time, structural properties of the network are perceived as stronger or weaker and this is an ongoing process Increased organization/company centrality will be associated with greater Network Strength Overall reciprocity incorporates interaction at the macro-level in terms of reciprocity towards other actors (namely society which can be viewed as the collective actor). Centrality assesses the impact of private actors such as friends and family and coworkers. Directionality and reciprocity towards the customer address the company as an economic actor

Table 2-1:**Customer Engagement, S-D Logic and Customer-Company Network Strength Propositions**

S-D Logic propositions (Lush and Vargo, 2006, 2011)	Customer Engagement Propositions (Vivek, Beatty and Morgan, 2012)	Customer-Company Network Strength Propositions
Operant resources are the fundamental source of competitive advantage		The structural properties of the customer-company network (as enhanced by company processes) define competitive advantage
The enterprise cannot deliver value but only offer value propositions		The company is where the value proposition originates, allowing for reinforcement of directionality based on identified customer needs The customer or non-customer does not accept the value proposition; he interacts with aspects of it as needed
A service-centered view is inherently customer oriented and relational		The relationship is dynamic and there are no specific orientation, only interactions that are then assessed by the actors or resources integrators The relationship interactions are the basis of the exchange

In summary, marketing theories are moving away from a view where value creation is achieved through designing value proposition which are appealing to the customer and where customer assessment of quality variables and "value" lead to desirable outcomes such as loyalty and positive WOM, to a view where the customer is an inherent part of the process and where other actors are involved. Customers are now considered as partners in the value creation process. We believe that the definition of value is obsolete all together and that relationships are intrinsically positive or negative based on their structural properties.

This means that some are more enjoyable than others and that positive outcomes are associated with those relationships which are perceived as stronger based on the relevance of the "proposition" (directionality), the centrality of the actor and the overall

reciprocity norms within the relationship. As a result, value is not a distinct construct; it is assessed through the ongoing interaction not on the basis of any good, service or even value proposition but rather on the perceived network strength at a given point of time. In the next chapter, we develop the hypotheses for the Customer-Company Network Strength measurement model and operationalize the hypothesized dimensions based on our theoretical background.

Chapter 3 : Conceptual Development and Operationalization of the Customer-Company Network Strength Measurement Model

This chapter is dedicated to the conceptualization and operationalization of ties and networks' properties within the Customer-Company Network Strength Model. The discussion starts with directionality and its roots in the S-D Logic. We continue with centrality and the use of Social-Identification and Social-Learning theories for its two dimensional operationalization in the model. We then turn to a discussion of reciprocity and its conceptualization as a three-dimensional construct: reciprocity towards society (Corporate Social Responsibility Theory), reciprocity towards the customer (identification of company superior processes based on the literature) and reciprocity towards the company (mainly based on concepts of attitudinal loyalty).

3.1 Directionality

First, networks are defined by tie directionality, tie reciprocity and actor's centrality. A directional tie is one that has a flow of some kind of resource (could be

emotional support, information, advice etc.) directed from A to B or from B to A (Van den Bulte and Wuyts, 2007).

While friendship is a type of relationship it is seen as non-directional; a friend who provides advice to another is a directional tie. Within the context of the S-D Logic, company-customer relationship starts with a value proposition that is ultimately accepted by the customer (Lusch and Vargo, 2006; 2008), therefore the company-customer tie's directionality (a firm's value proposition is directed to a customer) can be viewed as an essential part of the Customer-Company Network.

Indeed, in the S-D Logic, all of a firm's operant resources (knowledge and skills) are used to build value propositions that are appealing to the customer. If the value proposition is not relevant to the customer then there may be a tie between a company and a customer, but the tie would be less directional. Those two actors may have a tie based on the fact that the customer is aware of the value proposition or is interested in the knowledge and skills embedded in the firm's value proposition (good or service) but chooses a different firm, if so the tie can be said to be less-directional and the Customer-Company Network (customer-company relationship) value may be weaker. Moreover, even when ties are *fully* directional in the context of the Customer-Company Network (for example A provides relevant value proposition to B), the degree of perceived directionality may vary, as the interaction may not occur on a regular basis.

We believe that directionality exists even when a "customer" is not currently in a relationship with the company but is aware of its value proposition and may include it in his alternative set. Indeed we assess the degree (frequency) to which the customer

interacts with the value proposition (company offerings), whether he spends time reviewing the value proposition and the degree to which the customer perceives that he "needs" the value proposition. Directionality is a measure of the customer degree of involvement with the company proposition. As mentioned previously, we contend that for a tie in customer-company context to be non-directional, the customer would basically have to be unaware of its existence. We see directionality as an antecedent of the assessment of Network Strength and this is operationalized in the final causal model. Accordingly the first hypothesis is a as follow:

H1: Perceived Directionality is a dimension of Customer-Company Network Strength

In the next section we discuss the operationalization of Centrality and how it relates in the framework to both Social Network Theory conceptualization but also Social Learning (e.g. Bandura, 1969) and Social Identification (Cameron, 2004).

3.2 Centrality

Centrality in the Customer-Company Network Strength addresses the position of the company in the customer-company network. It assesses the pattern of ties between the company and the customer's social networks (e.g. family, friends) and the identification of the customer with other company's customer (company's customer network). In the next subsections we will discuss the theoretical root of the centrality construct.

3.2.1 Social learning, Subjective Norms and Centrality

Customer socialization is defined as the process by which customers acquire skill, knowledge and attitudes relative to products and services (Churchill and Moschis, 1978; Bush, Smith and Martin, 1999). The Social Learning model incorporates socialization as a result of the environmental forces impact on an individual (Bandura, 1969). Within this model, the individual is viewed as a passive participant in the learning process, and the development of beliefs and attitudes results from the interaction with others. This definition fits the conceptualization of centrality where we measure the interaction of others within the customer social network with a given company. In-degree centrality measures the customer encounters with the company though the interpersonal interactions within his networks. The three main elements of socialization theory are socialization agents, social structural variables, and outcomes and they are viewed as instrumental in shaping an individual's attitudes and behaviors (McLeod and O'Keefe, 1972).

According to the authors, the socialization agents convey a set of norms, attitudes, and behaviors to an individual and socialization occurs during the individual's interaction with the agents. These socialization agents may be an institution, or organization directly involved with the individual. In our case, the focus is on the customer interaction with other individuals in his networks (namely friends, colleagues and family). Customers may purchase products to conform with peer groups, in response to concerns of what others think of them or because others have provided credible information about a product (Cohen and Golden, 1972). People are susceptible to conformity in most areas of their lives (Netemeyer, Bearden and Teel, 1989). In terms of influence, the societal reference groups that have the greater influence upon individuals are family and peers

(Mitra, Reiss and Capella, 1999). It is likely that the company's position in the customer's social network would have an impact on the customer-company network strength and the in-degree centrality dimension in the model that is further explained in the next section encompasses this aspect. Next, we also expand on the "belonging" or the process of social identification of the customer with the company's customers that is the basis of the in-group centrality dimension in the model and how it would impact the customer-company network strength.

3.2.1 Social Network Theory, Social Identity Theory and Centrality

As expressed previously, an important structural property of individual actors within a network is "centrality". The latter assesses the importance of an actor in the overall network. "In-degree centrality" is the number of ties linked to an actor and is often a sign of the popularity of an actor (Van den Bulte and Wuyts, 2007). Another aspect of "centrality" stemming from social identity research is "in-group" tie that is construed in the framework as "in-group centrality". "In-group" ties are defined as the "psychological ties that bind the self to the group" (Cameron, 2004; p.242).

This research views "in-group" centrality measures as how connected the customer is to the company's other customers. Cameron (2004) suggests "in-group ties are invested with emotional importance, perhaps contributing to the feelings that are associated with the group" (p. 253). Therefore in-group ties are associated with emotions and we expect it to be significantly impacted by the process of identification with the company's customer group. While Customer Engagement Theory views the process of identification with a "community" as an antecedent of Customer Engagement, we view it

as an inherent part of the relationship strength. In-group ties as defined by Cameron (2004) are viewed as the larger process of self-identification and as part of a scale that encompasses three dimensions: in-group affect (positive valence of feelings towards the group), in-group ties (how well one connects with the group) and cognitive centrality (time spent thinking about the group). One cognitive centrality item was included in the "in-group centrality". Our other two items were intended to measure in-group ties through the presence of interaction with other customers of the company (could be viewed as being part of the community as defined in CE at the most basic level) and customer awareness of being associated with such customers (saliency of in-group ties when present). In our operationalization of centrality we measure the company in-group ties with the customer's network but also the saliency of interaction with the company's other customers and his feeling of association with those customers. Saliency of belonging or being "associated with the group" consequently leads to overall perceived centrality of the company ultimately impacting the Customer-Company Network Strength and therefore the reciprocity towards the company. As introduced in the previous discussion we view Customer-Company centrality as a two-dimensional factor of Customer-Company Network Strength.

Because the company is where the value proposition originates (i.e.: sent out), this paper considers "in-degree centrality". On the one hand, we operationalize in-degree centrality as how connected the company is to the customer's groups (other members in the customer's network). Customers' networks (private actors) in this framework are classified as "work": coworkers and colleagues, "social": friends and acquaintances and "family".

On the other hand, we consider in-group centrality perceptions as the extent to which the customer is connected to other company customers and the degree to which the customer is aware that he is being associated with other customers of the company. Our final aspect was associated with the extent to which the customer assesses how other customers are perceived but the item was performing poorly and was dropped in early analysis.

The following hypotheses were derived from the previous discussion:

H2: Overall Centrality is a higher-order factor of Customer-Company Network Strength

H3: In-degree Centrality is a dimension of Overall Centrality

H4: In-group Centrality is a dimension of Overall Centrality.

Next we discuss some of the previous research on reciprocity within the context of Social-Exchange Theory and explain the conceptualization of reciprocity as a three-dimensional construct. As stated in the introduction, we use one of the dimensions of overall reciprocity as a way to assess the effect of network strength on customer behaviors that are usually desirable to companies. However, in our view this form of reciprocity is part of the overall reciprocity and an important factor of overall network strength not just an outcome of it. It is an integrant part of the relationship.

3.3 Reciprocity

Morgan and Hunt (1994) define relationship marketing "as all marketing activities directed towards establishing, developing and maintaining successful relational exchange" (p.34). Exchange partners include suppliers, other organizations, customers and employees. Commitment is a pivotal concept of relationship marketing and is defined as "an implicit or explicit pledge or relational continuity between exchange partners" (Dwyer, Shurr and Oh, 1987; p.19). Furthermore, Morgan and Hunt (1994) argue that both commitment and trust are at the core of relationship marketing and define the constructs as follows: "[…] relationship commitment as an exchange partner believing that an ongoing relationship with another is as important as to warrant maximum efforts at maintaining it […] trust as existing when one party has confidence in an exchange partner reliability and integrity" (p. 23). Commitment is driven by factors such as shared values, relationship benefits, termination cost and trust. Trust is elicited by factors such as shared values, communication and opportunistic behavior (negative). Opportunism is defined as "self-interest seeking with guile" (Williamson, 1975, p.6, Wathne and Heide, 2000). This form of opportunism is often referred to as blatant opportunism and may violate general norms (e.g. truthfulness) or contractual norms that can be formal or relational as formal contracts are often complemented by informal agreements (Wathne and Heide, 2000). The authors differentiate between passive (evasion of obligations or refusal to adapt in light of new circumstances) and active opportunism (violations of implicit or explicit agreement as well as forced renegotiations in light of new developments). Reciprocity norms as perceived by the actors in a network hence influence perceptions of the relationship quality (e.g. Is it determined by trust and

commitment or by "self-interest" only?). This in turn will impact the strength of the Customer-Company network.

In this thesis, we measure company reciprocity towards the customer as well as towards society as a whole, and the reciprocity from the customer to the company (e.g. commitment to the company is one of the items of reciprocomp). Those are the dimensions of the overall reciprocity and we view them as the customer-company relationship reciprocity norms.

H5: Overall Reciprocity is a dimension of Customer-Company Network Strength

H6: Overall Reciprocity is a three dimensional construct

In the next sub-section we explain the conceptualization and operationalization of the company reciprocity norms towards the customer by identifying some of the key superior process that may drive the relationship.

3.3.1 Reciprocity towards the Customer

Let's further expand on the hypothesized three dimensions of reciprocity. Commitment of the company toward the customer is viewed as those interactions that have been identified in the literature as enhancing customer experiences. To better understand reciprocity in a Customer-Company network, consider a company that provides superior support (goes the extra mile) to help resolve customer issues; in that situation a customer would likely notice this effort and thus the overall strength of the customer-company network would be enhanced. Tidd (2001) shows that companies that

display higher product and service innovation capabilities can earn twice the profits of those manufacturers without innovation. Sin, Tse and Yim (2005) indicate that CRM involves activities that companies practice to satisfy customer needs, identify customer preferences, resolve customer complaints, provide after-sale service, and establish long-term relationships with their customers. Moreover, personalization has been linked to loyalty in previous research (Ball, Coelho and Vilares, 2006). In addition, McEvily and Marcus (2005) suggest that firms have to build mutual trust, information sharing, and joint problem solving with their customers to acquire competitive capabilities. Thus reciprocity towards the customer is viewed as capabilities of "personalization", "need anticipation", "innovation" and "joint problem solving" as perceived by the customer.

These are the items that we hypothesize to be the company reciprocity norms towards the customer. This perceived reciprocity from the customer standpoint (referred to in this framework as reciprocust, reciprocity towards the customer and/or reciprocity customer) is one of the dimensions of overall reciprocity.

H7: Company Reciprocity towards the customer is expressed through company processes (innovation, personalization, need anticipation and joint problem solving)

In the next sub-section reciprocity towards society is defined and operationalized in the Customer-Company Network Strength Model.

3.3.2 Reciprocity towards Society

We now turn to the reciprocity towards the group, namely in this framework company reciprocity towards society. Just like we integrated the customer's group and the company's group in the operationalization of overall centrality, we integrate society as a larger group to which the individual belongs and assess the perceived reciprocity norms towards society as a whole. The development of the Company Social Responsibility (CSR) concept has received increased attention over the years. Carroll (1979, p. 500) defines CSR construct as "the social responsibility of business encompasses the economic, legal, ethical, and discretionary (philanthropic) expectations that society has of organizations". Carroll (1999) further notes that these responsibilities are principally left to individual managerial and corporate judgment and choice; however, the expectation that businesses accomplish these goals is driven by social norms. Specific activities are guided by corporate desire to engage in social roles not necessarily codified by law and is not necessarily seen as part of ethics in the strict transaction approach of "doing business". Ethical activities in the social sense are increasingly strategic in orientation. Examples of these voluntary activities include making charitable contributions (Carroll, 1999). The societal concept emphasizes that a socially responsible company should have concerns beyond short-term profitability. Several marketing studies have reported that CSR behaviors can positively affect customer attitudes towards the firm and its offerings (Bhattacharya and Sen, 2003). Del Mar Garcia de los Salmones *et al.* (2005) reported a positive relationship between CSR and overall evaluation of service quality. It thus appears logical that reciprocity towards society would impact the network strength. In our approach this concept is defined loosely in terms of the perception of the

company "ethical norms" by the customer, because this model is at the development stage, it does not address the specific aspects of a given company CSR program but rather ethics in a general term later allowing for the plug-in of specific company programs. From the previous discussion and the model conceptualization we hypothesize the following:

H8: Company reciprocity towards society is a dimension of Customer-Company Network Strength

In the final sub-section of chapter 3, we define and operationalize the reciprocity norms of the customer towards the company. This aspect is essential to the model as it also allows us to objectively define the outcomes of the overall network strength for the company that is the main dependent variable in the Customer-Company Network Strength Model.

3.3.3 Reciprocity towards the Company

We have explained and operationalized two of the reciprocity dimensions in the proposed model. We now turn to the last reciprocity dimension and the one that is of most interest to companies. For over two decades, researchers have argued for the shift from isolated transactions to an approach that focuses on the creation and maintenance of relationships, and more particularly to the development of loyalty (Dwyer *et al.*, 1987). The loyalty referred to here is not behavioral loyalty (repurchase or re-patronization only), but rather, emotional loyalty: the desire on the part of the customer to continue the relationship, willingness to recommend to friends, and intention to continue patronizing (Dick and Basu, 1994; Zeithaml, 2000; Chaudhuri and Holbrook, 2001). This construct is

usually associated with affective and cognitive attitudes that should lead to repurchase, willingness to expand purchasing beyond the initially-purchased services or products, indifference to competitor's appeals, lower price-sensitivity and positive word-of-mouth. In this paper we focus on attitudinal loyalty measures (e.g. commitment, positive word-of-mouth, and stated intention to continue the relationship). Uncles and Dowling (2003) noted that many researchers argue that there must be strong "attitudinal commitment" to a brand for true loyalty to exist. Since behavioral loyalty cannot adequately explain the underlying reasons of loyalty itself, the attitudinal approach, which considers customers' preferences or intentions, plays an important role in determining loyalty. Chaudhuri and Holbrook (2001) define attitudinal loyalty as the level of commitment of the average customer towards a brand or service provider. Chiou and Droge (2006) propose that attitudinal loyalty includes a degree of dispositional commitment toward the brand or service provider by customers. Other main attitudinal loyalty dimensions in the services literature include: providing positive word-of-mouth, (Andreassen and Lindestad, 1998; Dick and Basu, 1994; Parasuraman, Zeithalm and Berry 1996) and recommending the service to others (Reichheld and Detrick, 2003). These measures are the ones we use to assess reciprocity towards the company. This variable is viewed in the model as an objective measure of the overall network strength as assessed by the structural properties of the Customer-Company Network and is encompassing of the customer reciprocity norms towards the company. We propose the following:

H9: Customer reciprocity towards the company as measured by attitudinal loyalty and WOM is a dimension of Overall Reciprocity

Now that the main hypothesized dimensions (i.e. directionality, overall centrality and overall reciprocity, see Table 3-1 for summary of hypotheses) of the Customer-Company Network Strength model are defined and operationalized based on various theories, we can turn to the development of the hypotheses in the causal model.

Table 3-1 Summary of measurement model hypotheses

Hypothesis Number	Hypothesis
H1	Perceived Directionality is a dimension of Customer-Company Network Strength
H2	Overall Centrality is a higher-order factor of Customer-Company Network Strength
H3	In-degree Centrality is a dimension of Overall Centrality
H4	In-group Centrality is a dimension of Overall Centrality
H5	Overall Reciprocity is a dimension of Customer-Company Network Strength
H6	Overall Reciprocity is a three dimensional construct and a higher-order construct of Customer-Company Network Strength
H7	Company Reciprocity towards the Customer is a dimension of Overall Reciprocity
H8	Company Reciprocity towards Society is a dimension of Overall Reciprocity
H9	Customer Reciprocity towards the Company as measured by attitudinal loyalty is a dimension of Overall Reciprocity

Chapter 4 : The Customer-Company Network Strength Causal Model Hypotheses Development

In this chapter we develop the causal hypotheses for the proposed Structural Equation Model (SEM) by further building on various theories as we develop our reasoning. The Customer-Company Network Causal Model hypotheses development argues for the impact of various interactions on the reciprocity towards company dimension and the interaction between various dimensions within the model such as reciprocity towards society and reciprocity towards the customer. We first discuss the directionality related hypotheses, followed by overall centrality and overall reciprocity. This chapter concludes with a brief overview of the moderators in the model: gender and individualism (collectivism)

4.1 Directionality in the Causal Model

A value proposition originates from some identified customer need; however it is for the company internal use in the sense that the company is the one that will shape the proposition in order to provide some utility to the customer. It describes a customer's problem, the solution to it and value from the customer's perspective (Chesbrough and

Rosenbloom, 2002). The relationship experience, according to Payne, Storbacka and Frow (2008), can be viewed as the information-processing approach and the experiential approach. Within the first approach customers are involved in some form of cognitive processing which lead to judgement formation relative to past or future experiences. This of course implies that the customer wants to assess the experience and has some form of self-efficacy in regard to assessing the benefit of the service/product or the relationship (Grönroos, 2000; Payne et al., 2008). According to the authors, when we take the cognitive approach, the customer is involved in activities pertaining to reviewing the value proposition in terms of its attribute and as a result forming an opinion as to whether to purchase it or not.

Our measure of directionality is relevant to the cognitive aspects of the value proposition. We assess the proposition relevance using items measuring the extent of basic interaction which points to the customer knowledge of the value proposition; his interest expressed through time spent reviewing the value proposition and his perceived need for the value proposition. It is plausible, that as the perceived directionality increases so does the perception of other aspects of the relationship. We draw on interpersonal relationship to exemplify the hypotheses. When a person feels an "affinity" with another, the relationship starts per say at its most basic level (directionality) then other aspects of the tie begin to impact the strength of the relationship. These aspects are relevant to the actor's centrality such as whether the other actor evolves in the same circles, connection with the actor's friends etc. Also, once directionality is present, "I" then turn my attention to how the actor treats "others" in terms of giving back to them and of course how the actor treats me. Does he pay attention to my needs? Does he

surprise me? Does he listen to me (these questions could be associated with need anticipation)? Does he compromise (personalization could be viewed as a compromise of the original value proposition to fit a customer's specific needs)? These are all aspects of reciprocity.

This of course implies that companies just like a human actor in a relationship are impacted by the same phenomenon. By understanding how to manipulate the communication with specific customers based on aspects reinforced by both online and offline communities, companies are indeed reinforcing the strength of their network. Because in the model directionality is a measure of "time spent" and "extent of reviewing the proposition" as well as the "frequency of the interaction with the proposition", we expect to see a negative direct effect of directionality on reciprocomp. We hypothesize that habit or high degree of interaction frequency with the proposition leads to less saliency of its "loveable" features which in turn leads to less appreciation and thus a negative effect on attitudinal loyal and positive WOM. We propose the following:

H10: Directionality has a negative direct effect on reciprocity towards the company

This said, we expect directionality to have a positive mediated effect through overall centrality, reciprosociety and reciprocustomer. The directionality of the ties therefore enhances the perception of centrality in the customer network and perception of reciprocity towards both customers and society as a whole. Let's again take the example of interpersonal relationships, the fact that "I" spend time talking to that person and that "I" interact frequently with them as well as the fact that "I" feel the need for

companionship does not necessarily lead me to be fully committed to the other. The directionality of the tie impact on positive outcomes such as raving about the other and outward loyalty and commitment will only be enhanced through other processes. Indeed, directionality will lead one to interact with other aspects of the person or actor. First, "I" would start forming perceptions as to how they treat others and how they treat me. As well, directionality may lead the other to be perceived as more central in my network as "I" notice how others interact with them. "I" would also start interacting with their friends and those interactions would ultimately impact my reciprocity towards them. We thus believe that without the other type of interactions within the network, directionality does not lead to positive attitudinal outcomes for the company per say. That direct effect would be negative as the higher the interaction the less the directionality matters, it is taken for granted, it is the other aspects of the relationship which lead me to engage in praising behavior for example. Our hypotheses for directionality are summarized as follows:

H11: Directionality has a positive direct effect on overall centrality

H12: Directionality has a positive direct effect on reciprocity towards society

H13: Directionality has a positive direct effect on reciprocity towards the customer

H14: Directionality has a positive indirect effect on reciprocity towards the company through overall centrality

H15: Directionality has a positive indirect effect on reciprocity towards the company though reciprocity towards society

H16: Directionality has a positive indirect effect on reciprocity towards the company through reciprocity towards the customer

In the next subsections, we address the impact of overall centrality on reciprocity towards the company in the Customer-Company Network Strength Causal Model.

4.2 Overall Centrality in the Causal Model

In-degree centrality is defined as the popularity of an actor in the larger network. It seems logical to assume that the more popular an actor is, the more likely other actors would want to be associated with him. As shown in previous discussions, we view overall centrality as a two-dimensional construct. The other aspect of overall centrality in the model is the saliency of belonging to the company's customers and the saliency of the association with the group.

In Social Network Theory the extent to which an actor is connected to others in the group is often viewed as how much the actor belongs to the group. The measure of centrality has been associated with several outcomes that can lead to superior performance. Most important are influence (Burkhardt and Brass, 1990) and cognition (Walker, 1985). Actors who are central tend to exhibit more influence over others in the network; they are also more likely to be connected with other important actors in the network. This is the case for a company such as Apple that has strong customer following

and is predominant in the electronic market. Here we could hypothesize that in-degree centrality may involve interaction with social actors in the customer networks which would be considered "opinion leaders". Popular actors usually benefit from more access to information in terms of both quality and quantity. Centrality can also confer informal power as the actor tends to have access to more resources. In our framework we could argue that this informal power is associated with greater commitment from other actors and greater WOM (i.e. reciprocomp). The distinction between formal and informal sources of influence is that the latter arises from an actor's position in the actual pattern of interaction rather than a formally defined position in an organizational hierarchy (Monge and Eisenberg, 1987). This is the case in the customer-company framework. The relationship between centrality and performance has also been assessed from a Social Information Theory context, here proximity (centrality) to actors that matter provide situational opportunities for the actor who enjoys a central position in the network (i.e. for the company; Salancik and Pfeffer, 1978). In Communication Theory centrality is viewed as network connections that allow the actor to build and communicate social norms and expectations (Rogers and Kincaid, 1981). Thus, centrality confers the actor with an opportunity to be more aware of norms and expectations within the group and to shape those norms and expectations. In the case of a customer-company network, the in-degree centrality of the company would likely lead the company to have a better understanding of their customers, to influence perception of other companies by customers due to their central position; in turn this is likely to lead to positive outcomes for the company such as high reciprocity towards the company.

The other indicator of centrality in the model is in-group centrality. This refers to process of identification with the group and in this framework with the company's customers. This process could be somewhat associated with brand communities. When the customer is associated with other company customers he is somewhat part of the "larger company community", also we assess the actual interaction with other customers of the company. This clearly does not encompass the full meaning of brand communities but it still points to a connection with the company customer group. Much of the research on both online and offline brand communities show that they lead to positive consequences for the company (Algesheimer *et al.*, 2010).

Moreover, Bhattacharya and Sen (2003) observe that the customer-company identification is the basic psychological foundation for marketing relationships. Though we do not fully agree with this definition, as we believe in-group centrality to only be an aspect of the relationship and not the basis of the relationship, we do agree that stronger in-group ties would lead to greater reciprocity behavior from the customer. In this framework, reciprocity from the customer to the company is measured in terms of attitudinal loyalty and WOM. Other forms of reciprocity are likely to be influenced by this aspect of centrality such as willingness to provide information to the company for continuous improvement but also more forgiveness over some relationship aspect failure and should be assessed in future research.

Based on the previous discussion we hypothesize that overall centrality as measured by in-degree centrality and in-group centrality directly impacts reciprocity towards the company.

H17: Overall centrality has a direct positive effect on reciprocity towards the company

The next section develops expands on the reciprocity related hypotheses in the Customer-Company Network Strength Causal Model.

4.3 Reciprocity Dimensions in the Causal Model

As discussed in the literature review and the development of the measurement model, we view overall reciprocity as a three dimensional construct. This said, in the causal model, the focus is on the assessment of Reciprocity Company and the network dimensions that have the greatest impact on attitudinal loyalty and WOM. Thus it was important to examine the direct relationship between the first order-factors of overall reciprocity without the mediating effect of overall reciprocity.

Reciprocal altruism is often viewed as an innate mechanism that leads human beings to expect reciprocity in interpersonal relationships. Lack of reciprocity is often associated with negative feelings (Bunnk and Schaufeli, 1999). The authors offer a literature review on reciprocity in human relationships and its impact in a variety of settings including marital relationships, friendships, sexual relationships and organization and employee relationships. In the literature review we showed how reciprocity is extensively studied in inter-firm relationships and how its presence is linked to numerous positive outcomes such as trust and long-term orientation (Morgan and Hunt, 1994; Palmatier, 2008).

While reciprocity can be viewed as one where the actor is the direct beneficiary, an actor being a member of larger group could also assess reciprocity towards the group and not just reciprocity towards the self. We further expand on this aspect in the coming paragraph.

4.3.1 Reciprocity Society effect on Reciprocity towards the Customer

In the customer-company setting, the larger group is viewed as society. As discussed previously, CSR is shown in multiple studies to impact customer attitudes towards the company and the assessment of its offerings (e.g. Bhattacharya and Sen, 2003; Luo and Bhattacharya, 2006). Therefore we propose the following hypothesis:

H18: Reciprocity towards society has a positive direct effect on reciprocity towards the company

We argue that reciprocity towards society is perceived by the customer as reciprocity towards the larger network to which he belongs (society). Thus we expect that reciprocity towards society will also have an indirect effect through reciprocity towards the customer, as the customer is essentially a member of society and hence reciprocity towards society is also to a certain extent reciprocity towards the customer (as a member of society).

H19: Reciprocity towards society will have a positive indirect effect on reciprocity towards the company through reciprocity towards the customer

The final interaction discussed in the causal model prior to the moderators' hypotheses is the one between the reciprocity towards the customer and the reciprocity toward the company. This is likely the aspect that most impacts the reciprocity towards the company.

4.3.2 Reciprocity towards the Customer effect on Reciprocity towards the Company

We discussed in previous section how reciprocity towards the customer is operationalized in the model as superior processes that have been linked with competitive advantage and are valued by customers (e.g. Tse and Yim, 2001; McElvily and Marcus, 2005). These processes have been identified in chapter 1 and 2 to lead to positive outcomes for companies such as profits and loyalty as well as positive WOM. We therefore expect reciprocity towards the customer to have a significant positive effect on the reciprocity towards the company.

H20: Reciprocity towards the customer has a positive direct effect on reciprocity towards the company

In the previous sections, the main dimensions of the Customer-Company Network Strength Model were conceptualised and their effect hypothesised. We now turn to a brief discussion of gender and individualism as moderators in the model.

4.4 Gender as a moderator

We have hypothesised the main effects of the variables in the causal model of the Customer-Company Network Strength and the next section is dedicated to assessing the

potential moderating effect of gender. We expect mostly the effect of overall centrality to be less significant for male vs. female.

Previous research points to gender differences in the extent of social influence on behavior (Eagly and Carly, 1981). At the most basic level, behaviors such as rebellion and compliance are shown to differ between men and women. While women tend to be more compliant, men tend to be more rebellious. The tendency to conform to the majority is also said to be more prevalent for women than men. According to the literature, women tend to be more people-oriented while men tend to be somewhat more independent and self-confident (Minton and Shnieder, 1980). More recently, Crawford *et al.* (1995) also pointed that women tend to be more compliant than men while Venkatesh and Morris (2000) showed the impact of subjective norms on technology acceptance. The authors found that women were impacted by subjective norms in their technology adoption intentions while men were not.

Some explanations offered by the literature point to the idea that women may be more susceptible to internalize social cues than men though both groups pay attention to them (Roberts, 1991). This effect is associated with the idea that women tend to be more likely to be influenced by others than men. In the customer-company relationship context, we expect this effect to be the same when assessing the impact of overall centrality on reciprocity towards the company for each group. We hypothesize that women's expressed reciprocity toward the company will be more impacted by overall centrality then men. As a result we propose the following:

H21: Gender moderates the impact of overall centrality on reciprocity towards the company (whereby overall centrality effect on reciprocity towards the company will be greater for females than males)

In the following section, cultural differences are introduced as a moderator in the Customer-Company Network Strength Model.

4.5 Cultural Differences (Collectivism vs. Individualism) as a moderator

The most widely accepted dimensions of culture are the ones originally developed by Hofstede (1980). His work originally identified four dimensions that differ across countries and thus allow for the assessment of cultural differences. These dimensions are individualism vs. collectivism, power distance (large vs. small), masculinity vs. femininity, uncertainty avoidance (strong vs. weak), time-orientation (long-term vs. short-term) and more recently indulgence vs. restraint and monumentalism vs. self-effacement (Minkov and Hofstede, 2012). While all cultural dimensions could have been of interest for this research, the focus is on the individualism-collectivism dimension. This dimension is by far the most widely studied (Laroche, Kalamas and Cleveland, 2005).

Hofstede (1997) defines individualism as the degree to which societies place importance on the individual in terms of achievement, attitudes, and interests. The expectations for an individual in such a society are to look after himself or herself and his or her immediate family. Individualists think of themselves as "I" and tend to not rely on the group. Their identity is thus defined based on each person's characteristics.

Individualist cultures value self-expression and truthful opinions despite the fact that they may lead to confrontation. At the most basic level, the emphasis of an individualistic society is on the self: the private sphere is defined in terms of the individual's immediate family while autonomy, self efficacy, self achievement and individual's tight as opposed to duties are highly regarded.

Hofestede contrasts this definition with that of collectivism. In collectivist societies, the motivation is driven by the group achievement and the need of belonging to the group is more prevalent. From this perspective, collectivist cultures value the group putting its needs before that of the individual. Individuals learn to think of themselves in terms of "we" and find comfort and security in belonging to the "we" group.

While Hofstede's focus is mostly on differences in cultures across nations, it is becoming evident that within the same country individuals may display various levels of collectivism and individualism within the same society especially in countries which display a high level of multiculturalism such as Canada (Laroche, Kalamas and Cleveland, 2005). In their study of customers in the airline industry, the authors show that subcultures indeed varied in their level of collectivism and individualism within the same country.

Collectivism as a cultural trait is extensively studied in the literature. We believe collectivism will also have a moderating effect on the impact of overall centrality on reciprocity towards the company and the impact of Directionality on overall centrality. Indeed collectivists tend to be more impacted by social desirability in terms of supporting the group and being part of the group. Moreover we also expect reciprocity towards society to have a greater impact on reciprocity towards the customer for collectivist than

for individualist. Indeed, because collectivists tend to be influenced more by the group and because of the "we" mentality, we expect that society as an extension of the self is greater for collectivists (membership to society as a whole), as a result reciprocity towards society is likely to have a greater impact on perceived reciprocity towards the customer. We use the individualist orientation scale to measure the participants' degree of collectivism vs. individualism (Yamaguchi, 1994).

H22: **Individualism will moderate the impact of overall centrality on reciprocity towards the company: whereby the effect of overall centrality on reciprocomp will be greater for collectivists than individualists**

H23: **Individualism will moderate the impact of reciprocity towards society on reciprocity towards the customer (whereby the impact of reciprosociety on reciprocust will be greater for collectivists than for individualists)**

In this chapter we have developed the causal model hypotheses relevant to the main dimension of the Customer-Company Network Strength Model (see Table 4-1 for a recapitulation of Hypotheses) and we now turn to the methodology used to empirically test the measurement and SEM model.

Table 4-1: Summary of Causal Model Hypotheses

Hypothesis Number	Hypothesis
H10	Directionality has a *negative direct effect* on reciprocity towards the company
H11	Directionality has a *positive direct effect* on overall centrality
H12	Directionality has a *positive direct effect* on reciprocity towards society
H13	Directionality has a *positive direct effect* on reciprocity towards the customer
H14	Overall centrality *mediates the positive effect* of directionality on reciprocity towards the company
H15	Directionality has a *positive indirect effect* on reciprocity towards the company through reciprocity towards society
H16	Directionality has a *positive indirect effect on* reciprocity towards the company through reciprocity towards the customer
H17	Overall Centrality has a *positive direct* effect on reciprocity towards the company
H18	Reciprocity towards society has a *positive direct effect* on reciprocity towards the company
H19	Reciprocity towards the society has a *positive indirect effect* on reciprocity towards the company through reciprocity towards the customer
H20	Reciprocity towards the customer has a *positive direct effect* on reciprocity towards the company
H21	Gender *moderates* the impact of overall centrality on reciprocity towards the company: whereby overall centrality effect on reciprocity towards the company will be greater for females than males)
H22	Individualism *moderates* the impact of Overall Centrality on reciprocity towards the company: whereby the effect of Overall Centrality on reciprocomp will be greater for collectivists than individualists
H23	Individualism *moderates* the impact of reciprocity towards society on reciprocity towards the customer: whereby the impact of reciprosociety on reciprocust will be greater for collectivists than for individualists

Chapter 5 : Methodology

This chapter introduces the methodology for assessing the validity and reliability of the developed Customer-Company Network Strength Measurement Model. We first explain how, in order to validate the measurement model, real companies were needed and were identified in terms of their relevance to the sample and current events. Second, we briefly discuss the sample and its make-up in terms of various demographic statistics as well as its distribution in terms of customers and non-customers. Third, we introduce the procedure and questionnaire. We conclude the chapter with a brief discussion of reflective measures. We present the data analysis and results for the measurement model and SEM in chapter 6.

5.1 Choice of Companies

In order to validate the Customer-Company Network Strength measurement model in an empirical way, we decided that the best approach would be to select real companies with which the participants may have various ties. The sample being made of students, we needed companies that would be relevant to them. Moreover we wanted to

use different companies to show the validity of the model across various companies as well as across a varied sample of customers and non-customers.

A study conducted in 2010 by Test Kitchen at the University of Colorado showed that 53% of students owned a smart phone. Out of those students 40% used an Apple Smart Phone, 36% owned a Blackberry phone and 22% owned an Android phone. These numbers are even greater at the time of the data collection (April 2012 to October 2012) as pointed by a study conducted by Emarketer that assesses usage of smart phone amongst US users to roughly 75% of college students. Anyone who walks through a university today will notice that whether on the elevator, waiting at the registrar office, prior to classes or in university shuttles, a great number of students are using their smartphones and laptops.

Vision Critical Poll conducted an online survey in 2011 amongst 601 randomly selected college and university students from Vancouver, Calgary, Toronto and Montreal and found that 60% of students owned a smart phone. The predominant companies for Canadian students were Apple and Blackberry followed by Android. Recent developments with Samsung aggressive campaign and the popularity of the Samsung Galaxy prompted us to include it in the analysis. According to the article "Apple share Market dips 50%" in CBC news on November 6 of 2012:

> *"In the July-September period, Apple shipped 14 million devices, up 26 per cent from 11 million a year ago. Its market share fell from 60 per cent in the third quarter of 2011 as the overall tablet market grew by 50 per cent to nearly 28 million. Samsung's market share grew to 18 per cent, from about 7 per cent, as it more than quadrupled the number of tablets shipped to 5.1 million".*

The prominence of Apple, Blackberry and Samsung as brands amongst university students led us to believe those would be good choices of company as most students were likely to have some type of interaction with the company through directionality (only requirement for the Customer-Company Network Strength to exist). We also conducted two small focus groups (7 students each) and all 15 students ranked those companies as ones they were very familiar with and were able to discuss various company processes hence pointing that directionality was present for these companies and sample. Moreover the nature of the smartphone and tablets is to be carried at all-time and this allows for us to assess a network that seems to be as encompassing as possible. Student use their smartphone and tablets as means to communicate and connect with others, to inform themselves, to organise their activities and to browse online to search for information amongst other usages (Testkitchen, 2012). In the next section we introduce the sample used for assessing the validity and reliability of the Customer-Company Network Strength Model.

5.2 The Sample

The overall sample which is used for all of the analysis was made up of a total of n=480 undergraduate students from a major north-eastern university. The undergraduate students were approached in classes and asked for their willingness to participate in the study. They were not offered any incentive and participation was entirely voluntary (see appendix A for the introduction they were read). Off the 480 questionnaires, 44 had to be discarded due to incomplete or missing data. The final sample consists of n=436 university students (Table 5-1 summarizes the final sample descriptive statistic). In the

sample, 50.7 % of participants are male and 49.3% are female. Enrolment at the university is about 48% female and 52% male so the sample is representative of the student body distribution. About 90% of the students were between the ages of 18 and 25 and is representative of millenials.

Table 5-1: Sample Descriptive Statistics

Variables	Range	Sample	Total (%)
Company	Blackberry	116	26.6
	Apple	215	49.3
	Samsung	105	24.1
Gender	Males	221	50.7
	Females	213	48.9
	Missing	2	.5
Relationship Length	Not in a relationship	106	24.3
	Less than a year	56	12.8
	Over a year but less than 3 years	60	13.8
	Between 2 and 5 years	168	38.5
	Over 5 years	46	10.6
Age	18-25	397	91.3
	26-30	31	6.9
	31-35	5	1.1
	35-40	1	.2
	40-50	2	.5

5.3 Procedure and Questionnaire

Students were orally asked whether they were currently a customer of any of the three companies selected for this study and were given the relevant questionnaires resulting in 75.9 % of the sample being actual customers of one of the three companies. This is larger than the smartphone users in the student populations but the study did not require participants to own an actual smartphone but rather be a customer of one of those companies regardless of the product they may be using. The remaining students were randomly given Samsung, Apple or Blackberry questionnaires resulting in 24.1 % of the respondents not being customer of one of these companies. Again, in the framework we do not believe that the participants need to be customers in order to be part of a Customer-Company Network. Indeed, we measure aspects that are not directly related to *consumption* but rather to the network aspect of the relationship based on centrality, directionality and reciprocity. Even if you are not a customer, your friends, for example, may be making you an actor in the customer-company network. The length of the relationship varies for participants (Table 5-1).

The questionnaires were administered between April of 2012 and November of 2012. All participants were given the same questionnaire. The questionnaire (Table 5-2, for graphic representation see Figure 5-1) took about 10 to 15 minutes to complete; many items were not included for the purpose of this thesis and were collected for future research. The final questionnaire also includes the individualism orientation sale (Yamaguchi, 1994: as used by Mourali, Laroche and Pons, 2005).

Table 5-2: Customer Company Network Strength Measurement Scale

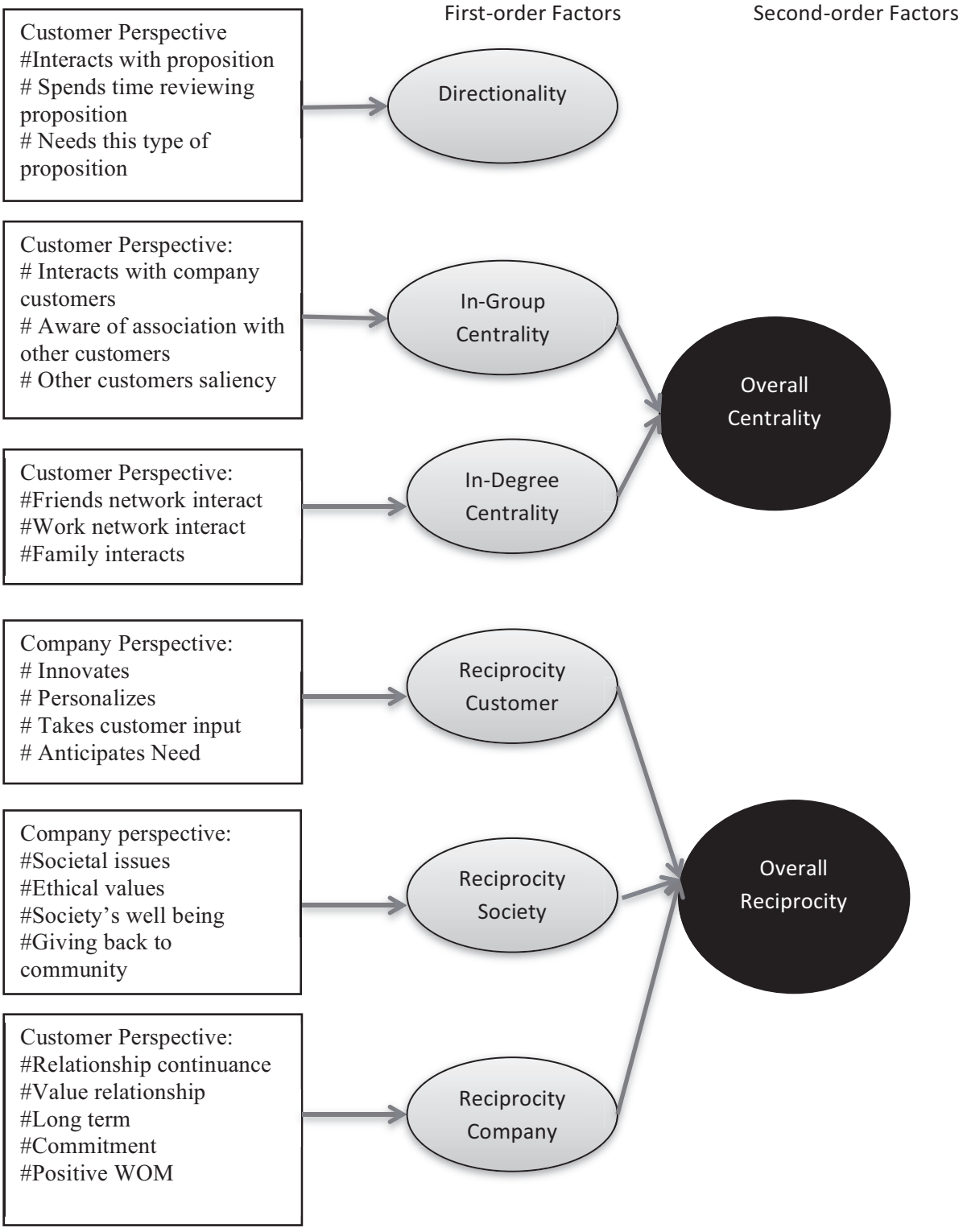
Directionality (always-never, 7-point Likert Scale) **Conceptual Foundation:** Van den Bulte and Wuyts 2007, Lush and Vargo, 2008	#I interact with Company X offerings # I spend time reviewing company X offerings # I need company X type of offerings
Overall Reciprocity (strongly agree-strongly disagree, 7 point Likert Scale)	
Company reciprocity towards the customer (reciprocust, reciprocity customer, reciprocity towards the customer) **Conceptual Foundation:** Tidd, 2001; Sin, Tse and Yim, 2005	# Company X innovates #Company X personalizes its offerings #Company X anticipates my needs #Company X takes my input into consideration to solve problems
Company reciprocity towards society (reciprosociety, reciprocity society, reciprocity towards society) **Conceptual Foundation:** Caroll 1999; Bhattacharya and Sen, 2003	# Company X displays *ethical values* # Company X is i*nvolved* in enhancing society's *well* # Company X *gives back* to the community #Company X cares about societal issues
Customer reciprocity towards the company (reciprocomp, reciprocity company, reciprocity towards the company) **Conceptual Foundation:** Dick and Basu, 1994; Zeithaml, 2000; Chaudhuri and Holbrook, 2001	# I would like to interact or continue interacting with company X #I value my relationship with company X # I view my relationship with company X as a long-term one # I am committed to company X # I speak positively about company X
Overall Centrality (strongly agree-strongly disagree, 7 point Likert Scale)	
In-degree centrality (indegreecentral) **Conceptual Foundation:** Van den Bulte and Wuyts 2007	# My friends and acquaintances interact with company X # My coworkers and Colleagues interact with Company X # My family members interact with company X
In-group centrality (ingroupcentral) **Conceptual Foundation**: Cameron, 2004	# I interact with company X customers # I am aware that I am associated with company X other customers #I think about how customers of company X are perceived

Table 5-2: Customer Company Network Strength Measurement Scale

Individualism-Collectivism (strongly agree-strongly disagree, 7 point Likert Scale **)** Adapted from Yamaguchi 1994	#I don't think it necessary to act as fellow group members would prefer #I don't change my opinions in conformity with those of the majority #I don't support my group members when they are wrong

The scale included a total of 17 items (3 for directionality, 4 for reciprocity customer, 4 for reciprocity towards society, 3 for in-degree centrality and 3 for in-group centrality) and was amongst the first questions the participants answered in the questionnaire except for reciprocity towards the company which were at the end to avoid bias through related constructs. Reciprocity towards the company was measured with 5 items representing attitudinal loyalty encompassing of the positive outcomes usually associated with strong relationships as explained in the model development section. All of the measures were on a 7-point Likert Scale (strongly agree-strongly disagree and always-never for directionality). The operationalization of directionality is derived from the definition of Van den Bulte and Wuyts (2007) and by the conceptual description of a value proposition by Lush and Vargo (2008). overall centrality as a measure combines item relevant to in-degree centrality (Van den Bulte and Wuyts, 2007) and in-group centrality measures (Cameron, 2004). Overall reciprocity combines adapted measures of attitudinal loyalty operationalized as reciprocity towards the company (Dick and Basu, 1994; Zeithaml, 2000; Chaudhuri and Holbrook, 2001), of CRM integrated in reciprocity towards the customer (Tidd, 2001; Sin, Tse and Yim, 2005) and of CSR represented by reciprocity towards society (Caroll 1999; Bhattacharya and Sen, 2003). Finally the individualism scale is the one first developed by Yamaguchi, 1994.

Figure 5-1: Customer-Company Network Strength Higher-order Measurement Model



5.4 Assessment of Reflective measures

Our first and second order measures are reflective (Figure 5-1). At the most basic level, reflective measures are caused by the latent construct while formative measures are the cause of the latent construct (Diamantopoulos, Riefler and Roth, 2008). In our model the first order latent constructs are directionality, in-degree centrality, in-group centrality, reciprocsociety, reciprocustomer and reciprocompany. Directionality assesses the relevance of the value proposition to a given individual; this value proposition is shaped by the company strategy. Accordingly the presence of directionality causes the customers' perceptions of it and not the opposite. This reasoning applies to all of our constructs, as they are representative of a company strategy from a network perspective. For example, a company that has an in-degree centrality strategy (e.g. company interactions with friends) as simple as having you like their facebook page to get a discount so it is displayed on the newsfeed is ultimately enhancing a customer perception of companies' interaction with their friends. A company may also increase in-group centrality by developing, for example, a community forum to enhance interaction between customers who do not have a personal tie. This strategy would also ultimately boost the company's overall centrality perceptions in the network.

Our measurement model is hence a reflective one and we follow the guidelines from the literature to assess such models (Diamantopoulos, Riefler and Roth, 2008).

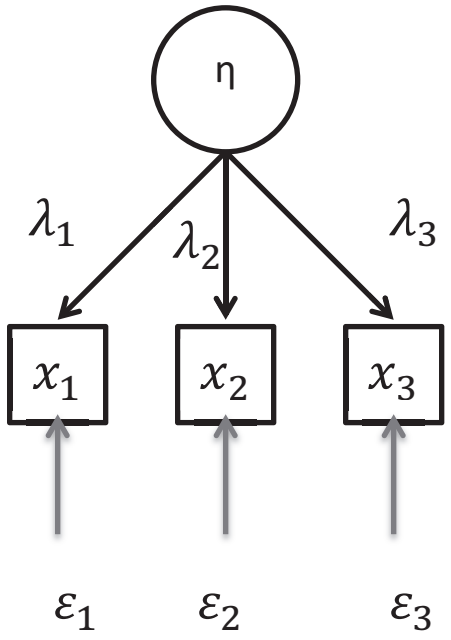
The basic regression equation for reflective measures is:

$$x_i = \lambda_i \eta + \varepsilon_i$$

Whereby:

xi= indicators
λ= factor loading
ε= measurement error

Graphically a reflective measures is represented as follows:



Diamantopoulos, Riefler and Roth, 2008

Within the context of a reflective measurement model, the indicators are interchangeable and can be deleted without impacting the meaning of the construct, the indicators are highly correlated and the covariance is high. Indicators all have the same antecedent and consequences, as they are all reflective of the same construct. Finally, error terms are random and are estimated using the indicators' covariance matrix.

To assess reflective measure, one has to consider: (1) factor loadings and the recommended cut-off point are .7 (Fornell and Larcker (1981) or .5 (Hair et al., 1998), (2)

internal reliability with a Cronbach's alpha critical value of .7 (Nunnally, 1978), (3) Convergent validity as expressed by the Average Variance Extracted (AVE) with an acceptable value of .5 (Fornell and Larcker, 1981) and finally discriminant validity where each construct's indicator loadings need to be superior to its loading on the other model's constructs (AVE needs to be superior to the multiple squared correlations with the other model variables (Fornell and Larcker, 1981; Bagozzi and Yi, 2012).

We use these guidelines to analyze the proposed measurement model in the next section. We first assess the normality in terms of univariate skewness and kurtosis and multivariate kurtosis normalized estimate before proceeding to the analysis of the Customer-Company Network Strength Scale developed in this thesis. In order to proceed with the analysis, we first assess a 6 factors first-order CFA of the Customer-Company Network Strength model. Four first-order models are assessed in terms of goodness of fit after: (1) an item deletion, (2) the inclusion of a measurement error covariance based on modification indices, (3) a model including customers only, (4) a model with all participants. We then test and assess a 3 factor higher-order Customer-Company Network Strength model which encompasses the hypothesized multidimensionality of overall reciprocity and overall centrality. Finally, we conclude the chapter with the SEM results for each of the dimensions and moderators.

Chapter 6 : Results

This chapter proceeds with the analysis of the Customer-Company Network Strength Measurement Model, starting by the univariate and multivariate assessment of normality, followed by Confirmatory Factor Analysis for first-order and second-order models. Next, the results of the hypothesis testing for the SEM model are presented. We use Amos 20 and maximum likelihood for all estimations.

6.1 Measurement Model Results

One of the main objectives of this thesis is to develop a measurement instrument to assess the strength of a customer and company network. In order to do so, several concepts were borrowed from various fields of research. In the coming sections, we present the results for the univariate and multivariate normality and for validity and reliability of the proposed measurement model.

6.1.1 Assessment of normality

An important aspect of multivariate normality is the need to assess univariate normality. Because SEM is based on the analysis of variance, kurtosis is an important concern. Amos 20 provides estimates for both kurtosis and skewness (Table 6-1). The

standardized kurtosis index in a normal distribution is 3 (Byrne, 2010). Our negative values range from-1.265 to -.485. Though there is an ongoing debate as to which values would point to extreme kurtosis, values equal or greater to 7 can be indicative of non-normality (Byrne, 2010). As can be noted in Table 6-1, none of the values are within that range. Also we compared kurtosis and skewness when the data set included non-customer and when it did not and the variation were very small. With univariate kurtosis ranging from -1.664 to -.135 for the dataset with customers only (Table 6-1) and none of the values were > 7. As a result we conclude that univariate kurtosis and skewness were not inflated by the inclusion of non-customers.

However, while univariate normality precludes multivariate normality, the opposite is not true. Therefore even when univariate kurtosis is normal, multivariate kurtosis may be non-normal. It is argued that values superior to 5 are indicative of non-normally distributed data (Bentler, 2005).

It is the case for the sample including non-customers (sample to be retained) with multivariate z-statistic of 27.280. When multivariate kurtosis is present it is advised to use asymptotic free estimation instead of maximum likelihood used for the analysis. However, this estimation method requires samples that are 1000 or more (Byrne, 2010), we thus continue with maximum likelihood estimation. It is very rare for raw data not to present any sign of kurtosis or skewness and the researcher's option to achieve normality include the deletion of outliers. However, we are reluctant to follow such procedure as all of the observations are essential to the analysis given the smaller sample size and that parameter estimates would not be reflective of the actual data after deletion of outliers.

Table 6-1: Assesment of Normality: Skewness and Kurtosis Estimates (All Participants and Customers Only)

All participants	min	max	skew	c.r.	kurtosis	c.r.
q37	1.000	7.000	-.128	-1.092	-1.261	-5.375
q36	1.000	7.000	-.095	-.812	-1.209	-5.155
q35	1.000	7.000	-.319	-2.720	-.995	-4.241
q34	1.000	7.000	-.185	-1.579	-.950	-4.050
q33	1.000	7.000	-.384	-3.275	-1.123	-4.787
q25	1.000	7.000	.268	2.282	-1.055	-4.495
q24	1.000	7.000	.071	.603	-1.159	-4.939
q23	1.000	7.000	.109	.929	-1.120	-4.774
q21	1.000	7.000	.181	1.546	-1.110	-4.733
q32	1.000	7.000	-.255	-2.171	-1.022	-4.355
q31	1.000	7.000	-.027	-.227	-1.070	-4.561
q30	1.000	7.000	-.385	-3.281	-.808	-3.443
q29	1.000	7.000	-.509	-4.335	-.809	-3.446
q28	1.000	7.000	-.048	-.413	-1.215	-5.178
q27	1.000	7.000	-.397	-3.386	-.485	-2.068
q26	1.000	7.000	-.587	-5.005	-.120	-.512
q5	1.000	7.000	-.562	-4.793	-.535	-2.281
q4	1.000	7.000	-.562	-4.795	-.593	-2.527
q3	1.000	7.000	.434	3.699	-.928	-3.955
q2	1.000	7.000	.392	3.339	-.930	-3.963
q1	1.000	7.000	.087	.738	-1.265	-5.390
Multivariate					97.06	32.610
Customers only	**min**	**max**	**skew**	**c.r.**	**kurtosis**	**c.r.**
q37	1.000	7.000	-.313	-2.320	-1.108	-4.108
q36	1.000	7.000	-.297	-2.199	-1.056	-3.916
q35	1.000	7.000	-.464	-3.439	-.774	-2.872
q34	1.000	7.000	-.317	-2.352	-.834	-3.093
q33	1.000	7.000	-.673	-4.992	-.685	-2.540
q25	1.000	7.000	.160	1.190	-1.057	-3.920
q24	1.000	7.000	-.065	-.482	-1.111	-4.118
q23	1.000	7.000	-.014	-.102	-1.018	-3.776
q21	1.000	7.000	.041	.302	-1.057	-3.921
q32	1.000	7.000	-.422	-3.133	-.918	-3.403
q31	1.000	7.000	-.125	-.930	-1.019	-3.777
q30	1.000	7.000	-.537	-3.979	-.558	-2.068
q29	1.000	7.000	-.707	-5.240	-.488	-1.810
q28	1.000	7.000	-.186	-1.379	-1.149	-4.259
q27	1.000	7.000	-.376	-2.789	-.532	-1.974
q26	1.000	7.000	-.583	-4.322	-.135	-.501
q5	1.000	7.000	-.625	-4.634	-.248	-.919
q4	1.000	7.000	-.601	-4.461	-.475	-1.760
q3	1.000	7.000	.217	1.607	-1.036	-3.842
q2	1.000	7.000	.154	1.140	-1.020	-3.782
q1	1.000	7.000	-.193	-1.433	-1.164	-4.317
Multivariate					94.745	27.280

Muthen and Kaplan (1985) studied the effect of multivariate non-normality on chi-square statistics and parameter estimates. The authors found that the model rejection frequency was much higher when multivariate normality was not present (this is not the case for the present research.

They also found that if univariate skewness and kurtoses are in a range of -1.0 to +1.0, not much distortion is to be expected in terms of parameter estimates which is the case for the present sample. Even when there was a distortion present; the differences in parameter estimates were no more than 4.2% and that was deemed negligible by the authors. We ran the same model with a data set that did not include outliers with n= 385 but the standard errors and the parameter estimates did not vary greatly though the overall fit of the model was slightly improved especially in terms of the RMSEA. Again, deleting those observations in our situation would be unnecessary, as we believe that the goodness-of-fit of the all-inclusive sample are satisfactory for the purpose of this thesis. We can now turn to the assessment of the Customer-Company Network Strength Scale validity and reliability and later to the assessment to the multidimensionality of overall reciprocity and overall centrality.

6.1.2 First -Order Confirmatory Factor Analysis and Models' Evaluation

All of our measurement model analysis is run with AMOS 20, a package that is designed specifically for fitting Structural Equation Models (SEM). However, we use SPSS 20 to first assess the reliability of the scales. According to Bagozzi and Yi (2012) this process is redundant as CFA assesses reliability but for the sake of thoroughness and because of the still popular reporting of Cronbach Alpha in academic journals, we include it in the analysis (Table 6-2). All the Cronbach Alpha values are superior to the

recommended cut off point of .7. Our scales can therefore be considered to have acceptable internal reliability. The next step, and one that is considered more stringent, is the performance of Confirmatory Factor Analysis (CFA). In CFA, the test is to ensure that the indicators share enough variance to be considered measures of a single factor (Bagozzi and Yi, 2012). We first assess the model fit for four possible first-order models but only assess reliability and validity for Model 4, which is the one we retain for further analysis, to avoid redundancy.

Table 6-2: Scales and Subscales Internal Reliability (Cronbach Alpha)

Scales and Sub-Scales	**Cronbach Alpha**	**Number of items**
Directionality	**.853**	3
Overall Reciprocity	**.945**	13
Reciprocity customer	.907	4
Reciprocity Society	.908	4
Reciprocity Company	.949	5
Overall Centrality	**.782**	5
In-degree centrality	.759	3
In- group centrality	.786	2 (1 item deleted after analysis)
Individualism (collectivism)	.701	3

For Model 1, Model 2 and Model 3 we use a sample of customers only and once the model is assessed for those customers, we integrate non-customers to see any

differences in model fit or parameter estimates Model 1 consisted of a CFA with all Customer-Company Network Strength items (see Table 6-3 for models' specifications).

Table 6-3 Models' specifications

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Sample	Customers only n=276	Customers only n=276	Customers only n=276	Customers and non-customers n=436	Customers and non-customers n=436
Items	22	21 Item 6 discarded: "I think about how other company X customers are perceived"	21 (Same as Model 2)	21(Same as Model 2)	21(Same as Model 2)
First order Factors	Directionality In-degree Centrality In-group Centrality ReciproSocciety Reciprocust Reciprocomp	Same as Model 1	Same as Model 1	Same as Model 1	Same as Model 1
Second Order Factors	None	None	None	None	Two : Overall Centrality Overall Reciprocity
Error covariance	None	None	Item 31 Error "Company X solves problems with my input" and Item 32 error "Company X anticipates my needs"	Items' errors 31 and 32	Items' errors 31 and 32

Model 1 demonstrated overall "good fit". Indeed all of the measures are above the recommended cut off points (as summarized by Byrne, 2010: CFI>=.95; SRMR<.=05, GFI >=.9; NFI >= .9; RMSEA <= .6). As can be noted in Table 6-4, all of the goodness-

of-fit indicators for Model 1 are within the range that point towards a superior fit as described above. All of the parameter estimates were also significant at .001 level and standardized loadings were all above .7 except for family (λ=.565; Table 6-6).

Though the overall fit of the model seemed appropriate, the RMSEA (*pclose* <.05) results led us to revise the model especially in terms of a problematic item. After further scrutiny, one item had to be deleted as it was cross loading into all factors. Item 6 which consisted of "I think about how other company X customers are perceived" and was intended to measure in-group centrality had to be discarded. It appears that thinking about how other customers are perceived is correlated with all types of reciprocity and centrality, as well as directionality.

Accordingly measuring the saliency of the thought is also a measure of how much the person cares about various interactions in the network. Further investigation would be required to assess exactly how the thought process impacts other factors and is beyond the scope of this thesis. Another problematic loading was family that had a somewhat lower loading than other items measuring in-degree centrality. Family is considered to be a critical unit in overall customer behavior and based off the goodness-of-fit indicators as well as the standardized loading of .565 (above the critical cut-off point) we decided to keep it for future analysis. The measures of "good-fit" after deletion of Item 6 (model 2) are presented in Table 6-4.

Table 6-4: First-order CFA Model Comparisons

Model Fit Indices	Model 1	Model 2	Model 3	Model 4
χ^2	426.153 , $p <$ .001 df=194,	359.193, p <.001 df=186	335.6 p <.001 df=173	380.493 p<.001 df: 173
CFI	.955	.964	.968	.970
NFI	.922	.932	.936	.947
RMSEA	.06 *pclose*=.015	.057 *pclose*: .086	.053 , *pclose*=.246	.053, *pclose* .274
SRMR	.059	.040	.041	.043
GFI	.837	.906	.911	.923

We then reviewed the modification indices for model 2 and it pointed to the fact that some items measurement errors may be correlated. Correlation of measurement errors in CFA is acceptable when the errors pertain to the same factor and when there is a logical rationale (Byrne, 2010). After looking at modification indices and for the purpose of future analysis, we decided to integrate an expected covariance of measurement items errors. Indeed, items 31 and 32 that are measures of reciprocity towards the customer were respectively "solving problems with my input" and "anticipate my needs". This was the largest modification indice. After analysis of the items in question, we concluded that the two items seemed to overlap to a certain extent as in order to anticipate needs; it is likely that input from the customer is considered. It appears that the respondents felt "need anticipation" and "input consideration" to be overlapping. We therefore integrate this error covariance parameter in the model (Model 3). All of the goodness-of-fit indicators were improved by the inclusion of the error term covariance in the model, especially, the RMSEA which is now .043 with a *pclose* >.05. Model 3 includes the

covariance and used a sample of customer only while Model 4 (Graphic representation with standardized estimates included in Appendix B) is the same with the overall sample (customers and non-customers).

Table 6-5: Unstandardized Measurement Parameters Estimates (Model 4)

Measurement paths			Unstandardized Loading	C.R.	*p*-value
q1	<---	Directionality	1.000		
q2	<---	Directionality	.916	19.169	***
q3	<---	Directionality	.836	17.677	***
q4	<---	Ingroupcentral	1.000		
q5	<---	Ingroupcentral	.907	12.493	***
q26	<---	Indegreecentral	1.000		
q27	<---	Indegreecentral	.853	15.799	***
q28	<---	Indegreecentral	.765	11.746	***
q29	<---	Reciprocust.	1.000		
vq30	<---	Reciprocust.	.941	23.830	***
q31	<---	Reciprocust.	.832	18.984	***
q32	<---	Reciprocust.	.916	21.745	***
q21	<---	Reciprosociety	1.000		
q23	<---	Reciprosociety	1.084	21.129	***
q24	<---	Reciprosociety	1.090	21.358	***
q25	<---	Reciprosociety	1.044	20.036	***
q33	<---	Reciprocomp	1.000		
q34	<---	Reciprocomp	.960	23.981	***
q35	<---	Reciprocomp	1.042	25.431	***
q36	<---	Reciprocomp	1.077	25.577	***
q37	<---	Reciprocomp	1.063	23.516	***

*****Significant at .001 level; **significant at .01 level, *significant at.05 level**

Both models (3 and 4) have almost equivalent loadings and all the loadings in model 4 are above .7 except once again for family loading into in-degree centrality that is still superior to the recommended cut-off point of .5. There were no blatant differences between the samples with customers only and the sample including non-customers in goodness-of-fit indices or in any of the feasibility of the parameter estimates. As a result we decide to retain Model 4.

The unstandardized measurement parameter estimates for Model 4 are presented in Table 6-5, all the standard errors are relatively small and all of the loadings are significant at .001 level. The co-variance and variances estimates for Model 4 are also included in Appendix B and all estimates were within an acceptable range. The standardized loadings for the final first-order CFA model are presented in the next section as part of the reliability analysis (Table 6-6).

In the first two sections of this chapter, the assessment of normality analysis and the goodness-of-fit indicators were assessed for four models. We have retained Model 4 that incorporates the deletion of one item pertaining to in-group centrality, the covariance of two measurement errors for items relative to reciprocity towards the customers and the inclusion of non-customers in the final sample. We now turn the reliability and validity analysis for Model 4.

6.1.3 First-order CFA (model 4): Analysis of Reliability and Validity

Convergent validity is first assessed through adequate loadings of items into their respective factors. First, we have already established that most of the factor loadings were in line with the ideal cut-off of .7 for 20 of the 21 items leaving one item above the recommended cut off point of .5 (family, indicator of in-degree centrality).

Table 6-6: First-Order CFA Reliability Analysis (Model 4)

Constructs	Items	Standardized loadings (λ)	Item reliability	AVE	Delta	Composite Reliability
Directionality	q1	0.834	0.695	0.668	0.166	0.916
	q2	0.838	0.702		0.162	
	q3	0.779	0.606		0.221	
Ingroupcentral	q4	0.843	0.710	0.652	0.157	0.934
	q5	0.771	0.594		0.229	
Indegreecentral	q26	0.932	0.868	0.583	0.068	0.753
	q27	0.752	0.565		0.248	
	q28	0.563	0.316		0.437	
Reciprocust	q29	0.878	0.77	0.691	0.122	0.942
	q30	0.864	0.746		0.136	
	q31	0.758	0.574		0.242	
	q32	0.821	0.674		0.179	
Reciprosociety	q21	0.814	0.662	0.718	0.186	0.949
	q23	0.867	0.751		0.133	
	q24	0.874	0.763		0.126	
	q25	0.834	0.695		0.166	
Reciprocomp	q33	0.829	0.687	0.791	0.171	0.972
	q34	0.891	0.793		0.109	
	q35	0.921	0.848		0.079	
	q36	0.924	0.853		0.076	
	q37	0.881	0.776		0.119	

Item reliability is assessed through the squared multiple correlations provided by the AMOS output. There is no universal cut off point but all of the values seem to be

within an acceptable range and are reported in Table 6-6. We then compute the average extracted variance (Table 6-6) that measures how much of the variance is explained for each factor.

The formula for AVE is (where λ is the standardised loading):

$$AVE = \frac{\sum_{i=1}^{n} \lambda_i^2}{n}$$

AVE should be >.5 in order to point towards adequate convergent validly. All of the factors' AVE are >.5 and only one is slightly below the ideal .6 level (Bagozzi and Yi 1988, 2012). Again this factor is in-degree centrality that includes the family interaction as an indicator. The authors also argue for an ideal cut-off point for composite reliability of .7. All composite reliability are above the ideal .7 level and 5 (directionality, in-group centrality, reciprocity towards the customer, reciprocity towards society and reciprocity towards the company) of the 6 first-order factors are >.9 (except in-degree centrality) (Table 6-6). We now turn to the assessment of discriminant validity (Table 6-7).

In order to assert discriminant validity, none of the squared interconstruct correlation (SIC) should be higher than their factors average extracted variance (Fornell and Larcker, 1981). This is the case in our situation.

Table 6-7: **Assessment of Discriminant Validity (Model 4)**

Correlated factors			Correlations	SIC	Factors	AVE
Directionality	<-->	Ingroupcentral	0.546	0.29	Directionality	0.66
Directionality	<-->	Indegreecentral	0.506	0.25	Ingroupcentral	0.65
Directionality	<-->	Reciprocust.	0.6	0.29	Indegreecentral	0.58
Directionality	<-->	Reciprosociety	0.54	0.34	Reciprocust.	0.68
Directionality	<-->	Reciprocom	0.591	0.34	Reciprosociety	0.94
Ingroupcentral	<-->	Indegreecentral	0.551	0.30	Reciprocomp	0.97
Ingroupcentral	<-->	Reciprocust.	0.255	0.06		
Ingroupcentral	<-->	Reciprosociety	0.302	0.09		
Ingroupcentral	<-->	Reciprocom	0.367	0.13		
Indegreecentral	<-->	Reciprocust.	0.431	0.18		
Indegreecentral	<-->	Reciprosociety	0.373	0.13		
Indegreecentral	<-->	Reciprocomp	0.431	0.18		
Reciprocust.	<-->	Reciprosociety	0.627	0.39		
Reciprocust.	<-->	Reciprocomp	0.809	0.65		
Reciprosociety	<-->	Reciprocomp	0.552	0.30		

However, and as discussed in the hypotheses development, we believe that both reciprocity and centrality are respectively, three and two-dimensional. The correlation between reciprocomp and reciprocust are close to failing the test of discriminant validity with an SIC of .65 and Reciprocust with an AVE of .68 (Table 6-7).

Reciprosociety displays stronger correlations with reciprocust as well as reciprocomp. Moreover the strongest correlations in the CFA pertain to in-degree centrality and in-group centrality that are, as stated in the hypotheses, expected to be indicators of the latent construct overall centrality. Overall, all of the correlations are positive and significant at .001 levels which points towards nomological validity. The next step of the analysis is to review and compare a model that integrates the hypothesized multidimensionality of overall centrality and Overall Reciprocity and consequently solves some of the issues that may arise from the limited discriminant validity between reciprocust and reciprocomp.

6.1.4 Higher-order CFA

As discussed in the hypotheses development, we believe that Overall Reciprocity within the context of the Customer-Company Network Strength is a three dimensional factor (reciprosociety, reciprocust, reciprocomp). This makes sense given that reciprocity is a two directional tie (company and customer reciprocity) and that the reciprocity does not have to occur through the same network (company and society reciprocity). We also argued in the previous section that overall centrality could be viewed as a result of both in-degree centrality and in-group centrality. In order to solve identification issues as with the first order CFA, we set the lower path of second order constructs to 1. There are two approaches that are typically used to identify the scale of measurement models: one is to fix one of the factor loadings (marker variable) to a value of 1 for each factor, and the other way is to fix the variance of each factor to 1, which standardizes the factor loadings within each group.

Table 6-8: Goodness-of-fit Indicators (Model 5, Higher-order CFA)

Model Fit Indices	Model 4	Model 5: higher-order CFA
χ^2	380.493 <.001 df: 173	413.98 < .001 df=180
CFI	.970	.966
NFI	.947	.942
RMSEA	.053, *pclose* .274	.055, *pclose*=.130
SRMR	.043	.052
GFI	.923	.918

We used the marker variable strategy for ease of interpretation. This is a common practice and has been used in several research studies (e.g. Malhotra, Kim and Agarwal, 2004; Chen, Sousa and West, 2005). Both overall model 4 and model 5 (Table 6-8) present overall good-fit though the first-order factor seemed superior at first glance. This said the conceptualization was based on sound theoretical development and we believe that the discriminant validity at the reciprocity level was not conclusive. We therefore retain Model 5 (graphic representation with parameter estimates included in APPENDIX D) and move to the reliability analysis for this model. We present the standardized parameter estimates that are all within the acceptable range as discussed previously and significant at the .001 levels in Table 6-10.

Table 6-9: Reliability Analysis (Model 5-Higher-order CFA)

Construct	Item	Standardized loadings	Item Reliability	AVE	Delta	Composite Reliability
Overallcentrality	Ingroupcentral	0.736	0.541	0.739	0.264	0.807
	Indegreecentral	0.742	0.550		0.258	
Overallreciprocity	Reciprocust	0.918	0.842	0.691	0.082	0.921
	Reciprosociety	0.688	0.473		0.312	`
	Reciprocomp	0.871	0.758		0.129	
Directionality	q1	0.839	0.703	0.668	0.161	0.916
	q2	0.836	0.698		0.164	
	q3	0.776	0.602		0.224	
Ingroupcentral	q4	0.81	0.656	0.649	0.19	0.897
	q5	0.802	0.643		0.198	
Indegreecentral	q26	0.752	0.565	0.583	0.248	0.753
	q27	0.933	0.870		0.067	
	q28	0.562	0.315		0.438	
Reciprocust	q29	0.864	0.746	0.692	0.136	0.942
	q30	0.877	0.769		0.123	
	q31	0.761	0.579		0.239	
	q32	0.822	0.675		0.178	
Reciprosociety	q21	0.874	0.763	0.717	0.126	0.949
	q23	0.833	0.693		0.167	
	q24	0.867	0.751		0.133	
	q25	0.813	0.660		0.187	
Reciprocomp	q33	0.922	0.850	0.791	0.078	0.972
	q34	0.924	0.853		0.076	
	q35	0.89	0.792		0.11	
	q36	0.828	0.685		0.172	
	q37	0.88	0.774		0.12	

All unstandardized parameter estimates; variance and covariance for this model are included in Appendix C. All AVE are greater than their multiple squared correlations which points towards discriminant validity. Overall, all of the correlations are positive and significant at .001 level which is an indicator of nomological validity. We can see that composite reliability for overall centrality equals .807 while overall reciprocity is .921, hence reliability is acceptable for all the items and constructs.

Table 6-10: Assessment of Discriminant Validity (Model 5)

Correlated factors			Correlations	SIC	Factors	AVE
Directionality	<-->	Centrality	0.722	0.521	Directionality	0.67
Directionality	<-->	Reciprocity	0.679	0.461	Overallcentrality	0.74
Centrality	<-->	Reciprocity	0.599	0.358	Overallreciprocity	0.69

Most importantly, the AVE for the second order constructs is also high and above the .5 cut-off level. AVE for overall centrality totals 74% and Overall reciprocity averages 69% and are greater than their Squared Interconstruct Correlation. Again, this is an indicator of discriminant validity.

Based on the analysis, the Customer-Company Network Strength measurement model is supported for the sample. It appears that the Customer-Company Network Strength three-factor solution is supported and by the same token H1, H2, H3, H4, H5, H6, H7, H8 and H9 were all supported by the results as summarised in Table 6-11.

Table 6-11: Summary of Measurement Model Hypotheses

Hypothesis	Result	Conclusions
H1	Supported	Perceived Directionality is a dimension of Customer-Company Network Strength
H2	Supported	Overall Centrality is a higher-order factor of Customer-Company Network Strength
H3	Supported	In-degree Centrality is a dimension of Overall Centrality
H4	Supported	In-group Centrality is a dimension of Overall Centrality
H5	Supported	Overall Reciprocity is a dimension of Customer-Company Network Strength
H6	Supported	Overall Reciprocity is a three dimensional construct and a higher-order construct of Customer-Company Network Strength
H7	Supported	Company Reciprocity towards the Customer is a dimension of Overall Reciprocity
H8	Supported	Company Reciprocity towards Society is a dimension of Overall Reciprocity
H9	Supported	Customer Reciprocity towards the Company as measured by attitudinal loyalty is a dimension of Overall Reciprocity

We now turn our attention to assessing the effect of the interactions between the network strength dimensions as developed in the hypotheses for the SEM model.

6.2 Customer-Company Network Strength Model: SEM Results

In this section we will present the analysis and results for the Structural Equation Model and of the hypotheses testing. We start by assessing the Customer-Company Network Strength Model goodness-of-fit; we then assess the interaction of various Network Strength dimensions and their impact on reciprocity towards the company which is our main dependent variable and an indicator of greater or lower positive outcomes for companies.

6.2.1 Assessment of Model Fit

The overall model is presented in Figure 6.3. We assess the validity of the model with the usual goodness-of-fit indicators (as summarized by Byrne, 2010: CFI>.95; SRMR<.05, GFI >.9; NFI > .9; RMSEA < .6). All of the SEM Model goodness-of-fit indicators are in the superior recommended range (Table 6-12). As with all other analyses we use AMOS 20 to test the hypotheses.

Table 6-12 Customer-Company Network Strength Causal Model Goodness-of-fit Indices

Model Fit Indices	Causal Model (SEM)
χ^2	378 , df=194, $p < .01$
CFI	.971
NFI	.947
RMSEA	.05 *pclose*=.383
SRMR	.054
GFI	.925

The standardized and unstandardized parameter estimates for the causal model are presented in Table 6-13 as well as in the model graphic representation in Figure 6-3 (standardized only). We can hence turn to a presentation of the causal model hypotheses testing and results.

6.2.2 Causal Model Hypotheses Testing

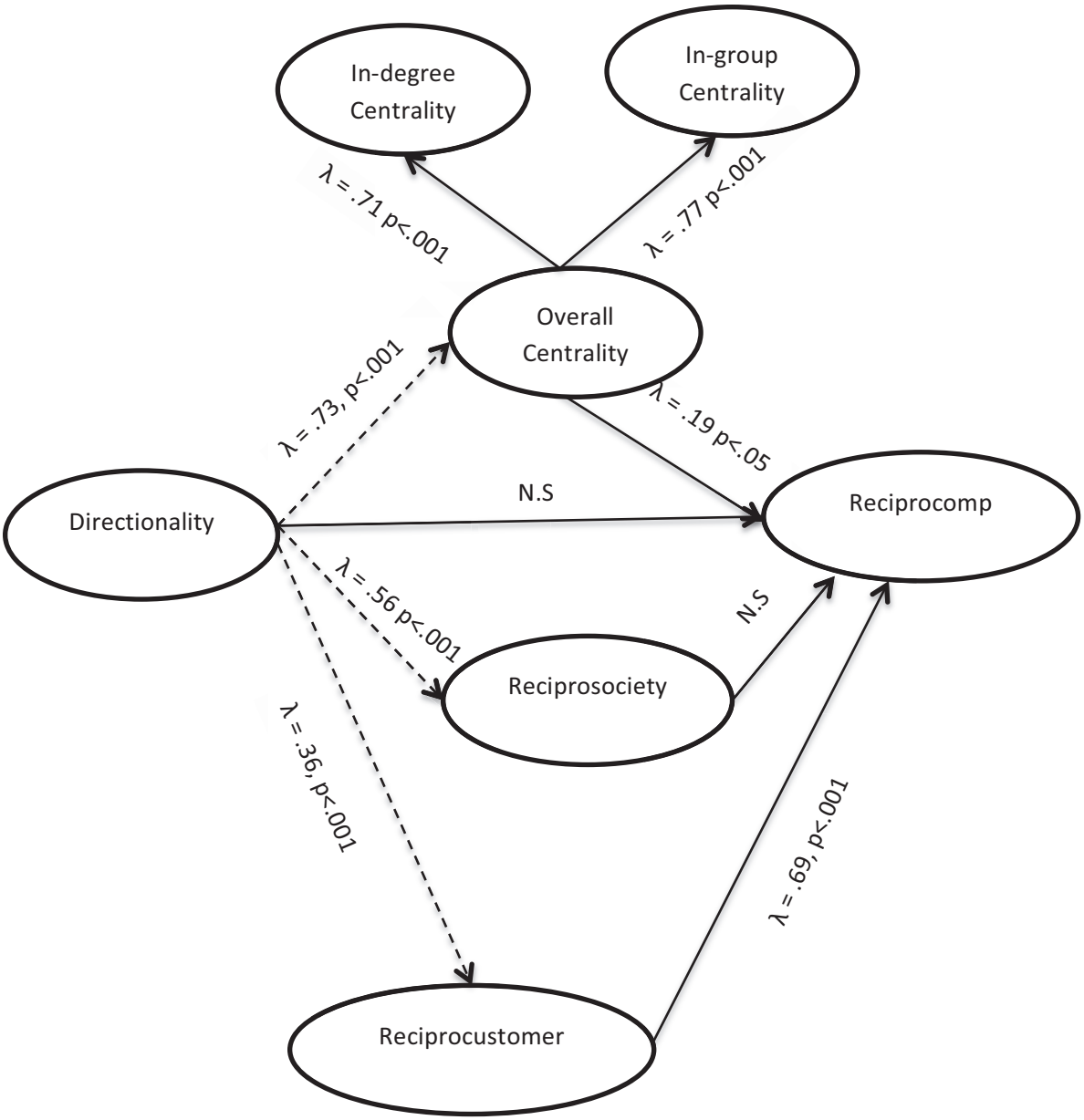
As expected, directionality has a positive significant effect on overall centrality, reciprocust and reciprosociety. However, the direct effect on reciprocity towards the company is not significant. First, the positive effect of directionality on overall centrality summarized in H11 is supported (λ=. 732, p<.001, Table 6-13).

Table 6-13 Customer-Company Network Strength Causal Model

Hypothetical paths			Unstandardized Loadings	*p-value*	Standardized Loadings (λ)
Reciprosociety	<---	Directionality	.610	***	.555
Overallcentrality	<---	Directionality	.407	***	.734
Reciprocust.	<---	Directionality	.434	***	.364
Reciprocust.	<---	Reciprosociety	.473	***	.435
Indegreecentrality	<---	Overallcentrality	1.000		.713
Ingroupcentrality	<---	Overallcentrality	1.431	***	.765
Reciprocomp	<---	Directionality	.012	.900	.010
Reciprocomp	<---	Overallcentrality	.412	.013	.194
Reciprocomp	<---	Reciprosociety	.043	.403	.040
Reciprocomp	<---	Reciprocust.	.676	***	.686

*****Significant at .001 level; **significant at .01 level, *significant at.05 level**

Figure 6-1 The Customer-Company Network Strength SEM with Results



- Note: Besides direct effect dotted lines represents significant indirect effect through mediating variables (all p=.01)
- Solid lines represent direct effect only
- λ=Standardized loadings
- N.S=Not significant

Second, the positive effect of directionality on reciprocity towards society is highly significant supporting H12 (λ=.555; p<.001). Third, the effect of Directionality on Reciprocity towards the Customer is also supported confirming H13 (λ=. 364; p <.001). The negative direct effect of Directionality on Reciprocity towards the company summarized by H10 is not supported.

Table 6-14: Causal Model Indirect Effects - Two Tailed Significance

Dimensions	Directionality	Reciprosociety
Reciprosociety	...	...
Overallcentrality	...	...
Reciprocust.	.010	...
Reciprocomp	.010	.010
Indegreecentrality	.010	...
Ingroupcentrality	.010	...

We also hypothesized that directionality would have a significant positive indirect effect on reciprocity towards the company through overall centrality (H14) and this effect is significant (p=.01, see Table 6-14 for indirect effects). Moreover, the indirect effect of directionality through reciprocity towards society presented in H15 is also supported (p<=.01). Finally, H16 which stated that the positive indirect effect of directionality through reciprocity towards the customer would be significant is supported by our analysis (p<=.01) .

As expected the positive effect of overall centrality on reciprocity towards the company is supported (H17; λ=.194, p<.05). While the indirect effect of reciprosociety on reciprocomp through reciprocust is supported (H19; p<.01), the direct effect of reciprosociety on reciproccomp is not (H18). The effect of reciprocity towards the customer on reciprocity toward the company is verified (H20; λ=.676, p<.001). This is the most significant interaction in the model as it has the greatest impact on reciprocity towards company. Next, we present the analysis and results for the moderators: gender and individualism (collectivism).

6.2.3 Moderators' hypotheses testing: gender and individualism

6.2.3.1 Gender Results

Following Byrne (2010) procedure and in order to run a test of invariance with AMOS 20, we first have to assess the model fit for each group (male vs. female).

Table 6-15: Gender Customer-Company Network Strength Model Goodness-of-Fit Indicators

Model Fit Indices	Network Strength Model Male (n=221)	Network Strength Model Female (n=213)
χ^2	277, df=177, p < .001	334, df=177, p < .001
CFI	.971	.956
NFI	.926	.91
RMSEA	.041	.065
SRMR	.054	.067
GFI	.901	.869

The result of the model fit is presented in Table 6-15 for each gender. While the model fit the male data well, the overall fit of the model for female was less adequate but largely within the acceptable range for most goodness-of-fit indicators (CFI>.95; SRMR<.05, GFI >.9; NFI > .9; RMSEA < .6).

Table 6-16: Gender Test of Model Invariance

Model	NPAR	CMIN	DF	P	CMIN/DF
Unconstrained	108	611.948	354	.000	1.729
Measurement weights	93	625.821	369	.000	1.696
Structural weights	84	629.410	378	.000	1.665
Structural covariances	83	629.573	379	.000	1.661
Structural residuals	77	641.413	385	.000	1.666
Measurement residuals	54	689.356	408	000	1.690
Saturated model	462	.000	0		
Independence model	42	7414.338	420	000	7.653

Since the model is adequate for both groups, we can now run a test of invariance to assess the structural differences between the two groups. As with previous analyses, we use AMOS 20 to run the multigroup analysis and the test of invariance. We present the result in Table 6-16. The first model is one that is unconstrained and all other models are judged against the unconstrained model. In the second model, all measurement weights are constrained equal across groups.

The following tests constrain structural covariances, structural residuals and measurement residuals to be equal across groups. The third model is the one that we are interested in, and we can see that the structural weight are not invariant across groups

therefore suggesting that there are some differences between male and female. Based on the theoretical development and given the result of the χ^2 difference, we conclude that the model is not invariant and we turn to examining which parameter estimates differ for each group (Table 6-17).

Table 6-17: Gender Test of Invariance of Structural Paths

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	108	611.948	354	.000	1.729
Directionalityonreciprosociety	107	611.962	355	.000	1.724
Directionalityonreciprocust	107	612.292	355	.000	1.725
Directionalityonreciprocomp	107	611.993	355	.000	1.724
Directionalityonoverallcentrality	107	612.287	355	.000	1.725
Reciprosocietyconreciprocust	107	612.004	355	.000	1.724
Reciprosocietyonreciprocomp	107	612.308	355	.000	1.725
Centralityonreciprocomp	107	612.372	355	.000	1.725
Reciprocustonreciprocomp	107	611.973	355	.000	1.724
Saturated model	462	.000	0		
Independence model	42	7414.338	420	.000	17.653

The structural paths chi-square test shows that all structural paths are significantly different including the impact of overall centrality on reciprocity towards the company. The effect of overall centrality on reciprocomp is positive and significant in partial support of H21 (λ=. 244, $p<.05$; Table 6-18).

Table 6-18: Gender Standardized Structural Parameter Estimates

Hypothetical paths			Male Estimate	*p-value*	Female Estimate	*p-value*
Reciprosociety	<---	Directionality	.558	***	.552	***
Overallcentrality	<---	Directionality	.837	***	.670	***
Reciprocust.	<---	Directionality	.334	***	.393	***
Reciprocust.	<---	Reciprosociety	.455	***	.419	***
Reciprocomp	<---	Directionality	.084	.594	.041	.669
Reciprocomp	<---	Overallcentrality	.056	.731	.244	.009
Reciprocomp	<---	Reciprosociety	.076	.258	.015	.829
Reciprocomp	<---	Reciprocust.	.692	***	.642	***
Indegreecentrality	<---	Overallcentrality	.611	***	.807	***
Ingroupcentrality	<---	Overallcentrality	.744	***	.783	***

*****Significant at .001 level; **significant at .01 level, *significant at.05 level**

However, this same effect was not significant for males, this said this non-significance is still quite telling and will be further discussed in the next section. Next we review the results for individualism (collectivism).

6.2.3.2 Individualism (Collectivism) Results

We use SPSS 20 to assess the significance of the mean differences for the two groups. The mean differences between collectivist and individualist were significant at the .001 levels with a mean for collectivists of 5.5737 and for individualists of 2.8355 (Table 6-19).

Table 6-19: Individualism-Collectivism Scores Participants

Participants	n	Mean	Std. Deviation	Std. Error Mean
Indivualist	150	2.8355***	.74878	.06114
Collectivist	233	5.5737***	.86460	.05664

*****Significant at .001 level; **significant at .01 level, *significant at.05 level**

As mentioned previously we use the collectivism scale first developed by Yamaguchi (1994) that displayed a Cronbach's Alpha of .701 in this study. Similarly to the procedure used for gender, we first review the model fit for each groups (Table 6-20). The goodness of fit indicators are all within an acceptable range for each group (CFI>.95; SRMR<.05, GFI >.9; NFI > .9; RMSEA < .6).

Table 6-20: Model Fit for Collectivist vs. Individualist

Model Fit Indices	Network Strength Model Individualist (n=159)	Network Strength Model Collectivist (n=233)
χ^2	302, df=177, $p < .001$	379, df=177, p < .001
CFI	.948	.947
NFI	.885	.906
RMSEA	.069	.07
SRMR	.072	.059
GFI	.845	.874

We can therefore assess the model invariance between collectivists and individualists. Again, we use the chi-square test to evaluate the model invariance across

groups. Based on the chi-square test, the test of invariance is not supported hence pointing to significant differences between collectivists and individualists (Table 6-21).

Table 6-21: Test of Invariance for Collectivist vs. Individualist

Model	NPAR	CMIN	DF	P	CMIN/DF
Unconstrained	108	682.469	354	.000	1.928
Measurement weights	93	699.703	369	.000	1.896
Structural weights	84	708.590	378	.000	1.875
Structural covariances	83	709.049	379	.000	1.871
Structural residuals	77	709.685	385	.000	1.843
Measurement residuals	54	776.030	408	.000	1.902
Saturated model	462	.000	0		
Independence model	42	6690.610	420	.000	15.930

We then run the same chi-square test for all structural paths and yield the results presented in Table 6-22. Similarly to the gender multigroup analysis, all of the structural paths failed the test of invariance pointing to significant differences between collectivist and individualists. We can hence discuss the differences in parameter estimates for each group. The Overall Centrality impact on reciprocity towards the company was significant for collectivists thus providing partial support for H21 (λ=.253, p<.05, Table 6-23).

Table 6-22: Test of structural paths Invariance for Collectivist vs. Individualist

Model	NPAR	CMIN	DF	P	CMIN/DF
Default Model	108	682.469	354	.000	1.928
Directionality on Reciprosociety	107	682.950	355	.000	1.924
Directionality on Reciprocust	107	682.818	355	.000	1.923
Directionality on Reciprocomp	107	682.627	355	.000	1.923
Directionality on Overall Centrality	107	682.499	355	.000	1.923
Reciprosociety on Reciprocomp	107	683.908	355	.000	1.927
Reciprosociety on Reciprocomp	107	684.786	355	.000	1.929
Overall Centrality on Reciprocomp	107	684.225	355	.000	1.927
Reciprocust on Reciprocomp	107	682.471	355	.000	1.922
Saturated Model	462	.000	0		
Independence Model	42	6690.610	420	.000	15.930

Though we only expected centrality to be moderated for individualist participants, its effect was actually not significant. This further supports the idea that indeed collectivists tend to be more influenced by the group and that individualists are not influenced by social cues to the same extent or in this study at all. Moreover, the results show that reciprosociety effect on reciprocust is greater for collectivists than for individualists in support of H22 ($\lambda = .341$, $p<.001$ for individualists vs. $\lambda=.487$, $p<.001$ for collectivists). Accordingly, it appears that the link between society and the self is greater for collectivists.

Table 6-23: Structural Paths Standardized Estimates Collectivist vs. Individualist

Hypothetical paths			Individualist	*p*-value	Collectivist	*p*-value
Reciprosociety	<---	Directionality	.520	***	.584	***
Overallcentrality	<---	Directionality	.741	***	.742	***
Reciprocust.	<---	Directionality	.418	***	.336	***
Reciprocust.	<---	Reciprosociety	.341	***	.487	***
Reciprocomp	<---	Directionality	.075	.558	.005	.963
Reciprocomp	<---	Overallcentrality	.025	.830	.253	.026
Reciprocomp	<---	Reciprosociety	.139	.069	-.018	.799
Reciprocomp	<---	Reciprocust.	.670	***	.688	***
Indegreecentrality	<---	Overallcentrality	.774	***	.707	***
Ingroupcentrality	<---	Overallcentrality	.812	***	.774	***

*****Significant at .001 level; **significant at .01 level, *significant at.05 level**

Another effect worth discussing though not formally hypothesized is the difference in the impact of directionality on reciprocity towards the customer. The latter was greater for the individualists than it was for the collectivists (λ=. 418, p<. 001 vs. λ=. 336, p<. 001).

In this chapter, we have tested and presented the results relative to both our measurement model development and the SEM model. Most of our hypotheses were hence supported and the results for the SEM model are summarised in Table 6-24. The next chapter is dedicated to a discussion of the SEM results.

Table 6-24: Summary of Customer-Company Network Strength Causal Model Hypotheses

Hypothesis	Results	Conclusions
H10	Not Supported	Directionality has a *negative direct effect* on reciprocity towards the company
H11	Supported***	Directionality has a *positive direct effect* on overall centrality
H12	Supported***	Directionality has a *positive direct effect* on reciprocity towards society
H13	Supported**	Directionality has a *positive direct effect* on reciprocity towards the customer
H14	Supported**	Overall centrality *mediates the positive effect* of directionality on reciprocity towards the company
H15	Supported**	Directionality has a *positive indirect effect* on reciprocity towards the company through reciprocity towards society
H16	Supported**	Directionality has a *positive indirect effect* on reciprocity towards the company through reciprocity towards the customer
H17	Supported *	Overall Centrality has a *positive direct effect* on reciprocity towards the company
H18	Not supported	Reciprocity towards society has a *positive direct* effect on reciprocity towards the company
H19	Supported**	Reciprocity towards the society has a *positive indirect effect* on reciprocity towards the company through reciprocity towards the customer
H20	Supported***	Reciprocity towards the customer has a *positive direct effect* on reciprocity towards the company
H21	Partially supported	Gender *moderates* the impact of overall centrality on reciprocity towards the company (whereby overall centrality effect on reciprocity towards the company will be greater for females than males)

Table 6-24: Summary of Customer-Company Network Strength Causal Model Hypotheses

Hypothesis	Results	Conclusions
H22	Partially supported	Individualism will *moderate t*he impact of Overall Centrality on reciprocity towards the company (whereby the effect of Overall Centrality on reciprocomp will be greater for collectivists than individualists)
H23	Supported	Individualism will *moderate* the impact of reciprocity towards society on reciprocity towards the customer: whereby the impact of reciprosociety on reciprocust will be greater for collectivists than for individualists

*****Significant at .001 level; **significant at .01 level, *significant at.05 level**

Chapter 7 : Discussion of Results

This chapter presents a discussion of the Customer-Company Network Strength SEM. We review the results and present our conclusions. We start with the implications stemming from the interactions of directionality, overall centrality and overall reciprocity followed by a discussion of the moderators: gender and individualism (collectivism). We conclude the chapter with a general discussion of the findings.

7.1 Directionality

Directionality assesses the relevance of a value proposition to an individual and is linked to greater company's overall centrality, reciprocust and reciprocsociety. Directionality can be viewed as a relationship catalyst, without it, the relationship is weak as other relationship properties are not reinforced. This relevance may not depend solely on the actual attributes of the value proposition but also the lack of other interactions within the network. For example if my friends interact with the company, then even though the value proposition is not directed to me, it is directed to members of my network therefore resulting in some level of relevance to the concerned individual.

The same can be said reciprocust and reciprosociety, if the company strategy is one that advertises its customer reciprocity and CSR practices, then directionality may be

present as the individual may follow the company in the news for example. This is really the basis for our proposition that one does not need to be a customer to be in a relationship with a company. Indeed and as reflected in our measurement items, directionality only measures the degree of the interaction of the individual with the company rather than its offerings. This approach allows taking an encompassing network approach and moving away from the exchange basis of previous research.

Though, it was hypothesized that directionality would have a negative direct effect on reciprocomp, the effect was not significant. It was argued that because of habit which leads to the common adage of "taking things for granted", the appreciation of the company would be diminished when relevance was high. The non-significance of this parameter somewhat leads to the same conclusion. Indeed, while directionality has an effect through various aspects of the relationships, it does not lead to reciprocal behaviour from the customer on its own.

As we have shown the effect of directionality on reciprocomp is mediated by overall centrality, reciprosociety and reciprocomp. Accordingly, directionality enhances the customer's perceptions of other characteristics of the relationship in terms of the customer's perception of the actor's position in the network (centrality) as well as the reciprocity norms ruling the relationship ultimately leading to greater reciprocity towards the company. Traditionally, the positive outcomes associated with satisfaction are usually assessed by establishing a relationship between some product, service or experience quality attributes and are accordingly hypothesized to stem directly from such attributes. Within the present model we can see that, as with any other relationships, companies are not assessed solely on the value proposition in terms of service/product quality or

customer service for example but rather in terms of their position in the network and their perceived reciprocity norms and the directionality of the value proposition allows for the enhancement of the customer perception of such characteristics. Next, we address the results relative to overall centrality.

7.2 Overall Centrality

The positive effect of overall centrality on reciprocity towards the company means that when the customer is aware of his association with the company customers and interacts with its customers as well as when the company has direct ties with the customer's private circles, reciprocity towards the company is enhanced. As a result and in order to enhance positive company reciprocity outcomes, companies need to either enhance perceptions of centrality by providing for example outlets for their customers to share information or simply connect with each other. The practice is already in use but not all companies allow for customers' interactions or provide with tools that would be deemed as supporting such interactions. Through these interactions, the customer builds a sense of belonging and that belonging leads to praise and commitment. Back to the interpersonal relationship example, when "I" feel connected to my companion's friends this reflect on my perception of his worth and accordingly leads me to feel more attached and makes their qualities more salient which in turn is linked to my willingness to talk about them in a positive light. We also argue that in-degree centrality interacts with attitudinal loyalty and positive WOM through overall centrality. As a first-order construct of overall centrality, in-degree centrality is likely to influence those outcomes. Again in-degree centrality is linked to the popularity of an actor in the one's network. Here we

assessed the popularity of the company in various customer networks. It is probable that in-degree centrality leads the company to benefit from a better customer knowledge though the processes previously explained of more access to information but even more likely by influencing the norms of the network. First, centrality in the network means that the customer is likely to be more eager to interact with this company (this of course may vary based on individual characteristics such as gender and cultural orientation), it may be perceived as being more "hip" or "cool" in one way but it could also be reflective of other aspects such as performance or perceived worth. Let's say all my friends own a Canada Goose winter coat (very popular brand amongst students in Canada), if "I" do not have one, others may judge that "I" do not have the financial capabilities or even that "I" lack a sense of style, consequently reflecting on my perceived worth in the network. Another example stemming from interpersonal relationships could be that my friends now interact with my companion or a potential companion already has interaction with my friends, through this mere process he is more likely to gain information about my overall profile and what "I" represent and hence cater to my need in a more effective way.

On the other hand my perception of his worth is also boosted by his interaction with my friends or colleagues and so it could be said that their perceptions have a halo effect and leads me to value the companion more. In the coming section, we focus on how reciprocity towards society and reciprocity towards the customer impact the reciprocity towards the company.

7.3 Overall Reciprocity

The indirect effect of reciprosociety on reciprocomp through reciprocust was supported while the direct effect of reciprosociety on reciproccomp was not. This is an interesting finding, as it is possible that ethical norms only enhance perception of membership to the larger group (society) and is accordingly viewed as reciprocity to an extension of the self. Therefore customers likely assess the company ethical norms towards the group, the same way they would assess reciprocity towards the self. This implies that reciprocity towards society is a mean to enhance perceived reciprocity towards the self as opposed to an end in itself. Luo and Bhattacharya (2006) showed that the impact of CSR on a company market value is partially mediated by customer satisfaction. They also found that innovation perception moderates the impact of CSR on market value, whereby CSR processes reduces satisfaction when participant perceives innovation as low. Innovation is one of the items measured by reciprocity towards the customer amongst others company processes identified as superior in the literature. The fact that in the model reciprocity society effect is fully mediated by reciprocity towards the customer only confirms, that CSR efforts are only valued when they do not take away from the reciprocity towards the self. This is an important finding and is in line with the idea that company need to focus on CSR programs that are valued by the customer and are somewhat related to their line of business. Future studies should focus on assessing the moderating effect of the nature of the CSR program on the reciprosociety-reciprocomp relationship.

The positive effect of reciprocity towards the customer on reciprocity towards the company is the most significant interaction in the model as it has the greatest impact on

reciprocity towards company. Given that reciprocity is a two-way street, it appears that, for the participants, valued processes are directed towards enhancing their experience in a sense that is larger than just the value proposition. We first showed that those processes form a dimension of overall reciprocity and that within the reciprocity construct the interaction between reciprocomp and reciprocust is the most significant. Back to the interpersonal relationship parallel, though the way my friend treat others in general may matter, what matters most is the way they treat me. Therefore when we are assessing reciprocity norms the ones that are directly related to the self are the most important when predicting attitudinal loyalty (praising others, long-term relationship orientation etc.). It is accordingly extremely important for companies to communicate with their customer and update them on the processes that they value. On the one hand, customers assess these processes based on new products development, personal communication encounters with the company (i.e. calling about an issue or to inquire about personalized solutions) and overall perception of how their needs are met before they have to express them. On the other hand, companies need to communicate on those aspects with their customers as well as develop platforms that allow for those encounters to occur in order to enhance customer perception of superior company processes.

This is in line with current research that points that companies today need to engage the customer in various ways and develop new ways of communicating which would allow for the customer participation. For example a company could develop a program where they record customer issues or complaints and link them to customer provided solution, therefore allowing for a comprehensive view of how various customer

(based on demographic data for example) approach problems and which solutions are deemed acceptable by the customer.

As with interpersonal relationship, when someone is complaining about an issue, sometimes it is better to listen and wait for him to come up with a solution to the problem at hand, rather than overwhelm him with advice that decreases his perceived self-efficacy. This may allow companies to reduce expenses and ultimately offer appropriate solution to various customer groups. Therefore, joined problem solving can become a personalization tool.

Moreover, innovation and need anticipation, for example, could not be viewed as actual attributes of a given value proposition but rather as the company's profile, consequently companies need to understand that their overall reputation in terms of being proactive in the network (reciprocity based actions) compared to other companies provides them with competitive advantage.

In the previous sections, we discussed the results for the effects of directionality, overall reciprocity and overall centrality that are the main dimensions of the Network Strength Model. The reminder of this chapter is dedicated to the moderators in the model: gender and collectivism.

7.4 Gender

The effect of overall centrality on overall reciprocomp is significant for females while it is not for males. We only expected this effect to be moderated but the non-significance is quite telling. It appears that for the male participants the interaction of the

company with their various networks did not have an effect in the way they reciprocated towards the company.

This appears to be in line with past research that shows the impact of social influence on behavior to be less significant for males than females. This difference seems to be mostly due to the in-degree centrality effect on overall centrality that was greatly moderated for males though highly significant for both groups. Consequently, it appears that in-group centrality acts in ways that are relatively similar for men and women. In-group centrality being a measure of the saliency of the company's customers and the individual interaction with other company's customers did influence perceptions of overall centrality. However, this effect did not lead to a significant effect on reciprocity towards the company. As a result it is possible that in-degree centrality matters more than in-group centrality when it comes to reciprocity behavior from the customer to the company. Indeed, it may be logical, that when assessing the company's centrality in the network, my social networks matter more than the identification with the company's customers. Accordingly the groups relevant to the self matter more than other groups.

Another effect that was not formally hypothesized but that is worth discussing is the moderating effect of gender on the impact of directionality on overall centrality. Though the effect is equally significant for both groups, the effect of directionality on overall centrality is greater for men than women. Therefore it appears that the frequency of interaction and overall relevance of the company's proposition led to greater perceived overall centrality for men than women. One may argue that men and women process information differently. Indeed, men may associate overall centrality with the relevance of the proposition to them. That is to say that when the proposition is not highly relevant

to them, the overall centrality is perceived as lower. So only when it is relevant do they start picking up on "social cues", otherwise the fact that the company is central in the network is irrelevant. On the other hand, for women, the relevance of the proposition is less significant in determining their perception of overall centrality. Consequently, regardless of the personal degree of interaction with the company, the fact that others do interact matters and accordingly the social cues ultimately influence women's reciprocity behavior and their perception of the company's overall reciprocity norms. This effect helps us further explain the significant effect of overall centrality on reciprocity towards the company for women and the non-significant effect for men.

In this section, we presented our conclusion in terms of the moderating effect of gender and we now turn our attention to individualism (collectivism).

7.5 Individualism (collectivism)

Overall centrality has a positive impact on reciprocity towards the company was for collectivists but not for individualists. This further supports the idea that collectivists tend to be more influenced by the group and that individualists are not influenced by social cues to the same extent. It would be of interest, though not possible with the present sample due to size, to assess the interaction effect between individualism and gender on reciprocomp.

The effect of reciprosociety effect on reciprocust is greater for collectivists than for individualists. Accordingly, it appears that the link between society and the self is greater for collectivists. This is in line with previous research that shows that there is

more of a “we” than “I” perceptions for collectivists. Therefore, for collectivist society is likely to be viewed more as an extension of the self thus leading to reciprocity towards the “we” having a greater impact on perceptions of reciprocity towards the “I”.

Another effect worth discussing though not formally hypothesized is the difference in the impact of directionality on reciprocity towards the customer. The latter was greater for the individualists than it was for the collectivists. It seems that to some extent, the relevance of the proposition to the self leads to greater perceived reciprocust for individualists. This effect is in line with the idea that individualists value the self more, hence only when the proposition is relevant to them as a person do they pay attention to other aspects of the relationship (here company superior processes as embodied by reciprocust) while for collectivists the relevance of the value proposition to the self was less significant in shaping their reciprocust perceptions.

Finally, the analysis also further supports the idea that cultural differences (collectivism vs. individualism) do not only pertain to characteristics at the international level but also within nations. Surprisingly most of the participants displayed a high level of collectivism, though the data was collected in North America. Concordia University has a very diverse student body and this is likely a reflection of such a phenomenon.

This chapter covered a discussion of the hypothesis results for the main Customer-Company Network Strength Model dimensions and will now conclude with a general overview of the findings.

7.6 General Discussion

In this chapter, we discussed the main findings resulting from various interactions between the dimensions that make-up the Customer-Company Network and determine its strength as expressed by low or high reciprocity towards the company. We have shown that directionality is positively linked to all other dimensions of the Customer-Company Network Strength but does not have a direct-significant effect on outcomes valued by companies. This means that relevance of the value proposition and mere interaction devoid of meaning in the larger network does not lead to a strong relationship but merely sets the stage for other potential interactions.

On the one hand, we showed that the dimension that most determines reciprocity towards the company is reciprocity towards the customer as assessed by a company's superior processes. Therefore despite the presence of ethical norms and the growing importance of CSR issues; reciprocity towards society, as measured in the model, only has a positive effect on reciprocity towards the company through reciprocity towards the customer. We argue that this effect may be due to individuals perceiving reciprocity towards society as an extension of the self and not as a separate entity.

On the other hand, overall centrality as measured by in-degree and in-group centrality is significantly related to reciprocity towards the company and shows that companies that benefit from such central position reap the benefits in terms of enhanced reciprocity towards the company. It is hence critical for companies to create bridges between their customers through communities to enhance the perceived connectedness with actors in the company's network as well as emphasise the company's presence in the

customer's networks. For example, companies who ask customers to "like" their page on Facebook that is then displayed on one's friend Facebook page are in fact reinforcing perception of in-degree centrality in the Customer-Company network.

Finally, overall centrality is revealed to interact differently for females than it does for males in support of the existing literature. The effect of overall centrality is not significant for males and it is possibly linked to the lower effect of in-degree centrality on overall centrality. It is interesting to note that despite the fact that the sample for this thesis was predominantly made up of millennial participants, the effect was still in line with research conducted on previous generational groups hence showing the persistence of certain mechanisms despite the evolution of gender roles. Moreover, as expected the effect of overall centrality is supported for collectivists but that effect for individualists is not significant. This is again in line with previous research which shows that collectivists are more influenced by the "we" mentality and accordingly the centrality of the company in the network is extremely important in determining the reciprocity behavior towards the company for that group.

Before concluding this manuscript, we review some of the managerial and theoretical implications of the findings, their limitation and the identification of avenues for future research.

Chapter 8 : Overall Conclusion, Limitations and Future Research

This final chapter summarizes some of the theoretical and managerial insights derived from the findings presented in previous chapters. It concludes with a discussion of the present research limitations and future research avenues.

8.1 Theoretical Contribution

From a theoretical perspective, relationship management has become the core of the Marketing discipline (Webster 1992). Despite this long-standing premise, relationship based research often remains transaction oriented and measures satisfaction directly related to the product or service usage instead of more general relationship based constructs. Assessing how customers derive value from a given relationship calls for a more holistic view and is a methodological challenge (Gallarza et al. 2011). The present research encompasses the latest principles in marketing research and integrates many important theoretical perspectives synthesizing it in one model while combining a meso and micro perspective of a relationship exchange. To our knowledge, little research has taken this approach.

We assessed and operationalized a model designed to allow researchers and companies to assess interactions in the "Customer-Company Relationship" within the larger network or as we call it the "Customer-Company Network Strength Model" using principles stemming from the Service-Dominant Logic and Customer-Engagement Theory and Social Networks' properties. This framework views the relationship from an interpersonal perspective and assesses the strength of the Customer-Company Network (relationship within a network perspective) based on the reciprocity norms that rule it, the centrality of the company as an actor in the network and the perceived directionality of the tie.

In line with S-D Logic, we empirically showed that directionality is the fundamental basis of the exchange as defined by the company value proposition relevance to the customer. The company is where the value proposition originates, therefore allowing for reinforcement of directionality based on identified customer needs. The customer or non-customer does not accept the value proposition; he interacts with aspects of it. The relationship is dynamic and as a result there is no specific orientation (except for directionality), only interactions that are then assessed by the actors. The relationship interactions are the exchange. As opposed to the S-D Logic, we argue that there is no indirect exchange and that all interactions are part of the relationship and define the strength of the relationship. In contrast with Customer Engagement Theory, we integrated centrality as a measure of the actor's position in the network while viewing customer participation (e.g. personalization and joined problem solving) as a way for the company to express reciprocity norms towards the customer. We propose that there are no distribution mechanisms, only network interactions that are assessed by the customer.

Moreover, we argue that customer reciprocity interacts with other network dimensions and is a dimension of overall reciprocity. We further argue that there are no services products, only relationships driven by relevance and perceived strength of interactions. We view the focus of engagement as determined by Network Strength and the greater the overall strength the greater the positive outcomes for companies.

Once the relationship starts through directionality, the customer is an inherent part of it. There is no creation of value per say but rather interactions which result in further interactions which are consequently perceived as strong or weak due to (dis)confirmation following interactions. Positive or negative WOM results from this process and is a form of reciprocity and attitudinal loyalty is an expression of the customer reciprocity towards the company. We also integrate the impact of various actors and how they shape the network strength. Moreover, we argue that brand community is not only defined by the development of such communities by the company but also by individual's perception of in-degree-centrality and in-group centrality that may be enhanced by the company. Finally, we posit that value cannot be determined; it is a dynamic concept that evolves over time and cannot be determined by one actor only. At any point of time, structural properties of the network are perceived as stronger or weaker and this is an ongoing process. Though we look at the relationship at the micro level (customer-company relationship through directionality), overall reciprocity and overall centrality incorporate interaction at the macro-level (Chandler and Vargo, 2011) in terms of reciprocity towards other actors (namely society) and impact of the customer and company private networks on the relationship through overall centrality. The structural properties of the customer-

company network (as enhanced by company processes) define competitive advantage at a given point of time.

In order to offer a preliminary framework to investigate the network approach, we have first developed a measurement model that includes six dimensions: directionality, in-degree centrality, in-group centrality, reciprocity towards the customer, reciprocity towards society and reciprocity towards the company. We used a sample of 436 participants that were both customers and non-customers of three companies to test the measurement model. Our CFA and subsequent reliability and validity analysis supported the hypotheses.

We then further assessed that in fact in-degree centrality and in-group centrality were indicators of a higher order construct overall centrality. We also showed that reciprocity towards the company, reciprocity towards society and reciprocity towards the customer were all indicators of the higher order construct: overall reciprocity.

We then tested a causal model whereby directionality impacts overall centrality and Reciprocity towards the customer, society and the company. We hypothesized that directionality would have a positive effect on all dimensions except for reciprocity towards the company. Our hypotheses are supported except for directionality and reciprocity towards the company that is not significant at .05 level. We then showed that overall centrality has a positive impact on reciprocity towards the company for participants. Moreover, we showed the positive relationship between reciprocity towards the customer and reciprocity towards the company. However, the hypothesised effect of reciprocity towards society on reciprocity towards the company is not supported. Finally,

we assessed some of the difference between males and females and between collectivists and individualists. Mostly the effect of overall centrality is highly significant for females but not for males. This further supports the idea that women despite gender roles evolution are still more influenced by others or what we can refer to as "social cues" and this mechanism in turn shapes their reciprocity behavior towards the company. For males, it seems that only when the value proposition is highly relevant to them as an individual does overall centrality matter. This effect is not the same for females for whom social cues mattered regardless of how directional the tie was to them.

For collectivists, the overall centrality impact on reciprocity towards the company is highly significant but not for individualists. This further supports the idea that collectivists tend to view the group as an extension of the self in line with the "we" mentality. Moreover, reciprocity society effect on reciprocity towards the customer is greater for collectivists than for individualist. Again, this effect is in line with the idea that collectivist view reciprocity towards the group (society) as reciprocity towards the self therefore further supporting the amalgam for collectivist between the "I" and the "we".

Last but not least, the inclusion of non-customers in this study empirically supports the idea evoked by Customer Engagement Theory that you do not have to be a customer to be in a relationship with a company that is another theoretical development. Aspects other than those relative to a transaction create a bond with a company. This changes the way we assess the market strength of a company as the focus is not only on sales (customers only) but on existing relationships (customers and non-customers) that may be easier to translate into dollars amount. Though this concept could be linked to

brand equity, most brand equity measures focus on brand awareness that is somewhat close to the directionality construct. This said brand equity does not take into consideration other aspects of the relationship such as perceived overall reciprocity and overall centrality as this study defines it (e.g. interaction with a given customer family and friends). These theoretical implications are tied to several managerial ones that are discussed in the next section.

8.2 Managerial Implications

From a managerial perspective, any company category and any type of customer can use these results. In a world where one-on-one marketing is fully enabled by technology advances, understanding the relationship from that perspective is essential. It allows having a snapshot of the customer-company relationship at a given point in time. The model is all encompassing and does only assess the perceptions of quality of the value proposition as defined traditionally; it looks at the underlying mechanism leading to a stronger or weaker relationship (e.g. reciprocity, other actors). These mechanisms may differ for each customer or customer group and company. The present study provides a company with the necessary tools to see which aspects actually do matter. For one customer it may be reciprocity towards society that matters most when interacting within the relationship (in terms of impact on the strength of the relationship), it would then be important for the company to continuously communicate on that aspect with the customer and enhance interactions which lead to perception of overall reciprocity (e.g. communicate the impact of a given company CSR program to those customers). For another customer, it may be that, the company's relationship with their friends is what

impact most the relationship (stronger or weaker), thus for them status of the company is what matters. Company resources can then be dedicated to enhancing interactions with these customers that strengthen status perception in customer's social networks (e.g.: having a strong Facebook presence). These are only two examples of the many ways our model can assist companies in building strong relationships.

More specifically and based on the results, it appears essential for companies to (1) continuously assess their status in relationship to the customer's social networks and identification with the company's customer groups instead of focusing solely on market share for example as an indicator of network position strength in the market, (2) understand which company processes other than the ones directly linked to the value proposition per say (e.g. innovation) impact perception of reciprocity towards the customer (this may vary from company to company and from one customer group to another), (3) understand that reciprocity towards society can be viewed by customers as reciprocity towards an extension of the self as a member of the group, and (4) by the same token companies have to understand that because reciprocity towards society can be viewed as such, the customer will only value reciprocity towards society when reciprocity towards the customer is perceived as present. Finally, the non-customer existing relationship show that companies need to develop strategies designed to capitalise on those non-customer with whom they have stronger ties already. These, presumably, would be easier to convert into paying customers.

8.3 Limitations and Future Research

Though many of the hypotheses were supported, this thesis presents some limitations. First, we only used one sample (millenials students) to assess the hypotheses. This clearly limits the generalizability of the results. This said, millenials as a group are becoming of more and more interest to researchers and the results are hence quite relevant.

Second, the model was assessed using three companies which were chosen based on the familiarity of the sample with those companies, it will be important to assess the model validity for other companies in future research.

Third, we only use one method to assess the results (the Customer-Company Network Strength Scale), though we developed this scale based on previous research from various fields, most items are adapted. Future research will be needed to assess the validity of the scale with others samples and a different methodology.

Fourth, the items' development were non exhaustive. We believe that several other aspects need to be included in order to fully grasp the nature of the customer-company network. For example, we view reciprocity towards society as a general concept and this may be the cause of the less significant effect of this sub-dimension on reciprocity towards the company. It would be interesting to use a given company's current cause-related programs to assess its impact instead of the loose conceptualization used in the present research. It is likely that when reciprocity towards society is specifically laid out for participants, its effect will be significant. Moreover, more items

are needed for in-group centrality to better assess its effect because, as for reciprocity society, this measure is very general (company's customers), it would be interesting to evaluate the actual brand community when a company offers brand community supporting platforms.

Fifth, within the approach of overall centrality it would be interesting to assess the perceived power of members in the network and how they impact reciprocity towards the company. For example, how do coworkers who are more influential (supervisors vs. colleagues) or close friends vs. acquaintances influence reciprocity towards the company?

Finally, future research needs to assess the effect of the quality of various interactions on the Customer-Company Network Strength model. Namely, we would like to investigate the effect of the medium of interaction (website, employees, etc.) as well as the effect of goal orientation (hedonic vs. utilitarian) on the network strength.

In summary, "the Business of Soul-Mates" was inspired by interpersonal relationship and the researcher's genuine interest into what makes a relationship stronger or weaker overtime. The original intuition was that it stemmed from the pattern and properties of ties between two individuals and their respective networks and that the strength of the tie is continuously reassessed overtime and based on those properties. Using this simple observation as the premise for this research we have empirically shown that this is the case for a customer-company relationship. This thesis can thus be viewed as a preliminary assessment of Customer-Company Network Strength. It provides us with a basic tool in which specific kinds of interactions with a given company can be plugged

in. Their impact on reciprocity towards the company can then be assessed. In turn, the company can dedicate resources to enhance customer-company interactions that matter most to different customer groups. While the Service-Dominant Logic and Customer-Engagement theories, for example, embrace the dynamic approach of "value co-creation", rare are the empirically tested measurement model that allow for the assessment of the relationship at the macro level.

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APPENDIX A: Questionnaire

CONSENT TO PARTICIPATE IN PSYCHOLOGY/CONSUMER BEHAVIOR STUDY

This is to state that I agree to participate in a program of research being conducted by Asmaa Hilali of Marketing Department of Concordia University (613-302-9828 or a_hilal@jmsb.concordia.ca)

A. PURPOSE

I have been informed that the purpose of the research is to identify my interactions with a given company. Researchers are investigating customerbehavior and how customers value a company through cognitive processes and affect based interactions. Finally, this study is part of the main investigator's PhD dissertation.

B. PROCEDURES

This study is a pre-test of three major studies to be conducted in Psychology and Marketing. The study is composed of a questionnaire and we are only investigating perceptions of a given company through customerinteraction motivation, affect and performance. The questionnaire takes less than 10 minutes to complete. You are asked to consider a given company and answer the following questions as truthfully as possible. There are no right or wrong answers, please answer the questions in a way you feel best describes your interaction with this company. The goal is to identify the processes that matter most to each customer in a given company relationship and the effect of some interaction variables on the relationship value. You will not be identified in any way, and only the researchers will have access to the responses. The investigators will safeguard the related data.

C. RISKS AND BENEFITS

The participants are not subject to any risk. The benefits of this research are indirect, once practitioners apply the knowledge generated in this study.

D. CONDITIONS OF PARTICIPATION

- I understand that I am free to withdraw my consent and discontinue my participation at anytime without negative consequences.
- I understand that my participation in this study is CONFIDENTIAL.
- I understand that the data from this study may be published.

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY.

NAME (please print)

_____

SIGNATURE

_____

If at any time you have questions about the proposed research, please contact the study's Principal Investigator

Name: Asmaa Hilali

Contacts: 613-302-9828 or a_hilal@jmsb.concordia.ca

Supervisors: Dr. Michel Laroche and Dr. Michèle Paulin - Marketing Department of Concordia University

Contacts: laroche@jmsb.concordia.ca or (514) 848-2424 ext. 2942

mpaulin@jmsb.concordia.ca or (514)-848-2424 ext.2954

If at any time you have questions about your rights as a research participant, please contact the Research Ethics and Compliance Advisor, Concordia University, Dr. Brigitte Des Rosiers, at (514) 848-2424 ext. 7481 or by email at ethics@alcor.concordia.ca.

Customer-Company Network Strength Scale (All on 7-point Likert Scale)

Directionality (Always-Never)

I interact with Company X offerings

I spend time reviewing company X offerings

#I need company X type of offerings

Overall Reciprocity (Strongly agree-strongly disagree)

Reciprocity towards the customer

Company X innovates

#Company X personalizes its offerings

#Company X anticipates my needs

#Company X takes my input into consideration to solve problems

Reciprocity towards Society

Company X displays ethical values

Company X is involved in enhancing society's well being

Company X gives back to the community

#Company X cares about societal issues

Reciprocity towards the Company

I would like to interact or continue interacting with company X

#I value my relationship with company X

I view my relationship with company X as a long-term one

I am committed to company X

I speak positively about company X

Overall Centrality (Strongly agree-strongly disagree)

In-degree Centrality

My friends and acquaintances interact with company X

My coworkers and Colleagues interact with Company X

My family members interact with company X

In-group Centrality

I interact with company X customers

I am aware that I am associated with company X other

#I think about how customers of company X are perceived (Deleted)

Collectivism-Individualism Scale

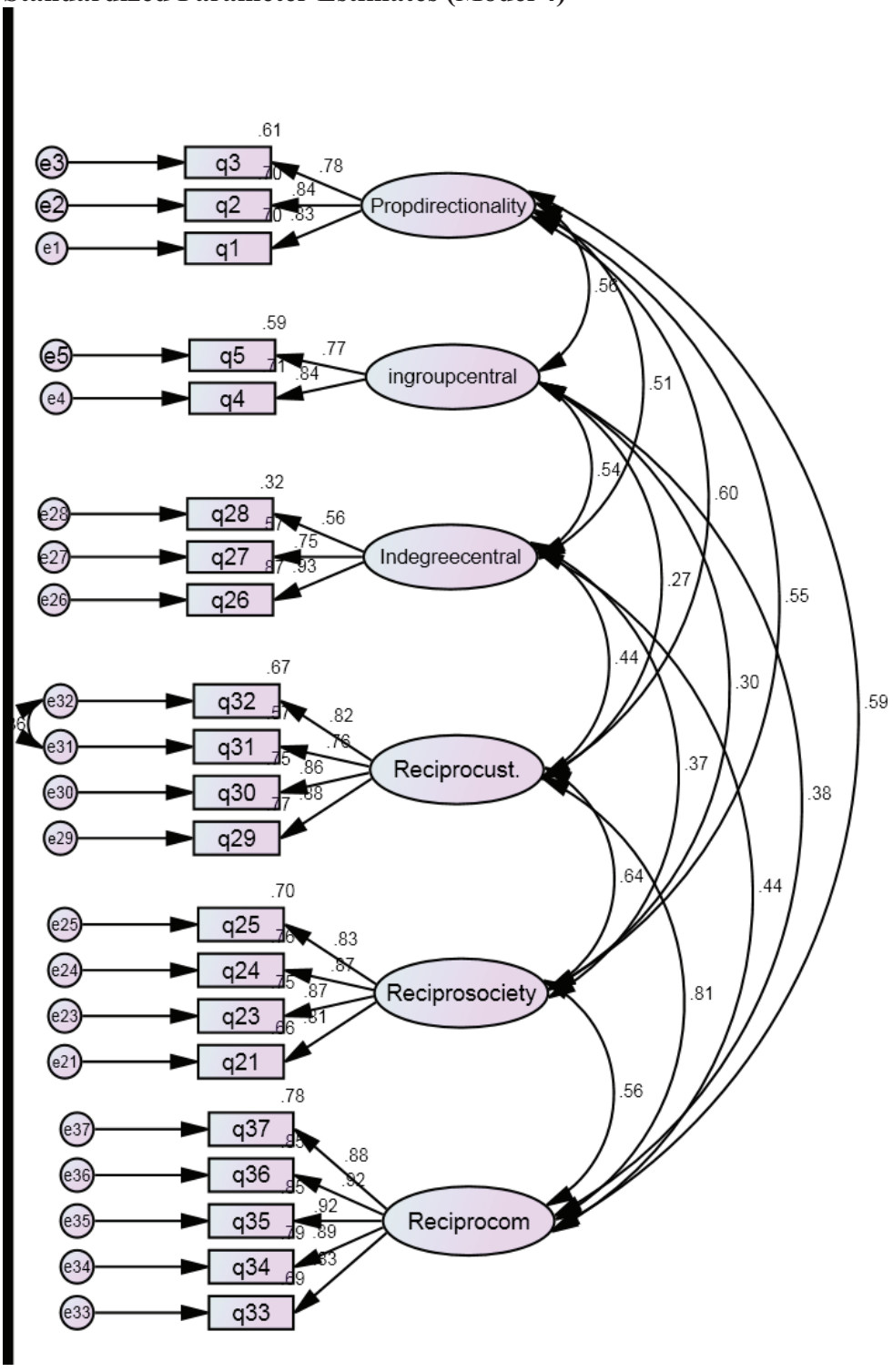
(7-point Likert Scale, strongly agree-strongly disagree)

#I don't think it necessary to act as fellow group members would prefer

#I don't change my opinions in conformity with those of the majority

#I don't support my group members when they are wrong

APPENDIX B: Customer-Company Network Strength First-order CFA with Standardized Parameter Estimates (Model 4)



APPENDIX C: First-Order CFA (Model 4) Covariance and Variance Estimates

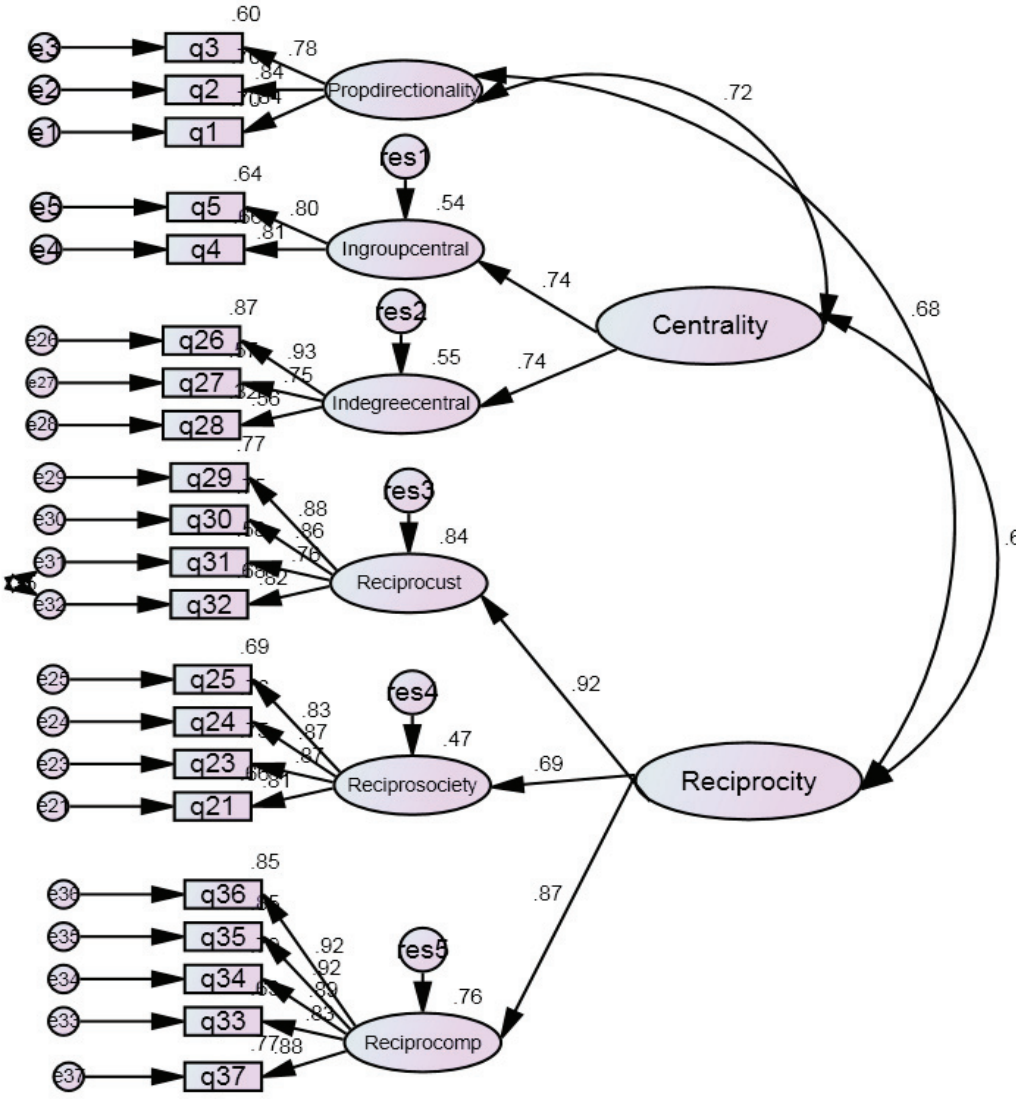
Table C-1: Covariances (Model 4)

Measurement covariances			Estimate	S.E.	C.R.	P
directionality	<-->	ingroupcentral	1.435	.175	8.207	***
directionality	<-->	Indegreecentral	1.268	.154	8.247	***
directionality	<-->	Reciprocust.	1.738	.190	9.158	***
directionality	<-->	Reciprosociety	1.401	.165	8.464	***
directionality	<-->	Reciprocom	1.718	.190	9.049	***
ingroupcentral	<-->	Indegreecentral	1.192	.142	8.371	***
ingroupcentral	<-->	Reciprocust.	.688	.151	4.552	***
ingroupcentral	<-->	Reciprosociety	.688	.135	5.107	***
ingroupcentral	<-->	Reciprocom	.976	.155	6.283	***
Indegreecentral	<-->	Reciprocust.	1.076	.144	7.457	***
Indegreecentral	<-->	Reciprosociety	.809	.125	6.475	***
Indegreecentral	<-->	Reciprocom	1.081	.144	7.526	***
Reciprocust.	<-->	Reciprosociety	1.618	.168	9.618	***
Reciprocust.	<-->	Reciprocom	2.348	.209	11.253	***
Reciprosociety	<-->	Reciprocom	1.446	.163	8.894	***
e31	<-->	e32	.468	.084	5.576	***

Table C-2: Variances for Model 4

Measurement Variances	Estimate	S.E.	C.R.	P
Directionality	2.910	.287	10.144	***
Ingroupcentral	2.277	.259	8.807	***
Indegreecentral	2.108	.189	11.129	***
Reciprocust.	2.885	.255	11.332	***
Reciprosociety	2.239	.222	10.064	***
Reciprocom	2.925	.277	10.548	***
e1	1.272	.130	9.819	***
e2	1.032	.107	9.658	***
e3	1.315	.115	11.469	***
e4	.931	.166	5.608	***
e5	1.278	.153	8.352	***
e26	.319	.099	3.235	.001
e27	1.179	.108	10.949	***
e28	2.654	.193	13.761	***
e29	.855	.085	10.065	***
e30	.866	.081	10.656	***
e31	1.478	.116	12.688	***
e32	1.168	.099	11.774	***
e21	1.142	.094	12.092	***
e23	.872	.082	10.610	***
e24	.826	.080	10.330	***
e25	1.068	.092	11.638	***
e33	1.327	.100	13.294	***
e34	.702	.058	12.188	***
e35	.568	.052	10.995	***
e36	.581	.054	10.828	***
e37	.957	.077	12.452	***

APPENDIX D: Customer-Company Network Strength Higher-order CFA (Graphic Model 5 with Parameter Estimates)



APPENDIX F: Unstandardized Measurement Estimates for Second-Order CFA (Model 5)

Table F-1: Unstandardized loadings and Standard Errors

Hypothetical measurement paths			Estimate	S.E.	C.R.	P
Ingroupcentral	<---	Centrality	1.300	.179	7.279	***
Indegreecentral	<---	Centrality	1.000			
Reciprocust	<---	Reciprocity	.903	.059	15.294	***
Reciprosociety	<---	Reciprocity	.651	.053	12.389	***
Reciprocomp	<---	Reciprocity	1.000			
q1	<---	Propdirectionality	1.000			
q2	<---	Propdirectionality	.908	.047	19.159	***
q3	<---	Propdirectionality	.828	.047	17.653	***
q4	<---	Ingroupcentral	1.000			
q5	<---	Ingroupcentral	.980	.082	11.996	***
q27	<---	Indegreecentral	1.118	.098	11.426	***
q26	<---	Indegreecentral	1.312	.112	11.675	***
q28	<---	Indegreecentral	1.000			
q30	<---	Reciprocust	1.027	.048	21.228	***
q29	<---	Reciprocust	1.090	.050	21.666	***
q31	<---	Reciprocust	.911	.041	22.140	***
q32	<---	Reciprocust	1.000			
q24	<---	Reciprosociety	1.091	.051	21.340	***
q25	<---	Reciprosociety	1.043	.052	19.971	***
q23	<---	Reciprosociety	1.086	.051	21.122	***
q21	<---	Reciprosociety	1.000			
q35	<---	Reciprocomp	.982	.033	29.466	***
q36	<---	Reciprocomp	1.014	.034	29.652	***
q34	<---	Reciprocomp	.903	.033	27.178	***
q33	<---	Reciprocomp	.940	.040	23.448	***
q37	<---	Reciprocomp	1.000			

Table F-2: Variances

	Estimate	S.E.	C.R.	P
Directionality	2.947	.288	10.222	***
Centrality	.676	.147	4.594	***
Reciprocity	2.502	.272	9.187	***
res1	.965	.175	5.528	***
res2	.552	.113	4.887	***
res3	.381	.091	4.197	***
res4	1.177	.131	8.951	***
res5	.799	.119	6.700	***
e1	1.236	.129	9.557	***
e2	1.047	.108	9.697	***
e3	1.330	.116	11.501	***
e4	1.102	.168	6.543	***
e5	1.126	.164	6.866	***
e27	1.179	.108	10.881	***
e26	.316	.100	3.153	.002
e28	2.661	.193	13.763	***
e30	.868	.082	10.583	***
e29	.862	.086	10.015	***
e31	1.465	.116	12.606	***
e32	1.165	.100	11.692	***
e24	.822	.080	10.287	***
e25	1.074	.092	11.652	***
e23	.867	.082	10.559	***
e21	1.146	.095	12.093	***
e35	.561	.051	10.938	***
e36	.578	.054	10.799	***
e34	.705	.058	12.203	***
e33	1.334	.100	13.303	***
e37	.960	.077	12.457	***

APPENDIX G: Thesis Defence Presentation

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The Business of Soul-Mates

By Asmaa Hilali
Marketing PhD Candidate

A Social Network Approach to Assessing a Customer-Company Relationship : The Customer-Company Network Strength Model (CCNS)

Concordia University
John Molson
School of Business

Thank You for Being Here

- Dr. Laroche, Michel
- Dr. Paulin, Michèle
- Dr. Ferguson, Ronald
- Dr. Muller, G. Frank
- Dr. Madill, Judith
- Dr. Boeck, Harold

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Introduction

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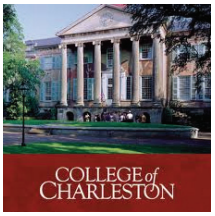
How Did it All Start?



How Did It All Start (cont.)?

- Why are some interpersonal relationships more enduring than others ? Mere affinities ?
- What are the broad concepts which lead to stronger-weaker relationship in "real-life"?
- Can we apply the same principles to a Customer-Company relationship?
- What existing Social Science/Marketing investigate the Customer-Company relationship?
- Is it really only about the proposition features or are there rather more universal underlying mechanisms?

Overall Purpose of the Research

- Develop a framework to assess the Customer-Company relationship value
  - The Customer-Company Network Strength Scale
  - A customer perspective
- Assess the interactions between the dimensions of the CCNS
  - Structural Equation Model:
    - Value as ultimately expressed by the Reciprocity-Company
- Show the moderating effect of Gender and Culture in the model

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Conceptual Foundation

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Main Theories

- **Service-Dominant Logic (S-D Logic)**[1]
  - Service is the basis of the exchange
  - The company shapes a value proposition
  - Co-creation of value
  - Social and economic actors are resource integrators
- **Customer Engagement Theory (CET)**[2]
  - Intensity of an individual's participation with organization offerings (can be initiated by either)
  - Interaction in the larger network
  - No transaction necessary

[1]Lush and Vargo, 2008, 2011

[2]Garber, Hyatt, and Boya , 2009; Van Doorn *et al.*, 2010 ; Vivek, Beatty and Morgan, 2012

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Main Theories cont.

- **Social Network Theory (SNT)[3] and Social Exchange Theory (SET)[4]**
  - Directionality : A → B
  - Reciprocity : A ⇄ B
  - Overall Centrality: centrality of an actor in the network
    - In-Degree Centrality: number of ties from other network actors linked to a given actor (sign of popularity)
- **Social Identification Theory (SIT)[5]**
  - In-Group Centrality: process of identification with a group linked to a given actor

[3] Van den Bulte and Wuyts, 2007; Palmatier, 2008
[4] Granattover, 1983, Cropanzanno and Mitchell, 2005; Poldony, 2005
[5] Cameron, 2004

Main Theories cont.

- **Culture**[6]
  - **Collectivism-individualism**

    Degree to which a society places importance on the individual in terms of achievement, attitudes, and interests
  - "I" vs. "we" mentality
- **Gender and Social Influence**[7]
  - Differences in the extent of social influence on behavior

[6] Hofstede, 1997; Laroche, Kalamas and Cleveland, 2005; Minkov and Hofstede, 2012
[7] Eagly and Carly, 1981 ; Venkatesh and Morris, 2000

Summary of Propositions

- **P1:** Directionality is a dimension of the CCNS
- **P2:** Overall Reciprocity is a three-dimensional construct of the CCNS
- **P3:** Overall Centrality is a two-dimensional construct of the CCNS

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Operationalized Definitions

CCNS Constructs:

- **Customer-Company Tie Directionality**[8]

  Relevance of the company value proposition in terms of the customer's involvement with it

  e.g. customer interacts with value proposition

[8] Van den Bulte and Wuyts 2007; Lush and Vargo, 2008, 2011

Operationalized Definitions of CCNS Constructs:

- **Company Overall Centrality**[9] (Two-Dimensional)
  Centrality of the company in the customer-company network

  - **In-Degree Centrality**[10]

    Centrality of the company in the customer's social networks

    e.g. Friends interact with value proposition

  - **In-Group Centrality**[11]

    Centrality of the company's other customers in terms of the customer's perceived association with them

    e.g. Aware of association with other customers

[9] Rogers and Kincaid, 1981Walker, 1985; Burkhardt and Brass, 1990; Van den Bulte and Wuyts 2007
[10] Van den Bulte and Wuyts, 2007
[11] Cameron, 2004

Operationalized Definitions of CCNS Constructs:

- **Overall Reciprocity**[12] (Three-Dimensional)

  The reciprocity norms ruling the customer-company relationship towards:

  - **Customer**[13]

  Company processes which are perceived by the customer as superior

  e.g. This company innovates

  - **Society**[14]

  Company's general ethical norms towards society as perceived by the customer

  e.g. This company displays ethical values

  - **Company**[15]

  Customer's expressed attitudinal loyalty towards the company

  e.g. I am committed to my relationship with this company

[12] Morgan and Hunt, 1994; Palmatier, 2008
[13] Tidd, 2001 ; Sin, Tse and Yim, 2005
[14] Caroll, 1999; Bhattacharya and Sen, 2003
[15] Dick and Basu, 1994, Zeithaml, 2000; Chaudhuri and Holbrook, 2001

Collectivism vs. Individualism[16]

- **Individualism**
  - Emphasis on the self, autonomy, self-efficacy and self achievement
- **Collectivism**
  - Driven by group achievement, strong need to belong, focus on duty to the group

    e.g. I don't think it necessary to act as fellow group members would prefer[17]

[16] Hofstede, 1997; Minkov and Hofstede, 2012
[17] Yamaguchi, 1994, Laroche, Kalamas and Cleveland, 2005

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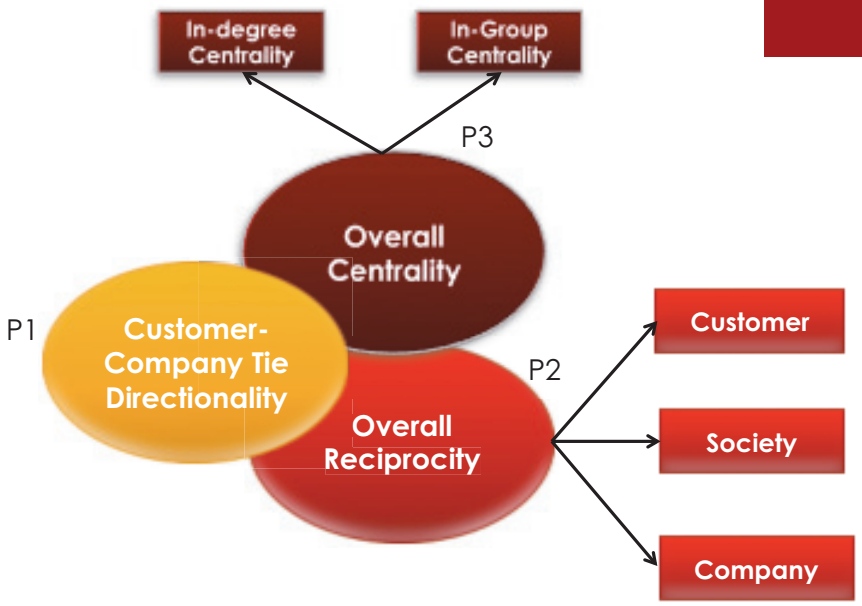
Conceptual Model and Hypotheses

Customer-Company Network Strength Main Dimensions



Customer-Company Network Strength Conceptual Model With Hypotheses

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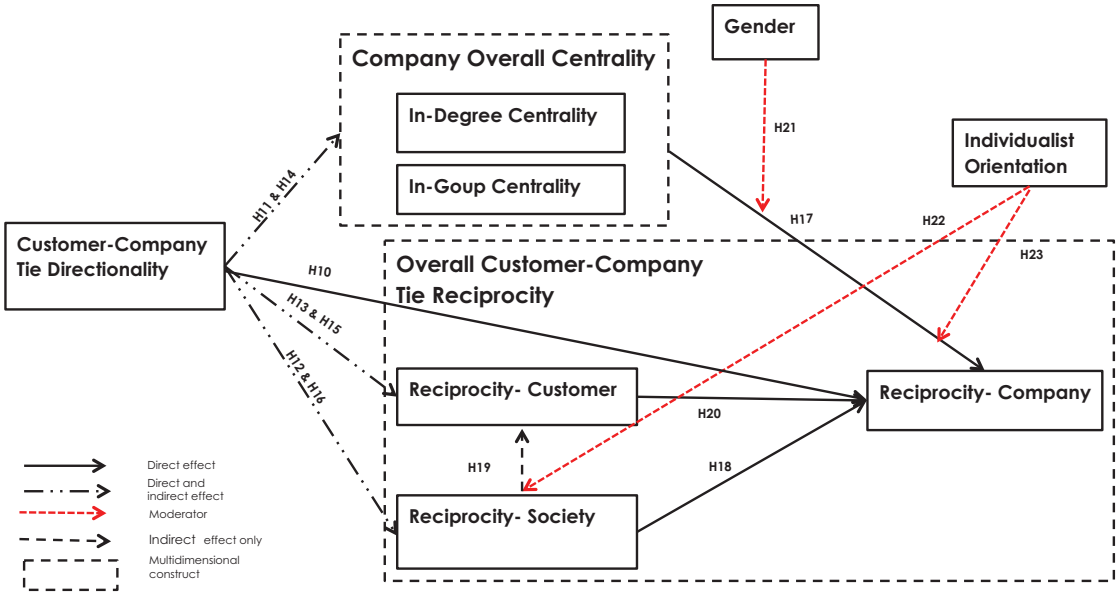

Customer-Company Network Strength Conceptual Model With Hypotheses

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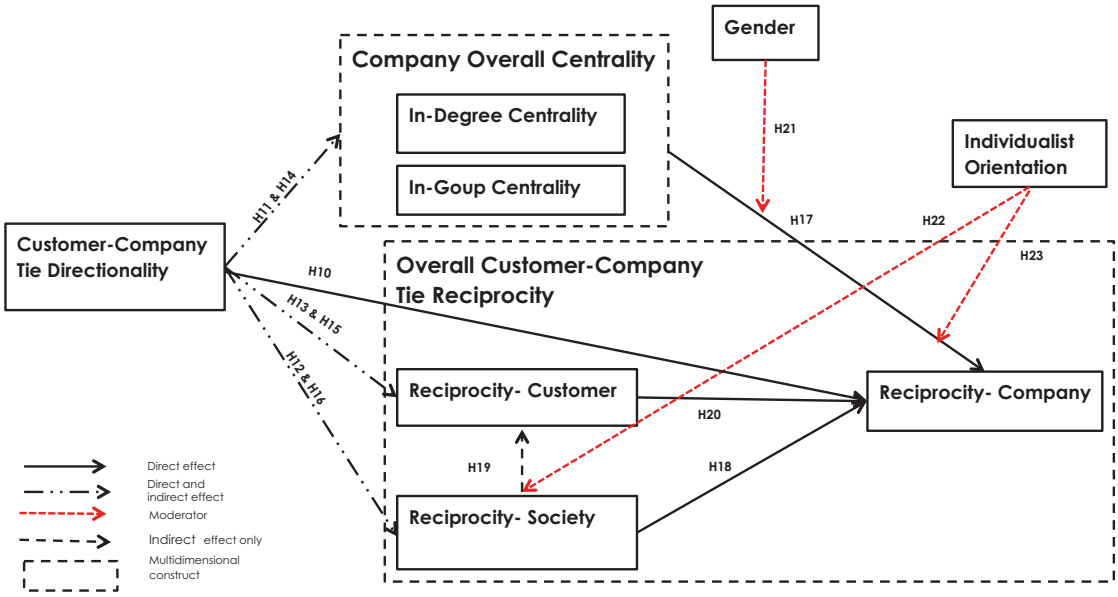

Directionality Hypotheses

H10 Directionality has a *negative direct effect* on reciprocity-company

H11 Directionality has a *positive direct effect* on overall centrality

H12 Directionality has a *positive direct effect* on reciprocity-society

H13 Directionality has a *positive direct effect* on reciprocity-customer

H14 Overall centrality *mediates the positive effect* of directionality on reciprocity -company

H15 Directionality has a *positive indirect effect* on reciprocity -company through reciprocity-society

H16 Directionality has a *positive indirect effect on* reciprocity-company through reciprocity-customer

Overall Centrality and Reciprocity Hypotheses

H17 Overall Centrality has a positive direct effect on Reciprocity-Company

H18 Reciprocity-society has a *positive direct effect* on reciprocity-company

H19 Reciprocity-society has a *positive indirect effect* on reciprocity-company through reciprocity-customer

H20 Reciprocity-customer has a *positive direct effect* on reciprocity-company

Overall Centrality and Reciprocity Hypotheses

H17 Overall Centrality has a positive direct effect on Reciprocity-Company

H18 Reciprocity-society has a *positive direct effect* on reciprocity-company

H19 Reciprocity-society has a *positive indirect effect* on reciprocity-company through reciprocity-customer

H20 Reciprocity-customer has a *positive direct effect* on reciprocity-company

Gender and Individualism Hypotheses

H21 Gender moderates the impact of overall centrality on reciprocity -company

H22 Individualism will moderate the impact of overall centrality on reciprocity -company

H23 Individualism will moderate the impact of reciprocity towards society on reciprocity -customer

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Methodology

Methodology

- Companies:
  - Apple
  - Samsung
  - Blackberry
- Sample: n= 436 Students (75% are customers)
- Items generation: adapted from the literature
- All analysis run with Amos 19, 2010 [18]
- First-Order Confirmatory Factor Analysis (CFA, four models tested)[19]
- Second-Order CFA (Final Model)[19]
- Analysis of Reliability and Validity [19]
- Structural Equation Modeling[19]
- Use of Multigroup-Analysis for assessing the impact of moderators[20]

[18] Abuckle, 2010
[19] Diamantopoulos, Riefler and Roth, 2008 ; Byrne, 2010; Bagozzi and Yi, 2012

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Results

Reliability and Convergent, Discriminant and Nomological Validity of Constructs

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Correlated Factors			Correlations	SIC	Factors	Composite Reliability	AVE
Directionality	⟺	Centrality	0.722***	0.521	Directionality	.916	0.67
Directionality	⟺	Reciprocity	0.679***	0.461	Overall centrality	.807	0.74
Centrality	⟺	Reciprocity	0.599***	0.358	Overall reciprocity	.916	0.69

***p<.001
AVE=Average Extracted Variance
SIC: Squared Interconstruct Correlation

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Goodness-of-fit Indicators for Higher-order CFA and SEM

Model Fit Indices*	Higher-order CFA Results	SEM Results
χ^2	413.98 , p< .001, df=180	378 , p < .001, df=194
CFI	.966	.971
NFI	.942	.947
RMSEA	.055	.05
SRMR	.052	.054
GFI	.918	.925

*Byrne, 2010: CFI>.95; SRMR<.05, GFI >.9; NFI > .9; RMSEA < .6
χ^2 = Chi Square Value
CFI= Comparative Fit Index
NFI= Normed Fit Index
RMSEA= Root Mean Squared Error
SRMR= Standardized Root mean Square Residual
GFI= Goodness of Fit Index

The CCNS Higher-Order CFA Results

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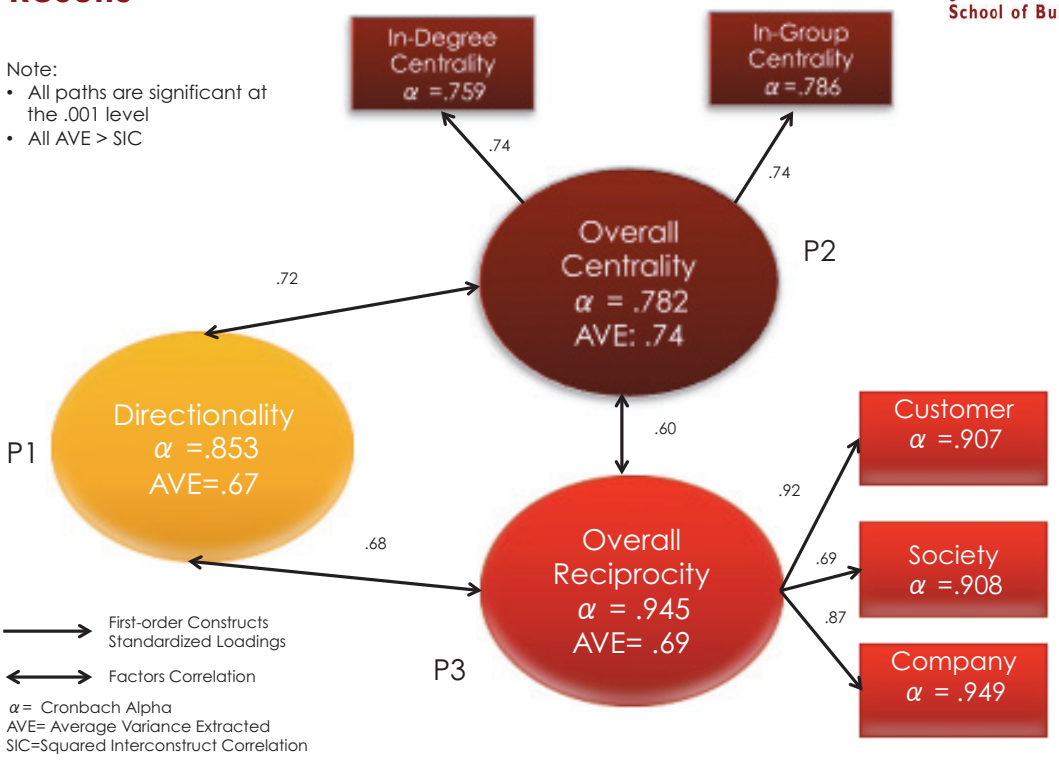
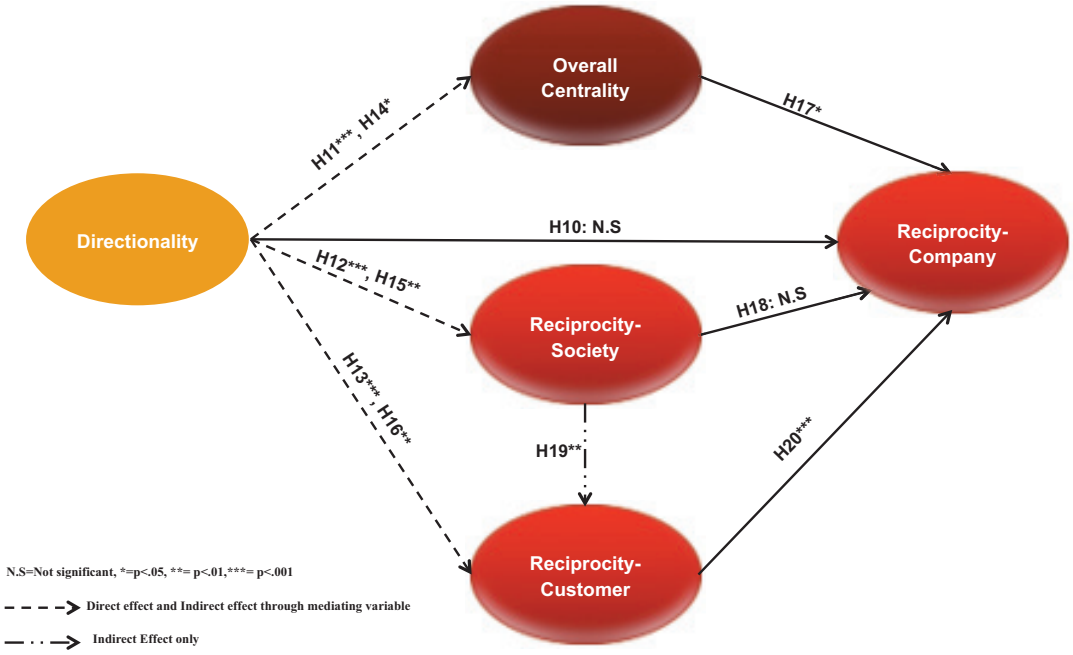
Note:
- All paths are significant at the .001 level
- All AVE > SIC



SEM Results

Hypothetical paths			Unstandardized Loadings	p-value	Standardized Loadings
Reciprosociety	←	Directionality	.610	***	.555
Overallcentrality	←	Directionality	.407	***	.734
Reciprocust.	←	Directionality	.434	***	.364
Reciprocust.	←	Reciprosociety	.473	***	.435
Indegreecentrality	←	Overallcentrality	1.000		.713
Ingroupcentrality	←	Overallcentrality	1.431	***	.765
Reciprocomp	←	Directionality	.012	.900	.010
Reciprocomp	←	Overallcentrality	.412	.013	.194
Reciprocomp	←	Reciprosociety	.043	.403	.040
Reciprocomp	←	Reciprocust.	.676	***	.686

***Significant at .001 level; **significant at .01 level, *significant at.05 level


Overall Centrality
H11***, H14*
H17*
Directionality
H10: N.S
Reciprocity-Company
H12***, H15**
Reciprocity-Society
H18: N.S
H13***, H16**
H19**
H20***
Reciprocity-Customer
N.S=Not significant, *=p<.05, **= p<.01,***= p<.001
Direct effect and Indirect effect through mediating variable
Indirect Effect only

Gender and Individualistic Orientation Results

- **Individualism-Collectivism**
  - Impact of Overall Centrality on Reciprocity-Company is significant for collectivists* only.
  - Impact of Reciprocity-Society on Reciprocity-Customer is greater for collectivists** than individualists**.
- **Gender**
  - Impact of Overall Centrality on Reciprocity-Company is significant for females*only.

* p<. 05; ** p<. 01

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Implications

Overall Purpose of the Research

- Develop a framework to assess the Customer-Company relationship value
  - The Customer-Company Network Strength Scale
  - A Customer perspective
- Assess the interactions between the dimensions of the CCNS
  - Structural Equation Model:
    - Value as ultimately expressed by Reciprocity-Company
- Show the moderating effect of Gender and Culture in the model

Theoretical Implications

- The assessment of value within the Customer-Company relationship context is a methodological challenge[20]
  - Few S-D Logic frameworks have been tested empirically
  - Mostly focus on B2B
  - CCNS Scale Development
  - Validation of a Three-Factor Solution to CCNS
  - Validation of SEM model which investigates the interactions between the dimensions of the customer-company relationship
  - Social Influence continues to matter more for females and collectivists

[20]Gallarza and al., 2011

Theoretical Implications cont.

- The analysis of the Customer-Company relationship requires a more holistic and interdisciplinary approach
  - Relationship research focus is on Business-to-Business

This research contribution:

- Integrates principles from S-D Logic, SNT, SET , Social Identification and Social Influence Theories
- Takes into consideration the larger network and resource integrators
- All exchanges are relational: the relationship interactions are the exchange
- A transaction is not necessary for a customer-company relationship to exist

Managerial Implications,

- Need to develop a network strength to survive in the complexity of today rather than a "myopic view of market share or share of wallet"
- Value proposition is more than "economic in nature" and calls for reciprocity towards the customer such as "joined-problem solving" and "innovation"
  - Reciprocity-Customer is the most determinant of Reciprocity-Company
  - The customer values reciprocity-society only when Reciprocity-Customer is perceived as present

Managerial Implications cont.

- Companies need to capitalize on those "non-transaction" customers with whom they already have a strong ties
- The CCNS Scale allows the company to assess their network strength with a given customer or customer group
  - Which dimensions matter most to various customers or customer groups?
  - Need to develop strategies that enhance perception of Overall Reciprocity and Overall Centrality

Some of the Limitations

- Student sample (millenials: 91.3%)
- Non-exhaustive list of items (more item generation needed)
- Three companies only, all from the same industry
- Scale assessed with only one method

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Future Research

- Validate the scale with a different sample, companies and methodology and identify additional items
- Moderators:
  - Goal orientation
  - Personality
  - Status of network actors
  - Communication encounters (formal vs. casual)
  - Quality of medium of interaction including active space
  - Reciprocity-Society impact on Reciprocity-Company

Questions ?