



**SCHOOL OF ECONOMICS  
AND MANAGEMENT**  
Lund University

Department of Informatics

**The Relationship Between Use of Social Media  
and Customer Relationship  
From E-commerce Model Perspective**

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Abstract:

In recent years, the impact of social media is drawing more attention from researchers and E-commerce companies. Most researchers and e-commerce companies think that using social media may benefit for e-commerce. And some e-commerce companies started to involve social media into their business. However, do social media really make a big contribution to e-commerce? Similarly traditional business, since managing customer relationships is still important work for e-commerce. This study regards customer relationship as one aspect of e-commerce and focuses to identify the relationship between use of social media and customer relationship.

To fulfill our research objective, this study adopted a business model approach that applies the concept of customer relationship, an element of the e-business model ontology, as the starting point to develop our research model. And we supposed social media use has a positive relation with customer relationship, as well as its three components. Further, a quantitative empirical study has been used to examine these hypotheses. After the empirical study, we presented the results of our hypotheses and updated our research model. At the end, an indirect relationship between social media use and customer relationship were found. The limitation of this study and recommendations for further study were also addressed in the final section.

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Lund University, June 2011

Xiaochao Wang

Gulara Abdullayeva

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# 1. Introduction

*In this chapter, an explanation of what and why we did this thesis has been presented. It starts with a general background of social media and e-commerce development, and further discussed both academic areas. After the problem discussion, the formed research questions and research delimitation have been provided.*

Recently, the number of Internet users has increased dramatically in the world, as well as the rate of Internet and information technology development. In 2010, the world's Internet users reached 1.96 billion, which was increase of 444.8% compared with 2000 (Internet World Stats, 2010). With the growing number of Internet users, an online two-way communication tool—social media, has emerged. It is a media that users easily can participate in and contribute to (Karjaluoto, 2008). Examples of such media include online video, blogging, forum and social networking websites, wikis, podcasts, content communities, and etc. Social media has a large user group. According to Mayfield (2008), there were more than 110 million blogs, 100 million videos and more than 123 million Facebook users in 2008. Now Facebook has more than 500 million users and half of these users log on to Facebook on any given day (Facebook, 2010). Today, the way that Internet users communicate, search for and share information is highly influenced by the use of social networks (Swamynathan et al.,2008).

Before the various social media applications emerged, lots of business activities already existed in the online electronic world and were referred to as e-commerce. Unlike the traditional business way, e-commerce established a new business model, which included buying and selling of products over the Internet. Many believe that adding social networking features to e-commerce can improve the level of trust between a company and its customer (Swamynathan et al.,2008). Today, product reviews, recommendation systems and search function are well integrated into e-commerce websites, and the features of social network are increasingly adopted in online businesses (Guo et al., 2011). The combination of e-commerce and social media is becoming more attractive and important in online business. Stephen and Toubia (2010) described social commerce as a new fast-growing trend in the e-commerce market. It is a subset of e-commerce, which uses social media to interact with online customers that contribute to the online business (Social CommerceDefinition, 2009). The term of social commerce was first introduced by Yahoo as a group of online collaborative shopping tools in 2005 (Social commerce, 2005).

In general, social commerce can be classified into three types. The first type is that an e-commerce website adds some social features. For example at Amazon, customers can read reviews, comments and recommendations when they are shopping. The second type is where social networks add an e-commerce function. For instance, P&G's Pampers opened a store on Facebook and it achieved 1000 transactions per hour in 2009.The third type is group-buy social commerce, which uses the social network to organize an online purchase group. For example "Groupon" is a deal-of-the-day and group buying website, which offers one group



coupon per day. If a certain number of people sign up for the offer, then the deal has been made. (Three Types of Social Commerce, 2011)

## 1.1 Problem Discussion

Nancy et al.(2009) claim that the use of social media will keep growing in the future among all user groups. Social media is not just a fad and it gradually changes the way that users communicate online. Social commerce and the impacts of social media on the e-commerce is a relatively new research topic (Guo,et al., 2011), which has only been studied in the last few years. Stephen and Toubia (2010) found that social commerce networks have a power-law distribution<sup>1</sup> by investigating the evolution of the network in a large online market. Swamynathan et al.(2008) examined the impact of social connections on the online business transactions and argued that social network adoption has a positive impact on the user satisfaction. Guo et al.(2011) illustrated that social network is a key feature to predict customer's online purchase choices and established a machine learning model for predicting this. Rehmani and Khan (2011) also investigated the social media impact on customer purchase intentions. Their study argued that the electronic word of mouth and seller generated online information are the constructs of social media, and hypothesized these two constructs both have a positive impact on customer purchase intention.

From the above state arguments, researchers have mostly explored how social media influences the customer purchase activities online, which illustrates customer plays an important role that draws increasing attention in the social commerce research. Paterson (2009) suggest customer knowledge can be regarded as a vital asset for both online and offline business. He further claims that a close relationship between company and customer can create a positive influence on their information interaction. Wright and Hinson (2008) also claim that social media has a big potential impact on public relations and especially that is has the potential to change the way that companies communicate with its customers. However, how social media affects the customer relationship is still not well understood.

Additionally, there is a lot of potential in the research on the business model in an IS context (Linder and Cantrell, 2000; Osterwalder et al, 2005). The business model perspective has not been extensively explored in the social commerce research area. According to Osterwalder and Pigneur (2002), it is essential that a company understands and uses an e-commerce model in the increasing complex and dynamic business environment. Osterwalder et al. (2005) identified a business triangle, which is composed of business strategy, organisation and systems. They treat the business model as a building plan that stands at the centre of this triangle. Bloch et al. (1996) also argued that the competition of business models is the only competition between companies, apart from as technology and products. Business models can effectively guide companies that are implementing an e-commerce strategy and enable them to assess measure, change and deal with their business (Osterwalder & Pigneur, 2002). E-commerce models also provide a theoretical foundation to companies, which facilitate them to modify their business models when they face changes. (Petrovic et al., 2001; Osterwalder &

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<sup>1</sup> Power law distribution: When the frequency of an event varies as a power of some attribute of that event (e.g. its size), the frequency is said to follow a power law (Power Law Distribution, 2010).

Pigneur, 2002). Furthermore, using an e-commerce model approach to construct the organization of the company can keep and enhance its competitive advantages, which increase its efficiency and flexibility. (Torbay et al., 2002).

Along with the rapid development of Internet and ICT, the online business environment is also changing, which brings social innovation of the e-commerce model. The use of social media will produce technological changes and influence the social communication. These changes will further challenge the traditional e-commerce model. Therefore, it is important that researchers and e-commerce companies consider from the business model perspective when they look into social media impacts. Since customer relationship is a key aspect in e-commerce as it in the traditional business, it is essential to understand how social media is related to the customer relationship. Considering the above discussions, we think that the relationship between social media and customer relationship of e-commerce within a business model perspective is an interesting issue that needs to be explored.

## 1.2 Research Question

Based on the above problem discussion, we formulate our research question as below.

*What's the relationship between the use of social media and e-commerce customer relationship?*

Sub-questions:

- Is social media use related to the customer relationship?
- How is social media use related to the customer relationship?

## 1.3 Research Purpose

The aim of this study is to identify the role of social media in the e-commerce context, especially with focusing on customer relationship aspect. Further to find out how and how much social media use contributes to or damages the customer relationship.

## 1.4 Delimitations

Social media is a term, which includes various applications, such as blog, forum and social networking websites. However in this thesis we considered social media as the common features of its application forms. Thus we will not deeper look at the role of each form in the customer relationship. Furthermore, this study only explored the research question from the customer's point of view in the empirical study. We also limited our research population from

the large number of e-commerce and social media consumers into a small scope: student group. Therefore, our research findings will not generalize to the whole customer group.

### 1.5 Research Design

In this study, in order to find the relationship between social media and customer relationship in the e-commerce environment, we developed a research approach as shown below (Figure 1.1). This research design starts from the literature review, which covers the fields of social media and e-commerce. Then according to the reviewed e-commerce model related literature, we came up with the original model (Model A) of the customer relationship, which is a part of the e-commerce model ontology (Osterwalder & Pigneur, 2002). For the next step, we continuously reviewed literature, which focused on the social media impacts on the customer relationship, from which we developed the hypothesized model (Model B). Further, we conducted the empirical quantitative study that used a survey strategy to evaluate the hypothesized Model (Model B) and presented the final model (Model C) at the end.

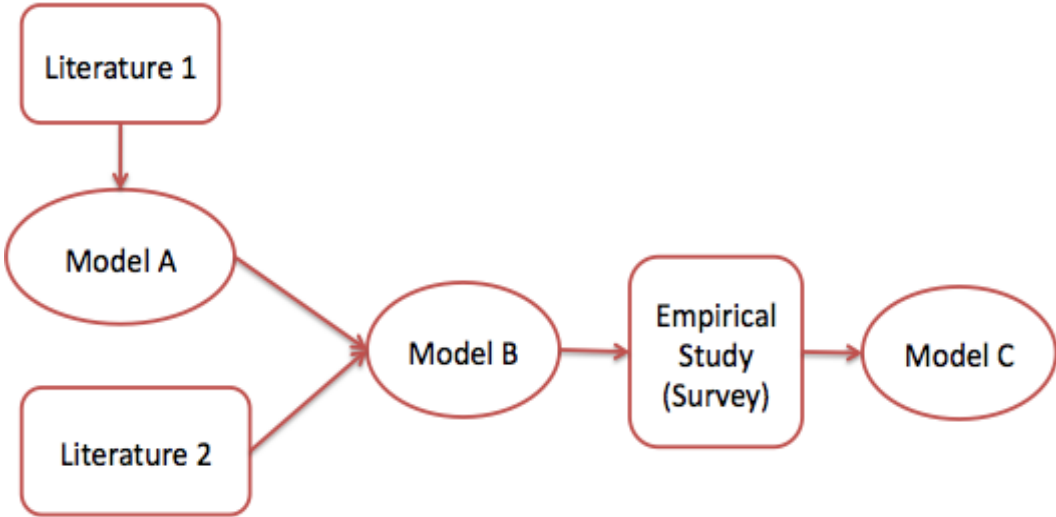


Figure 1.1 Research Approach

## 2. Literature review

*In this chapter, we generally introduced two concepts of social media and e-commerce at the beginning. Then we looked deeper into the business model area and selected e-business model ontology as our framework for developing our research model. By further reviewing the previous literature, we explored the impacts of social media use on the customer relationship as well as its components. At the end of this chapter, a research model has been presented, which will be used in the later study process.*

### 2.1 Social media

There is still no widely accepted definition of social media. According to Constantinides and Fountain (2007), social media is often interchanged with the term of Web 2.0. While Web 2.0 is described as:

*“A collection of open source, interactive and user controlled online applications extending the experiences, knowledge and market power of the users as participants in business and social processes. Web 2.0 applications support the creation of informal users’ networks facilitating the flow of ideas and knowledge by allowing the efficient generation, dissemination, sharing and editing/refining of informational content” (Constantinides & Fountain, 2007)*

Web2.0 applications gradually changed the market power structures, which produced more benefits to the consumer than to the company (Constantinides & Fountain, 2007). However, SpannerWorks (2007) claim that Web 2.0 is a broader description of online applications, while social media is only the social aspect of Web 2.0 application. And Bruns and Bahnisch (2009) further defined social media as:

*“Websites, which build on Web 2.0 technologies to provide spare for in-depth social interaction, community formation and the tackling of collaborative projects.”*

On the other hand social media is also referred to as consumer-generated media (CGM), which emphasizes the power of consumers. Consumer-generated media (CGM) is produced by consumers, which offers the non-commercial, detailed, consumer self-experiential information through word-of mouth without access boundaries (Yoo & Gretzel,2011). According to Blackshaw and Nazzaro (2004), consumer-generated media is defined as:

*“The media that describes a variety of new sources of online information that are created, initiated, circulated and used by consumers intent on educating each other about products, brands, services, personalities and issues”*

According to Shao (2009), the common activities of an individual, which is performed through social media, are consuming, participating and producing content. Consuming information, which is displayed by social media, is the primary behaviour. Also, individuals like to participate in the social media that interact with other users. Furthermore, they may create information on social media, such as upload pictures or video. Also, since social media is a big content and there is still no specific definition, we will use the definition of consumer-generated media (CGM) when we are referring to social media in this case.

Mayfield (2008) summarized that social media is characterized by participation, openness, conversation, community, and connectedness. Participation shows that social media enables everyone to be a content creator and it blurs the line between media and user. Most social media applications have the openness that allows and encourages users to give feedback, comment and share information on it with few barriers. Unlike the one-way information transmission of traditional media, such as broadcasts, social media is a two-way communication tool that promotes conversation among users. Social media enable communities to form quickly and effectively communicate. The community is a platform where people share their common interests. The last feature of social media is connectedness. There has some connection between various social media forms.

### *2.1.1 The Form of social media*

Mayfield (2008) suggested that it's easy to understand social media as a group of new kinds of online media. Social media consists of a large range of word-of-mouth online forms (Huffaker, 2006) and the new form is continuing to emerge. In 2008, the common social media forms were: blogs, forums, content communities, virtual worlds, wikis, podcasts, social networks and microblogs. (Karjaluoto, 2008; Mayfield, 2008). In 2010, media sharing sites, social bookmarking and voting sites and review sites appeared as the new social media forms (Zarella, 2010).

According to Li and Bernoff (2008), the various social media forms have been classified into six basic categories based on the different user activities. Creating information (e.g. Blogs), connecting with others (e.g. SNS), collaborating (e.g. Wiki), reacting to each other (Forums), organizing (e.g. Tag), consuming (e.g. RSS) are the most common activities. In 2010, Mckee (2010) proposed the "Social Trinity Model", which describes the three main using purposes of the most common used social media applications. The three main purposes are networking, conversation and community (Figure 2.1).



Figure 2.1 Social Trinity Model (MCKEE 2010, P.183)

We summarized seven common social media forms based on the different classification about social media from different authors:

1. Social Networks Sites (SNS): The websites where people can build their personal profiles connect and share information with their friends (Mayfield, 2008). The most popular social network websites are Facebook, LinkedIn and MySpace.
2. Blogs: The websites where individuals or groups can post information and enable readers to make comments (Karjaluo, 2008).
3. Wikis: Wikis allows people to add and edit information and create an online database (Mayfield, 2008). Such like Wikipedia.
4. Podcasts: The websites, which offer audios and videos subscription services to users (Mayfield, 2008). iTunes is the most popular podcast platform.
5. Forums: Forums are the online discussion places where users create and discuss specific topics (Mayfield, 2008).
6. Content communities: The websites, where users create and share particular types of content (Mayfield, 2008). For example Youtube, which is a famous video sharing website.
7. Microblog: It is a small sized blog, which interacts with social networking sites (Mayfield, 2008). Users can exchange short sentences, images or video links with others (Kaplan & Haenlein, 2011). E.g Twitter.

## 2.2 E-commerce

E-commerce developed rapidly in recent years and will continue growing in the future (Karakaya & Shea, 2008). But until now, there still has not been a single definition of e-commerce. According to the Organisation for Co-operation and Development (OECD), e-commerce has been identified as using information technology and electronic processing to conduct commerce activities. From the view of Beynon-Davies (2004), e-commerce is the use of information and communication technologies (ICT) to enable all trading activities, in the phases of pre-sale, sale execution, sale settlement and after sale. According to Song and Dong (2010), the transaction of information, products and services can all be seen as e-commerce. However, Turban et al. (2002) argued that e-commerce is not only a transaction via Internet, but also associated with customer servicing and partners collaboration. Also, Lawrence (2000) referred to e-commerce as a group of networks, which are open to everybody and include the internal and external relationship of a company.

Companies that adopt e-commerce can be motivated by different reasons. In the e-commerce research area, most researchers explore the motivations from the customers' perspective (Karakaya & Shea, 2008). E-commerce can contribute to enhancing the relationship between a company and its customers from both a short-term and a long-term perspective. Karakaya and Shea (2008) explored from nine motivators and classified them into two categories, which are short-term productivity and long-term company competitiveness. In the short-term, e-commerce improves customer service. Also, companies may generate long-term benefits by adopting e-commerce, which meets the online shopping demands of customers (Karakaya & Shea, 2008). Rajaobelina and Bergeron (2009) suggested that long-term customer relationships could be regarded as an important business asset of a company. Now, many e-commerce companies are treating people as a critical factor of their business and becoming more people-oriented (Song & Dong, 2010).

### 2.2.1 Customer Relationship Management

Since e-commerce is a transaction channel as traditional commerce, a well-managed customer relationship is required. Ma et al. (2009) argue that customer relationship management is a key component of e-commerce. E-commerce companies need to find their target customer segments and adopt an appropriate customer relationship management strategy to attract and keep customers (Cao & Ye, 2007). Singh et al. (2008) also claimed that the customer plays the central role in the relationship between customer and company, and it is becoming more active in the relationship building process. According to Lang et al. (2002), "customer relationship management (CRM) is a business philosophy that touches upon many independent parts of the organization". To enhance customer acquisition and increase customer satisfaction, it is necessary to develop a customer centric business model, which links all relevant departments around Sales, Marketing and Services. Richards and Jones (2008) claimed that customer relationship management (CRM) is "management of mutually beneficial relationships from the seller's perspective". While Rigby et al. (2002) describes that CRM puts customer strategies into business process, which improves customer loyalty

There are many different expressions about customer relationship management (CRM) and for different organizations, CRM turned into different concepts. However, they can be summarized into two main categories: customer relationship management strategy and customer relationship management software. From the strategy point of view, CRM is a customer-driven business strategy, which aims to attract new customers and keep old customers and (Wang & Feng, 2010). Also, Hurwitz Group argued that customer relationship management contributes to improving the business process, like sales, marketing and customer service, which are all related to the customer (Wang & Feng, 2010). While from the software point of view, CRM is one kind of system, which relies on information and communication technologies (ICT) to help a company manage its customers. CRM can be regarded as an instrument that organizations use to manage customer relationships, customer needs, customer access information and the purchased products (Customer Relationship Management, 2006).

In our case, we refer customer relationship management as a strategy. It is one kind of activity, which contributes to build and solidify customer relationships of company. It is beneficial for us to review this concept here that provides an overview of customer relationship from business perspective.

### **2.3 Business Model**

Osterwalder and Pigneur (2002) argued that a business model is a description of the value creation process, which illustrates the “business system” logic. A lot of definitions of business models exist in the academic area. Business models may stand for different things, as referred by different authors (Linder and Cantrell, 2000). According to Osterwalder (2005), the business model has been identified as:

*A business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm. Therefore we must consider which concepts and relationships allow a simplified description and representation of what value is provided to customers, how this is done and with which financial consequences (Osterwalder, 2005).*

According to Osterwalder (2005), the existing definitions of business models can be summarized and classified into conceptual level and instance level. The conceptual level describes all real world businesses or a set of businesses with common characteristics. The instance level presents a particular real world business model, such as a view of a specific company (Osterwalder, 2005). In our study, we choose the concept of business model in the instance level, which focuses on business model of company in the e-commerce context.



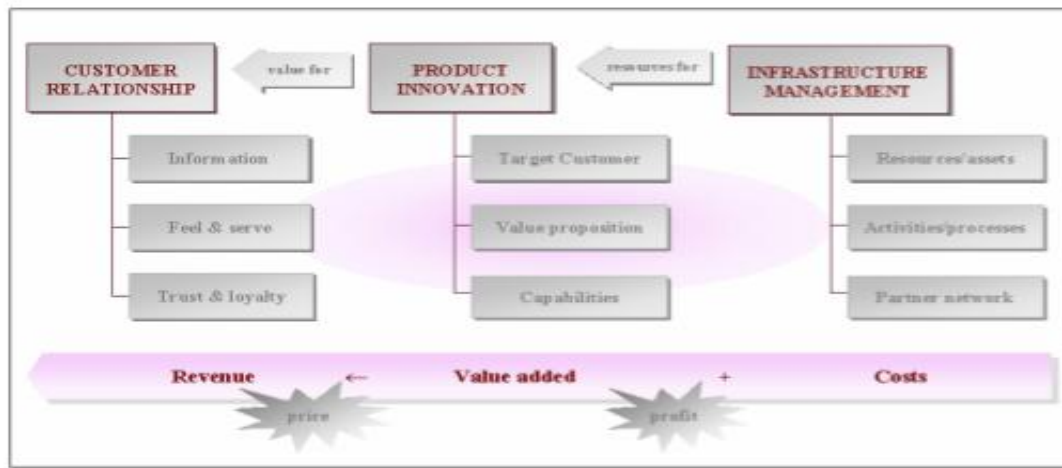
### 2.3.1 *E-commerce business model*

E-commerce business model is “a business model that aims to use and leverage the unique qualities of the Internet and the World Wide Web” (Laudon & Traver, 2002; Timmers, 1998). Nowadays, many e-commerce models emerged along with the Internet and e-commerce application development (Peng & Zhang, 2010). Business-to-Business (B2B), Business to Customer (B2C), Customer to Customer (C2C), Business to Government (B2G) are the most familiar e-commerce model categories, which are classified by the different participants roles in the e-commerce market (Peng & Zhang, 2010). Besides this category, there are many other types of e-commerce models. For instance, Rappa (2001) classified 9 types of e-commerce models: broker model, advertisement model, information inter-mediator model, distributor model, manufacture model, associated model, social community model, subscription model and utility model. From the point of business model components, Weill and Vitale (2001) summarized 8 models: content provider, middleman, sharing infrastructure, value web integrator, virtual network community, and enterprise/ government integration.” Pure online” and “brick-and-click” are also two kinds of e-business models in the online marketplace. “Pure online” companies are the companies that only sell products online, such as Amazon. “Brick-and-click” companies on the other hand have both online and offline channels to sell products, such as the large supermarket company Wal-Mart. Customers can either shop in the Wal-Mart store or online.

The majority of research discusses the types of e-commerce model, while the ontology on e-commerce model has rarely been studied. From the perspective of Osterwalder (2004), e-commerce model ontology is a tool to create a shared, formal, and explicit model, which illustrates the components of the model and its relationships and explains the company’s business logic. Business model ontology, e3 value ontology, Resource-Event-Agent (REA) Ontology (Geerts & McCarthy 2002) and the Service Ontology (Akkermans et al., 2004) are some ontologies on e-commerce model (Osterwalder, 2004). According to Osterwalder (2004), business model ontology has more benefits and advantages in the offer- and customer- related area. Therefore, we select the e-commerce model ontology as our research theory to identify the social media influences.

### 2.3.2 *E-business model ontology*

The E-business model ontology is a tool to create a shared, formal, and explicit model, which illustrates the components of a model and its relationships and explains the company’s business logic. It is a method to conceptualize the business model, which identifies the basic elements in the e-commerce model and describes their relationships. E-business model ontology consists of several dimensions with an increasing level of complexity. Product innovation, infrastructure management, customer relationship and financials are the four basic elements, which are showed in the first dimension. They are the roots of e-commerce model ontology and are further decomposed into the following dimensions (Figure 2.1).



**Figure 2.2 E-commerce Model Frameworks (Osterwalder & Pigneur ,2002)**

- 1) Product innovation represents the products or services that a company provides to its target customer, which demonstrates its differences compared to its competitors. The innovation of product results from the aspects of value proposition, target customer segments and the capabilities of the firm.
- 2) Customer relationship covers the channels through which a company contacts its customers and does business in the market. A company can improve its customer relationship through the use of an information strategy, by adopting multiple communication channels, and by understanding the importance of trust and loyalty in the online business environment.
- 3) Infrastructure management is the element that is used to transfer the value proposition. It supports the firm is activities that produce and deliver value. And it also associates the configuration, in-house resources and assets and the partner network.
- 4) Successful financial performance is the goal of every company. The financial aspect consists of a revenue model, a cost structure and a profit model.

## 2.4 Original Model (Model A)

According to the e-business model ontology, the customer relationship is related to the following three aspects (Osterwalder & Pigneur ,2002):

- 1) Information strategy: Information strategies are ways through which a company can quickly gather customer information in order to gain a deeper understanding of its customers' behaviours. Companies usually adopt some technologies in their information strategies, such as data mining, data warehousing and business intelligence.
- 2) Feel & Serve: Feel & serve refers to the distribution channels of company, which presents the ways a company interacts with its customer. Unlike the information strategy, feel and serve is the channel strategy that outlines how company delivers its value proposition to its target customer. It could be an indirect or direct communication channel.

3) Trust and loyalty: Trust and loyalty are the vital factors in the transactions between company and customer, especially in the online business. The customer loyalty results from the trust of customer and customer satisfaction. It is easier to keep the old customer than to attract new customers. Customer loyalty requires a positive and dynamic customer relationship.

The three aspects also influence each other, information strategy improve feel and serve, while feel and serve establish trust and loyalty. In addition, trust and loyalty enable customers feel and serve. Feel and serve can gather information for company to make strategy (Osterwalder & Pigneur ,2002).

E-BMO was the main approach for us in order to understand the main point of our purpose. But we only focused on the customer relationship aspect of this model, which describes it very clearly. Since the objective of this study is to find the impacts of social media on the customer relationship, we choose customer relationship part as the foundation of our research. And the connection between customer relationship and its 3 aspects has been proved already, so we will not mention the relationship between its three aspects in our original model (Model A), which is the customer relationship aspect of E-BMO. The original model (Model A) is shown below (Figure 2.3).

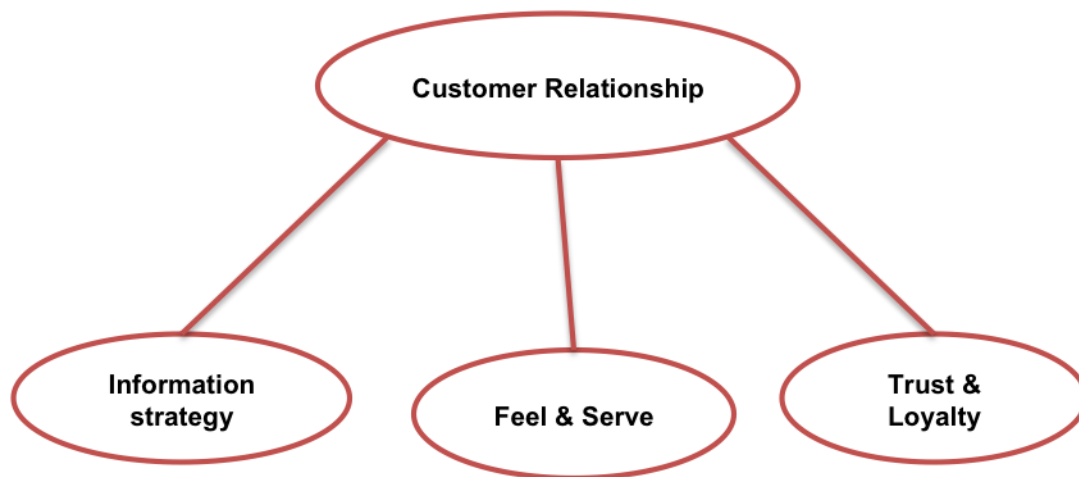


Figure 2.3 Original Model (Model A) (Osterwalder & Pigneur, 2002, Modified)

## 2.5 Social media impacts

Based on the above original model, we divided social media impacts into four aspects based on our review of the literature. Firstly, we discussed the impact of social media on the three components of customer relationship. Then we further theoretically explored the direct relationship between the use of social media and customer relationship.

### 2.5.1 Information Strategy

Singh et al. (2008) pointed out that we are faced with information overload on the Internet. Thus, an effective information strategy is very important for an e-commerce company. With

the rapid development of social media, there is an increasing amount of attention on the impact of social media. On the one hand, as important online communication tools, social media connects users and gives them an opportunity to participate in the business process. In the network environment, consumers can freely access commodity-related information through various channels (Wang & Tong, 2010), which enable customers to directly communicate with the company. Singh et al.(2008) also argued that customers feel more comfortable to express their point of view through social media (e.g. SNS) than through traditional channels. The content of social media is non-commercial, detailed and consumer self-experienced information, which is generated by customers (Yoo & Gretzel, 2011). Social networking site (SNS) has a great number of users and contains users' personal information, which is created by users. Social media can be used to collect product information that helps customers compare its price, quality and etc., as there are a lot of product communities or forums, which customers can join. On the other hand, social media offers more alternative places for customers to express their feedback, and where companies can collect feedback and enable them deeper insight into the customer's opinion (Singh et al.,2008). An effective customer feedback collection can contribute to the development and innovation of products and services ( Osterwalder & Pigneur, 2002). For instance, social networking sites (SNS) record all the interaction of users, which has a large potential for data mining (Dwyer et. al., 2007). Erat et al. (2006) suggested that a company can enhance its knowledge about customers by using online communities in an effective way. Therefore, it is essential that companies consider the impacts of social media when they make their information strategy. According to the above discussion, we propose the following hypothesis:

***H1: Social media use is positive related to Information strategy***

### ***2.5.2 Feel & Serve (Distribution channels)***

In recent years, the transaction is shifting from sellers' to the buyers' monopoly in the e-commerce market (Wang & Tong, 2010). According to Guo et al (2011), communication between buyers is a fundamental driver of purchasing activity. With the nature of the Internet, it is hard for a customer to feel served directly by the sellers in the e-market (Wang & Tong, 2010). In the online transaction, sellers and customers are connected through a computer and the Internet. Nowadays, participating in social media is becoming a part of people's lives. People use social media to connect with their friends, meet new peoples, have fun, consume and contribute information. For instance, social networking sites (SNS) are vital communication platforms that link people around the world via Internet (Tapscott, 2008). Facebook is a successful example. Blogs are also the useful marketing communication tools (Singh et al.,2008). Feel and serve represent the ways that a company connects with its customers. As we mentioned before, social media has various characteristics and some of them are openness and connectedness. All these kinds of social media forms have their own special features that provide many alternatives for companies to expand their distribution channels. Additionally, globalization is the one nature of social media (Singh et al.,2008). A company can publish its product or service information on a blog or SNS, micoblogging, etc., which helps them reach audiences all over the world. Singh et al (2008) also argued that blogs have a good ability to manage customer relations. Social media offer more possibilities for firms to connect customers and deliver information. Therefore, we hypothesise that:

***H2: Social media use is positive related to Feel & serve******2.5.3 Trust & Loyalty***

With a high level of risks and existing uncertainties in the Internet environment, trust is a critical factor, especially in e-commerce transactions (Wang & Tong, 2010). Further it is important for online interaction success (Dwyer et. al.,2007; Coppola et al, 2004). Al-Omari and Al-Omari (2006) claim that building trust is a core requirement for establishing new relationships concerning security, confidentiality, integrity, non-repudiation and trust, especially in an online virtual environment. There is a misguided understanding that equates online trust with underlying security requirements (Al-Omari & Al-Omari ,2006). According to Al-Omari and Al-Omari (2006) these security requirements include authenticating users or Web sites and ensuring the confidentiality and validity of online interactions. Those requirements form an essential foundation. However, business trust also encompasses the non-technical issues surrounding online transactions between online partners. Those issues must be satisfied. In other words, sufficient trust must be established for any relationship to deliver the desired business value (Al-Omari & Al-Omari ,2006).

In particular, trust in the online environment is important because of the complexity and diversity of online interactions and the resulting possibility of insincere and unpredictable behavior (Gefen et al, 2003). Establishing customer loyalty requires the effort from both emotional and transactional aspects (Osterwalder & Pigneur ,2002). Kotler and Pfoertsch (2006) argued that social media is an extension of word-of-mouth and will continue to generate significant impact. Word-of-mouth is important for brand building. Social media offers the opportunities of drumbeating the brand on an individual level better than broadcast advertisements, which are delivered by traditional media (Christodoulides, 2008). People can use social networking sites to connect with their friends (Jensen, 2010) and their social network is mostly established based on the users' real life friendships. The transaction between partners who connect via social networks can contribute to a higher customer satisfaction (Swamynathan et al.,2008) and also improve trust between them. People who meet before they work together online can make their relationship more solid and achieve a higher level of trust (Paterson, 2009). Zheng et al (2002) also claim "trust is highest when partners meet face-to face beforehand". Meeting beforehand face-to face can effectively improve the trust, when people only can use media (video, email) to contact with other (Zheng et al.,2002 ;Moore et al.,1999; Rocco, 1998). From the perspective of behavioral psychology, consumers are more inclined to trust the purchase advice of their friends (Guo et al., 2011).

Riegelsberger and Sasse (2002) argued that applying more interactive and expressive channels can enhance trust, because it weakens the control abilities of companies. According to Paterson (2009), online communities can generate loyalty to the company and increase customer satisfaction. Hagel and Armstrong (1997) argues that virtual communities can contribute to the trust building in e-commerce environment. Social media have a high level ability of interaction, and applying social media can add more social features to an e-commerce website. Social media connect people with their friends and give them a better

ability to assess information which can contribute to the trust and loyalty building between company and customers. Therefore, we made the following hypothesis.

***H3: Social media use is positive related to Trust & loyalty***

#### ***2.5.4 Customer relationship***

As new technologies adopt been more and more a, social media gradually changes the way people communicate. Wright (1998, 2001) confirmed that the Internet holds the facilitation of the development of a relationship between an organization and the public. Stafford and Canary in their series of articles defined five factors of relationship maintenance strategy, which are positivity, openness, assurance, social networks and task sharing (Stafford & Canary, 1991). Singh et al.(2008) argues that the new technology such as social media have improved the customer relationship. When a business takes place in an online environment, both sellers and customers are more likely to have a conversation. It is easier for the customers to participate in the business process with the use of social media. Mutually the companies also strive to catch the attention of customers through social media. As one kind of ICT, social media also offer companies new opportunities to personalize and individualize each stage of the customer buying cycle and produce positive influence on the customer shopping experience, which may enhance the relationship with the company (Osterwalder & Pigneur, 2002). Establishing all kinds of communication channels with customers is also suggested as an effective measure to help a company manage its customer relationships. For example, they can establish an online exchange community. So, we hypothesis that:

***H4: Social media use is positive related to customer relationship***

## **2.6 Research Model (Model B)**

The aim of this study is to investigate the impacts of social media on the customer relationships in the e-commerce environment. In the above sections, we reviewed the e-commerce model ontology and selected its customer relationship element as the original model of this study. Further, we addressed customer relationship and its three aspects with the social media impacts, respectively. At the end, we created the research model (Figure 2.4) for this study, which added the social media construct and the four proposed hypotheses into the original model. In the later chapters, we will conduct an empirical study to evaluate this hypothesized model.

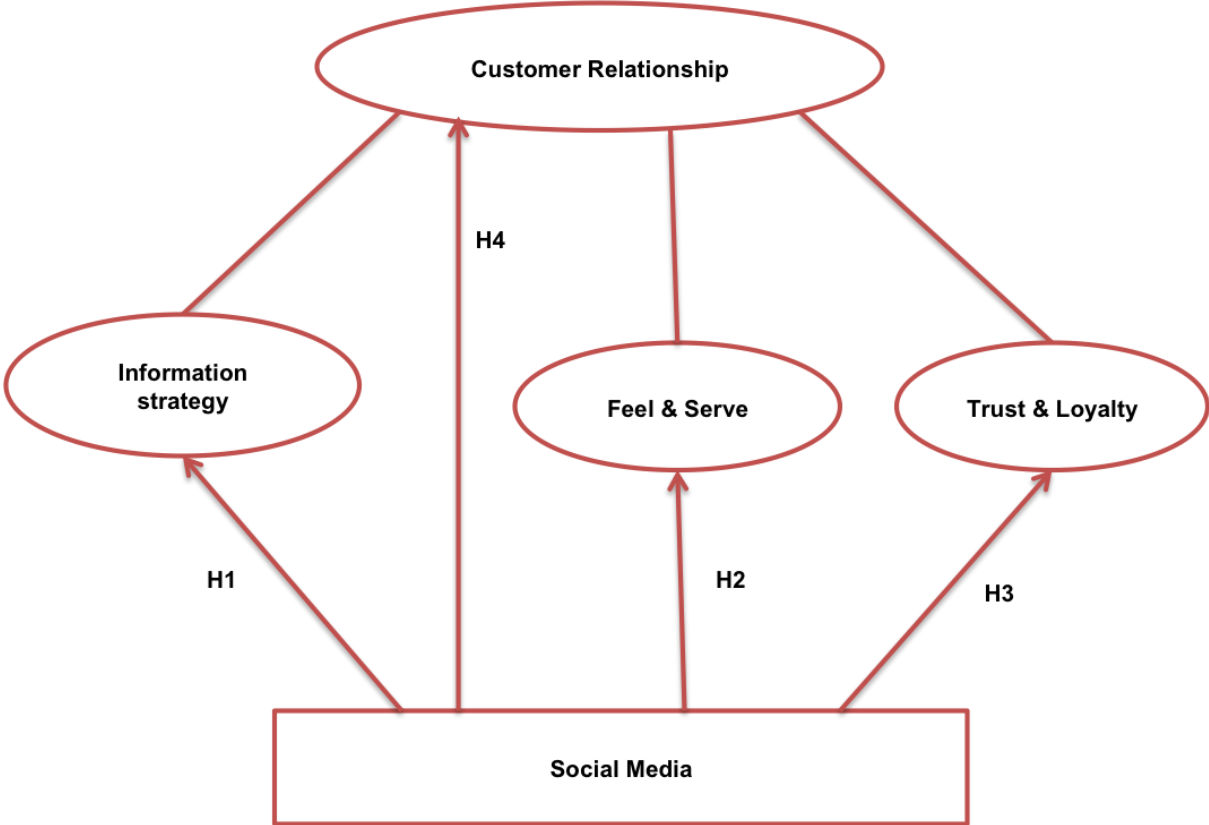


Figure2.4 Research Model (Model B)

### 3. Methodology

*In this chapter, the outline of the research method has been addressed. It described how we designed and conducted the empirical study to answer our research questions, as well as explained the motivation for the each chosen method.*

In order to explore the answers of our research question, a deductive approach has been adopted, which is a method that starts from the development of a theory or hypothesis and uses some research techniques to evaluate the hypothesis (Saunders et al., 2009). As we mentioned at the end of chapter 1, we developed a research approach for this study, which contains two phases (Figure 1.1). In the first phase, we constructed a conceptual research model (Model B), which is composed of five elements and four hypotheses, through the review of previous literature. For the second phase, we will conduct an empirical study that uses a quantitative research method to examine the hypothesized model (Model B). According to Saunders et al. (2009), the deduction approach is highly structured, requires a quantitative measure for the explored concept and should be able to be generalized. Also, the deduction approach emphasizes the quantitative data collection, the validity of data and the structured methodology (Saunders et al., 2009). Thus, quantitative research method is more preferred to use in this empirical study.

#### 3.1 Data Collection Method

In order to test the developed model and hypotheses, an effective research strategy is required. According to the suggestion of Saunders et al. (2009), we should consider several conditions, such as research questions, purpose, the amount of time, and knowledge of researcher and resources when we choose an appropriate strategy. In the strategy selection stage, we first considered the objective of this empirical study, which is to test the developed hypotheses that describe the relationship between the identified concepts. For that purpose, survey is the suggested strategy, which is often used to examine particular relationships between variables (Saunders et al., 2009; Glock, 1967). Moreover, our research needs to access a certain amount of customers who have that used social media for online shopping. While the survey research method can evaluate a phenomenon within a broad range (Pinsonneault & Kraemer, 1991). It is a better way to get a numeric value from a big number of respondents within a short time. Furthermore, surveys can be replicated. In order to confirm the findings, the same questions can be used to ask another population in the further research (Oates, 2006). Also considering the limited research time and the one survey experience we have before, we choose survey as our research strategy.

In order to know whether a relationship exists between social media and customer relationship and how much they are related, we adopted questionnaire as our data collection



technique for the empirical study. Although multiple data collection techniques have more advantages on eliminating the effects of the techniques at the final findings (Saunders et al., 2009), we only used one technique considering the limited time. This becomes a limitation of this study. Questionnaire is a data collection method that asks each respondent to answer the same set of predesigned questions (deVaus, 2002). It is a commonly used data collection technique associated with survey strategy and usually used for a descriptive and explanatory research purpose (Saunders et al., 2009), which is suited to our research purpose.

### *3.1.1 Target Population and Sample*

For this research, we aim to examine the relationship between social media and customer relationship, as well as its components, from the view of customers. Therefore, the population of this study should be people who have experience of both online shopping and social media. In our case, the users of social media and the customers of e-commerce are distributed all over the world, so that provides us a large population selection scope. Thus, in order to identify the suitable population, we first narrowed down the large population scope to a small scale, which led us to focus on the student group at Lund University. We choose students as our research target group because most students of a young generation that has been reached and influenced by the use of social media (Rehmani & Khan, 2011; Nancy et al, 2009; Tiffany et al, 2009). A young generation is more likely to accept and use the new technologies than older generations. Additionally, we thought the students with higher education level might have a better understanding for the questions. Thus we prefer to choose the high education level students as our respondents. The education level of students in Lund University is usually at least bachelor. Furthermore, it's better that our respondents have some basic knowledge of our research topic. While social media and e-commerce are in the social science area, it is especially related with knowledge about business and informatics. Also, since we are informatics students that belong to the School of Economic and Management, this provides us with a higher accessibility to these students. Therefore, we choose the students in the School of Economic and Management as our final population. Our sample is the set of students in Economics and Management School of Lund University.

### *3.1.2 Sampling Method*

Since we are both international students we are not very familiar with the respondents and considering the advantages of non-probability sampling, we chose it as our sample method to select respondents from the sampling frame, which is a collection of the overall population (Oates, 2006). According to Oates (2006), the non-probabilistic sampling technique is easy to obtain and useful when researchers do not have enough information about the population. The principle of non-probability method is that each member has their own characteristics that differ from others in the whole population. Furthermore, this sampling method only produces a weak basis for generalization to the broad population (Oates, 2006).

Under the non-probability sampling method, we selected convenience sampling as our sampling technique by following the guideline of Saunders et al. (2009) and decided to survey 100 respondents. To ensure we have a suitable sample size, we consulted some experienced

people before we used this decision. The sampling selection process of this study was shown in Figure 3.1, which used the red line to describe our decision path. Sample size, sampling inference, sampling frame, sample representativeness, and research objective all have been considered.

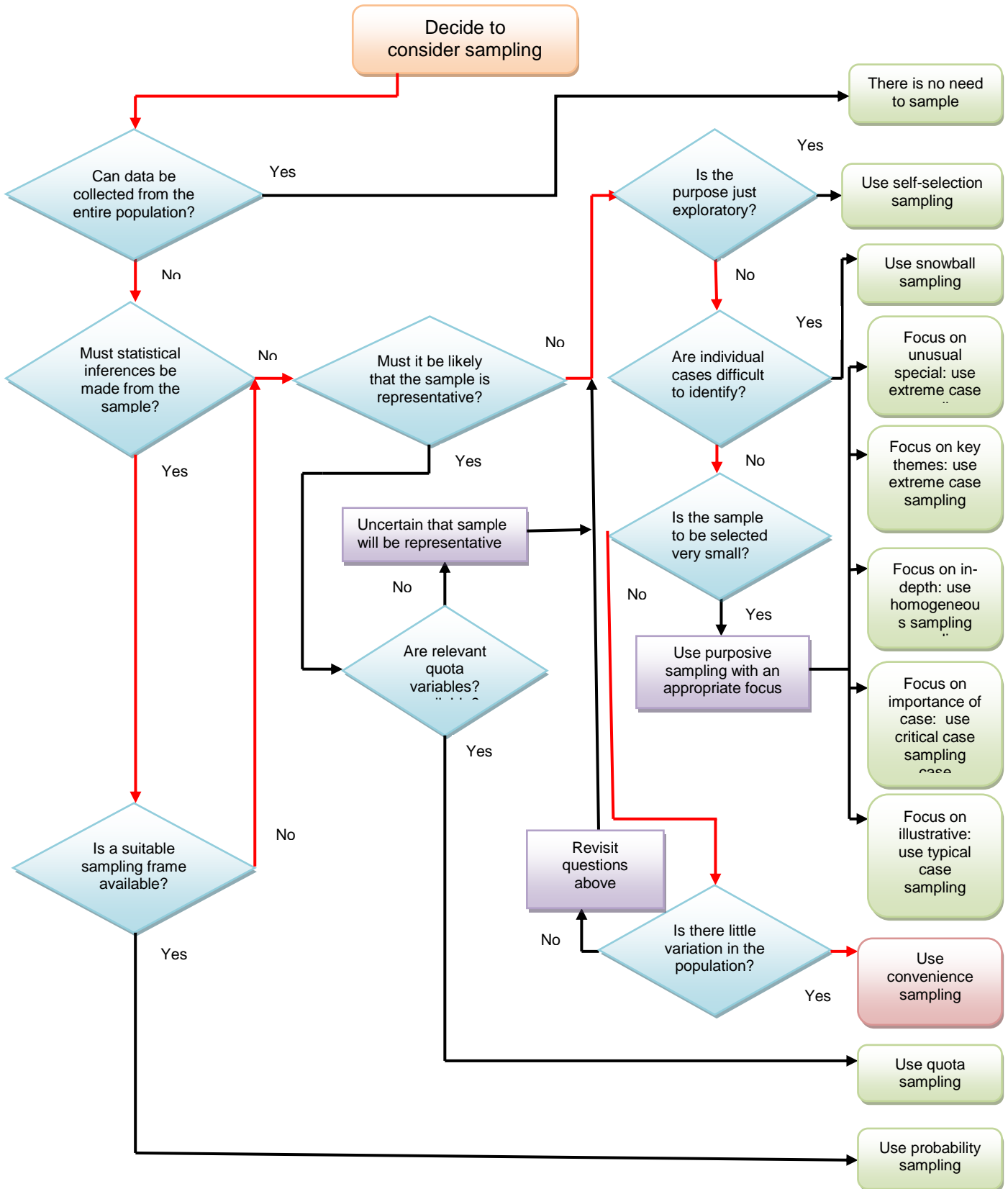


Figure 3.1 Non-Probability Sampling Technique Selection Process (Saunders et al., 2009, pp 234, Modified)

### 3.1.3 Questionnaire Design

The aim of this questionnaire is to collect data, which is used to describe the customer's opinions about the impacts of social media on the customer relationship in e-commerce, and further to test the relationship between social media and each aspect of the customer relationship. As we only have one chance with our respondents in a questionnaire-based survey, we thought about how to collect and analyze data carefully before we design questionnaire and go out to collect data.

In our research model, there are five elements: social media, information strategy, feel and serve, trust and loyalty, and customer relationship, and four hypotheses, which assume a positive relationship between social media and the other elements. Therefore, the survey questions should capture all these five elements that provide variables to further test these hypotheses.

For the questionnaire design, it is possible to use previously tested questions and to follow generally accepted guidelines (Converse & Presser, 1986; Dillman, 1978; Fox et al. 1988). Therefore, we carefully reviewed the previous literature and some questions, which have been used in the similar questionnaires. By considering the respondents' feelings when they complete the survey, all the questions have been designed as closed and brief (Saunders et al., 2009). Closed questions are questions which have pre-defined answers (Oates, 2006). Additionally, in order to make sure our questions are easy to understand and unambiguous, we asked our friends to answer the questionnaire and give us feedback at first. Based on their suggestions, we revised the questionnaire several times and then arrived at the final version.

Our questionnaire (see Appendix A) contains six parts. The first part included some general questions about the respondents' background, such as nationality, gender, education level and department. They will be used to describe the sample characteristics and further results distribution analysis. Considering that students from different department may have different opinions, we added the question about department. For that question, we took informatics department as one option and economics as other option, which covers all the departments in the Economic and Management School. The reason we designed the options like is that we regard informatics as a department, which differs from other departments such as business law, business administration and etc, based on the different basic knowledge. However, we made a mistake here in that we replaced word the department with the word school in the options. Since we used the word "department" in the question and no respondents questioned it when we did the survey, we believe that the mistake did not create any misunderstandings.

As we previously mentioned, our target population should have both online shopping and social media experience, so we added the question "Did you shopping online before?" in the first part. And we also asked the respondent to select which social media type they had used. The questions about social media are listed in the second part. In the general respondent background and social media parts, respondents can express their answers by checking a box. In the later parts, the questions were used to measure the four dependent elements:

Information strategy, Feel and Serve, Trust and Loyalty and Customer relationship, which were demonstrated in the research model. For the four parts questions, we used 5-point Likert scale to measure the extent of agree or disagree of respondents. In this 5-point Likert scale, 1 represents strong disagree, 3 means neutral attitude, and 5 shows strong agreement. Additionally, we explained our survey purpose before the questions, in order to let the respondents understand the purpose of.

In the following five sections, we describe how we measured the five components of our research model. The summarized survey questions were showed in Table 3.1.

*Measures of Social Media:* We used two items (questions) to describe and measure social media, which are both multiple choices questions. One is to select the used types of social media. Another one is to ascertain the purpose of using social media. As Moturu and Liu (2011) argued, social media contains various forms and even one form contains several portals, which are largely challenge the social media research. And they also mentioned that there is no model can be used to measure all types of social media. Thus, in our questionnaire, social media refers to the common features of all these forms. The first question of this construct will be used to form the variable of social media in the later complex data analysis stage.

*Measure of Information Strategy:* To measure the information strategy, three questions have been used in the questionnaire and have been formed into an argument type. All these questions came up from the literature review, which focused on the different ways of information generation via social media.

*Measure of Feel & Serve:* For this construct, three items have been addressed also. These items referred to three aspects of feel and serve: product awareness, feeling, and customer services quality, respectively.

*Measure of Trust & Loyalty:* The number of items in this construct is the same as above constructs. Because our respondents have a higher education level, some abstract words were used in these questions, such as “loyalty”.

*Measure of Customer Relationship:* This is the final construct, which also contains three items. The first and third questions are directly asking respondent about their opinion of the relationship between social media users and e-commerce companies. The second question is related to the new customer’s attraction, which is one of the objectives of customer relationship management (Wang & Feng, 2010).

Table 3.1 Survey Question Summary

<b>Theme</b>	<b>Questions</b>	<b>Why?</b>
<b>Background</b>	Nationality	To get the general background information of the respondents, and conduct the nationality distribution
	Gender	To get the general background information of the respondents, and

		later this information could contribute to the gender distribution and further analysis the results distribution
	Department	For further analysing the results distribution, which is based on different academic background (department)
	Education Level	To ensure the education level is above bachelor
	Did you shopping online before?	To ensure the respondent has online shopping experience
<b>Social Media (SM)</b>	Which social media do you use? (Multiple Choice)	To get the information of whether the respondent uses social media, as well as the amount and types.
	Why do you use social media? (Multiple Choice)	To know the using purpose of social media and further analysis its impacts on the type choice
<b>Information strategy (IS)</b>	<b>IS1:</b> I am more likely to share my online shopping experience with others via social media	To measure the information generated way through experience sharing on the social media
	<b>IS2:</b> I am more likely to recommend the product, service or company since I becoming a fan/ follower of it (i.e.Facebook, Twitter)	To measure the impacts of social media on the information generation
	<b>IS3:</b> I like to participate in product communities' discussions	To measure the role of social media in the information consuming and generation
<b>Feel &amp; Serve (FS)</b>	<b>FS1:</b> Social media is the main resource, which made me aware about the product	To measure the impacts of social media on the product awareness
	<b>FS2:</b> My feeling about this product increase since I become its fan/ follower	To measure the impacts of social media on the customer's feeling of product
	<b>FS3:</b> I believe the quality of customer services is higher when company embrace social media into its business	To measure the impacts of social media on the feeling of customer service
<b>Trust and Loyalty (TL)</b>	<b>TL1:</b> I trust the information shared with me by people I know through social media channels.	To measure the information trust issue on the social media
	<b>TL2:</b> E-commerce companies who are well known in social media are credible	To measure the social media's impacts on the reputation of e-commerce company
	<b>TL3:</b> I feel a sense of loyalty with companies I know via social media using	To measure social media's influences on the loyalty aspect
<b>Customer Relationship (CR)</b>	<b>CR1:</b> I have a more effective relationship with e-commerce company because of the use of social media technologies	To measure the impacts of social media use on the customer relationship
	<b>CR2:</b> I have been persuade to buy the product by the information which I got from various social media forms	To measure the impacts of social media use for attracting customers
	<b>CR3:</b> I am pleased to establish relationship with my interested e-commerce company through use of social media	To measure the social media's impacts on the customer relationship building

### 3.1.4 Survey procedure

After finalizing our survey we went to the Economic and Management School to conduct the survey. Since our target population is easy to access, we decided to use delivery and collection questionnaires, which mean we delivered questionnaires by hand to each respondent and collected it later, instead of using online questionnaires or email questionnaires (Saunders et al., 2009). One advantage of this method is that we can explain our survey purpose to each respondent face-to-face. Moreover, we choose this kind questionnaire also because of its high response rate. The response rate of our questionnaire is almost 100%. At the end, we collected all the questionnaires, which we handed out. We first handed out 100 questionnaires. In these 100 questionnaires, 97 % of respondents had online shopping experience, which means that three students did not have not online shopping experience. Further, all our respondents ticked at least one box, where we listed the common social media types. Thus, the three students, who had no online shopping experience, did not fulfil the precondition of our target population and were taken out from our sample. According to Saunders et al. (2009), the sample selection process of convenience sampling is continued until we planned sample size was achieved. So to achieve the sample size, we handed out questionnaire again and obtained three more valid results. At the end, we collected 100 valid questionnaires.

## 3.2 Data Analysis Methods

From the view of Saunders et al. (2009), a survey enables researchers to collect quantitative data and analyze it quantitatively using statistics method. They claim that statistic is a recommended method to test relationships. Oates (2006) also argued that statistics is an approach that is often used to examine and present data in a quantitative data analysis procedure. In order to analyze the quantitative data and test relationship hypotheses, we adopted statistic methods to analyze these data. Quantitative data analysis has both simple descriptive statistical techniques and complex analysis techniques (Oates, 2006). In our data analysis process, we used both simple and complex methods. Moreover, we adopted the professional statistic software program SPSS 17.0 to calculate the results.

Descriptive statistics is the summary of data, which uses graphical, tabular or other techniques to make the data more understandable (Anderson et al., 2007). In order to clearly show the summarized data, we used colourful tables, bar graphs, pie graphs, line charts and histograms to make our data easier to read. These tables and charts described the survey respondents of this research and indicated how the value was distributed for each question. Also since mean and standard deviation are two common measurements to show the average location and shape of the numerical data (Anderson et al., 2007), we used them to describe the results of the later 12 arguments. Furthermore, to understand the relationship between two variables more deeply, we adopted cross-analysis, as it is the common way to achieve this purpose. The detailed results have been presented in chapter 4.

In order to have enough information for further analysis and discussion, we conducted an independence test (Chi-square Test), which used to find the relationship between the various variables. We did this because we thought maybe different gender or department would have different views that generate different results. For instance, male students may have different answers for the information strategy construct. The adopted rule for proving the dependent relationship is the p-value  $\leq \alpha$ , where  $\alpha$  represents the confidence level of the test (Anderson et al., 2007).

For the hypotheses examination, we adopted a correlation test approach, since it is easy to understand and also recommended by our lecturer of quantitative research course. Correlation between two variables is a statistical measure to evaluate their relationship. The correlation coefficient is the value that indicates how this relationship looks like. According to Anderson et al. (2007), the value of the correlation coefficient is between 1 and -1. While “1” represents the perfect positive linear relationship between two variables, which means the two variables are always change in the same direction. The correlation coefficient value of “0” shows that the two variables have no correlation with each other. We cannot predict one variable by take insight to another one. “-1” illustrates that there exists a perfect negative relationship between these two variables. Therefore, the value of a correlation coefficient closer to 1 means a strong positive relationship, while the value closer to -1 indicates a strong negative relationship and the value closer to 0 means a weaker relationship. However, the result must be significant at either on 0.01 level or 0.05 level (Anderson et al., 2007).

### 3.3 Reliability and Validity

The quality of research is an important phenomenon, which is hard to capture and cannot be pre-specified (Seale, 1999). For judging good-quality studies, validity and reliability are the two important aspects that are usually used by the quantitative researcher (Norris, 1997; Bryman and Bell, 2008). The reliability and validity can both be tested with statistical software. In our study, we used a computer program, SPSS 17.0, to test these two concepts to ensure the quality of our questionnaire and data.

According to Nunnally (1997), reliability has been identified as “ the extent to which measurements are repeatable and that any random influence which tends to make measurements different from occasion to occasion is a source of measurement error”. In short, reliability is a fact that the items of each construct are consistent, and reflect the same concept. In order to ensure the reliability of the survey, we used the internal consistency to measure. Cronbach’s alpha (Cronbach, 1951) is a commonly used measurement of internal consistency. It is a coefficient of reliability that explains the inter-correlation among a set of items (Cortina, 1993). A high value of alpha means a high inter-correlation. According to Bryman and Bell (2003), 0.70 is the lowest acceptable value of Cronbach’s alpha. But consider the influence of item number, 0.60 is also acceptable (Hair et al., 1998). In this case, the number of items in each construct is 3, which is not too much. So we used 0.6 as the standard to judge inter-correlation.

The aim of the validity test is to ensure the questions we asked are associated with the construct, which we are measuring (Field, 2005). By using the computer software SPSS, the validity can only be tested by factor analysis. Factor analysis is a set of methods that analyses how constructs influence the responses on a number of measured variables. It contains two analyses: exploratory factor analysis and confirmatory factor analysis (DeCoster, 1998). Exploratory factor analysis is always used to determine what sets of items are belonging to one construct in a questionnaire (DeCoster, 1998). Therefore, in this case, we used exploratory factor analysis to examine whether the 12 argument questions are distributed as we expected for the four constructs: Information strategy, Feel & Serve, Trust and Loyalty and Customer relationship.

### 3.4 Ethics

In the social science research field, the concept of ethics attracts increasingly more attention and is becoming more important (Mingers and Walsham, 2008; Norris, 1997). According to Mingers and Walsham (2008), ethics refers to how we should act or judge actions as good (right) or bad (wrong). Cooper et al. (2008) also addressed the same meaning that regards ethics as the “norms or standards of behaviour that guide moral choices about our behaviour and our relationships with others”. Therefore, Saunders et al. (2009) claim that research ethics mean that researchers use a moral and responsible way to conduct the whole research. Ethical behaviours are positive for both society and research. Israel and Hay (2006) claim that when researchers act ethically it can protect others (communities, environment), minimizing harm and increase the sum of good. Ethic behaviours also assure trust and research integrity (Israel and Hay, 2006). The ethical behaviours of researchers can benefit the trust established between researchers and participants. Ethical issues may emerge at any stage of the research, such as when researchers make the research plan, contact respondents, collect, analyse and present the data (Saunders et al., 2009). Fabrication, falsification and plagiarism are common ethical issues, which have always been a concern when trying to achieve research integrity (Israel and Hay, 2006).

For handling ethical issues, it's best to consider them at the beginning of the research (Singer and Vinson, 2002). In our study, ethics has been considered throughout the whole research process, especially when conducting the empirical research. According to Israel and Hay (2006), informed consent and confidentiality are the two main aspects of ethics that should be considered in the research. Saunders et al. (2009) also stated that the process of seeking access is a pivotal stage, which has a large potential for generating ethical issues. In this case, at the stage of survey questionnaire design, we avoided to ask the questions that involve the privacy of respondents. Also, we conducted the survey during the lunchtime and avoided to disturb the students' study. We also obtained the agreement of each respondent before we delivered the questionnaire to him or her. Additionally, we expressed our appreciations for all the students who were asked to do the survey whether they accepted our request or not.



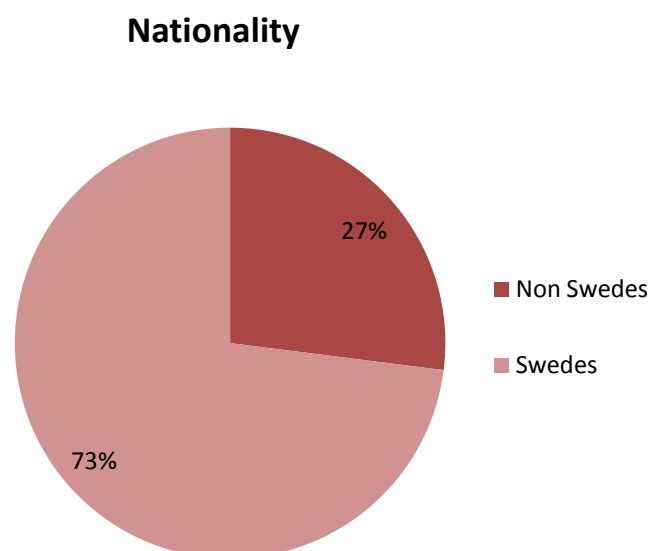
## 4. Empirical Findings and Analysis

*In this chapter, we presented and analyzed the data, which we collected through our survey. It has been divided into five parts, which are demographic characteristics description, construct description, the test results of construct reliability and validity, independence analysis, and the hypothesis test results. In each part, a preliminary discussion was also presented.*

### 4.1 Demographic Characteristics

In the following section, we present the characteristics of our respondents through four aspects: nationality, gender, department, and education level.

The following two pie charts (Figure 4.1 and Figure 4.2) show the nationality and gender distribution of the 100 respondents. Although Lund University is an international University and there are lots of international students, the Swedish students are still our main respondents, making up 73%. While only 27 respondents are non-Swedish students. Then looking into the gender distribution chart, it is easy to see that our sample has equal number male and female students. Half of the respondents are male and another half respondents are female.



**Figure 4.1 Nationality Distribution**

### Gender

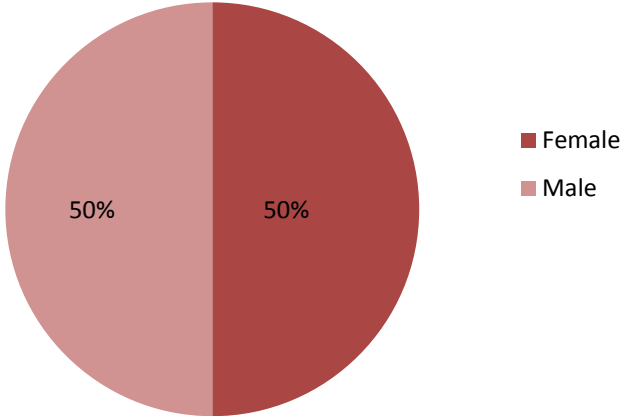


Figure 4.2 Gender Distributions

The Figure 4.3 and Figure 4.4 indicate the distribution of department and education level of the sample. Half of our respondents are from the Economic department and others come from Informatics department. And among these 100 respondents, 66% are bachelor students, while 34% are master.

### Department

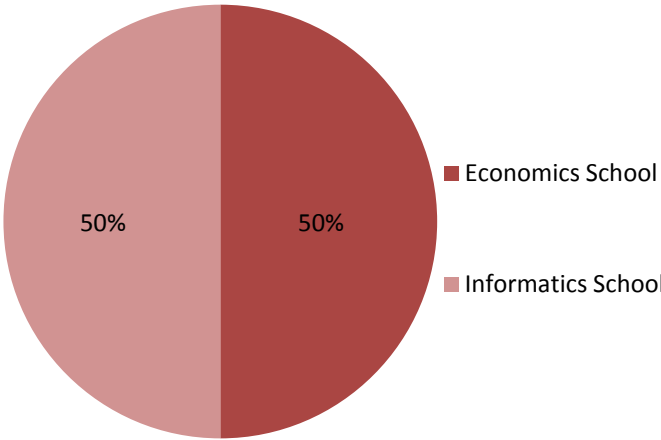
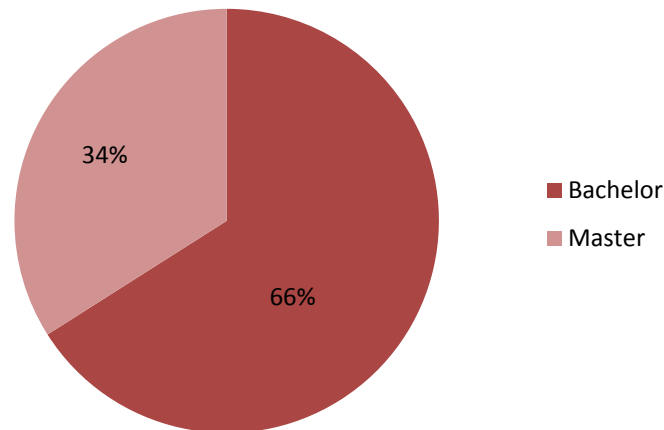


Figure 4.3 Department Distributions

### Education level



**Figure 4.4 Education Level Distributions**

Furthermore, we cross-analyzed three variables: gender, nationality, and department. The results show that 80% of male respondents and 66% of female respondents are Swedish (see Appendix B). Further 86% of Economic department respondents and 60% of informatics department respondents are Swedish (see Appendix B). Additionally, in our sample, female is the dominant gender in the economic department (60%), whereas male is dominant gender in the informatics department (60%) (see Appendix B).

## 4.2 Model Description

The following section displayed and analyzed the results of the five constructs in our research model. We used frequency distribution, as well as the measurements of mean and standard deviation to describe each construct.

### 4.2.1 Social Media

Social media has various forms, such as microblogging, blogs, social networking sites and etc. We listed seven common social media forms and asked students to tick, which ones they used. The bar chart below (Figure 4.5) shows that 94% of respondents ticked the box of social networking sites (SNS), which indicates that SNS is the most popular type in the sample students. Social media sharing (Youtube etc.) and Wiki ranked second and third place, which achieved 84% and 75%, respectively. And more than 20 % of students are using blogs, microblogging and online games. Only 8% of respondents ticked the option of virtual world.

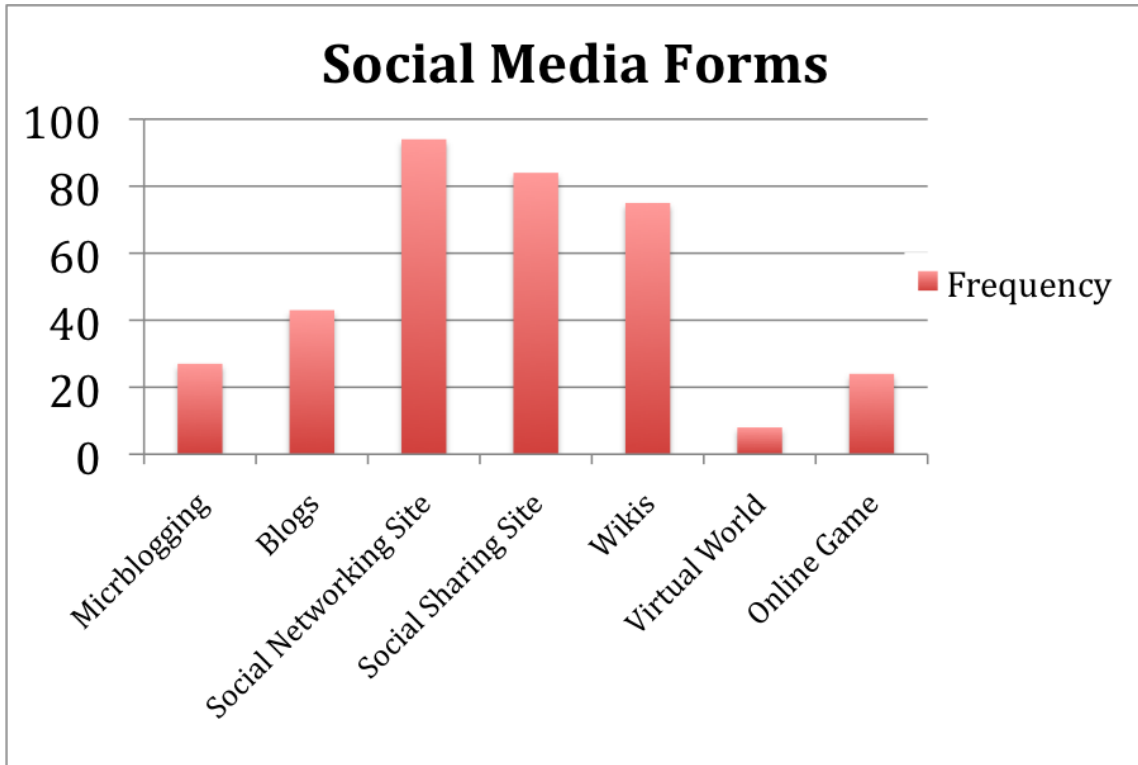


Figure 4.5 Social Media Forms

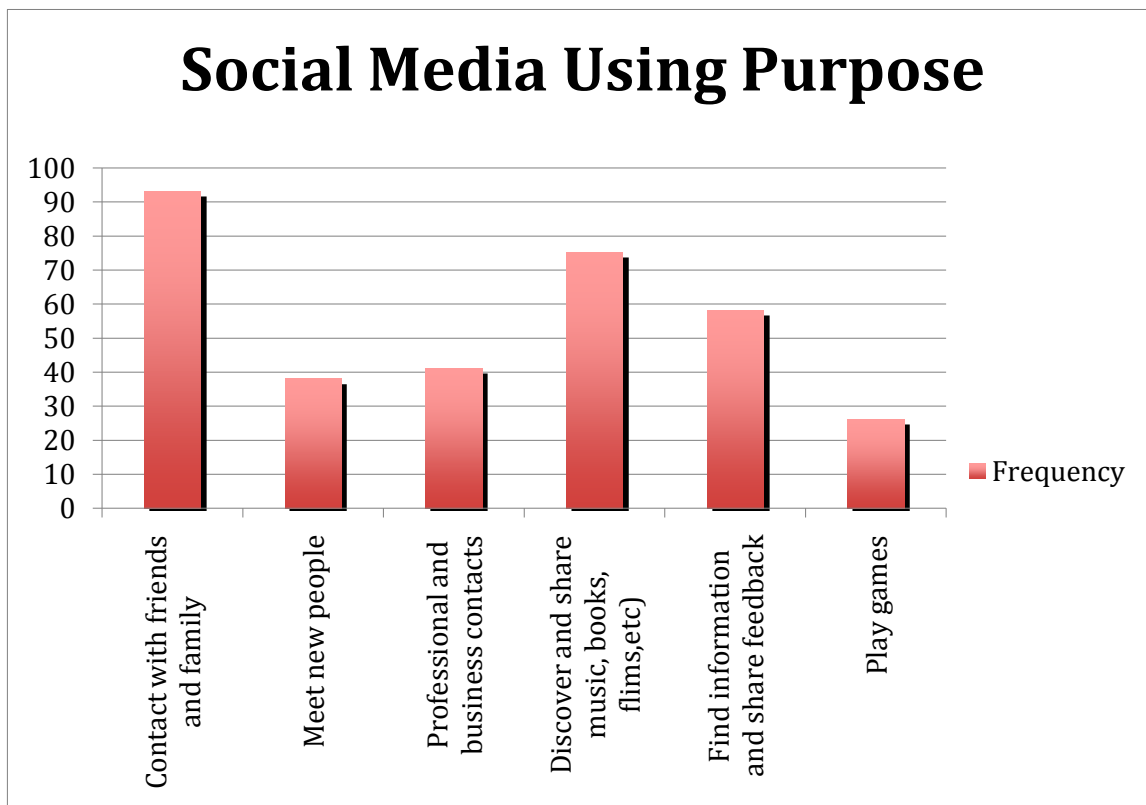


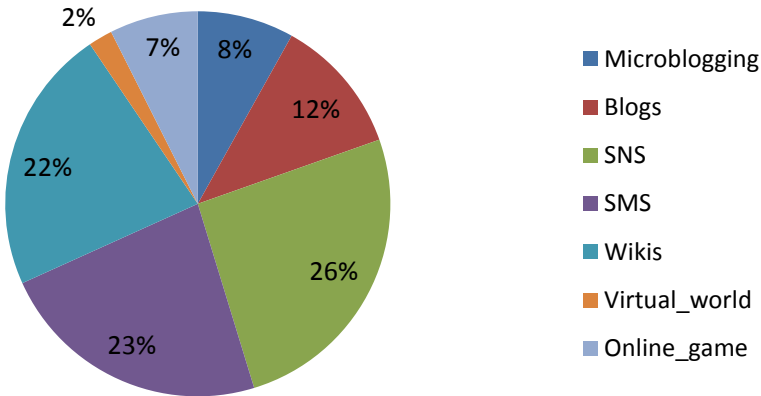
Figure 4.6 Social Media Using Purpose

Figure 4.6 shows the reasons why students use social media in their daily life. In our survey, 93% of respondents use social media to keep in contact with family and friends. The second main common purpose is for fun, which is to discover and share music, books and other

entertainments (75%). Since the objective of this study is to explore the impacts of social media in the e-commerce environment, thus we should pay more attention on the following two purposes. One is for professional and business contacts (41%), and another is to find information and share feedback about brand and product (58%). These two purposes are ranked at the third and fourth place, respectively. It indicates that social media is playing an important role in enabling students to participate in the business area. As shown students use social media to generate business related content or doing business.

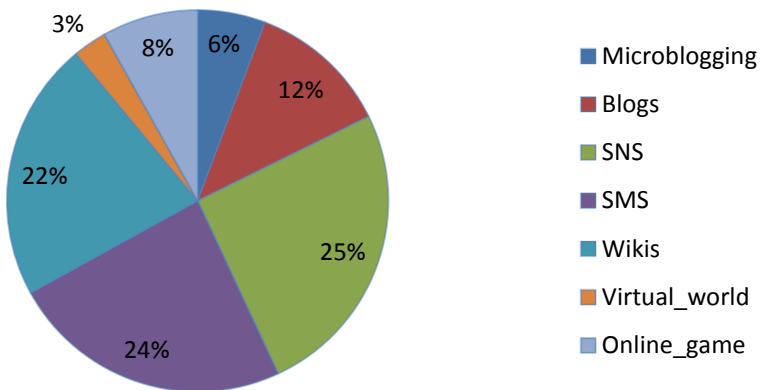
Further we looked into the social media type distributions for the business purpose and information finding and sharing purpose, and the results were displayed in the Figure 4.7 and Figure 4.8. The result of cross-analysis between social media types and other using purpose were listed in the appendix D. Figure 4.7 and Figure 4.8 indicate that social networking sites (SNS), social media sharing sites (SMS), and wiki are the most used social media types for both the two purposes.

**Professional and Business Contact**



**Figure 4.7 Social Media Form distributions for the Business Purpose**

**Find information and Share Feedback**



**Figure 4.8 Social Media Form distributions for Finding and Sharing Information**

The following Table 4.1 shows the number of used social media types. On average, each student uses more than three types of social media (Mean= 3.45). The number of used social media types is a new variable in our data analysis section, which will be used to measure the social media construct in the later hypotheses test.

Table 4.1 Statistical descriptions of Social Media

<b>Social Media (SM)</b>	<b>Mean</b>	<b>Standard Deviation</b>
<i>Number of used types</i>	3.4500	, 97830

#### 4.2.2 Information Strategy

Information strategy (IS) is composed of three items. Table 4.2 shows the mean value and standard deviation for each item as well as the whole construct. The mean values of first two items are close to 3, which show that the average extents of agreement for these items can be considered neutral. For the third question (IS3), the mean value is 2.46. It is closer to 2, which means that the average students disagree with this argument. Additionally, the mean value and standard deviation value of information strategy construct are 2.75 and 0.8, which indicates that the average attitude of students is neutral also.

Table 4.2 Statistical description of Information Strategy

<b>Items (Questions)</b>	<b>Mean</b>	<b>Standard Deviation</b>
<i>IS1: I am more likely to share my online shopping experience with others via social media</i>	2.9000	1,08711
<i>IS2: I am more likely to recommend the product, service or company since I becoming a fan/ follower of it (i.e.Facebook, Twitter)</i>	2.9100	,99590
<i>IS3: I like to participate in product communities' discussions</i>	2.4600	,99919
<b>Construct :Information Strategy (IS)</b>	2.7567	,80103

According to the figure 4.9, we can see how the percentage responses are distributed on the 5-point Likert scale in information strategy construct. According to the graph, more than 50% of respondents either disagree or strongly disagree with the third argument: “I like to

participate in product communities discussions”. And probably 33 % of respondents are neutral and less than 5% of respondents strongly agree with the overall three arguments.

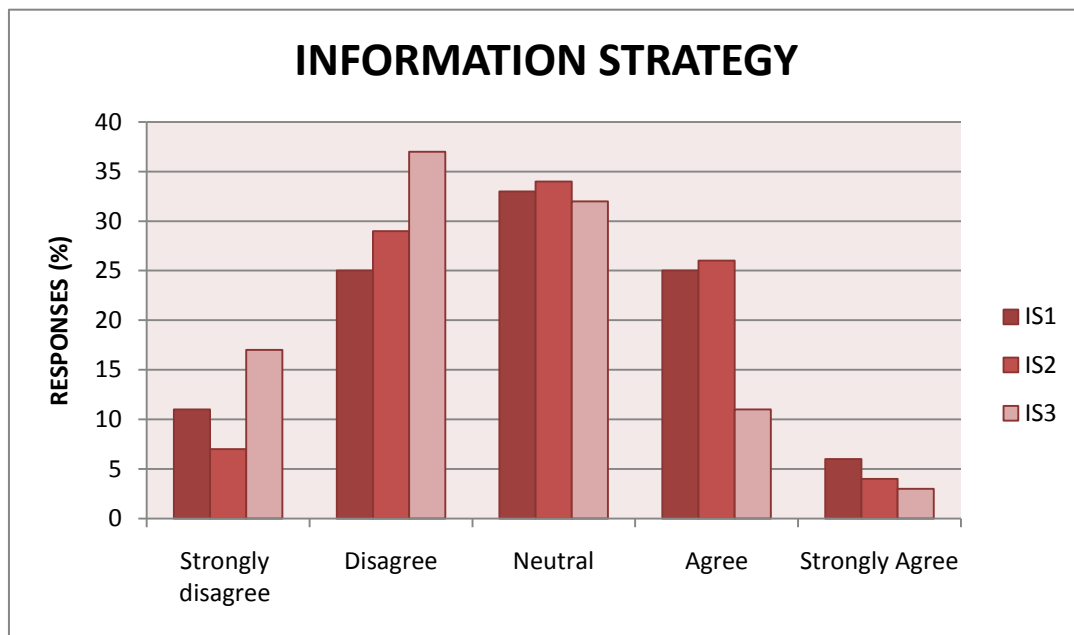


Figure 4.9 Respondents distribution of Information strategy

#### 4.2.3 Feel & Serve

Table 4.3 Statistical descriptions of Feel & Serve

Items (Questions)	Mean	Standard Deviation
FS1: Social media is the main resource, which made me aware about the product	2.8600	1,09194
FS2: My feeling about this product increase since I become its fan/ follower	2.9800	1,06344
FS3: I believe the quality of customer services is higher when company embrace social media into its business	3.2700	1,01359
<b>Construct: Feel &amp; Serve (FS)</b>	<b>3.0367</b>	<b>,84871</b>

The statistical description of Feel & Serve has been showed in table 4.3. For this construct, the mean values for all the three items are approximately close to 3. Additionally, the summated mean value of them is equal to 3.04 and standard deviation is 0.85, which show that the average attitude of students for these arguments is also neutral. But comparing with first construct, respondents are little bit agree with the 3 statements in Feel & Trust part.

Based on the below figure 4.10, it is clear that the feel and serve part differs from the first one. Here above 30 % respondents either agree or strongly agree with 3 questionnaire

statements. Especially the third argument received a higher level of agreement (43%), which shows that respondents think the quality of the customer services will increase if a company has some social media applications.

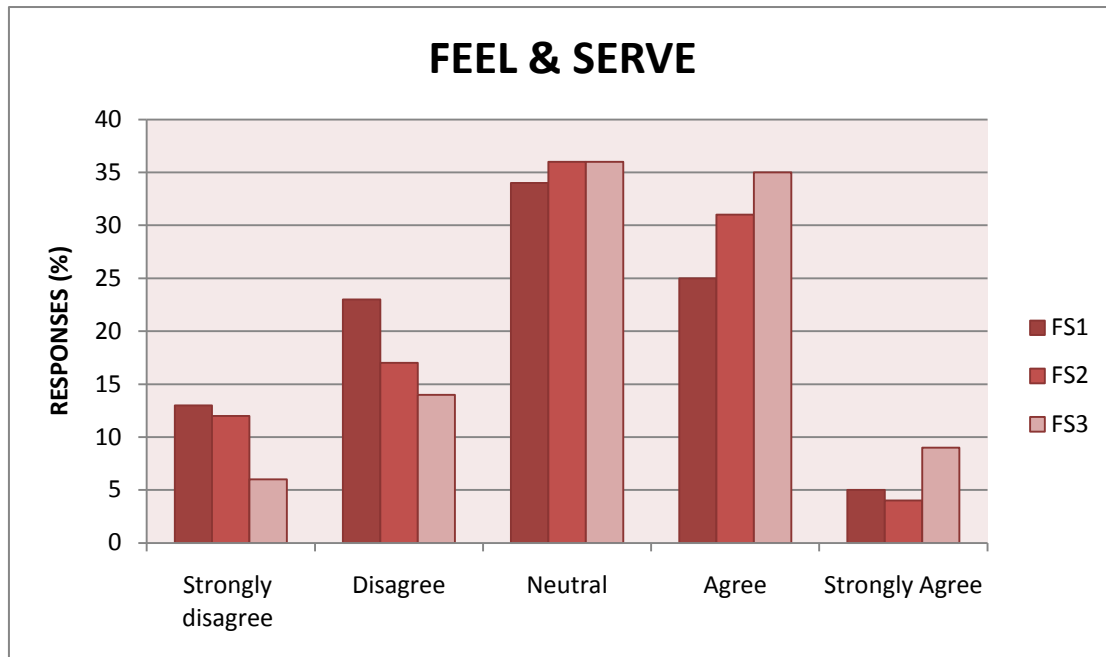


Figure 4.10 Respondents distribution of Feel & Serve

#### 4.2.4 Trust and Loyalty

According to the below descriptive statistics table 4.4, it seems that respondents also have a neutral attitude for these questions. The summated mean value and standard deviation value is 2.8 and 0.68, respectively. The level of agreement is lower in this construct.

Looking into the figure 4.11, it clearly shows that in trust and loyalty parts, most respondents are neutral to these questions. Around 20 % of respondents either agree or strongly agree that e-commerce companies who are well known in social media are credible. For the other two questions, there are no strong (agree) opinions.

Table 4.4 Statistical descriptions of Trust & Loyalty

Items (Questions)	Mean	Standard Deviation
TL1: I trust the information shared with me by people I know through social media channels.	3.0800	,93937
TL2: E-commerce companies who are well known in social media are credible	3.1400	,89916
TL3: I feel a sense of loyalty with companies I know to use social media	2.9300	1,01757
<b>Construct: Trust &amp; Loyalty (TL)</b>	<b>2.8133</b>	<b>,068053</b>



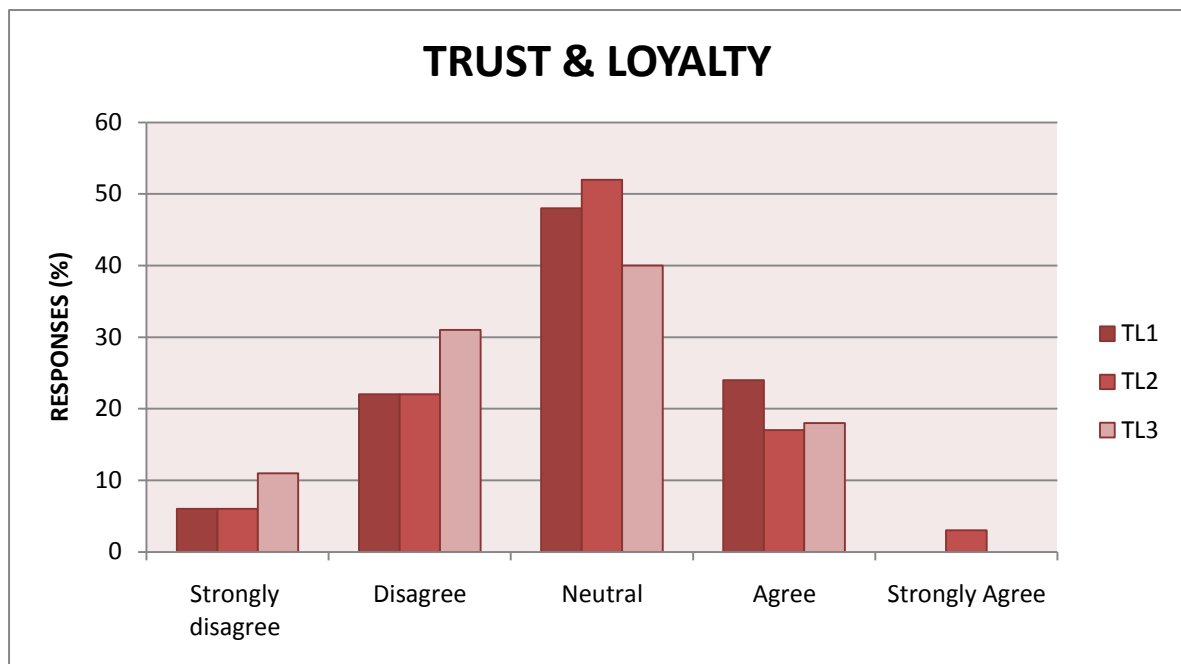


Figure 4.11 Respondents distribution of Trust & Loyalty

#### 4.2.5 Customer Relationship

For the last construct part, the mean values and standard deviation of the three items are close to each other. The summated mean value and standard deviation are equal to 2.71 and 0.875, which shows the average opinion of this construct is around 3, which indicates a neutral attitude.

Table 4.5 Statistical descriptions of Customer Relationship

<b>Items (Questions)</b>	<b>Mean</b>	<b>Standard Deviation</b>
<i>CR1: I have a more effective relationship with e-commerce company because of the use of social media technologies</i>	2.6700	1,04500
<i>CR2: I have been persuade to buy the product by the information which I got from various social media forms</i>	2.7600	1,10206
<i>CR3: I am pleased to establish relationship with my interested e-commerce company through use of social media</i>	2.7200	1,13778
<b>Construct: Customer Relationship (CR)</b>	2.71667	,875371

Figure 4.12 shows that only 4% of respondents strongly agree that they have a more effective relationship with e-commerce companies because of social media applications and, are pleased to use social media to establish a relationship with the interested company. Only 3% of respondents strongly agree they have been persuading to buy a product. For the third statement, approximately 17% of respondents strongly disagree that they use social media to make contact with e-commerce companies.

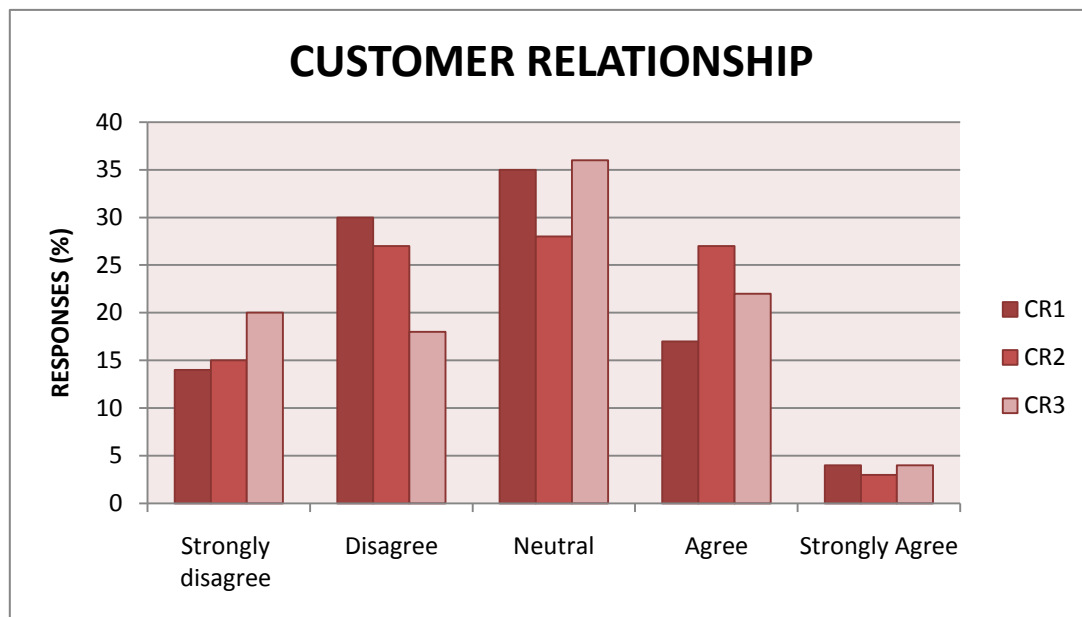


Figure 4.12 Respondents distribution of Customer Relationship

### 4.3 Construct Validity and Reliability

As we explained in chapter 3, before using the collected data to do the further complex analysis, we must evaluate its reliability and validity. The reliability analysis aims to examine the internal consistency between the items (questions) of each construct. Further validity analysis is used to test whether all the items are distributed as we designed in the four constructs that are consistent with our research model. In this case, we only tested the later four constructs. Since the construct of social media is only measured by one item: the number of used social media type, there is no need to test its internal consistency and factors. Therefore, the following sections will present and analyse the last four constructs.

#### 4.3.1 Reliability Analysis

The reliability can be measured by calculating the value of Cronbach's alpha. According to Field (2005), "alpha is appropriate when items on a scale are summed to produce a single score for that scale". Generally, the higher value of Cronbach' Alpha illustrates a higher reliability. For reliability test, the normal standard value is 0.7. Therefore, if the value of alpha large than 0.7, then a high reliability has been proved. But for some cases, a value above 0.6 is also acceptable. For instance, if the construct has a few number of items. In our study, according to the following table, the alpha values for most constructs are above 0.7. For the three constructs: Feel and Serve, Trust and Loyalty and Customer relationship, Cronbach' Alpha value are 0,710, 0.725 and 0.717, respectively. The alpha value of information strategy is 0.676, although it is lower than 0.7, it larger than 0.6. And due to the small items it has (3 items), this value can be acceptable. To conclude, the questions for each construct are consistent, so that the designed questionnaire has an acceptable reliability.

Table 4.6 Result of Reliability Test

<b>Constructs</b>	<b>Cronbach's Alpha</b>
<b>Information Strategy (IS)</b> (Q1, Q2, Q3)	0.676
<b>Feel &amp; Serve (FS)</b> (Q4, Q5, Q6)	0.725
<b>Trust &amp; Loyalty (TL)</b> (Q7, Q8, Q9)	0.710
<b>Customer Relationship (CR)</b> (Q10, Q11, Q12)	0.717
<b>Information Strategy (IS)</b> (Q1, Q2, Q3)	0.725

#### 4.3.2 Validity Analysis

The following tables are the output of the principal factor analysis, which is used to measure the validity of the four constructs in the questionnaire. To do a factor analysis, we should test whether it fits to do this analysis first. When the value of KMO is larger than 0.5 and the significant value less than 0.01, the factor analysis is appropriate. According to table 4.7, we see that the value of KMO is 0.697 and the value of significance is 0.000, which means our case satisfied the factor analysis requirements.

Looking into table 4.8, it shows that four components can be extracted from the overall 12 questions, and 66.646% of total variance can be explained by these four components. This means that the 12 questions can be divided into four parts, which is as we designed. Afterward, we looked at the third table (rotated component Matrix), which shows the factor loading value. Generally, 0.6 is the standard acceptable value. The higher factor loading value means a higher correlation relationship between this variable and component. In this test, to increase the readability of the table, we only asked to display the factor loading data, which is larger than 0.6. For component 1, this table indicates that only Q11, Q10 and Q12 satisfied the criterion. Thus, we can conclude that these three questions are highly related with component 1. To summary the whole table, Q2, Q1 and Q3 are highly related with component 2. And component 3 is composed by Q4, Q6 and Q6. The last three questions, Q7, Q9 and Q8 are associated with the component 4. Comparing the result of factor analysis with our design questions, the four calculated components and question distribution are same as we designed in our questionnaire. Component 1 refers to customer relationship; component 2 refers information strategy; component 3 refers to feel and serve; component 4 refers to trust and loyalty. Therefore, our questionnaire is valid in that it has an acceptable validity.

Table 4.7 KMO and Bartlett's Test

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</b>		<b>,697</b>
<b>Bartlett's Test of Sphericity</b>	<b>Approx. Chi-Square</b>	338,878
	<b>df</b>	66
	<b>Sig.</b>	<b>,000</b>

Table 4.8 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,390	28,248	28,248	3,390	28,248	28,248	2,110	17,581	17,581
2	1,996	16,629	44,877	1,996	16,629	44,877	2,011	16,758	34,339
3	1,397	11,639	56,516	1,397	11,639	56,516	1,989	16,573	50,912
4	1,216	10,130	66,646	1,216	10,130	66,646	1,888	15,734	66,646
5	,849	7,078	73,724						
6	,700	5,836	79,560						
7	,541	4,506	84,067						
8	,497	4,140	88,206						
9	,435	3,627	91,834						
10	,371	3,095	94,928						
11	,323	2,696	97,624						
12	,285	2,376	100,000						

Table 4.9 Rotated Component Matrix a

Items(Questions)	Component			
	1	2	3	4
Q11 (CR2)	,794			
Q10 (CR1)	,730			
Q12 (CR3)	,682			
Q2 (IS2)		,775		
Q1 (IS1)		,719		
Q3 (IS3)		,644		
Q4 (FS1)			,873	
Q6 (FS3)			,727	
Q5 (FS2)			,613	
Q7 (TL1)				,786
Q9 (TL3)				,783
Q8 (TL2)				,710

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

#### 4.4 Independent Analysis

After the reliability and validity test, we made the independent analysis between each construct and gender, as well as department. In this case, the Chi-Square test method has been adopted. As we mentioned in the data analysis method part, we will look at the p-value of each test to judge whether the relationship between two variables is independent or not. The confidence level is  $\alpha = 0.05$  in this test.

Table 4.10 shows the results, which indicate a relationship between each construct with gender. Since only the p-value of social media construct is less than  $\alpha = 0.05$ , we can prove that gender is dependent on social media use. It means that the gender distribution will affect the number of used social media types. For all other constructs, the independent relationships with gender have been illustrated.

Table 4.10 Independent Test With Gender (Chi-Square)

<b>Constructs</b>	<b>P-value</b> <i>Asymp. Sig. (2-sided)</i>
<b>Social Media</b>	,042
<b>Information strategy</b>	,799
<b>Feel &amp; Serve</b>	,460
<b>Trust and Loyalty</b>	,429
<b>Customer relationship</b>	,746

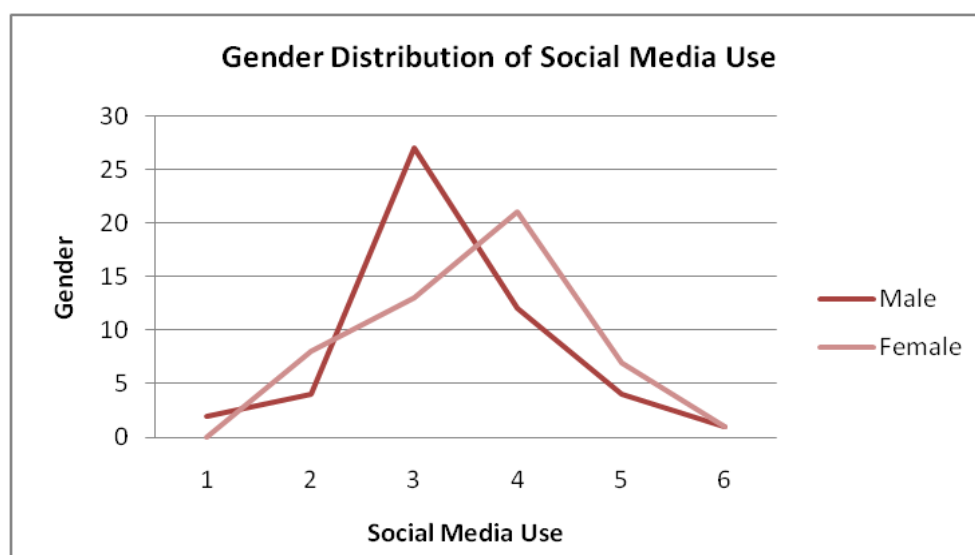


Figure 4.13 Gender Distribution of Social Media Use

The distribution of the number of used social media types within different gender has been showed in Figure 4.13. In that line chart, we can clearly see the distribution trend. The

distribution is more concentrated for male students and they mostly use 3 types of social media. The distribution trend is more flat for female students and most of them use 4 types. For the gender distribution of the other constructs, we listed them in the appendix E1. Since gender is independent with other constructs, we will not explain how they are distributed within male and female here.

According to the Table 4.11, we know the relationship between each construct and department. Same as the above gender analysis, the dependent relationship can only be proved between department and social media use. The p-value of social media construct is 10.009, which is much less than 0.05.

Table 4.11 Independent Test With Department (Chi-Square)

<b>Constructs</b>	<b>P-value</b> <i>Asymp. Sig. (2-sided)</i>
<b>Social Media</b>	,009
<b>Information strategy</b>	,732
<b>Feel &amp; Serve</b>	,247
<b>Trust and Loyalty</b>	,993
<b>Customer relationship</b>	,413

Looking at the Figure 4.14, a similar distribution trend has been showed for both economic department and informatics department. However, the students who are in the informatics department mostly use 4 kinds of social media, while most economic department student uses 3 types. For the department distribution of other constructs see appendix E2.

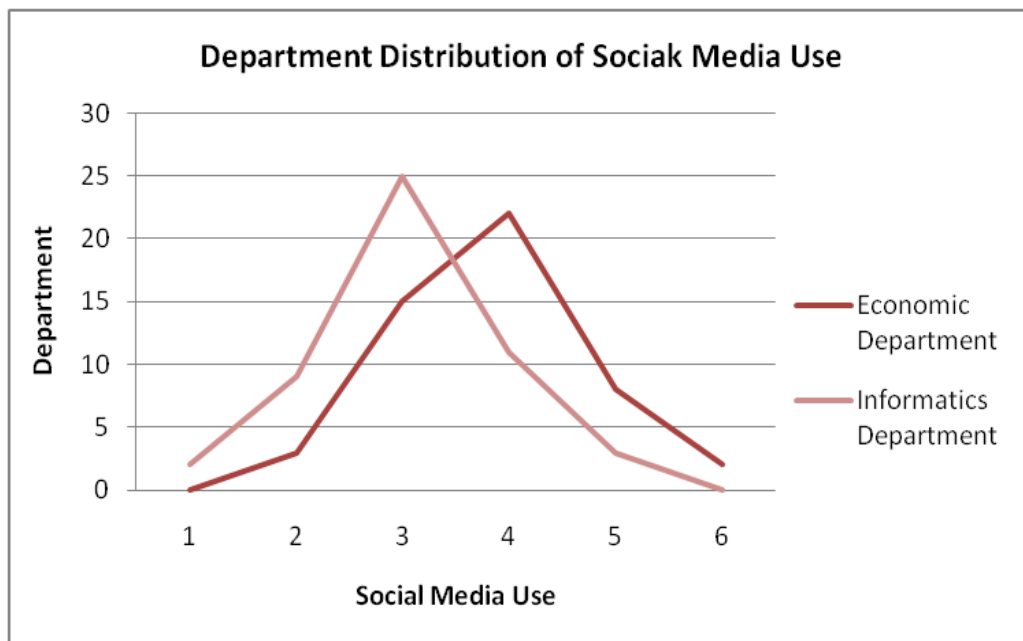


Figure 4.14 Department Distribution of Social Media Use

## 4.5 Hypotheses Test

In our research model, we made four hypotheses, which assumed that there is a positive relationship between social media and the customer relationship as well as its three aspects. In order to test these hypotheses, we used a statistical method, especially correlation test, to measure their relationship.

The table 4.12 shows the correlation test result. Looking at the first row of the table, it illustrates that social media is positively associated with both trust and loyalty construct and customer relationship construct ( $\beta_3=0.036$   $\beta_4=0.009$ ). Social media however has a negative relationship with the information strategy construct and feel and serve construct ( $\beta_1=-0.16$ ,  $\beta_2=-0.207$ ). However, according to the second row, only the construct of feel and server has a significant correlation coefficient with social media under the statistically significant level ( $P\text{-value}=0.039 < \alpha = 0.05$ ). For the other three constructs: information strategy, trust and loyalty, customer relationship, their p-value (0.113, 0.719 and 0.930) all larger than 0.05, so that the calculated correlation coefficients are not statistically significant. It means that the correlation coefficient has a lower confidence level that we cannot infer anything from our study to these three hypotheses. Therefore our study cannot support hypotheses H1, H3 and H4. The hypothesized model test result was showed in Figure 4.15.

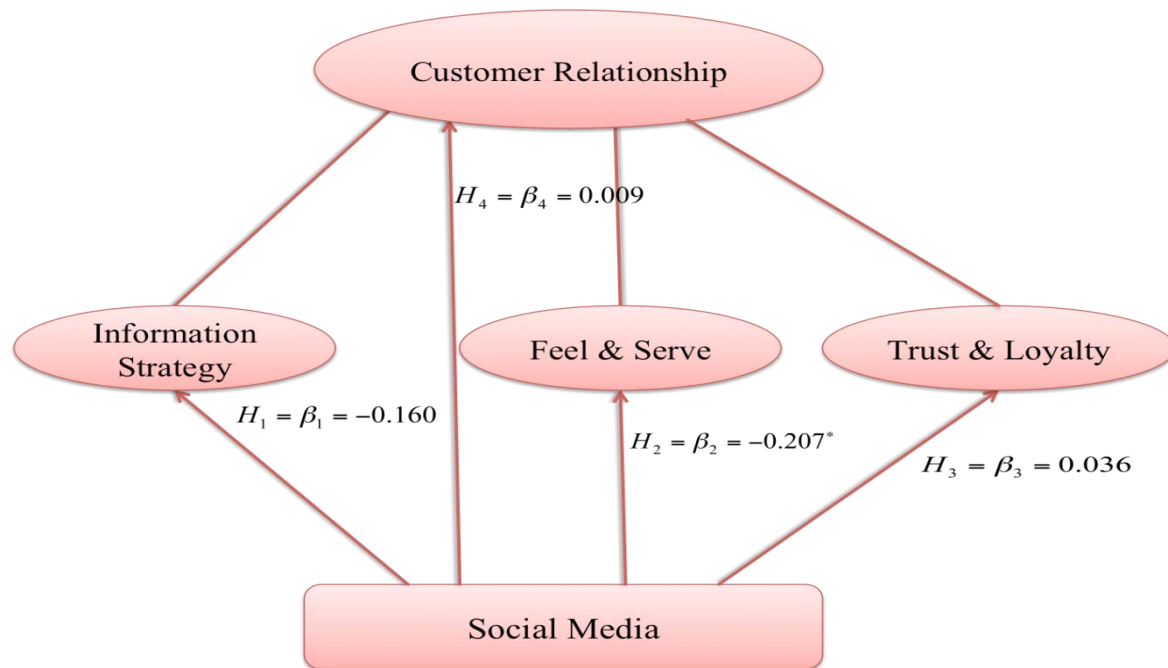
Table 4.12 Correlation Test Result

		<i>Information Strategy</i>	<i>Feel &amp; Serve</i>	<i>Trust &amp; Loyalty</i>	<i>Customer Relationship</i>
<i>Social Media</i>	<i>Pearson Correlation</i>	$\beta_1=-,160$	$\beta_2=-,207^*$	$\beta_3=,036$	$\beta_4=,009$
	<i>Sig. (2-tailed)</i>	,113	,039	,719	,930
	<i>N</i>	100	100	100	100

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Since the result of feel and serve part has an acceptable confidence level, we can adopt its correlation coefficient (-0.207), which describes the relationship between social media and the feel and serve construct. The -0.207 illustrates a negative relationship. And as this correlation coefficient is closer to 0, this relationship is not strong. To conclude, social media has a significant negative relationship with feel and serve construct, which is in contrast to our hypothesis. Therefore, H2 was not supported. The table 4.13 summarized the result of our four hypotheses.



\*. Correlation is significant at the 0.05 level (2-tailed).

**Figure 4.15 Hypothesized Model Test Result**

Table 4.13 Hypotheses Test Results

Hypotheses	Supported?	Reason
H1: Social media use is positive related to Information Strategy	No	Negative related but not significant
H2: Social media use is positive related to Feel & Serve	No	Negative relationship
H3: Social media use is positive related to Trust & Loyalty	No	Positive related but not significant
H4: Social media use is positive related to Customer Relationship	No	Positive related but not significant



## 5. General Discussion

*In this chapter, we will have a general discussion about the empirical findings with our theoretical research. It starts with an overall discussion and then addressed four hypotheses results separately. At the end, the revised model (Model C) will be presented.*

As the above construct description section shows, each student uses at least 3 kinds of social media. It indicates that social media has been extensively used among students. Social networking sites, social sharing site and wikis are the most popular forms among students, and that more than 75% students are using these three types in their daily life. Besides social media construct, results of other constructs also show that the average value of agreement for each construct is around 3. It demonstrates that students neither agree nor disagree with the designed 12 arguments (Q1-Q12) in the questionnaire.

Further, comparing our theoretical findings with the empirical results of the hypotheses test, none of our four theoretical hypotheses were supported by the empirical study. Three hypotheses test results are not significant and one got the adverse result. It is surprising that the results are quite different from our initial expectations. From the critical point of view we think that the statements, which we had on our questionnaire, were may be not clear for some respondents. We tried to make the questions understandable, and after designing the questionnaire we first showed it to our friends to see if the questions are easy to understand or not. After that we made a survey and it seemed that there was not a problem with understanding the statements, because they did not ask anything about them. But after analyzing we observed that most of our respondents answered the questions with neutral. That could be because they did not understand the questions and could be regarded as one reason for why most hypotheses test results are not significant. Furthermore, since the combination of social media and E-commerce is still in the run-in phase, many respondents are not familiar with the statements or the subject area. Therefore it would result in some correlations and mutual impacts that are not significant. Additionally, the student group is just a small set of the whole consumers of social media and e-commerce. So we think that our survey sample size may not enough to infer our research question, which could be another reason.

Different gender and department also produced some influences on the result due to their dependent relationship with social media use. As we analyzed in the above chapter, the number of used social media forms of male students (4 types) is more than female students (3 types). And the students who are in the informatics department use 4 kinds social media, which is more than the students in the economic department use (3 types). However, these small differences will not generate big impact on the hypotheses test result, since it is independent with all other constructs.

### 5.1 Hypothesis 1

**H1:** Social media use is positive related to Information Strategy

The test result of H1 shows that there is a negative correlation between social media use and information strategy, but without significance. Therefore, we cannot support this hypothesis based on our study in the statistical point of view. It does not mean our hypothesis is wrong, but it shows this hypothesis needs to be tested further. For instance, the test could survey an extensively sized sample or use qualitative research method.

According to the result of mean value and standard deviation for the information strategy construct (mean=2.75,SD=0.8), students seem more neutral. We think that one reason for that is that they haven't paid much more attentions on this aspect and don't have many strong opinions. Therefore, we cannot directly get the answer from the agreement extent results of these statements. Further, we looked into the results of social media construct, the primary two reasons of students using social media are contacting with family and friends, and discovering and sharing music, books and other entertainments. Besides these, 58% of students use social media to search information and share feedback on products and brands. It shows that social media could be an important channel, which enables e-commerce companies to deliver a large amount of information to customers and enhance their reputation with word-of-mouth. Also our empirical study found that social networking sites (SNS), social media sharing sites (SMS), and wiki are the most used social media types for the both two purposes among students. Additionally, generated feedbacks of customers, which are displayed on social media, could be a good data mining resource. From these aspects, it illustrates the same thing as we found in the literature review. Based on the above discussion, we may conclude that social media application should be associated with information strategy, but we cannot describe how and how much they are related.

## 5.2 Hypothesis 2

**H2:** Social media use is positive related to Feel & Serve

From our hypotheses test result, a negative relationship exists between social media use and feel and sever construct under the 0.05 significant level. The correlation coefficient is “-0.207”. It means that the social media use would generate a weak negative influence on the feel and serve construct. It is in contrast with our hypothesis. As we mentioned in the literature review part, social media is openness that provides a wide platform for customers to express their opinions and comments. Thus social media can be a monitoring tool that forces the e-commerce companies to improve their services. In our survey, the result of FS3 (Q6) shows students agree more that they feel the quality of customer services is higher when a company embrace social media into its business. The result is same as we expected. For the FS2 (Q5) “My feeling about product increases since I become its fan/follower”, our respondents showed a neutral attitude. It illustrates that the product information, which displayed by company on the social media have not contribute too much to the customer's awareness of the product or company.

Theoretically, the more social media types a company used, the more online channels that

customers feel and served the company or product, are provided. However, according to our empirical result, an increased number of contact channels would not benefit the customer's feelings and increase awareness, but instead create a negative influence. We think one reason for that is that the information, which is displayed on the different social media platforms, will generate conflicts that lower the confidence level of the information. Therefore, in the real operations, a company should be very careful about the use of social media and how to involve it into its customer relationship management strategy. The more social media types they use do not mean it will generate more benefits. Companies should make sure the consistency of their image, which is delivered by social media. To conclude, although social media could contribute to improve the company's service, the more type of used social media is negative related with the feel and serve construct.

### 5.3 Hypothesis 3

**H3:** Social media use is positive related to Trust & Loyalty

According to the hypotheses test result, correlation coefficient between social media and trust and loyalty construct illustrates a positive relationship. But, due to the big p-value it has, it is also not significant in the statistic point of view. As we explained for the hypothesis 1, it does not mean this hypothesis is wrong. But it requires further research to prove. Thus we looked into the result of each statement in this construct.

In the construct of trust and loyalty, the mean values of two arguments are above 3, which received a relative higher-level agreement. These statements are TL1 and TL2. TL1 argues that people trust the information more, which is delivered through people they already knew on social media in the Internet environment. Thus, the role of social media in word-of-mouth is important. TL2 mentions that e-commerce companies who are well known in social media are credible. Only 28% respondents either disagree or strongly disagree with this statement. So the most respondents agreed this statement. It shows that if the e-commerce company has a higher reputation on the social media, it will obtain more trust from its customers. But for the loyalty part, there is no evidence to show that social media has positive impacts on it. There are only 18% of students who think that the use of social media could increase their loyalty for the e-commerce company. Finally, to sum up, social media use should be positively related to trust, but we cannot infer anything for the loyalty aspect.

### 5.4 Hypothesis 4

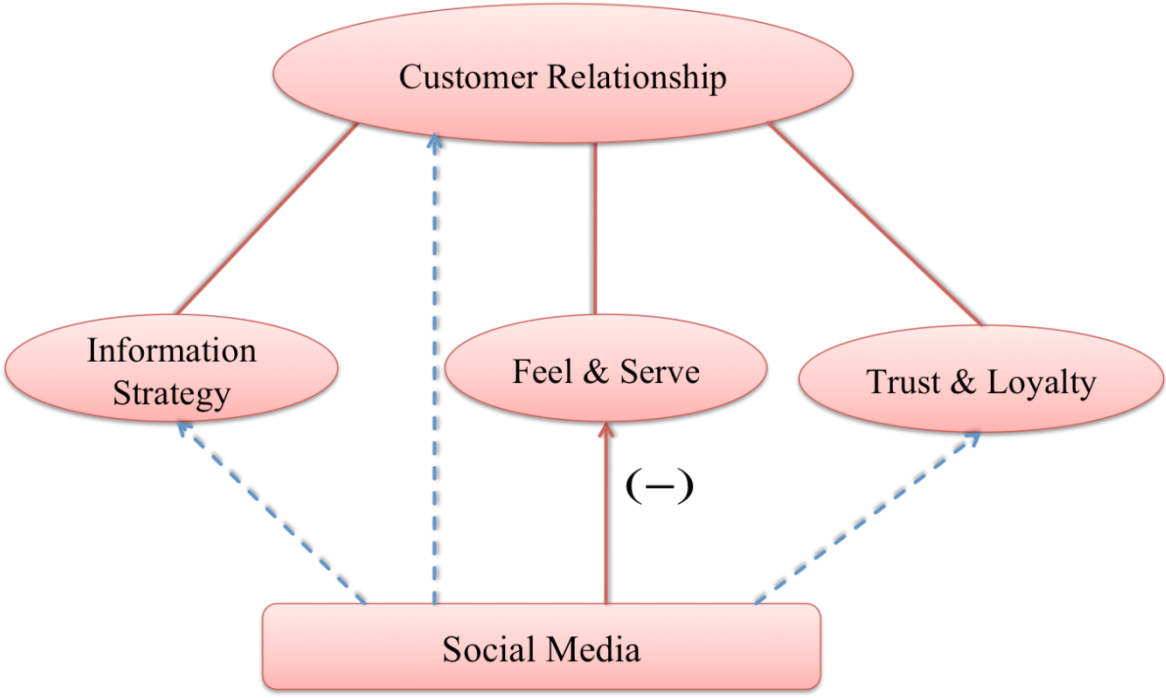
**H4:** Social media use is positive related to Customer Relationship

Based on hypotheses test result, which we calculated through SPSS, we observed that for hypothesis 4, there is also a lack of statistical significance in our study. The reason why we proposed this hypothesis is that we want to test the direct relationship between social media and customer relationship. But since our hypotheses test is not significant, we cannot infer

any conclusions from it. Thus we looked into the questions part. As we described in the chapter 4, the mean value of the three items of customer relationship are all less than 3. And the overall mean value is 2.71, which shows a lower level agreement. In detail, over 20% respondents either agree or strongly agree that the use of social media improved their relationship with e-commerce companies. And only 30% respondents agree that they are pleased to use social media to establish a relationship with e-commerce companies. These indicate that students are still not familiar with using social media to communicate with companies. Applying social media into e-commerce content is quite a new phenomenon for both e-commerce companies and customers. Both of them don't have much experience within this field, so that it is why most respondents selected neutral to express their opinions. But looking into CR3 (Q12), there are around 30% respondents agreed that they have been persuaded to buy a product by information provided by social media. Although 30% is not a big percentage, it also illustrates the fact that some business opportunities exist in the social commerce area. Overall, H4 cannot be supported by the hypotheses test, and the results of construct description also cannot conclude that there is a positive relationship between social media use and customer relationship.

**5.5 Final Structured Model (Model C)**

According to the presented hypothesized model test results (Figure 4.11) and above discussions, we reconstructed the research model (Model B) to the following new model (Model C), which is the revised customer relationship model (Figure 5.1). In this model, “(-)” means negative impacts and blue dashed line means this relationship needs further examination. The solid line presents a relationship between two entities.



**Figure 5.1 Structured Models (Model C)**

## 6. Summary & Conclusion

*In this chapter, we first summarized the research process and outcomes of this study. And we answered the research questions based on the above discussion section. The research limitation and recommend further research have also been mentioned in this final chapter.*

The objective of this study is to investigate the generated influences of social media on the customer relationship aspect of e-commerce. To identify the concept of customer relationship, an e-commerce model approach has been adopted. We used the element of customer relationship, which is inside the e-business model ontology (e-BMO) model, and selected the customer relationship part as the starting point of this research. In the e-commerce model ontology, the customer relationship element is composed of three parts: information strategy, feel and serve, trust and loyalty. By considering the social media impacts, we constructed a new customer relationship model based on these components. We not only explored the direct impacts of social media on customer relationship, but also investigated the relationship between social media and these three components. Based on the broad literature review, we proposed four hypotheses about their relationships and constructed the research model. Further, a quantitative research has been conducted to evaluate the assumed research model. Survey strategy, questionnaire technique and SPSS software have been used in the empirical study stage.

According to the empirical findings of data analysis, none of the four hypotheses were supported. One of them is because of the opposite result between the theoretical study and empirical study. And the rest of them are due to the insignificant data analysis results. In this study, we found that social media is negative related with the construct of feel and serve, which is against with our expectations. It indicates if that e-commerce companies use more social media forms, the customer's feel and serve will be reduced. A company should select the appropriate social media types to use and the type of used form should not too much. For another three hypotheses, which related with information strategy, trust and loyalty, and customer relationship, the provided results of our empirical study are not significant in the statistic view. These implied that we couldn't test the proposed hypotheses from our designed research and they require further studies.

“What's the relationship between the use of social media and e-commerce customer relationship?” is our main research question. To answer this question, we need to first answer the two developed sub-questions.

- Sub-question 1: Is social media use related to the customer relationship?
- Sub-question 2: How is social media use related to the customer relationship?

Our final structured model (Model C) has already answered these two sub-questions. In the figure 5.1, only a negative relationship has been proved between social media and Feel & Serve. Based on the above discussion, social media application should associate with

information strategy and positively related to trust. Whereas, there is no evidence shows the use of social media has a directly relations with customer relationship and the loyalty aspect. However, since Feel and Serve is one aspect of customer relationship, an indirectly relations between social media and customer relationship has been proved. Thus, social media use is related with customer relationship, but it is a negative relationship (-0.207), which transmitted by Feel and Serve aspect.

Overall, we concluded that social media is indirectly associated with customer relationship within an e-commerce content. Involving more social media applications into e-commerce customer relationship management did not produce many positive effects, which is contrary with our expectation. Therefore, e-commerce companies should carefully develop their customer relationship management strategy with the use of social media.

## 6.1 Reflections

Our research question is quite a new academic area, which makes it hard to find relevant research literature to guide our questionnaire design. The overall questions, which we used in the questionnaire, come from the relative literatures review and the previously used survey questions, which are related with social media and e-commerce area. No guide from the directly literature and pervious empirical studies would lead to a poor design of the survey questions and further affected the research quality.

The insignificant results of the empirical study would be another limitation of our study. In chapter 5, the reasons why these results came have been discussed through critical analysis our research approach and methodology. We think that if we combine the quantitative method with qualitative research method, choosing more data collection techniques or expend our population and sample size may reduce this limitation and get better results.

## 6.2 Further Research

This study is a quantitative study with survey method, which we approached from the customer's point of view. Within a quantitative research method, we only obtained one significant result and three hypotheses still require further studies. Maybe to continue this study with a qualitative research method, such as doing interview methods from the company aspect, can give different results. Furthermore, here we only studied the customer relationship part of e-commerce model ontology, and revised this part with social media influences. Other parts of e-commerce model ontology model: Product innovation, Infrastructure management and Finance also could be interesting for further researchers. Besides the above topic, since in this study, the chosen interested population is student. Further researches can choose another group as their target population to study.

# Appendixes

## A1: Questionnaire

### Social Media Survey

#### Purpose

Thank you for agreeing to participate in this survey. The research is being conducted for academic purposes at the Lund University. Your participation will help us to investigate the social media impacts on e-commerce, which is focus on how social media influence customer relationship. The questionnaire will take no longer than five minutes to complete. Our goal is to examine the hypothesis in our master thesis. Please tick box below.

#### Nationality

 Swedes Non-Swedes

#### Gender

 Male Female

#### Department

 Economic School Informatics School

#### Education level

 Bachelor Master

#### Did you shopping online before?

 Yes No

#### Which social media technologies do you use? (You can choose more than one choice)

 Microblogging (Twitter,etc) Blogs (WordPress, TypePad, Blogger, etc.) Social networking site( Facebook, LinkedIn, etc.) Social media sharing (Flickr, YouTube, SmugMug, etc.) Wikis ( Wikipedia, etc.) Virtual Worlds (SecondLife, WOW, The Sims Online, etc.) Online gaming (FullTilt Poker, PS3 Multiplayer, Kongregate, etc.)

#### Why do you use social media? (you can choose more than one choice)

 To keep in touch with friends and family. To meet new people. To make professional and business contacts. To discover and share new music, books, films, and other entertainment. To find information and share feedback about brands and products. To play games.

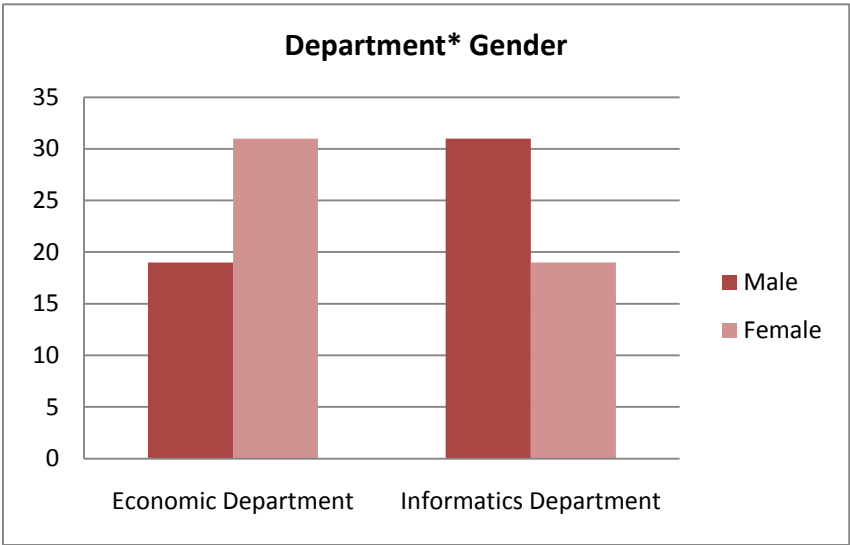
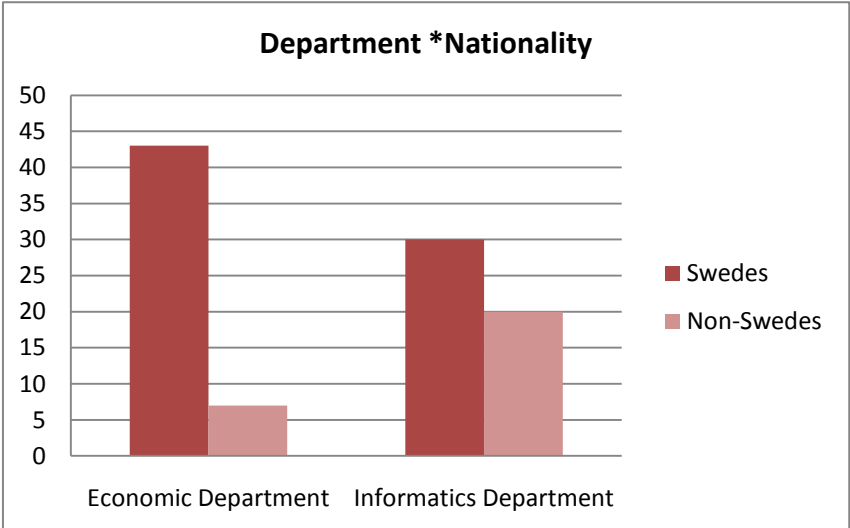
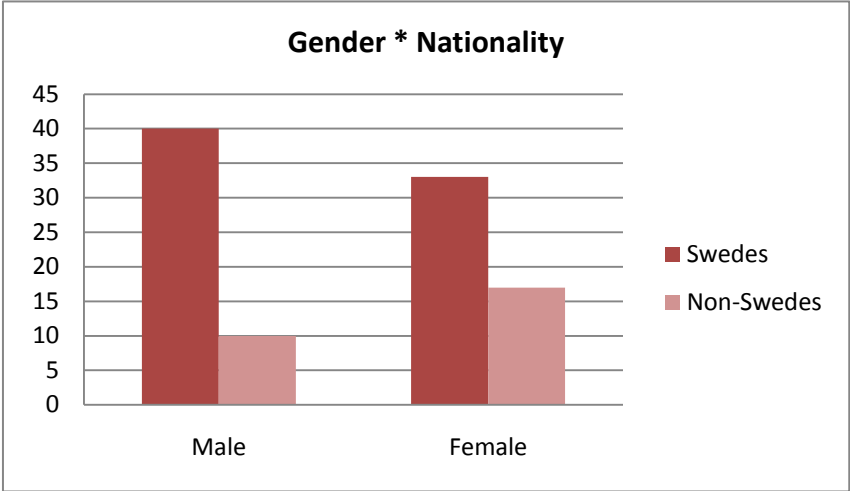
Please circle the number, which represents your opinion about the following statements.

1. I am more likely to share my online shopping experience with others via social media  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
2. I am more likely to recommend the product, service or company since I becoming a fan/ follower of it ( i.e.Facebook, Twitter)  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
3. I like to participate in product communities' discussions  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
4. Social media is the main resource which made me aware about the product  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
5. My feeling about this product increase since I become its fan/ follower  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
6. I believe the quality of customer services is higher when company embrace social media into its business  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
7. I trust the information shared with me by people I know through social media channels.  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
8. E-commerce companies who are well known in social media are credible  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
9. I feel a sense of loyalty with companies I know to use social media  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
10. I have a more effective relationship with e-commerce company because of the use of social media technologies  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
11. I have been persuade to buy the product by the information which I got from various social media forms  
Strongly Disagree ---1---2---3---4---5---Strongly Agree
12. I am pleased to establish relationship with my interested e-commerce company through use of social media  
Strongly Disagree ---1---2---3---4---5---Strongly Agree



## A2. Compilation of survey-data

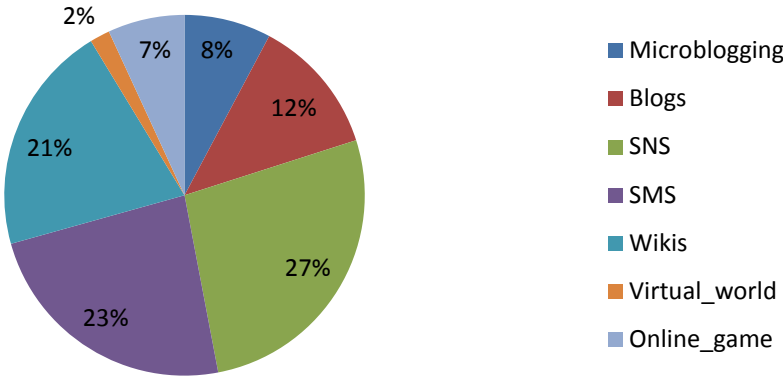
### Cross-analysis of Background Items



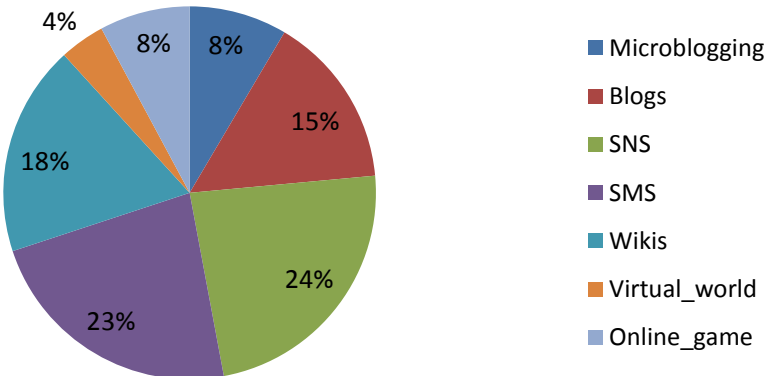
*Cross-Analysis of Social Media Type and Purpose*

<b>Types &amp; Purpose Cross Tabulation</b>						
	<i>Purpose</i>					
<i>Types</i>	<i>P1</i>	<i>P2</i>	<i>P3</i>	<i>P4</i>	<i>P5</i>	<i>P6</i>
<b><i>Micrblogging</i></b>	26	13	12	17	12	3
<b><i>Blogs</i></b>	41	23	17	31	25	6
<b><i>SNS</i></b>	90	<b>36</b>	38	71	<b>53</b>	26
<b><i>SMS</i></b>	79	35	34	62	50	25
<b><i>Wikis</i></b>	69	28	33	58	46	24
<b><i>Virtual World</i></b>	6	6	3	7	6	3
<b><i>Online Game</i></b>	23	12	11	22	17	21

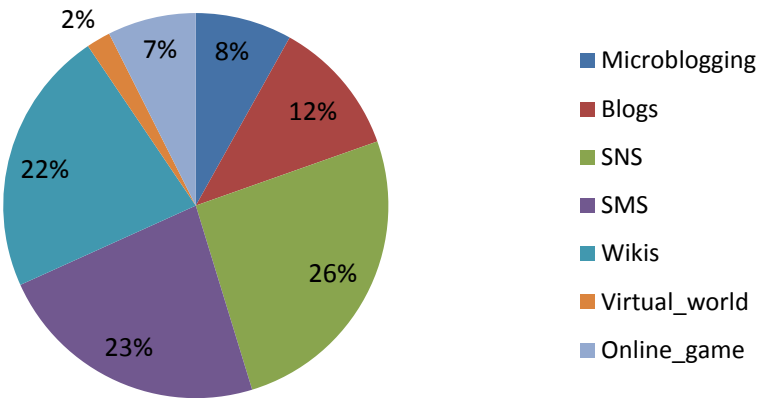
**P1:To Keep Touch with Family and Friends**



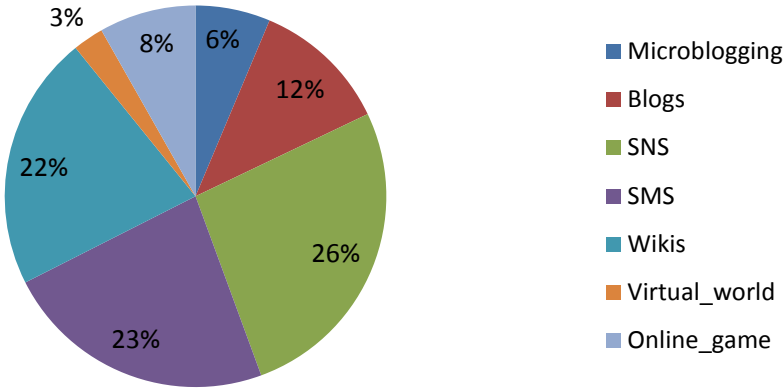
**P2:To Meet New People**



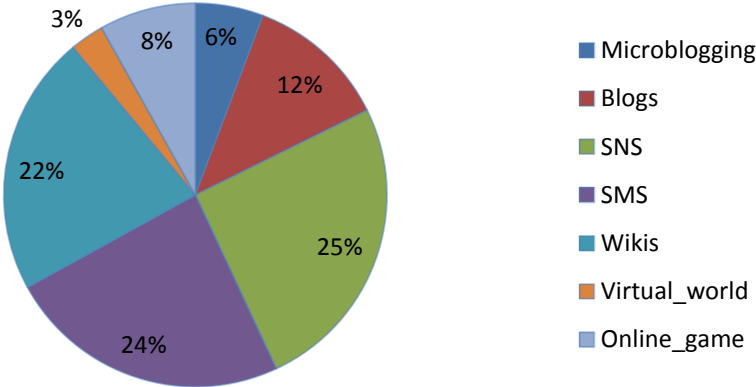
**P3:Professional and Business Contact**



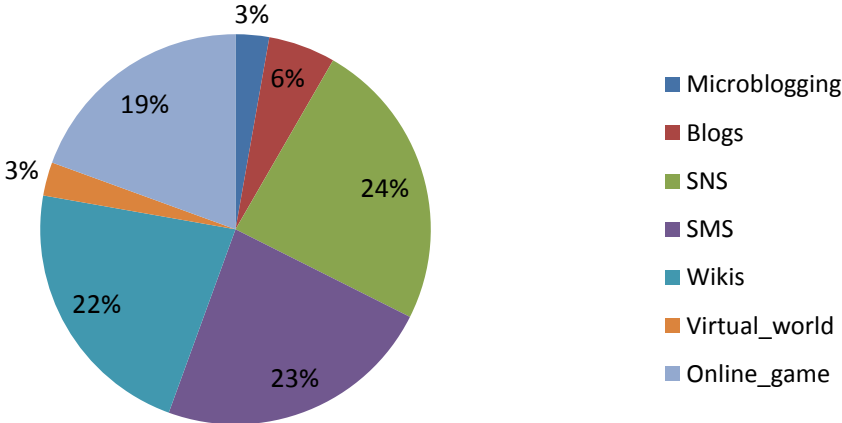
**P4:Have Fun ( Entertainment)**



**P5:Find information and Share Feedback**



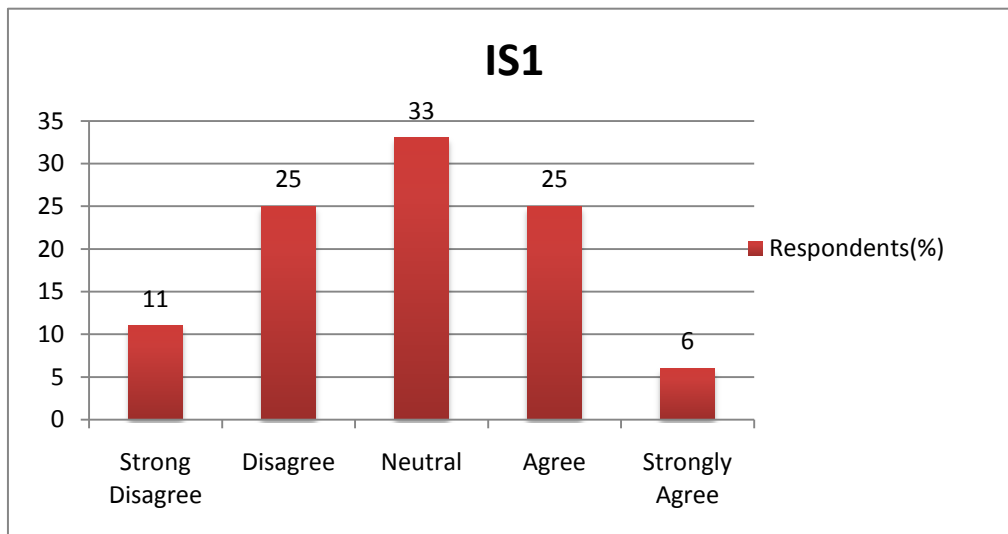
**P6:Playing Games**



*Descriptive Analysis of Each Statement*

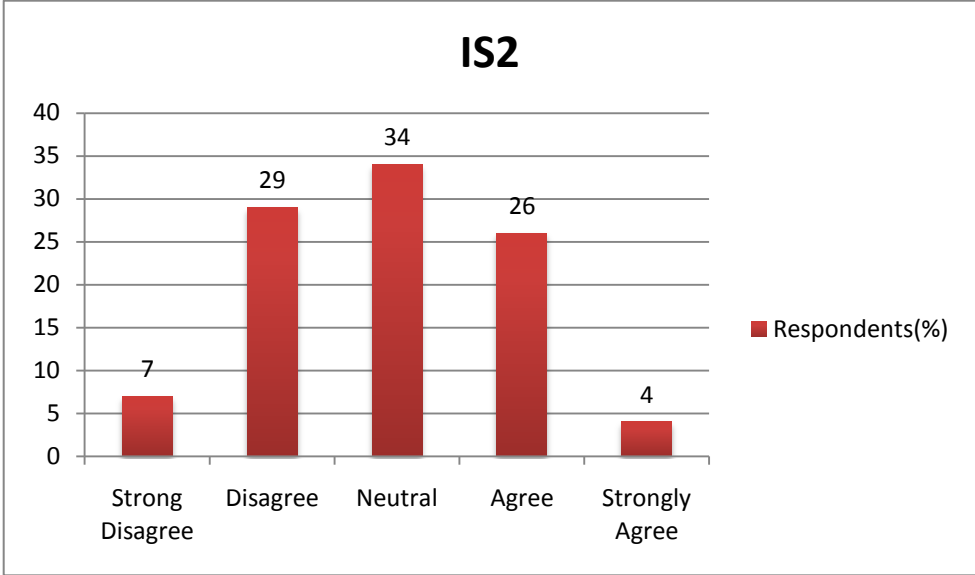
**IS1:** I am more likely to share my online shopping experience with others via social media

<b>Likert Scale</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>Strong Disagree</b>	11	11,0	11,0
<b>Disagree</b>	25	25,0	36,0
<b>Neutral</b>	33	33,0	69,0
<b>Agree</b>	25	25,0	94,0
<b>Strongly Agree</b>	6	6,0	100,0
<b>Total</b>	100	100,0	11,0



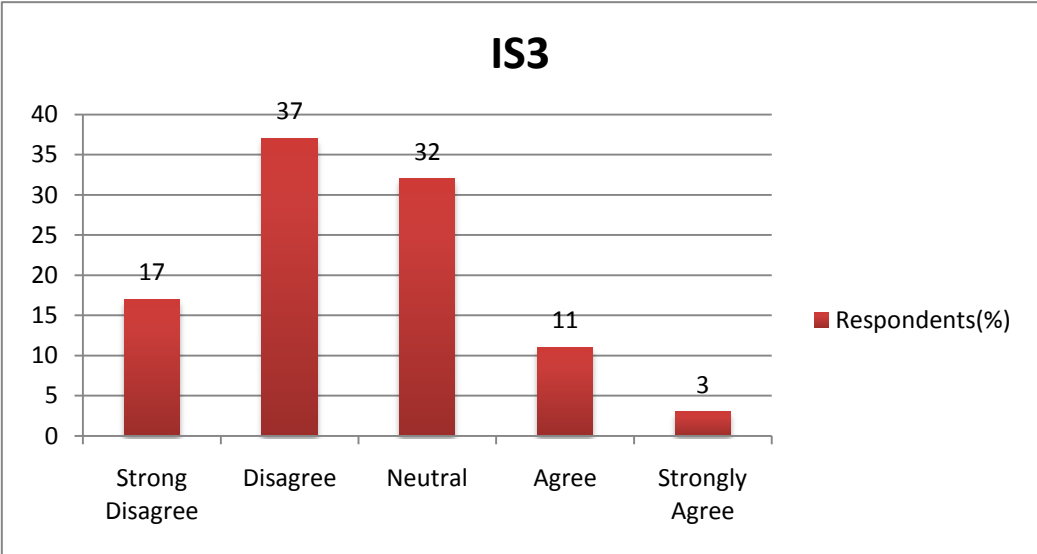
**IS2:** I am more likely to recommend the product, service or company since I becoming a fan/follower of it (i.e.Facebook, Twitter)

<b>Likert Scale</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
<b>Strong Disagree</b>	7	7,0	7,0
<b>Disagree</b>	29	29,0	36,0
<b>Neutral</b>	34	34,0	70,0
<b>Agree</b>	26	26,0	96,0
<b>Strongly Agree</b>	4	4,0	100,0
<b>Total</b>	100	100,0	



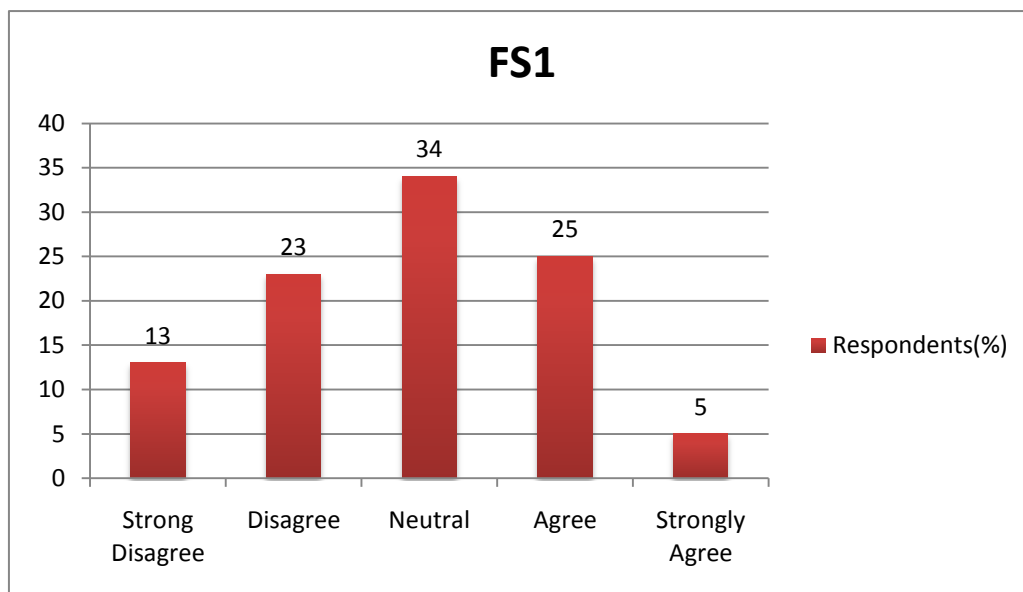
**IS3:** I like to participate in product communities' discussions

<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	17	17,0	17,0
<b>Disagree</b>	37	37,0	54,0
<b>Neutral</b>	32	32,0	86,0
<b>Agree</b>	11	11,0	97,0
<b>Strongly Agree</b>	3	3,0	100,0
<b>Total</b>	100	100,0	



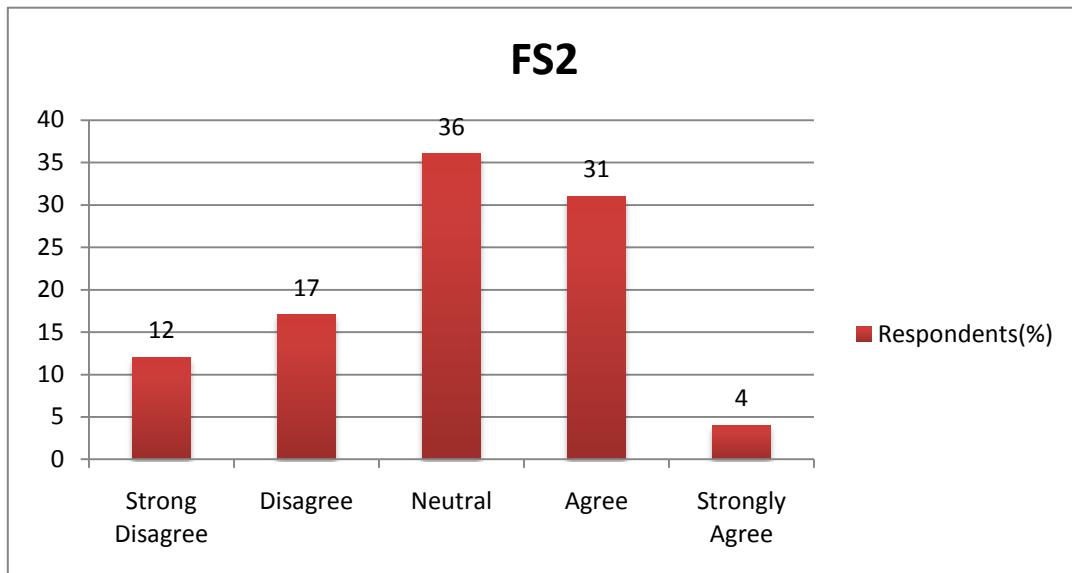
**FS1:** Social media is the main resource, which made me aware about the product

<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	13	13,0	13,0
<b>Disagree</b>	23	23,0	36,0
<b>Neutral</b>	34	34,0	70,0
<b>Agree</b>	25	25,0	95,0
<b>Strongly Agree</b>	5	5,0	100,0
<b>Total</b>	100	100,0	



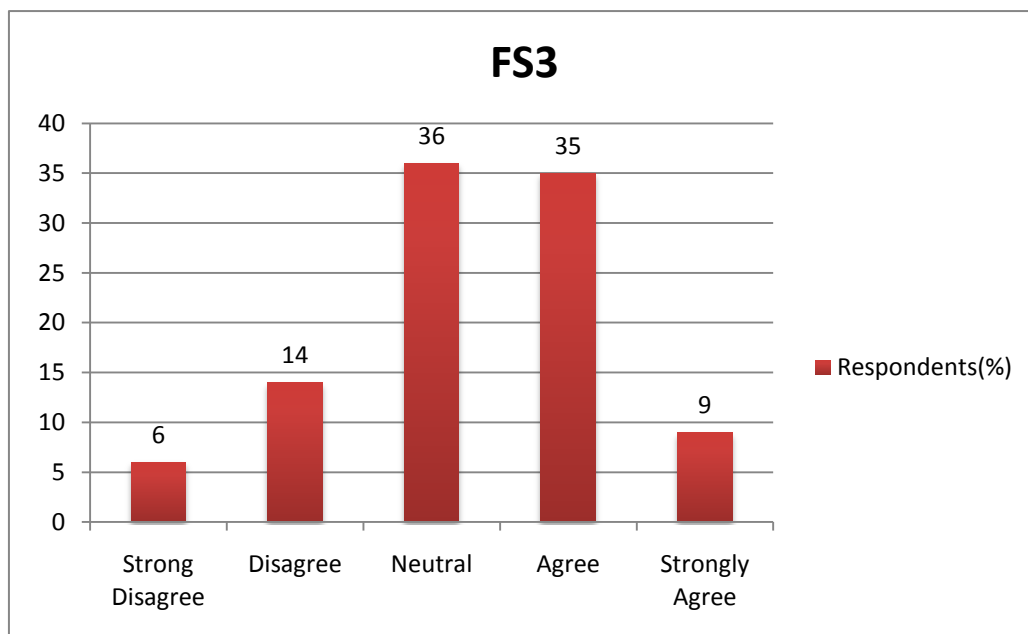
**FS2:** My feeling about this product increase since I become its fan/ follower

<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	12	12,0	12,0
<b>Disagree</b>	17	17,0	29,0
<b>Neutral</b>	36	36,0	65,0
<b>Agree</b>	31	31,0	96,0
<b>Strongly Agree</b>	4	4,0	100,0
<b>Total</b>	100	100,0	



**FS3:** I believe the quality of customer services is higher when company embrace social media into its business

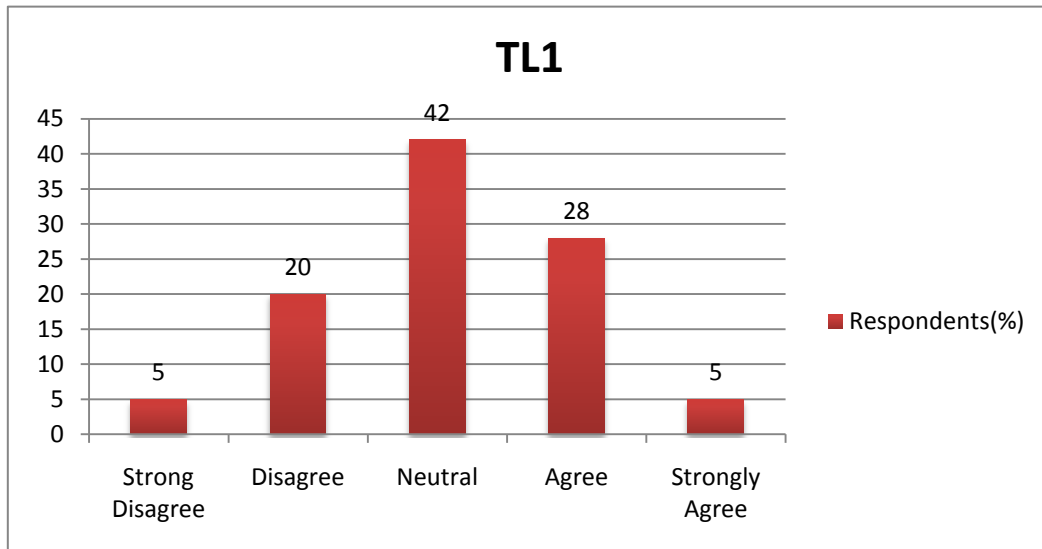
<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	6	6,0	6,0
<b>Disagree</b>	14	14,0	20,0
<b>Neutral</b>	36	36,0	56,0
<b>Agree</b>	35	35,0	91,0
<b>Strongly Agree</b>	9	9,0	100,0
<b>Total</b>	100	100,0	





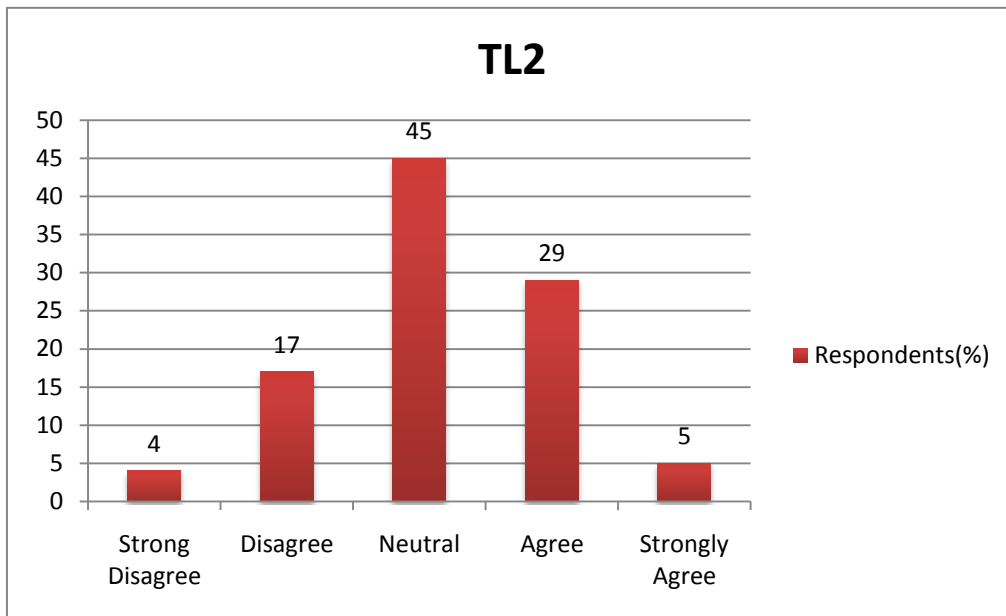
**TL1:** I trust the information shared with me by people I know through social media channels.

<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	5	5,0	5,0
<b>Disagree</b>	20	20,0	25,0
<b>Neutral</b>	42	42,0	67,0
<b>Agree</b>	28	28,0	95,0
<b>Strongly Agree</b>	5	5,0	100,0
<b>Total</b>	100	100,0	



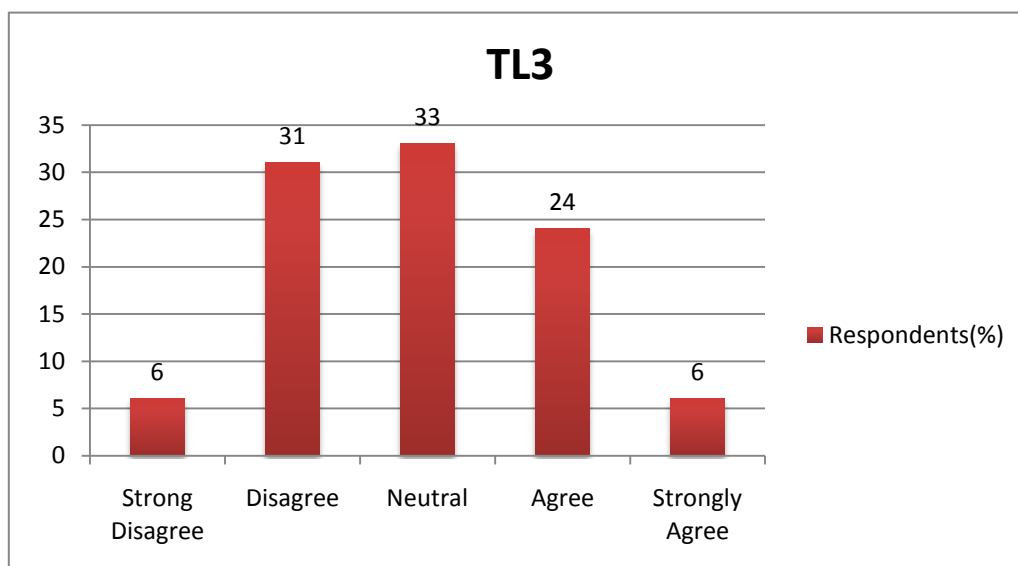
**TL2:** E-commerce companies who are well known in social media are credible

<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	4	4,0	4,0
<b>Disagree</b>	17	17,0	21,0
<b>Neutral</b>	45	45,0	66,0
<b>Agree</b>	29	29,0	95,0
<b>Strongly Agree</b>	5	5,0	100,0
<b>Total</b>	100	100,0	



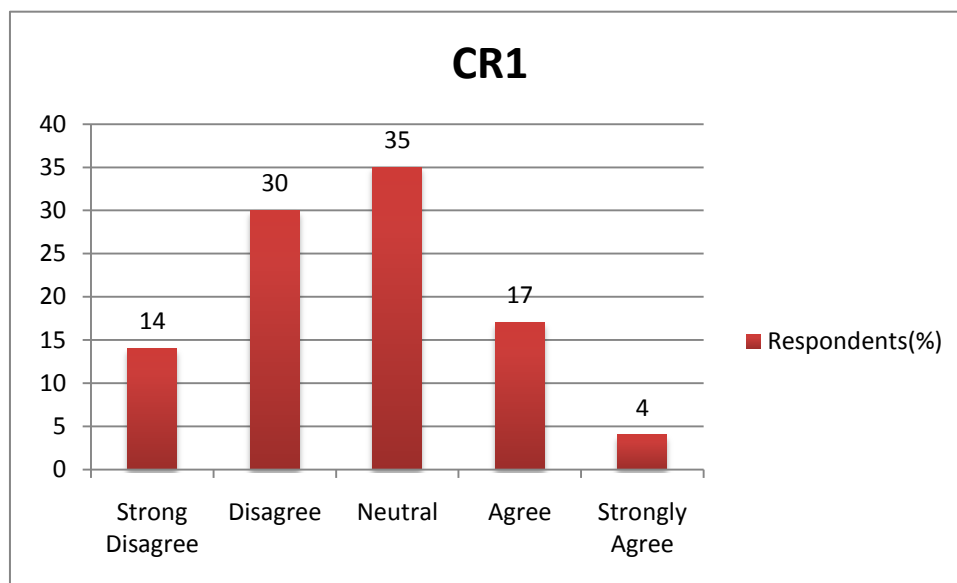
**TL3:** I feel a sense of loyalty with companies I know to use social media

<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	6	6,0	6,0
<b>Disagree</b>	31	31,0	37,0
<b>Neutral</b>	33	33,0	70,0
<b>Agree</b>	24	24,0	94,0
<b>Strongly Agree</b>	6	6,0	100,0
<b>Total</b>	100	100,0	



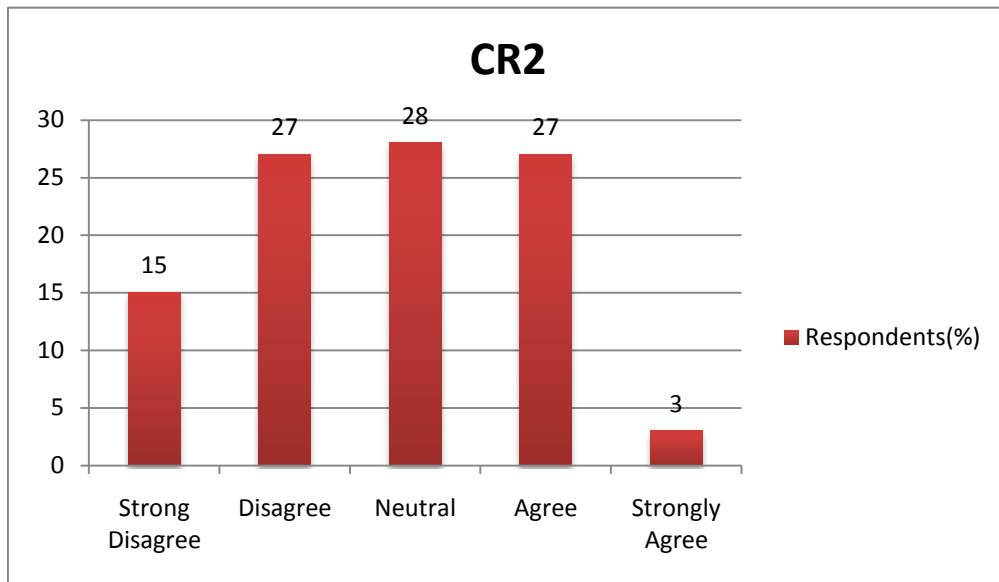
**CR1:** I have a more effective relationship with e-commerce company because of the use of social media technologies

<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	14	14,0	14,0
<b>Disagree</b>	30	30,0	44,0
<b>Neutral</b>	35	35,0	79,0
<b>Agree</b>	17	17,0	96,0
<b>Strongly Agree</b>	4	4,0	100,0
<b>Total</b>	100	100,0	



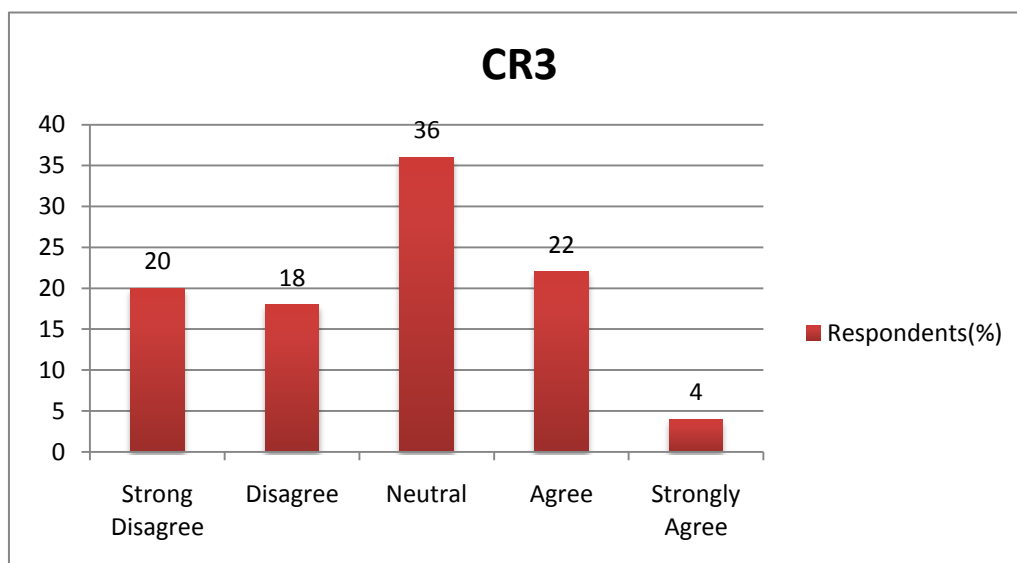
**CR2:** I have been persuaded to buy the product by the information, which I got from various social media forms.

<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	15	15,0	15,0
<b>Disagree</b>	27	27,0	42,0
<b>Neutral</b>	28	28,0	70,0
<b>Agree</b>	27	27,0	97,0
<b>Strongly Agree</b>	3	3,0	100,0
<b>Total</b>	100	100,0	



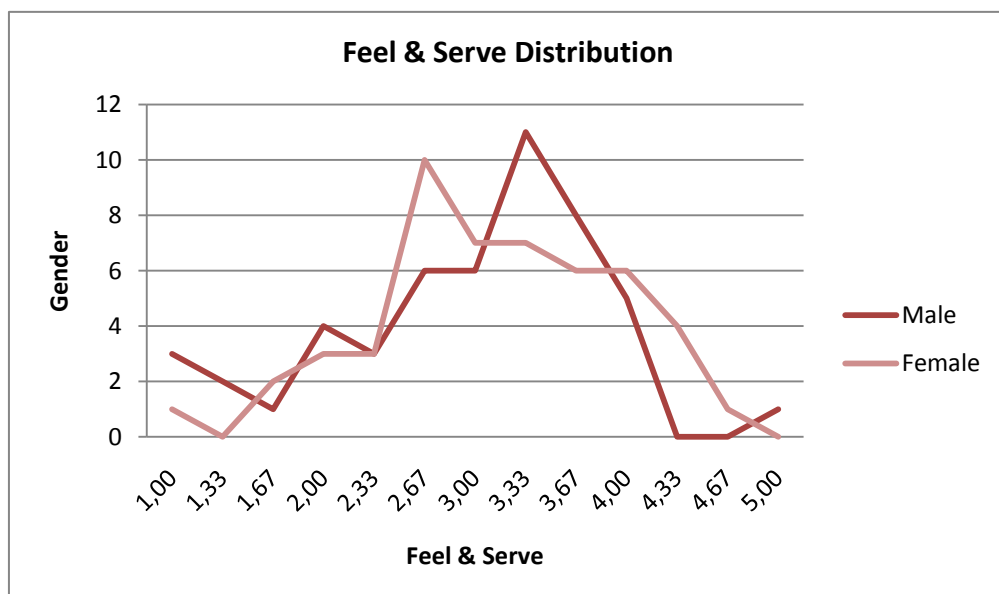
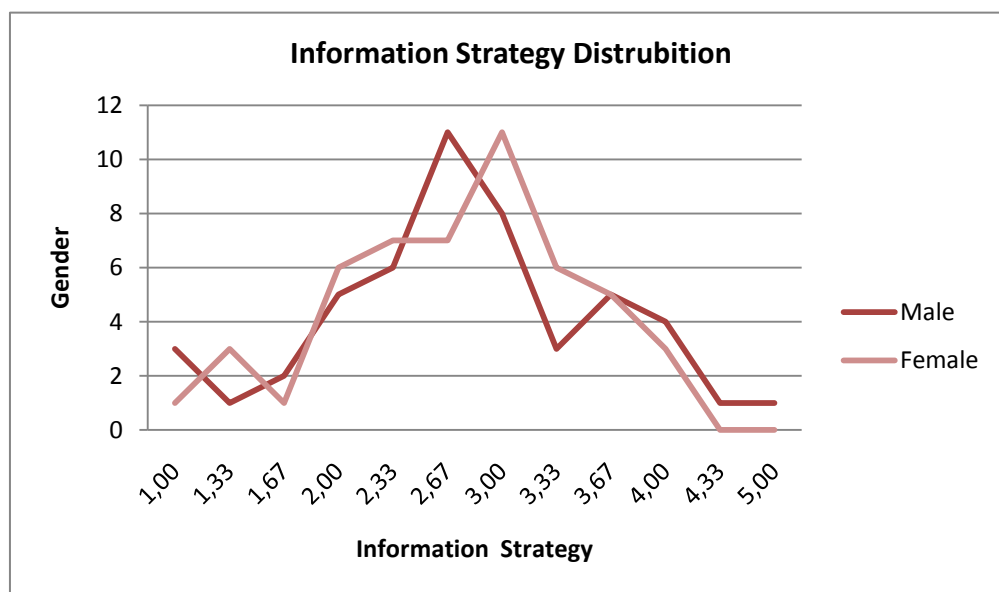
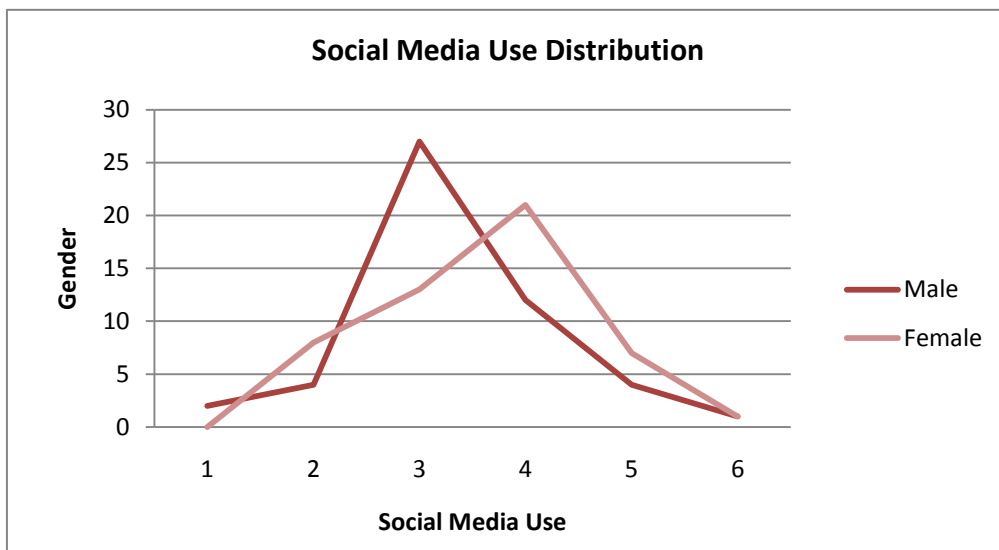
**CR3:** I am pleased to establish relationship with my interested e-commerce company through use of social media

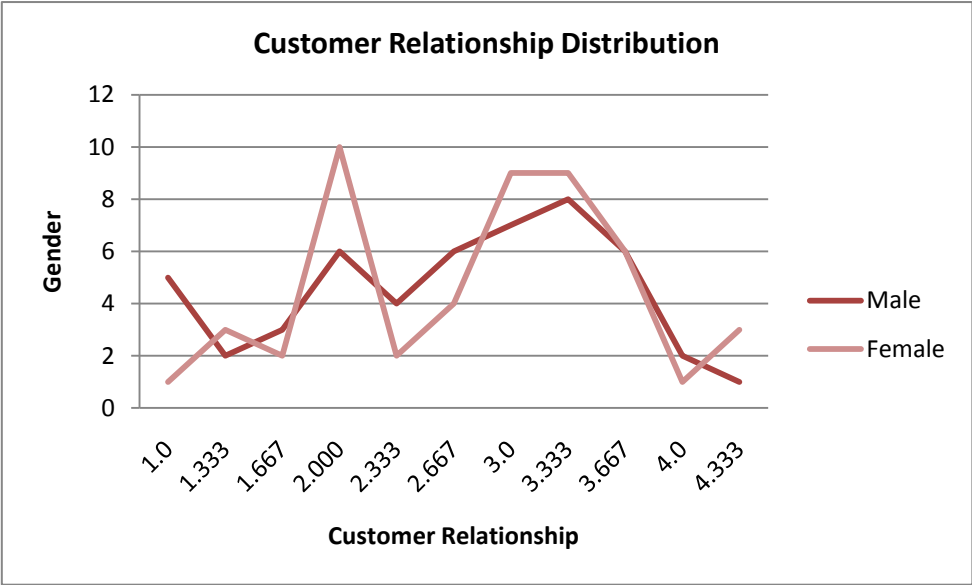
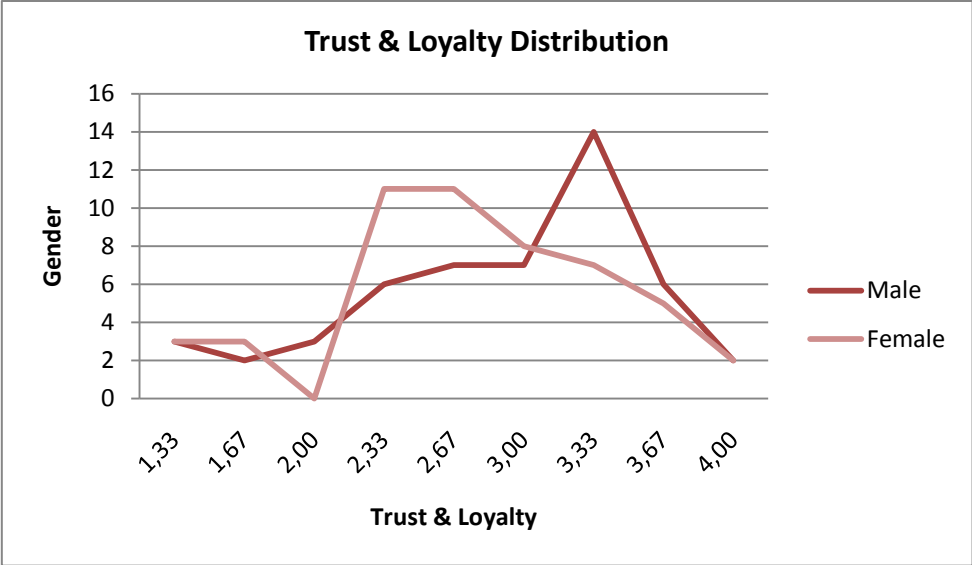
<i>Likert Scale</i>	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<b>Strong Disagree</b>	20	20,0	20,0
<b>Disagree</b>	18	18,0	38,0
<b>Neutral</b>	36	36,0	74,0
<b>Agree</b>	22	22,0	96,0
<b>Strongly Agree</b>	4	4,0	100,0
<b>Total</b>	100	100,0	



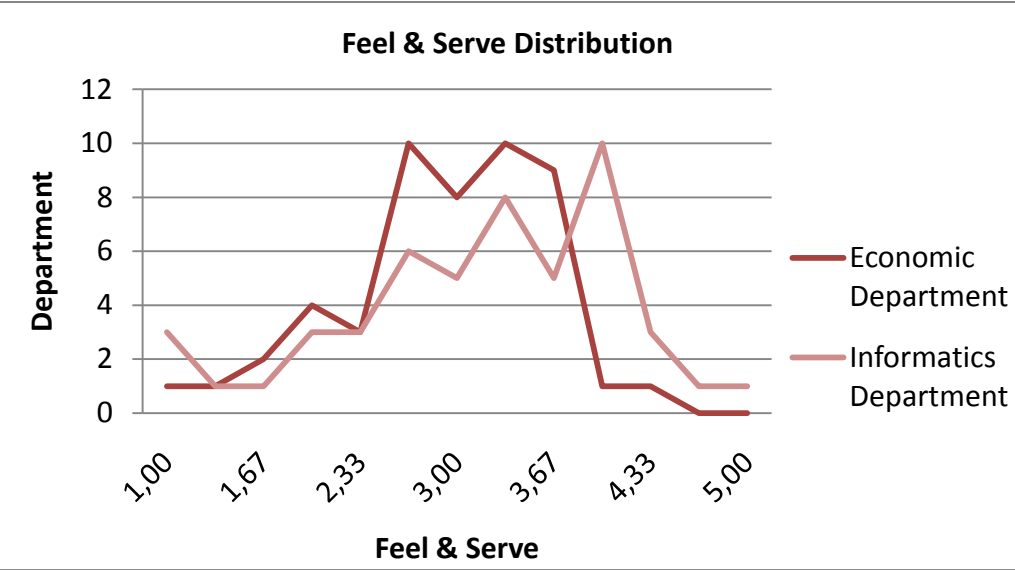
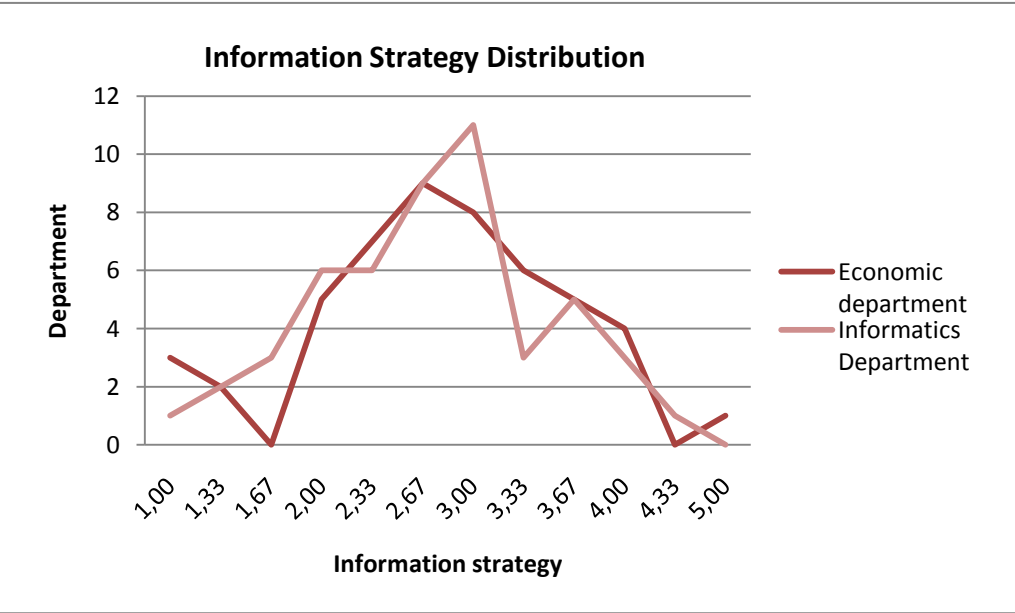
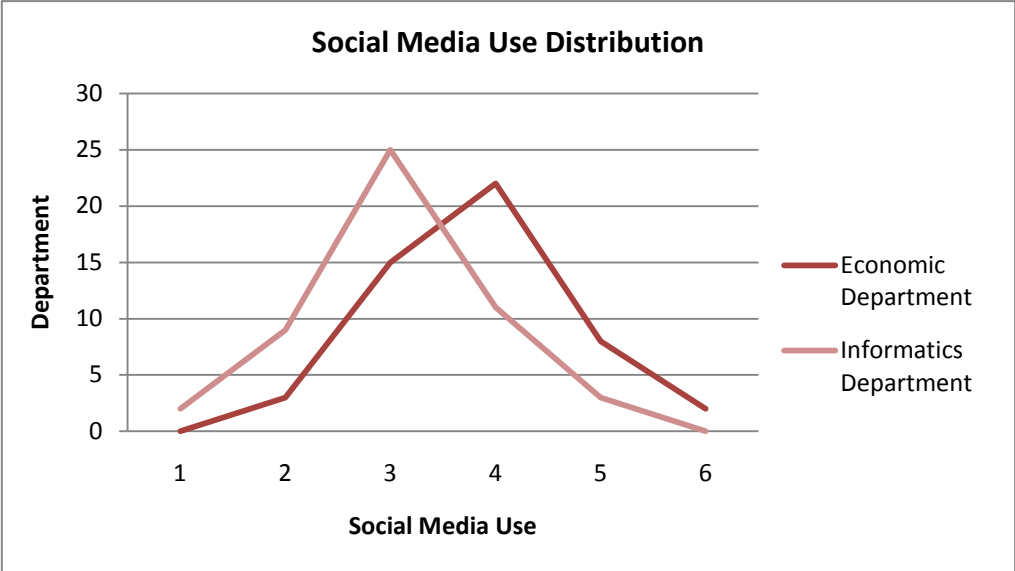
*Construct Distribution*

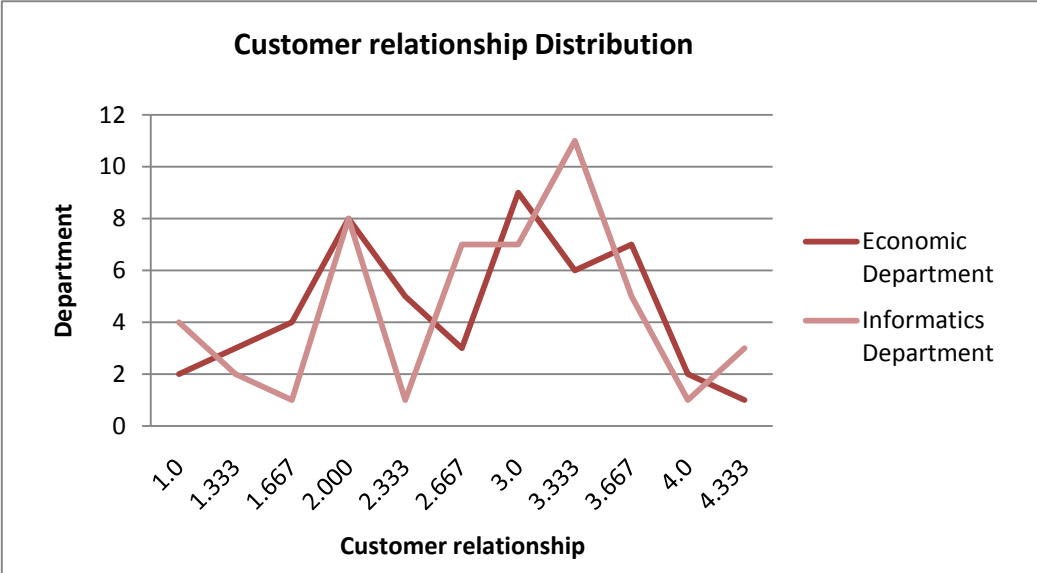
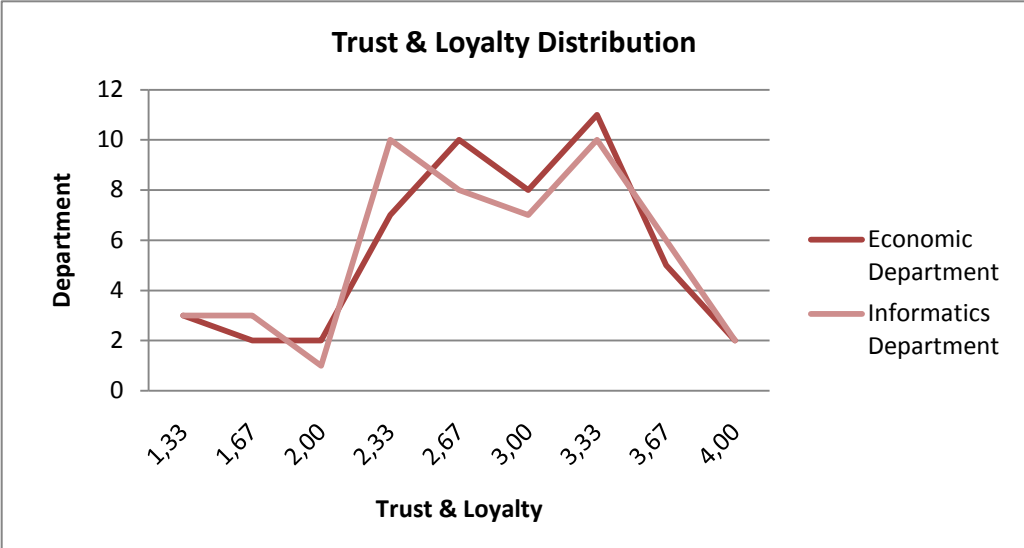
Construct Distribution in Different Gender





Construct Distribution in Different Department







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