

Chapter 2

Literature Review

2.1 Introduction

Early in [Chap. 1](#), we introduced and discussed various terms and concepts regarding customer relationship management, its components and the differences between CRM systems and strategies. We also explained the significance of complaints and their importance in any organization. Primarily, customer complaints have the potential to undermine the reputation of an organization. Complaints can even impact on communications, interactions and decision-making processes. In this chapter, we review the current literature on customer relationship management including its definitions, concepts and the solutions provided by CRM systems and strategies. We also examine the underlying components of these systems including customer satisfaction, customer acquisition, customer loyalty, perceived value and interactivity. Furthermore, we investigate the origins of existing problems, what has already been discovered about the existing problems and the various approaches that have attempted to address previous issues. Then, we undertake a critical review and analysis of the literature in order to evaluate, compare, and analyse the various opinions.

In the next section, we discuss various definitions based on the literature review and provide all of the definitions that have previously been formulated by other researchers. Also, we illustrate ways of administering to customers using customer relationship management, the components of CRM, strategies and methods from the past literature reviews which have been discussed. The various definitions of CRM and its main variables are presented in [Sect. 2.2](#). In [Sect. 2.3](#), we discuss various types of CRM. In [Sect. 2.4](#), we examine existing CRM approaches and the relevant current literature. In [Sect. 2.4.1](#), we describe the importance of CRM and the various approaches to it. In [Sect. 2.4.2](#), we debate the impact of CRM on perceived value and its interrelations. In [Sect. 2.4.3](#), we discuss the relationship between CRM and interactivity, the methods of strengthening interactivity, and how these two elements can forge an appropriate bond with each other. The customer-loyalty-focused approach and its importance with respect to customer satisfaction is discussed in [Sect. 2.4.4](#). [Section 2.4.5](#) examines the importance of

customer acquisition and its relationship to CRM and other factors such as loyalty and customer satisfaction. In [Sect. 2.4.6](#), we concentrate on customer complaints and current approaches related to this issue. In [Sect. 2.4.7](#), customer satisfaction and various methodologies from extant literature are discussed. In [Sect. 2.5](#), we examine the current methods and tools to measure and evaluate CRM and major factors such as customer satisfaction and loyalty. [Section 2.6](#) presents the existing CRM system together with a discussion of their pros and cons. In [2.7](#), we critically discuss and evaluate existing literature. In [Sect. 2.8](#), we touch upon open source CRM and cloud and we discuss their importance as a concept. In [Sect. 2.9](#), we provide a summary of the literature and the chapter concludes with [Sect. 2.10](#).

2.2 Concepts and Definitions of CRM

CRM has been defined in numerous ways and with many descriptions. It can be defined as the art of acquiring customers and having a long-lasting relationship with them. Companies must take the initiative to actualize and implement CRM. Also, CRM is a combination of people, processes, and technology in order to understand and obtain customers for the company. It focuses on customer retention and builds up the relationship. To benefit fully from the implementation of CRM, companies must have efficient CRM programs to secure the loyalty of the customers [1]. Furthermore, proper relationships with customers need to be conducted by sophisticated management [2]. In order to compete with business rivals and keep pace with the competition in today's market, businesses need to have more than just a professionally designed Website; they need to engage and involve users with an encyclopaedic system and strategies to support their companies [3].

CRM applications are able to provide an effective connection from front office to back office and touch points with the customers. An organization's touch points include the Internet, E-mail, call centres, face-to-face marketing, fax, pagers and kiosks. CRM can be employed to consolidate these touch points for the benefit of the organization. Using CRM, companies can maximise their interactions with customers and obtain a 360-degree vision of customers [1]. Since the whole study can be accomplished within the context of CRM, it is mandatory to be aware of some important definitions and improvements in this area. In the next section, we highlight and discuss various definitions of customer relationship management from the current literature.

2.2.1 *Strategic-Based Definition for Customer Relationship Management*

Mendoza et al. define CRM as a process, human factor and technology that produces the best relationship with customers to intensify value, satisfaction and customer loyalty [4]. Also, Ueno [5] consider CRM as an advanced level of marketing strategy

to intensify acquisition and retention of customers and creates long-term value and a long-term relationship with customers. Additionally, Özgener, Iraz and Hoots [6, 7], define CRM as a business strategy and a picture of customer requirements to increase profitability and intellectually manage sales, marketing and service procedures. Payne and Frow [8] see CRM as an entity that is a strategic approach that unites marketing activities and information technology to create long-lasting relationship with clients, using human factors, technology and operations. Anderson [9] defines CRM as one of the most robust weapons managers employ to guarantee that customers will remain attached and loyal to the company. Moreover, CRM is defined by Özgener, Iraz and Robinson Jr et al. [6, 10] as a core business strategy and a key driver that creates competition among organizations to provide better goods and services to the customers.

Based on Faed et al. [11], CRM is a strategy used to increase customer retention, customer intimacy and build customer equity. Also, Robinson Jr et al. and Chaudhry [12, 13] maintain that ways of creating and maintaining relationships with customers must be assigned based on customers' value. Furthermore, Lawson Body and Limayem [14] define that CRM is a set of strategies that create an interactive relationship with customers and enable an understanding of their requirements and expectations in order to provide personalised and customized services and products. Limayem [15] also defines CRM as a customer-focused strategy that provides customer satisfaction and a management strategy which utilises a technology to create a long-term relationship with customers. Additionally, Frow et al. [2] claim that customer management is central to customer relationship management and relationship marketing, as customer management provides tactics for dealing with the issues, makes the environment more interactive, and facilitates transactions.

2.2.2 Process-Based Definition in CRM

Customer relationship management is a set of business processes for the purpose of retaining customers and maintaining their loyalty to the company [16–18]. Also, CRM is a systematic management of relationships across all parts of the business, focusing on customers, providing long-term value for them, and increasing customer interaction. It also includes communication channels and offers of different services, thereby producing customer retention and loyalty [13, 19, 20]. It is a concerted effort to acquire customers and gratify their requirements [6, 17]. Furthermore, it is a process-driven strategy that ensures customer retention and face-to-face marketing followed by clarifying customers' preferences [21].

At the same time, it is an inclusive business process which is customer-centric and helps organizations to operate flawlessly and enhance customer interactions [10]. It is also an interactive procedure that creates a balance between a company's success and customer satisfaction to generate profit for them [6]. Other researchers maintain that CRM is a process which identifies current and potential customers,

and builds long-term relationships and short-term transactions with them [2, 22]. It is a process of building and managing the mutual relationship between company and the customer to maximize customer relationship and fulfilment [22]. This process customizes services, increases customer focus and individual pricing [23]. While CRM is a comprehensive business process which utilizes information to support business activities, it conceptualizes customer definition and provides a whole view of the customer in order to generate customer intelligence in all stages of a business [20].

On the other hand, CRM can be considered as a process that correlates and systematizes activities which are significant so as to entrench credible, long-lasting, worthwhile experiences for all parties in a business [12]. Moreover, by using CRM approaches and their components, companies can reduce operating costs, have an appropriate interaction with their customers and make the best decisions which in turn are followed by customer support [24, 25]. Finally, it can create a customer-focused data warehouse and express an organization's clear-cut vision [11, 26].

2.2.3 Customer Complaint in CRM

A complaint can be defined as an expression of disagreement between the customer and the company. Solutions must be seen as being fair and impartial, and this is the main criterion when customers select or remain with a company [27]. A complaint mostly results from some disruption to expected services [28]. Complaints represent a comprehensive set of behavioral and non-behavioral responses (non-standard behaviors) made by customers who are engaged in the communication of contradictory understandings, and begins with dissatisfaction with a situation [29]. Additionally, customers may choose various means to express their complaints: verbally, in writing, or face-to-face [30]. Customer complaints reflect real-life situations which must be dealt with by companies using appropriate strategies in order to ultimately satisfy the customers. From the customer's perspective, a complaint should be dealt with promptly and thoroughly by a company, and it should be sufficient to motivate a company to take appropriate action and reach a solution that is satisfactory to the customer [28]. Taken seriously, complaints have the ability to improve the quality of products manufactured by a company and the level of service provided.

According to Stauss [31], a complaint is a verbal or written articulation of discontent that sends a warning to a company or service provider about its behaviors, service or product(s). It is usually created quite deliberately. Customers usually complain if they are confident that there is a chance of compensation and this would be one of the benefits of lodging a complaint.

When a company deals appropriately with a complaint, this will enhance its reputation as customers tend to be favorably disposed towards those companies that listen to them. Complaints have the potential to increase customer loyalty, and

promote communication between the company and its customers [32]. Decreasing the incidence of customer complaints often creates customer satisfaction and customer retention. Nevertheless, customers may exhibit different behaviors when expressing complaints. They express their dissatisfactions in different ways which could be positive or negative [30].

Complaint is a significant issue that companies need to deal with in order to increase the level of satisfaction, output generation and profit making [33]. Also, it has been always used as a facilitator between individuals and companies [34]. Each complaint provides an improvement opportunity for a company [35]. The advent of updated complaints could be a starting point for analysis and improvement. From the learning perspective, it can often be a great source of learning, allowing a company to create a favorable situation [36]. Appreciating and giving some credit to complaints as part of a business process promotes a company's long-term relationships with its customers. Complaints must be dealt with in a way that will ensure that the same or similar complaints do not re-occur.

Based on [35], 1–5 % of all complaints are assigned to the headquarters or the management team of the companies. Forty-five percent of all complaints are designated to agents, branches or frontline delegates. Fifty percent of customers who encounter various issues do not make complaints due to feelings of helplessness [35]. The level of complaints varies case by case and when an issue escalates, it becomes more costly. It is shown that those customers whose complaints are dealt with to their satisfaction are 30 % more loyal than those customers who usually do not complain about the issues at all [35].

2.2.4 Complaint Management

Based on Stauss [31], a company needs to have the following factors to be fully capable of openly receiving customer complaints:

People in positions of authority should always be approachable and engage in appropriate customer-centric interactivity. If a customer makes a complaint face-to-face, s/he should be treated in a polite and friendly manner. The one who receives the complaint must have empathy and understand the customer's situation. Also, the receiver must expect and be ready to deal with a variety of customer attitudes and approaches. The receiver of the complaint must take initiatives and be helpful and reliable in order to project trustworthiness to the customer. It is vital that action be taken promptly and appropriately so that the next customer can be dealt with. Finally, the outcomes generated by the system must be fair and legitimate so that customer does not experience discrimination.

According to Stauss [31], there are three types of complaint resolution:

1. Financial solutions: return the money to the complainant; reduce the price of service or product.

2. Tangible solutions: change the product; offer a gift to the customer; propose an alternative, or simply repair the product or re-offer the service.
3. Intangible solutions: offer an apology to the customer, listen to the customer and give convincing reasons for the unsatisfactory situation.

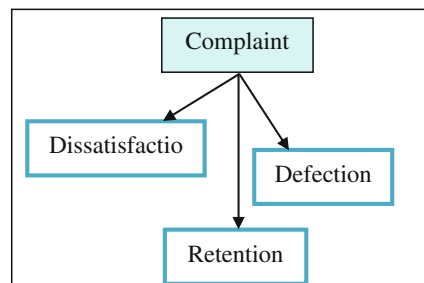
2.2.5 Complaint and Derivations in CRM

Figure 2.1, [37] shows the relationship between complaint and derived concepts—dissatisfaction, defection and retention. Complaints may lead to defection, meaning that a customer no longer wants to have dealings with the company [38]. Some complaints will lead only to dissatisfaction; in this case, the company can remedy those problems in order to retain the customer [28, 36]. The company can strengthen its customer retention because it has responded appropriately. In addition, expectation may have some relationship with extra retention [28, 36].

Defection is a complaint reaction that has been described as departure or leaving attitude (customers start leaving the company) and is often a common reaction following a complaint. A customer may choose to defect to a competitor rather than lodge a complaint. Similarly, customers who express their dissatisfaction by complaining may still choose to leave regardless of the outcome [36]. By defecting, customers signal their desire to no longer use a particular company's product or service, thereby never again buying from or using the same company. Defection is an effective manifestation of a customer's dissatisfaction. Moreover, defection is a customer's decision to completely stop purchasing and supporting a company's services and products. This may occur because of several issues over time and creates a gradual destruction of bonds [30].

Many studies emphasise the benefits of customer retention. Authors in [39] indicate that a 1 % improvement in the customer retention proportion ameliorates and enhances a firm's value by 5 %. Similarly, [38] show that a 5 % increase in customer retention increases a firm's profits in a range of 25–85 %. Companies need to identify previously profitable but currently inactive customers and initiate appropriate activities to reactivate those customers. The focus on retention is established upon the constant and constructive hypotheses that there subsists a durable and robust affiliation between customer retention and profitability:

Fig. 2.1 Complaint and derivations in CRM



long-term customers buy more and are less costly to serve, whereas replacing existing customers with ‘new’ ones is demonstrably a more expensive and risky strategy, since it is feasible to assume that switched customers are more likely to continue their dissatisfied behavior in the near future [40].

Dissatisfaction among the customers has been described as the lack of verification in some service anticipation that has been caused by service breakdown [36]. As shown in Fig. 2.1, the handling of complaints may assist a company to better retain its customers. If the company improves its ability to satisfy its customers and prevent all sorts of defections, it will be able to retain its own customers, as retention is the positive feedback of the complaint. A company should learn from its mistakes. The complaints process is an iterative one, and with each complaint, a company has the opportunity to increase its knowledge about its customers [37].

2.2.6 Definitions of Perceived Value in CRM

One of the antecedents of customer relationship management in the work setting is the new atmosphere produced by even a subtle change in an organization. It generates new experiences for the employees as well as for the customers, and prompts the latter to demand newer experiences [41]. Perceived value is shaped according to the authentic (objective) price and the consumer’s reference price. Perceived value and satisfaction are two inter-related elements, but have separate constructs and both are dependent on the consumption model. People have different feelings when buying a product or a service. Customers have pre- purchase and post-purchase feelings. Satisfaction is a post-purchase feeling and perceived value might be either pre- or post-purchase [42]. Perceived value is also defined as social value, emotional value, hedonic value, spiritual value and esteem value [43]. To date, perceived value has been of great interest to many researchers since it may lead to customer satisfaction, customer attitudinal intention and corporate image [44].

Perceived value from the customers’ perspective implies the benefits customers acquire which shape their experience based on the planning that has been accomplished [45]. Furthermore, perceived value is created when a customer selects a particular service, is gratified by and acknowledges the service provided by a company and repeatedly seeks the service. In this way, an individual starts evaluating the benefits derived from utilization of the service in terms of incurred costs [46]. Perceived value has a direct link with customer behaviour and is central to the service evaluation. Also, it has a close relationship with satisfaction. The term ‘customer value’ is interchangeable with ‘perceived value’ [47].

2.2.7 Definitions of Interactivity in CRM

‘Interactivity’ is defined as the ability of individuals and companies to communicate personally and straightforwardly with each other irrespective of distance.

The effective interaction and communication of human beings have been always problematic among individuals and organizations. Also, managing interactive and communicative relationships is becoming an issue for organizations regardless of place and region. Effective communication and interpersonal expertise has a significant impact on customer relationships. To date, little research has been done to assess the interaction of companies with their stakeholders. According to [48], managers must have transparency when passing information to customers and in their other interactions. They must also understand the requirements and preferences of a customer [48].

Apart from investigating the source of issues and turning them into new information, customer service personnel must have the ability to learn and remember all the answers and feedbacks. Furthermore, interactivity has been described as a dialogue between the customer and the company. Although previously there has been restricted interactivity, today it is not the same thing and it is totally integrated and interactive [45].

2.2.8 Definitions of Satisfaction in CRM

Customer satisfaction is a key factor in the success of any company and is produced when customers' needs have been met and they have derived profit or value from their experience. Also, customer satisfaction brings about new experiences to the customers whose needs have been fulfilled and satisfied.

According to Becker et al., customer satisfaction implies an extended relationship through activities such as selling, increasing revenue of the customers, and generating customer maintenance [38].

Mithas et al. mention that customer satisfaction is a factor that directly or indirectly impacts on a company and society. Companies must perform well, adhere to social contracts and show mutual understanding. Customer satisfaction may have an impact either positive or negative on customer feedback. More satisfaction creates security and decreases loss of clients [49]. Blocker et al. state that customer satisfaction creates positive word of mouth advertising, attracts more customers to the company, and retains existing customers. Moreover, customer satisfaction creates loyalty as a direct effect [50]. Similar to this thesis, Caruana has used 'service quality' as an interchangeable term for 'customer satisfaction' [51].

Satisfaction or service quality has been described as an outcome of customers' expectations based on their comparison and perceptions about goods and services and also how the final result transfers to the customers and to what extent it makes them happier [51]. Using customer satisfaction, the company can create new relationship circles using its customers and its partners. Furthermore, this characteristic will make the company more reliable [52]. Customer satisfaction is defined by Wang and Yang as an important element in creating profitability and building bond and value for customers and it has been greatly utilized by most of the organizations to bring back customers and to promote widespread positive

word of mouth [53]. As defined by Coates et al., customer satisfaction is derived from delighting a customer and providing positive surprise which exceeds customers' expectations [54]. Furthermore, Avlonitis and Panagopoulos maintain that customer satisfaction is considered as an information technology surrogate and refers to the way that the company can meet the requirements of the customer and make them happy [41, 55].

2.2.9 Definitions of Loyalty in CRM

'Loyalty' is defined in terms of repeated buying behaviour [56]. Today, the concept of customer loyalty is all-inclusive and it is an important research topic for researchers and companies and one that needs to be studied more in order to achieve maximum effectiveness. Loyalty is considered as a credit in cutting-edge markets of today. Customer loyalty is recognized as the probability of purchase, probability of product repurchase, purchase frequency, repeat purchase behavior and buying order [57, 58]. Based on [43], customer loyalty is a major latent variable, connected to the probability of returning a customer to the system. Then the customer will generate referrals and word of mouth.

At the centre of loyalty programs is the principle of bolstering, whereby it is supposed that behaviours which are rewarded will be repeated [59]. It costs a company more to attract and absorb a new customer than it does to implement a retention strategy. Also, it is said that client acquisition cost is 20–40 % more than finding a new client in the physical marketplace, as mentioned in the study of the Internet clothing market. This produced higher losses in the very first stages of the relationship, but after the 24th to 30th month, the Internet clients probably need to spend twice as much as they used to do in the first six months [60]. A gratified customer has a tendency to be more loyal to a brand or store over time than a customer whose buying occurs due to other causes such as time limitations and information about possible loss or savings [56]. Likewise, loyalty is the outcome of the wise and legitimate relationship that a company establishes with the customer [61].

The main goal of this loyalty is to increase customers' support and their level of faithfulness to the brands and the company and encourage the customers to repeat their purchasing rates [58, 62]. Using an extensive and broad loyalty program, the company will be able to measure, enhance, control and manage customer profitability [63]. The main aim of customer loyalty programs is to increase customers' loyalty to the firm by attempting to increase repeat purchase rates or total purchases [62]. The benefits of customer loyalty to a provider of either services or products include: lower customer price sensitivity, reduced expenditure on attracting new customers; and improved organizational profitability [64]. Loyalty has been measured by the probability of product repurchase [58]. Brand loyalty is the preferential, attitudinal and behavioural response to one or more brands in a product group expressed over a period of time by a series of customers [58].

The notion of enhancing the relationship of a company with its clients goes back many years ago and was examined in earlier days in terms of distribution marketing. Now, it is seen as a bond builder. Nowadays, some organizations regard loyalty as a defensive marketing method and strategy [65]. Defensive marketing strategies concentrate on empowering relationships of the company with its clients for the long term and probably create new connections and businesses with potential clients [66]. However, it focuses on the current and potential customers and it is believed that it should happen in the early stages of the sale [65].

2.2.10 Definitions of Customer Acquisition in CRM

Customer acquisition is a sensitive aspect of business and is one of the outcomes of the customer relationship. Thomas [67] states that customer acquisition is a dependent procedure and in the majority of times impacts on customer retention. It is one of the critical factors in customer relationship and customer acquisition that usually occurs if the system provides for interactivity and if customers are satisfied [67]. Also, based on the M. Lewis framework, there is always uncertainty and doubt in customer acquisition [68]. Becker defines customer acquisition as a first objective of CRM for acquiring new customers and maintains that new customers deserve the same attention as the company gives to potential customers. Based on [38], it is also considered as customer initiation. Customer acquisition has a major impact on CRM and creates effective customer relationships. Also, it may impact on the retention of customers and customer behaviour [69].

2.3 Types of CRM

In order to maintain its viability and success in the market, a company needs to be better than its competitors, focus on its customers, and create value for them. Customer relationship management is an integrated process and business strategy which selects and manages customers to optimise value in the long run. Companies use CRM to identify, attract, satisfy and maintain a close bond with customers and their partners. In terms of typology, CRM is categorised into three groups: analytical, operational or transactional, and collaborative or interactive.

2.3.1 Analytical CRM and its Significance

Analytical CRMs are effective applications which analyse customer data that has been generated by operational tools for the purpose of business performance

management. Data gathered by operational CRMs are analysed to classify customers or to identify cross-selling and up-selling potential.

Data collection and analysis are a continuing and iterative process. Ideally, business decisions are refined over time based on feedback from earlier analysis and decisions.

Analytical CRM is a stepwise procedure. Suppose that we have a data source. Using analytical CRM, detailed and also historical data can be generated using operational integration. Using analytical CRM, we obtain all necessary information regarding marketing activities and marketing potentials. We are also able to select a particular market to target which is one of the most important steps in marketing activities and customer relationship processes [15].

In a nutshell, an analytical CRM can reduce customer angst by identifying customers who want to abandon the company and the ties of loyalty. Also, analytical CRM can classify customers and enhance sales by customizing its selling approaches. It controls cost and revenue and improves supply chain management. An analytical CRM investigates the weaknesses throughout the whole system and subsequently turns these into strengths and opportunities.

2.3.2 Operational or Transactional CRM and its Significance

The implementation of operational CRM best practices takes into consideration personnel roles and workplaces. Operational CRM has customer-facing applications that consolidate the front, back and mobile offices, including sales-force automation, enterprise marketing automation, and customer service and support.

Also, operational CRM entails supporting the so-called “front office” business processes which include customer contact (sales, marketing and service). Operational CRM aims at contacting the customers using different touch points such as call centres, web access, e-mail, direct sales and fax. In addition, customers and refined business actions have a direct effect on customer touch points [15]. Operational CRM provides higher customer gratification as the quality of the contacts has been enhanced. It is also a cost-effective approach in customer relationship management due to the consolidation of procedures and process support. It also has stronger consolidation of interaction and communication with customers, using the company’s internal procedures. According to [70], the majority of CRM systems have operational functions such as contact management, call centre applications and service support. Approximately 40 % of the CRM systems propose analytical CRM such as knowledge management and about 20 % deal with collaborative CRM. However, about 45 % of the CRM systems offer e-CRM solutions, and Oracle, SAP and other systems provide personalised and customized self-service to the customers to gain trust via the Internet or intranet.

Operational CRM simply delivers customized, personalised and efficient marketing, sales, and service through multichannel collaboration. Furthermore, using operational CRM, sales people and service engineers can access the complete

history of all customer interactions with their company, regardless of the touch point. Additionally, it enables a 360-degree view of the customer during the interaction.

2.3.3 Collaborative or Interactive CRM and its Significance

Collaborative services are those that facilitate interactions between customers and businesses (e.g. personalised publishing, e-mail, communities, conferencing, and web-enabled customer interaction centres). Collaborative CRM is used to establish the lifetime value of customers beyond the transaction by creating a partnering relationship. It facilitates interactions with customers through all channels and supports the co-ordination of employee teams and channels. Channels include personal contact, letter, fax, phone, web and email. It is a solution that brings people, processes and data together so companies can better serve and retain their customers. The data and all sorts of information might be structured, unstructured, conversational, and/or transactional in nature [15].

Collaborative CRM enables efficient productive customer interactions across all communication channels. It also enables the Internet participations to reduce customer service costs. It integrates call centers enabling multi-channel personal customer interaction. Collaborative CRM has the ability to integrate a view of the customer while interaction is taking place at the transaction level. It also shows the caller's personal information to the agent before he picks up the call. Collaborative CRM traces a particular customer's past transaction history. One of the very important positive points of all collaborative CRMs is that customers can simply seek assistance from Online FAQs, sales representatives by phone and virtual sales representatives.

2.3.4 Problems with Above CRM Solutions

Much research has been conducted in the area of customer relationship management, customer satisfaction and loyalty. As our focus is on customer complaints, we examine the works in this particular field. It is necessary to state that the research undertaken for this thesis opens up a new horizon for those researchers who want to explore solutions and recommendations to address the issue of customer complaints using customer relationship management processes. To date, no research has attempted to address the issue of complaints in our particular area of interest, that is, transport and logistics. Our case is unique and to the best of our knowledge is the first research to be attempted in this field. Also, we attempt to examine as many complaints as possible in the context of customer relationship management and its components such as customer satisfaction, loyalty, perceived value, interactivity and customer acquisition. We will also investigate the case

where a huge organization has failed in its responsibility to satisfy its customers, although the latter, who are drivers and clients, try to maintain their loyalty. In this chapter, we identify in detail the main problems of CRM systems.

2.4 Existing CRM Approaches

In the previous section, we discussed various methods used to analyse the customer relationship and its components. In this section, we discuss different approaches of CRM proposed by previous researchers and since all these approaches are largely from their perspectives of business and marketing, we classify all the existing approaches into five groups for the purpose of analysis. These are: perceived value, interactivity, customer satisfaction, loyalty and customer acquisition. We will then consolidate and evaluate these approaches.

2.4.1 *Customer Relationships-Focused CRM Approach*

Azvine and Nauck [71] propose an intelligent customer relationship management analytics model to solve customers' business problems. Customers are interviewed to determine their issues and to provide customer satisfaction and achieve the performance of the system. To assess, they introduce a business procedure to optimise the decision-making process. They create a system called Intelligent Universal Service Management System (iUSMS) to manipulate the data. Also, it has the ability to learn and obtain the latest knowledge. When a customer calls to report an issue, an operator will simply find that customer's profile and its details. Meanwhile, the system checks the failure using an automatic evaluation. Someone will be sent to fix the problem and the system will retain the information about the incident. The advantage of a customer focus measure is that it is a tool for creating customized automatic report in order to recognize issues, contacts, and to generate statistics. This system allows the user to customize further information and as the system gives a great deal of freedom to the customers, it engenders trust. Hence, the authors propose a system to be used by customers whereby they are granted permission to use the system to resolve their problem; whereas, the other existing systems do not allow customers to customize their information.

1. The authors consider the optimization and trustworthiness of the system when customers use it. However, the system fails to address the time spent on each customer as companies today have thousands of issues and it is unclear how the system would be able to handle all of these.
2. How many operators must be recruited by the company to solve customer problems? The authors do not show any risk factors of the project and security

problems of the system, a significant issue given that most customers nowadays want to ensure their account security.

3. They do not provide any prediction regarding customers' post-behavior in the event that they are faced with issues in future.

Richards and Jones [23] propose a conceptual model in which they provide customer relationship management's value drivers followed by generating equity for value, brand and relationship which will ultimately lead to customer equity. The rationale for this model is that they believe there is no outcome in terms of benefit to the company. Prior to that, they defined significant CRM core benefits based on various academic papers. Using their proposed model, they want to ascertain whether the management of CRM activities will positively impact on business performance. Furthermore, they adopt customer equity as a measurement tool.

CRM proposed by [23] bridges the gap between distribution pathways. In this way, the information will be used effectively and customers can directly communicate with those in authority within the company. Also, the process of pricing will be improved.

1. The authors clearly discuss the topic, and its importance and definition. However, they neglect to determine the expectations of the customers, and the risk factors cannot be assessed using this model.
2. The authors do not offer an approach to determine the outcome using the conceptual model. While they propose an important hypothesis, they must create a method to produce and evaluate the results. They should have proposed some methodical approach to analyse the data in order to reach a numeric conclusion, rather than adhering to the empirical data. Furthermore, the authors fail to introduce real-time data for analysis.
3. From those proposals and the CRM's core benefits described, the authors do not mention the relationships of those core benefits and ways of improving them. Moreover, the authors omit to discuss the relationship between these factors and their impact on the decision-making process.

Öztayşi [72] proposes a method which greatly enhances the benefits obtained from clients. The authors compare the performance of customer relationship management processes of companies which use multiple criteria decision-making processes. The authors examined the Turkish e-commerce market using an analytical network process and they considered three companies. Company one deals with trade, company two with health and cosmetics products, and company three is a facilitator between other companies. Analysis clarified that company two has the highest standards in CRM performances followed by company one and company three respectively. Finally, the sensitivity analysis showed that ranking is sensitive to shifts in inter-relationships and in weights. However, their proposed method has the following drawbacks.

1. They do not propose any means for ensuring the validity and reliability of a given raw data that they need to analyse.

2. They do not propose any method for pictorially illustrating the relationships between major factors.
3. While the analytical network process is an appropriate tool for analysis and decision-making, the authors could have used other methods to determine the significance of each factor involved in the process.
4. When evaluating customer relationship management, the authors do not consider the financial effects of each factor on customer relationship management.
5. They do not consider the effect of customer complaints on customer relationship management.

In further work, Torkzadeh et al. [73] mention the major obstacles to the success of CRM in pharmaceutical companies and propose a customer relationship framework. First, they set up a focus group and initiated discussion in order to generate the problems. Then they conducted a survey and divided the data evenly into two sets. To discuss the main issues and using the first set of data, they used exploratory factor analysis. To verify the factors, and with the second set of data, the authors applied structural equation modelling. The outcomes of the analysis were 7 variables and 21 observed variables that may limit the success of CRM. The issues are as follows:

1. Operating procedure
2. Responsibility and ownership
3. Quality of information created using customer contact
4. Ineffective consolidation of accounting function
5. Difficulty queuing a changing procedure
6. Replacement procedure
7. Time spent in the queue

Based on the current study, these 7 factors may generate attitudinal and behavioral tendencies and in the final stage, the CRM may be successful. Based on this study, successful CRM is comprised of sorting complaints, retaining customers and growth of the customer base.

1. The authors do not specifically discuss customer complaint sorting as a success factor of CRM, and there is no analysis or estimation regarding this issue.
2. Also, while the authors discuss customer retention as a result of CRM success factors, they fail to provide a methodology for this.
3. The authors do discuss the observed variables and sensitivity of those factors in terms of CRM success.
4. They analyse the data and obtain the result using various tools for CRM success. However, they do not provide a complete methodology by which the future success of the system can be predicted.
5. They fail to address how the system will integrate the feedback.
6. They do not explain how customer growth can be ascertained using the approaches in this study; hence, it remains an unclarified aspect of the study.

7. They also fail to provide a means for interaction or effective communication with customers to ensure CRM success.
8. If one wants a successful CRM model, it is necessary to take into account customer satisfaction and evaluate this using current data.

Dimitriadis [74] proffers a consolidated model for designing, evaluating and implementing a CRM system. The author mentions the dearth of research in the area of CRM in service industries. The author defines the subject and components of CRM and then introduces a framework. The author shows that people, strategy, organization and technology are the stepping stones and backbone of CRM; however, all of the main variables may be linked and send their feedbacks to a channel to be integrated. The results derived from this study indicate that there is a great gap between customer expectations and the formulation of a CRM strategy. The second gap is the alignment of management, technology and organization according to CRM strategies which have been neglected. This study has the following shortcomings:

1. The author proposes a methodology to address those factors that cause customer dissatisfaction, but this chapter provides only a descriptive analysis and does not include a mathematical analysis.
2. The author does not determine how to estimate and analyse customer expectations.
3. There is no mention of how customer perception will be assessed and fed back to customer expectations and to the appropriate channels.
4. The author omits to discuss how the system can generate feedback which should be a function of every CRM system.
5. The author does not classify the factors and their importance in terms of customer expectations and perceptions.

Frow et al. [2] identify the major types of vague aspects or negative side attitudes of service providers and offer consolidated methods to overcome the negative side effects. They [2] believe that it is crucial for companies to manage customers appropriately and have a productive relationship with them. It is said that customer relationship management must collaborate tightly with relationship marketing in order to become more effective. The authors argue that poor company behavior can destroy a customer relationship. Also, a poor management system may allow injustice and corruption which might be related to the lack of knowledge. Moreover, deceitful and misleading service providers may categorically misuse customers. What is more, customer complaint is another negative side of the CRM, as the CRM systems in general cannot address customer complaints. The researchers use two data sets and analyse them qualitatively. Their analysis shows that the negative side effects of CRM can create the following negative behaviors.

The first set of data creates information corruption, customer confusion, lack of honesty among customers, and misuse of customer privacy to the company's benefit. Also, the second set of data shows that customer bias in the buying

behavior of potential customers is one of the outcomes. Also, customers may be subjected to certain techniques that make it difficult for them to shift to another provider. Furthermore, customers may be neglected at times despite having a good relationship with the company. Companies also might impose unjust monetary penalties on customers in order to increase revenue. The existing study has the following shortcomings:

1. The authors do mention how they are going to estimate CRM consequences, and they also discuss the various dark sides of CRM; however, they do not mention how these factors are going to be analysed.
2. The authors do not discuss how the negative aspects of customer behavior can be determined as they do not have any numerical data for this.
3. Although the authors present a diagram to show the outcomes, they do not generate a broad conceptual framework to depict the relationships.
4. They do not propose any methodology to ascertain the presence and validity of each factor, although all of the factors seem to be explicitly significant in CRM systems and strategies.
5. They also discuss the existence of customer complaints in CRM systems as barriers, but they fail to provide any remedy for this issue.
6. The authors fail to discuss customer satisfaction and how a CRM system can address and improve this.
7. They omit to consider prediction and post-service behavior of customers when challenged with such problems.

King and Burgess [19] propose a novel method by developing a conceptual framework for CRM and changing that simulation model. The authors clearly discuss the successes and failures of CRM systems. They mention that customers complain about the failure of over 50 % of CRM projects and express their lack of trust in the systems. Hence, they created a model as CRM outcomes (operational and development) and divided this into two segments. In the next stage, they discussed the tangible and intangible benefits of CRM. They used a CLD mapping technique for simulation. Results show the difference between the work quality of an experienced CRM user and that of a new CRM user, indicating that for an experienced user, the diagram has an increasing trend. Finally, departmental support given to the users shows a similar increasing trend.

1. The authors use a simulation technique to validate their model; however, this study lacks valid data.
2. The authors do not have a methodology for validation of the main variables.
3. They fail to discuss how they need to address the issues related to cost and quality although these two factors can be considered as the main features of CRM systems.
4. They proposed tangible and intangible benefits for CRM, but they do not mention how to evaluate either of them. For example, they do not mention customer satisfaction evaluation and do not provide any methodical approach to determine it.

Phan and Vogel [75] propose a model for consumer buying arrangements and credit behavior. They initiated their survey ten years ago and have been collecting data ever since. The authors sought to examine the effects of unfair pricing on customer relationships followed by the effect on customer relationships of changing costs or restrictions. They proposed several hypotheses and used online analytical processing (OLAP) for data analysis. They ascertained that unfair pricing will lead to a poor relationship. Also, an appropriate business intelligence system and CRM system will enhance the level of satisfaction and the relationship. Increasing costs do not annoy customers as the customers are paying with their credit cards and in this study the company adapts the products and services based on each customer. The weaknesses of this study are:

1. The authors propose no method by which they estimate future satisfaction and relationships, as the nature of this study is dynamic.
2. They fail to discuss how they are going to address success, as the final outcome of the conceptual framework is success.
3. They do not create any methodology to evaluate each of the factors throughout the model and how each of the factors must be determined.
4. They do not create any prediction for customer satisfaction and for future success.

2.4.2 Customer Perceived Value-Focused CRM Approach

Customer perceived value is an outstanding factor that sometimes can be considered as a substitute for customer satisfaction and customer experience [76]. However, there are differences such as cognitive construct in perceived value and influential construct in satisfaction. Also, perceived value is strategy-centered whereas satisfaction is tactic-centered.

Yang et al. [77] suggest that changes in cost is an issue that may impact on customers' perceived value, satisfaction and loyalty. To support this claim, the authors conducted an online survey focusing on perceived value and satisfaction as a means of obtaining loyalty. Then, they employ a two-step method whereby they use EFA (exploratory factor analysis) and in the second step, CFA (confirmatory factor analysis). According to this study, perceived value is related to both satisfaction and loyalty; however, satisfaction has a bond with loyalty. Meanwhile, moderating factors can be considered only when the satisfaction level is just above average. However:

1. The authors fail to provide a prediction method for future analysis.
2. In their proposed method, the authors do not mention how customer loyalty is going to be measured.
3. There are also other moderating effects available that need to be addressed, such as lock-in, managerial issues and time management.

4. Also, there are variables that directly or indirectly affect each of the variables such as customer acquisition, and while the authors estimate loyalty, it would be a good idea to evaluate it as well.

Roig et al. [78] propose a method by which perceived value can be analysed in the banking sector by introducing a GLOVAL scale which measures perceived value in either the purchasing procedure or a customer's experience after the purchase. They conducted a survey for the purpose of data collection followed by CFA and structural equation modelling to validate the proposed scale of perceived value. Based on the analysis of this study, perceived value has various dimensions such as "service's operational value, operational value of establishment, personnel's operational value, price's operational value, social and emotional values". The disadvantages of their proposed method are as follows:

1. This study must be conducted using other sets of data to revalidate the relationships.
2. The authors do not propose any approach and methodology by which the process is optimised.
3. Also, no method is proposed for future prediction, although it is important to regularly estimate the perceived value of the customers in every work setting.

Chang and Wang [79] propose an approach by which the moderating impacts of perceived value are determined. In this study, the authors examine the effect on loyalty of the quality of services, perceived value and satisfaction. They performed studies to validate the self-regulating processes, and evaluated the moderating effects of customer perceived value on satisfaction and loyalty. Their survey questionnaire was based on e-service quality, perceived value, satisfaction and loyalty followed by introducing hypotheses using a conceptual framework. Moreover, structural equation modelling (AMOS 5.0) techniques and linear hierarchical regression models were used to test the causal model.

As depicted by Fig. 2.2, the authors prove that e-service quality influences customer satisfaction, followed by leveraging of customer loyalty. Also, perceived value has a relationship with satisfaction. Finally, those customers who have higher perceived value may experience better satisfaction and provide loyalty.

1. The authors consider the mediating impact of customers with higher perceived value on satisfaction and loyalty; however, they do not mention how they formulate the relationship.
2. The authors do not define perceived value although one of the key factors in this study is perceived value.
3. They do not propose any approach to predict future customer loyalty although customer loyalty and customer satisfaction both have various consequences to be considered.
4. They do not optimise the result by using other tools and approaches. They can optimise results by reducing costs, or providing better services for the customers.

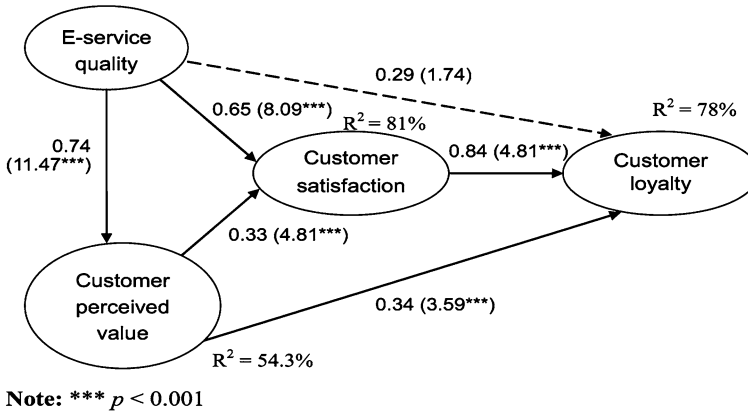


Fig. 2.2 Relationship between variables [79]

Lai et al. [80] propose and test the relationships between service quality, perceived value, satisfaction, and loyalty in a survey conducted to collect data from customers of a mobile company. Also, in addition to distributing a pilot questionnaire to randomly-selected clients, several managers were interviewed. They validate and analyse the conceptual framework using structural equation modelling. It indicated that service quality is positively associated with perceived value and image perceptions. Furthermore, perceived value and image may leverage customer satisfaction. Also, based on this study, perceived value and image are positively associated with loyalty. The disadvantages of their proposed method are as follows:

1. The authors do not provide a methodology by which they evaluate and formulate customer satisfaction and loyalty.
2. They do not mention how loyalty can impact on the service quality. Also, they do not create any prediction method to make recommendations for improvement.
3. Although they use software to establish the hypotheses, they fail to use it to evaluate potential improvement for customers.
4. This study does not define perceived value or how it can be mathematically evaluated.

Ryo et al. [81] discuss the relationship between image, perceived value, behavioral intention and satisfaction. The authors define the main concepts and then develop their hypotheses. They use a focus group, and a questionnaire was administered to evaluate the variables. The research has two sections the first of which deals with semantic items and second measures responses using a 7-point Likert scale. The main variables and the relationship between them pertain to restaurant services. To analyse the data, the authors employed regression analysis to test and validate the relationships.

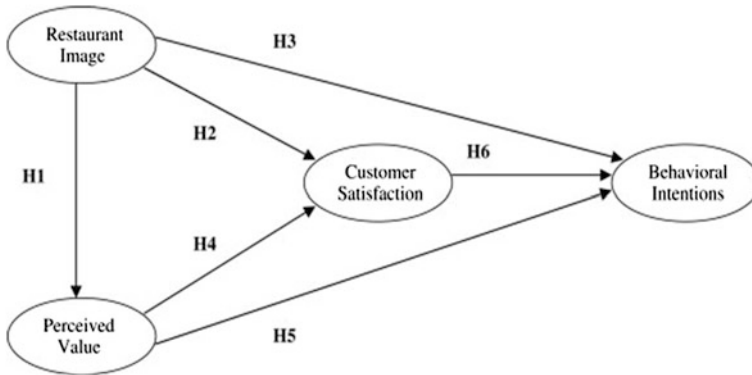


Fig. 2.3 Proposed model showing the relationship among hypotheses [82]

As depicted by Fig. 2.3, image is related to perceived value and satisfaction. Furthermore, perceived value is directly associated with satisfaction. Likewise, restaurant image, perceived value, and satisfaction significantly influence customers' intentions. Figure 2.7 shows that customer satisfaction can perform as a mediator among the rest of the variables. This study has the following drawbacks:

1. Since they have the data, and given the nature of the research (restaurant industry), the authors should have performed optimization analysis, but failed to do so.
2. They cannot deal with customer complaints and get to know their views so that customers' perspectives can be taken into account. The authors do not mention how they predict future customer perceptions or ways by which to maintain customer satisfaction.
3. The authors fail to discuss the varieties of customers they may encounter. Also, they do not take the opportunity to categorise them into various groups and perform the evaluation regarding each of the variables.

According to Chang and Wu [82], a reliable CRM strategy helps the company to obtain revenue, increase customer's perceived value and acquire more customers through its own customer acquisition procedure. In this study, the authors consider two facets. Firstly, customer need is defined as customer perceived value and secondly, CRM is defined as a process of absorbing new customers, providing an interactive relation with them and maintaining them as part of a loyalty program. This study defines the concepts and presents the relations pictorially. Also, this study investigates various dimensions of perceived value in wireless technology which are "business value, customer perceived value and social value" and here in the Internet-based services, customers must choose the amount to be paid for the service. They proposed a value-based model for e-CRM services. They found four levels of customer perceived value: self-actualized value using self-problem solving, social and emotional value, using value generation in a network,

added value using e-services, and operational value, using fundamental values. This chapter has following shortcomings:

1. The authors do not introduce any methodology to ascertain the relationship between perceived value and the CRM process.
2. While they discuss emotional values and self-actualization based on Maslow's theory, they need to go beyond that and conduct an analysis based on the sensitivity of the issue.
3. The authors do not offer a methodology to prove the interrelationship between need and customer acquisition.
4. They do not provide a means of examining the impact of motivation as a mediator on the process of customer acquisition.

Minoumi and Valle [83] maintain that, in order to ensure complete customer satisfaction and loyalty, companies must focus on improving customer perceptions. The authors talk about the benefits of loyalty programs and group them into practical benefits, hedonic and symbolic values. They use quantitative studies, including members of loyalty programs. They conduct two surveys to ensure that the benefits achieved are correct. They use exploratory factor analysis in the first study and utilize a 7-point Likert scale for measurement. They use EFA to illustrate the correlation among dimensions. Also, they use confirmatory factor analysis for the second study and use AMOS for evaluation of dimensions which are savings, exploration, entertainment, understanding, and social values. This study establishes that five dimensions have a positive relationship with perceived value and relationship investment, and with these in the work setting, a company may have an appropriate quality of relationship. The disadvantages associated with their proposed approach are as follows:

1. They provide no means by which the given researcher can estimate a loyalty program on the basis of the conceptual framework.
2. They provide no methodical approach by which customer perceived value can be analysed using a mathematical method.
3. They did not take the opportunity to include customer satisfaction in the conceptual framework although the questionnaire contains a question regarding satisfaction.
4. The authors fail to mention how relationship quality is going to be controlled and predicted. This needs to be accomplished in order to examine customer behavior.

2.4.3 Customer Interactivity-Focused CRM Approach

To the best of our knowledge, there has been inadequate research into customer satisfaction in relation to CRM systems.

Blocker et al. [84] presents the essence of proactive customer centralization and tests the related hypotheses. The authors conceptualize active customer centralization as it needs advanced levels of interactivity.

As seen in Fig. 2.4, the authors assess the impact of the proactive customer centralization on generating value using a new method to investigate the “proactive customer orientation → value → satisfaction → loyalty chain”, utilizing data from five different countries and applying confirmatory factor analysis. Results suggest that, connected with companies’ other abilities, active customer centralization is the most persistent motivation of value. Also, results show the interaction of responsive customer centralization for value creation. There are moderating factors which are influential such as “levels of customer value change, a global relationship scope, and a transnational relationship structure”. Overall, findings significantly advance the understanding of the proactive dimension within the market orientation and provide marketers with insights into customer processes [84]. However:

- 1. The authors omit to include interactivity as a separate layer of the conceptual framework. Also, interactivity must be evaluated separately.
- 2. They do not provide any means by which loyalty can be assessed. Also, there is no approach for predicting future behavior of customers regarding loyalty.
- 3. They prove that satisfaction has a direct relationship with loyalty but they fail to formulate this relationship rather than just proving the hypotheses.

Florenthal et al. [85] propose a substitution for interactivity and create four interactivity modes: human, medium, message and product. Then the authors propose a model to integrate all modes. Next, the authors streamline this for various disciplines such as marketing, interaction, psychology, communication and computer science. The model shows the preference of the customer perception for four interactivity modes. Finally, the author concludes that personal and positional

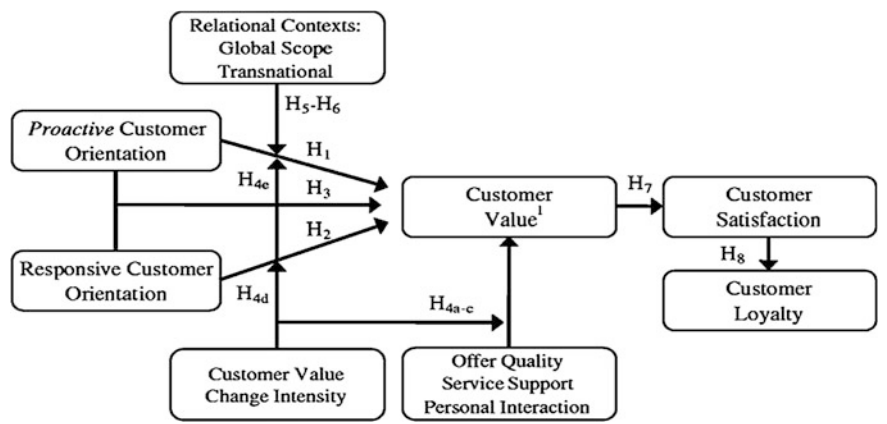


Fig. 2.4 Relationship between hypotheses [1]

characteristics may shape the preferred interaction. Also, when customers observe competition in a market, they prefer to switch to this new market and start their interaction with this market.

Yoo et al. [86] examine the bond between interactivity, perceived value and hedonic values. They conducted a survey comprising five sections and a total of 451 respondents were used for data collection. They define eight hypotheses. In order to analyse the data, they employ structural equation modelling using Amos 6.0 to assess the model.

Figure 2.5 shows how interactivity factors result in perceived value and the acquired perceived value ends in satisfaction. The results illustrate that synchronicity has a big impact on perceived value. Furthermore, bi-directionality has an impact on hedonic values. This study has the following shortcomings:

1. The authors analyse the hypothesis using a descriptive and qualitative method, whereas, they could have conducted this research with higher precision using quantitative data.
2. The authors do not propose any particular methodology by which they can evaluate customer satisfaction.
3. Also, while they define perceived value and analyse this qualitatively, they fail to address it using quantitative analysis.
4. The authors do not provide a means of estimating the impact of interactivity and its mode on perceived value and customer satisfaction.
5. They do not create any prediction for future customer behavior using the current system.

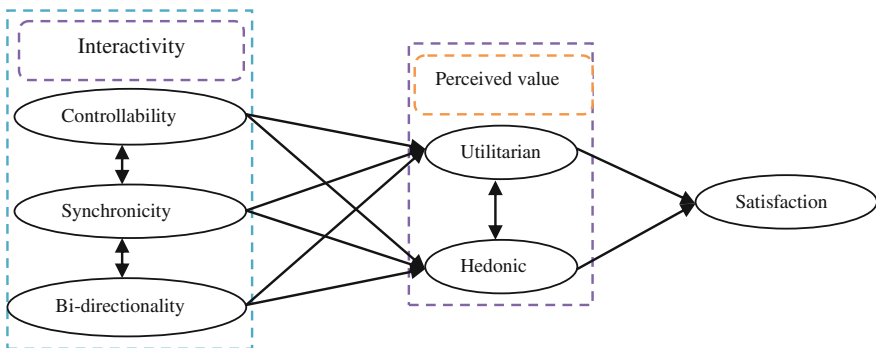


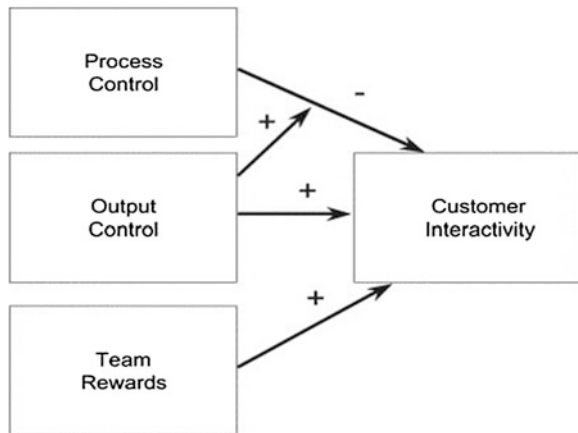
Fig. 2.5 Proposed model of consumer value-creating online interactivity [86]

Bonner [87] examines monitoring mechanisms utilized in new product development (NPD) and their impact on customer interactivity. The author proposes five hypotheses and tests these using a questionnaire derived from various industries. The measurement scale was a 5-point Likert scale. After obtaining the reliability and validity of the measures, statistical regression analysis was conducted to examine the hypotheses. The author concludes that output control and

team rewards have a positive relationship with customer interaction and process control has a negative impact on it (Fig. 2.6). This study has the following drawbacks:

1. The author does not formulate customer interactivity using a mathematical method.
2. While output control may increase the degree of customer interactivity, the author fails to propose a methodology to ascertain the consequences of interactivity.
3. The author does not mention the future prediction of customer loyalty.

Fig. 2.6 Conceptual framework [87]



Kirk [88] investigated the relationship between interactivity and customer satisfaction. The author stated various hypotheses and conducted a survey. The author also considers age and perceived usefulness as moderators. A 5-point Likert scale is the measurement tool. Then, using descriptive statistics, the author tested the hypotheses.

The analysis illustrates that customers are in favor of the things that they accustomed to, such as a book in preference to an e-book. Also, the age of the customer is significant when interaction takes place.

Lee [89], mentioned that perceiving interactivity in a company creates trust and transaction willingness by customers. Data were gathered from 20 interviews and the measurement tool was 7-point Likert scale. For the analysis, the author used a correlation matrix and Chi square difference test. Based on Fig. 2.7, interactivity is positively associated with satisfaction and adoption intention; however, satisfaction has a positive relation only with adoption intention.

The author ascertains that components of interactivity such as user control, responsiveness, personalisation, connectedness and contextual offer can increase the level of trust in customers and this alone makes them satisfied. Satisfied customers normally have a better interaction with companies. Both of the studies above have these drawbacks:

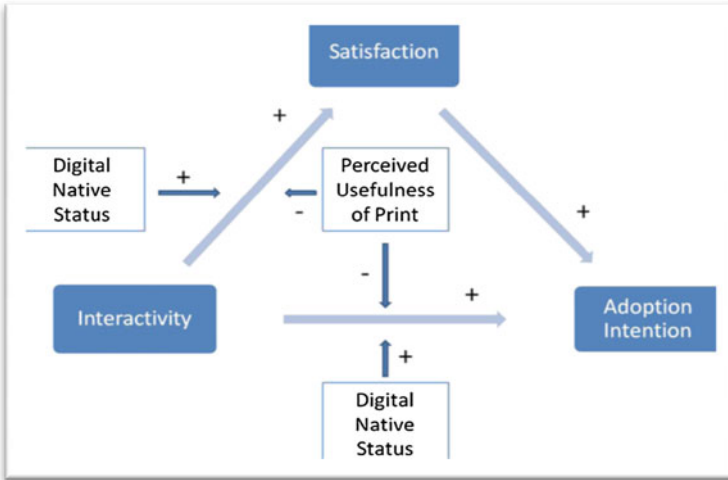


Fig. 2.7 Theoretical model [88]

1. Neither creates an innovative solution to evaluate and measure customer satisfaction.
2. The authors offer no optimization process and they cannot evaluate the sensitivity of their model.
3. None of the studies can offer an effective decision-making process based on their frameworks.

Ballantine [90] presents the facets of on-line shopping which are interactivity and information and their impact on satisfaction of customers. The author proposed two hypotheses which were tested using an Internet-based experiment. Respondents were presented with an on-line store using simulation techniques. The measurement tool was a 7-point Likert scale and respondents were required to state whether they agreed or disagreed with the statements. The data having been collected, the author performed analysis of variance (ANOVA). The results illustrate that interactivity and amount of information have a direct and positive bond with customer satisfaction. The proposed approach has the following disadvantages:

1. Although the author uses an on-line simulated store, a physical store could have produced better outcomes.
2. More data should have been collected in order to effectively verify the hypotheses. In addition, the author did not present a clear definition of interactivity.
3. The author does not provide a robust methodology for measuring interactivity. Also, other tools apart from analysis of variance could have been used to validate the hypotheses.

Liu et al. [91], propose a method for interactivity and discuss the structure and various facets of interactivity. They also turn the definition into theory and practice. Furthermore, they compare various online marketing tools based on interactivity and then establish the dimensions of interactivity including active manipulation, synchronicity and two-way communication. Their results illustrated that interactivity can be measured and cannot be manipulated. Also, the outcomes of the interactivity must be under the control of an authority in the company in order not to be confused with other researchers' results or for the results to be re-used. Based on this study, interactivity dimensions become an interaction process and this alone will produce interaction outcomes which comprise learning, self-efficacy and satisfaction. Below, we state the drawbacks of this study:

1. Although the authors provide a definition of interactivity, convert the definition to a theory and use a model to show the relations, they neglect to apply it to customer relationships, as interactivity can be used as a forceful technique in CRM.
2. Their conceptual framework which is intended to distinguish and clarify relationships is in fact vague.
3. They propose a conceptual framework to ascertain self-efficacy, learning and satisfaction; however, they do not formulate the relationships or discuss the hypotheses in detail.

Roh et al. [92] propose a priority factor framework for the success of CRM. They discuss the intrinsic CRM success which comprises effectiveness and customer satisfaction, and extrinsic CRM success which is profitability. They first conducted in-depth interviews and questionnaire with CRM managers to check the validity. Using a structural equation analysis (AMOS), the authors investigated the CRM system success framework. Based on their analysis, system support and efficiency both result in customer satisfaction; however, system support and quality are not linked with profitability. According to this study, it is unlikely that efficiency converts to profitability, but customer satisfaction can bring about profitability.

1. Due to the exploratory nature of this study, it would have been better if the authors had created an iterative process within the conceptual framework.
2. The authors do not evaluate customer satisfaction and do not discuss customer post-behaviors.
3. While they analyse customer relationship and its components, the authors must include other significant intrinsic and extrinsic factors too; however, it appears that they did not want to use all of the factors in the analysis.
4. There are some rejected hypotheses based on conceptual framework; however, the authors fail to address them and provide recommendations and solutions.
5. The authors must discuss the consequences of customer satisfaction and as one of them is loyalty, this should be included in the conceptual framework.

2.4.4 Customers Loyalty-Focused CRM Approach

Min et al. [93] propose a methodology to control company employee turnover and enhance truck driver satisfaction and loyalty. Likewise, this study emphasises the shortage of drivers and its influence on competitiveness. The authors propose different employment incentives and retention strategies to retain drivers and control driver turnover (customer defection). The companies understand that to monitor the costs, they must stabilize drivers. For purposes of analysis, the authors selected a sample of trucking firms and conducted a survey. Then, the authors selected the most valid questionnaires and used SPSS to evaluate the data. Also, for measurement purposes, they use a 7-point Likert scale. In the very initial stage of analysis, it emerged that one of the reasons that drivers choose to work with a particular company is the facilities and the equipment that the company provides. Other than that, drivers do not like to have operational difficulties, repeated failure, health and safety problems. For job security, drivers hope to have a well-known recruiter. In this study, to better identify important factors, the researchers use exploratory factor analysis and principal component analysis. Using Chi square, they illustrate that some incentives are correlated with others. Using Varimax rotation with Kaiser Normalization, they discovered new factors such as non-driving activities, career enhancement and financial incentives. Also, word of mouth is one of the factors that attracts new clients and creates referral to new members.

According to this study, the factors that discourage individuals from driving and which contribute to lack of satisfaction are: rules and regulations, rigid labor market, drug testing, and lack of driving schools. According to another analysis using Chi square and factor analysis, the authors establish that there are three factors that create obstacles for drivers. These are infrastructure issues and include: working space, parking, hard work, and inadequate facilities for drivers.

Simultaneously, cost would be another issue for drivers according to this study, as 25.8 % of respondents believe that increasing salaries and repayments may exacerbate driver shortage. Furthermore, 70.7 % of the respondents believe that lack of drivers negatively influence their profit. Also, about 84.6 % of the respondents believe that lack of qualified drivers is one of the obstacles and issues preventing companies from initiating loyalty programs [93].

Results confirm that drivers are poorly managed. Drivers maintain that the best motivation for them to remain loyal is financial support and rewards. Furthermore, the behavior of employers directly affects drivers' attitude and positively relates to retaining drivers. Moreover, age, education, family status and owner-operator status should also have an impact on the retention process; however, evidence shows that young (21- to 25-year-old) and experienced drivers (45+) are willing to stay with the same company (become conservative). The authors conclude that employment and retention strategies should be based upon the profiles of individuals [93]. The current study lacks the following:

1. While the authors analyse the relationships between the key variables, they do not provide a conceptual framework to facilitate comprehension.
2. They provide no mathematical framework which effectively allows a researcher or a company to employ the model.
3. Although the authors appropriately addressed the issues of customer retention and loyalty, they do not propose any future direction particularly in relation to any prediction for post- behavior customer analysis.
4. While the authors propose various methods for analyzing the relationship of the hypotheses, they fail to use a fuzzy inference system in their analysis to estimate the sensitivity of each individual variable.

Lin and Wang [94] proposed, developed and validated a loyalty framework. The authors collected the data from mobile commerce systems using a questionnaire and then analysed the data using structural equation modelling. The results of this study illustrated that perceived value is a significant element that impacts on loyalty. Also, level of trust, customer satisfaction and the habitual behaviour of customers have a direct impact on customer loyalty. Furthermore, perceived value and trust are positively associated with customer satisfaction.

1. Although the authors include loyalty in the system, they fail to address recommendations to improve it. Also, they need to provide a methodology to ascertain the level of customer loyalty.
2. They do not propose any means for predicting future loyalty programs and customer behaviour evaluations.
3. While the authors investigate the relationships to prove the hypotheses, they do not mention how they derive the perceived value and trust from the performance.
4. They also fail to discuss prediction in terms of future decision-making procedures regarding customer satisfaction and customer loyalty.

Sweeney and Swait [95] examine the impact of brand credibility on loyalty. To avoid customer attrition, companies must implement CRM and deal with customers in such a way as to create long-term relationships with them. Customer retention is critical and it will not be achieved unless the company improves customer satisfaction and quality of the services. The name of the company must perform as a brand in order to be able to retain its customers as well as its own employees. A survey was conducted using questionnaires and to validate these, the authors use exploratory factor analysis followed by structural equation modelling. Preliminary analysis showed that customer satisfaction and loyalty may lead to positive word of mouth, and brand credibility has a direct and strong influence on satisfaction. However, in the final alternative analysis, it emerged that customer satisfaction and commitment are directly related to credibility. Ultimately, it is credibility which provides word of mouth and intention to stay or leave the company. This study has the following shortcomings:

1. The authors do not propose any means for predicting the future direction for credibility and its impact on word of mouth and inclination of the customers.
2. While their proposed method for making credibility the core of the CRM process is valid, they do not formulate this using a mathematical method.
3. The elements of loyalty, satisfaction and credibility are dynamic in nature and have various levels. Consequently, the authors must consider their antecedents and consequences in the conceptual framework to make it more logical.
4. Using the existing data for this study, the authors could have been able to use fuzzy systems to balance the data and obtain the sensitivity of loyalty as well as credibility.

Ball et al. [96] examine the impact of personalisation of services on loyalty and assess the psychological impact of this process. After defining each of the significant variables in the model, the authors introduce personalisation into loyalty using several hypotheses. They acquire the data by means of a survey administered within banking industry and their purpose is to ascertain whether or not personalisation of services has a relationship with trust, loyalty and satisfaction. The partial least squares (PLS) method is used to evaluate the framework and hypotheses. The results show that personalisation has a major impact on trust, satisfaction and loyalty, respectively. The shortcomings of this study are:

1. The authors do not include customer complaints in their conceptual framework.
2. This study could be conducted using a fuzzy inference system to show the sensitivity of personalisation and its impact on loyalty and satisfaction.
3. The authors do not formulate the relationship to obtain more effective results. Also, the results produced by this study are not applicable to the decision-making process.
4. Using the same conceptual framework, it is best to conduct the performance measurement and optimization process.
5. The authors do not provide a means, based on their analysis and results, of predicting future customer behavior.

Gomwz et al. [97] analyse loyalty in terms of behavior and attraction to build and develop a loyalty program. The data was acquired via a survey of supermarket chains in Spain. Analysis of variance was used to compare two loyalty dimensions. The results illustrate that respondents in loyalty programs are highly behavior-oriented and effectively loyal. Additionally, not all customers are willing to change their purchasing behavior after joining a loyalty program. The final outcome is expected to be the retention of loyal customers. Also, the customer will be linked to the retailer for further interactions. This study suffers from the following drawbacks:

1. The authors do not provide any direction for prediction and decision-making processes.
2. The authors fail to pictorially show the relationship and discuss the relationships.

3. To be able to increase the loyalty of the system and positive attitudes of the customers, the authors need to formulate and analyse the notion of commitment.
4. To have a proper commitment toward customers, the authors must include a strong management system, effective time management, viable infrastructural improvement, and a decrease of customer complaints.
5. The authors analyse behavioral loyalty, but do not provide any methodology to ascertain levels of loyalty and the relationship between loyalty and other factors.
6. The authors fail to show how loyalty programs can be evaluated for the purpose of optimizing the system in future.

Gee et al. [54] discuss customer loyalty and offer managers a broad scope of knowledge in the context of CRM. Based on this study which is analysed both descriptively and using a qualitative method, the authors concluded that companies need to recognize what absorbs customers and makes them content.

A customer-oriented perspective lets a company understand its customers, as different customers have varying needs and wants. Data analysis is central to most accompany procedures and if a company needs to create customer loyalty, it needs to undertake such analysis to improve customer retention. Customer segmentation is a significant thing to do and its operating costs must be controlled to ensure it is spending in a productive way. By profiling potential and current customers, a company can be confident that customer acquisition is likely to occur. A re-gain strategy is advised as previously discussed, as acquiring previous customers is less costly and they are easier to acquire again. Analysis of customer discontent assists the company to search for at-risk customers and retain them before they have a chance to leave. However:

1. The authors do not provide any step-by-step methodology and conceptual framework.
2. They do not provide any means by which formulate the issues and provide solutions for them. Also, they omit to address customer satisfaction.
3. They do not provide any optimization strategy for the raised issues. Also, they fail to provide a prediction approach for future loyalty programs.

Leenheer et al's [98] methodology is intended to strengthen customer loyalty. According to this study, not all loyalty programs are efficient, since customers can be selective when choosing a particular program. The authors define loyalty as a consolidating system whose final goal is to make the members more loyal. However, they need to test the loyalty of the members. Also, they must test whether or not they can increase their 'share-of-wallet' (SOW). They conduct an empirical study and use panel data from a sample of Dutch households. The result shows that a very small proportion of loyalty impacts on share-of-wallet. Also, the SOW of a company is connected with its attraction to the customers. They mention that the SOW results illustrate that creating loyalty membership is a stepping stone

to developing SOW and prove that loyalty program membership positively affects company attraction. The shortcomings of their proposed approach are as follows:

1. They do not propose any means for predicting the future loyalty program. What is more, they do not include satisfaction of the customers which is related to loyalty.
2. They do not propose a performance measurement for this study, that the use of which could ascertain the sensitivity of the issues.
3. They do not analyse the effect of feedback of SOW on the whole system. Also, they do not mention how they predict SOW.

Wallenburg [99] suggests that initiatives assist logistics service providers (LSPs) to beat their competitors. However, it is still unclear to what extent companies can implement their strategies to create customer loyalty, and concentration on cost or performance developments is desirable. The data were collected via a web-based questionnaire survey from 298 logistics outsourcing bonds, and structural equation modelling was used to evaluate the impact that cost and performance improvement have on customer loyalty. Simultaneously, they test impact of “service complexity” and “length of contracting period”. The outcomes disclose that proactive cost improvement and proactive performance improvements are motivators of all major dimensions of loyalty which are “retention, extension, and referrals”. Also, proactive cost improvement and efficiency are major motivators of loyalty when the period of contracting is relatively quite short. Finally, customer loyalty is basically oriented by an increase in proactive performance and effectiveness. The shortcomings of the researcher’s proposed approach are as follows:

1. He does not propose any means by which to analyse the impact of retention on loyalty although these are related to each other.
2. While the SEM is a reliable method, the author could also use fuzzy logic to create sensitivity for each variable.
3. The author does not provide an iterative process whereby all variables can be connected with each other.
4. The author missed the opportunity to work with customer complaints and test the loyalty dimension in relation to customer dissatisfaction.

2.4.5 Customer Acquisition-Focused CRM Approach

Verhoef [100] presents an approach that measures the impact of customer acquisition on satisfaction and loyalty. The author presents the Probit framework which measures the difference between the rates of customer retention and different acquisition pathways. The author proposes an econometric and customer loyalty model using simulation. Verhoef considered customer retention as a binary model. What is more, four groups of insurance were assigned. The Probit model is

as follows: “where Y_i is the value of the dependent variable for Customer i (retention or cross-selling), and X_i is a vector of explanatory variables, b is a vector of regression parameters, and Φ the cumulative normal distribution function”. The Probit model presents the significant of variance in loyalty: $\text{Prob}(Y_i = 1) = \Phi(X_i\beta)$

In this study, simulation was used for “interpreting the coefficient of the model”. This study also investigates the impacts of acquisition channels over a lengthy period. Prior to that, they integrate loyalty and cross-buying to derive effective value from their clients. The mathematical formulation for the average number of products purchased is [100]:

$$\text{Pred}(\# \text{Serv})_{i,t} = \text{Prob}(\text{retention})_{i,t} \times [1 - \text{Prob}(\text{cross} - \text{buying})_{i,t}]$$

Öztayşi et al. [101] proposes that CRM is intended to produce a more effective relationship with customers and customer acquisition would be one of the outcomes. This study uses an analytic network process to analyse the sensitivity and to find the priority of the elements in the network. To create an equation between goals and variables and to create effective decision-making, they used qualitative analysis. The outcomes illustrate that the ranking of the alternatives is sensitive to changes in the parameters. This study accesses customer relationship management performance of organizations using ANP MCDM or multi-criteria decision-making methodology.

Becker et al. [38] maintain that there are many organizations which are dissatisfied with their implemented CRM system. The authors propose that organizations do not have any enhancement in terms of acquisition level. They present a conceptual framework and use it to measure customer retention and customer relationships. They conducted a study of four various industries in ten European countries. They defined four hypotheses that connect comprehensive implementation to CRM performance. They pre-tested the data and distributed questionnaires to project managers. To test the hypotheses, they used the weighted product of the PLS weights and regression models. The results show that CRM has a different impact on each of the variables including customer acquisition [38].

The shortcomings of this study are as follows:

1. A more extensive amount of data was required; their analysis and the results of this study cannot be generalized.
2. The authors do not provide a methodology for evaluation of CRM performance.
3. They do not provide a prediction for enhancement of future CRM performance.
4. As the correlation is high, it is a good idea to use analysis of variance to find the relationship between variables and test them. The authors can use this as the data is normally distributed and they will be able to see whether there is a significant difference in the level of customer acquisition and loyalty.

Schweidel and Bradlow [102] recognize that the two components of customer value are customer retention and acquisition. In this study, they concentrate on the bond between the time that is needed to acquire a customer and the value of the

customer. They use a bivariate model of timing to determine the bond. For data collection, they used monthly subscription of data by a telecommunication provider. Finally, they create a bivariate split hazard model to acquire, retain customers, estimate customer discontent and timing procedure.

Arnold et al. [103] provide the managerial insight that every company must have a strategic focus on customer acquisition. They collected their data from 225 business entities, and provided a solution model based upon a conceptual framework. They formulated twelve hypotheses. They conducted six comprehensive interviews and surveyed twenty companies for data collection purposes. To obtain consistency, they built a coefficient of variance to determine the extent to which the five dimensions deviate from the mean. They tested the validity of the hypotheses with LISERAL after applying factor analysis. The outcomes indicate that the influence of customer acquisition and retention on customer knowledge and decision-making and finally on performance, is intensified when a company consistently implements a CRM strategy.

Villanueva et al. [104] state that customers are invaluable assets but they are hard to acquire. They claim that customers vary in terms of creating a bond with them. Hence, they introduced a customer acquisition method and measured its effectiveness. Their method was vector auto regression modelling (VAR) whereby each variable is considered as internal. In order to be estimated, VAR must have an adequate number of time series data. VAR identifies the positive impacts of acquisition on company's performance, cross-effect of acquisition types, feedback impacts, and supporting impacts. For analysis, they used impulse response functions (IRF) that pursue current and future responses from variables. Also, it measures the total impact on a company of unexpected customer acquisition.

The above chapters have the following drawbacks:

1. The authors do not provide a methodology for customer satisfaction and customer acquisition.
2. There is no means by which they can estimate the future behaviour of customers.
3. None of the above studies considers customer complaints and relates them to customer acquisition.
4. In none of the above studies is there a categorisation of customers or a model to optimise the relationships.

2.4.6 Customer Complaints-Focused CRM Approach

Bougie et al. [105] investigate the effect of anger and dissatisfaction on customer behavior. They are basically different qualitatively and both influence customer behavior. Data has been generated based on the previous studies and is experiential. The items for experiential content have been considered as feelings, thoughts, tendencies, actions, and goals. Also, a questionnaire is designed based on these experiential content items. The testing and analysis of the three main

hypotheses were done using p value from LISERAL and the measurement tool was a 9-point Likert scale, ranging from 1(not to all) to 9 (very much). The result showed that dissatisfaction with a correlation of 0.934, $p < 0.05$ will lead to customer anger and this anger will lead to customer behavior responses. Also, dissatisfaction can indirectly lead to behavioral responses with correlation of 2.27 which is acceptable $p < 0.05$.

The disadvantages of their proposed method for dealing with customer complaints are as follows:

1. They provide no robust mathematical framework by which an individual can solve the problem.
2. They do not propose any means for predicting customer complaints in the future.
3. The author does not propose any methodical approach by which an individual can estimate when the customer will become angry or dissatisfied with the situation.
4. The author gathers the data from experiential content of anger from various resources in the past; whereas, the author could use new data derived from various channels.
5. The author does not provide a link between dissatisfaction and other factors. Also, behavioural responses could have many antecedents which have been ignored in this study.
6. The author does not propose any approach by which the customer can interact with the company. Moreover, the proposed method lacks a decision-making process.
7. The author could have used another method to categorise the complaints.

Richins [106] proposes the correlation of one response regarding the dissatisfaction and identifies the variables concealed in it. According to this research, customers have various attitudes toward a service or a product when they are not happy. At first, they may not intend to repeat their purchase; in the second place, they may complain and the third possible outcome would be negative word of mouth (WOM). In this chapter, the author has conducted an empirical investigation and proposes several hypotheses. Data collection has been done in two stages using in-depth interviews and an exploratory questionnaire. For analysis, the author has used SPSS. Results showed that as the problem becomes more severe, negative WOM will be increased. Also, when blame is attached to a company, this will have a negative effect on WOM. Also, for severe issues, the customer may incur expenses in response to that discontent. Furthermore, negative customer perception of company's responsiveness may lead to negative WOM.

1. This approach does not take into account the dynamic nature of complaint management.
2. The author does not propose any conceptual framework by which to trace the variables and outcomes.

3. The author does not provide a method to predict when each of the factors will be converted into word of mouth. Also, apart from WOM, dissatisfaction has other outcomes which have been neglected in this research.
4. The author does not categorise the respondents' interviews for purposes of analysis.

Goodman [35] proposes that customer complaints are inevitable and, although unpleasant for the company, every complaint could be turned into a triumph and customer loyalty.

According to this research, complaints differ case by case and the more money is involved, the more vehement and frequent will be the complaints. Issues of mistreatment, level of quality and ineptitude account for only 5–30 % of complaint rates because clients assume that complaining will do them little good. One of the significant weapons that a customer has at his/her disposal is word of mouth. In interviews with the managers of five important service companies, it was ascertained that more than 40 % of new customers and in two cases, more than 50 % of all new clients absorbed by the company were due to the personal referrals from current customers. Goodman's research indicates that complaints are often not made for the following reasons:

1. It does not help them to improve the situation.
2. It is not worth complaining and producing a new problem.
3. They do not know the right channel for complaints.
4. They are afraid of retribution.

For data collection purposes, the author used five surveys.

The shortcomings of the above study can be shown as follows:

1. The author analyses the data using a simple calculation, whereas other approaches and tools could have produced better results.
2. The author does not propose any framework by which an individual can follow the model and solve new problems.
3. This study qualitatively analyses the issues, while the author could have used the data to conduct quantitative analysis as well. Also, the author does not provide any means or tool to analyse the data collected.
4. The author could have used text mining analysis of the interviews.

Jarrar et al. [107] present an ontology-based method for administering online customer complaints. They established a platform and made their e-interactions transparent. They addressed the issues using an ontology approach. They established a conceptual framework intended to obtain the major knowledge about the issue which is customer complaints.

With this model, a company can provide multilingual services since companies sometimes may encounter cultural issues, difficult-to-understand accents and translation issues. This conceptual framework can tackle the issue from various perspectives such as contract, non-contract problems, evidence, privacy problems

and purchasing problem. Likewise, they identified each of the issues using a variety of methods such as data collection methods, private data access, permission-based data collection, sales method, content, product problems, contract termination problems, delivery and billing issues. Finally, economic request, symbolic request and information correction request turn into resolution.

The authors' proposed approach suffers from the following drawbacks:

1. The authors do not explain how they intend to establish the reliability of their conceptual framework. While they discuss the lack of trust and confidence in online purchases, they omit to mention the prediction of trust in such transactions.
2. The authors do not propose an approach by which trust and customer confidence can be calculated.
3. The authors fail to propose a method to evaluate customer complaints and provide feedback to those complaints.
4. While customer complaints are related to the time management of the company and customers, the authors fail to consider calculating the time.
5. While it may be true that a multilingual representation of this ontology might be effective in action, the authors fail to formulate this and make it applicable to other work settings.

Hulten [108] presents an exploratory study on managing customer complaints. They used a survey from 57 managers who were in direct contact with customers. A Lindblomian method is employed to analyse and evaluate CRM. To this aim, they provided hypotheses to be examined and a questionnaire was distributed to respondents. They also used the Kolmogorov-Smirnov test of variables and a *t* test was applied on the data. This study forecasted that companies who use computerized CRM systems are different from the companies that do not have a CRM system. Also, the authors propose that in order to handle customer complaints, a company should have a formal policy. The author's approaches have the following shortcomings:

1. The author does not propose a satisfactory resolution for the customer satisfaction process.
2. The author is unable to provide a measurement to predict customer satisfaction and foresee customer complaint initiation.
3. While the author proposes an analysis for CRM and customer complaints, he fails to categorise complaints. Also, complaints should be prioritised.
4. The author does not propose an approach to illustrate the relationship between the factors in CRM; nor is the relationship shown pictorially.

Homburg and Furst [109] illustrate how managing customer complaints may affect justice in the work setting as well as customer satisfaction and loyalty. The authors provided a mechanistic method based on guidelines and an organic approach (similar to the building of a favourable inner ecosystem). They performed a dual analysis based upon a managerial evaluation of complaint

management and evaluation of customers who have complaints. They obtained the data from a commercial provider using an interview approach. They selected a 7-point Likert scale as their measurement tool. To analyse the set hypotheses, they selected LISERA and structural equation modelling. Results show that the mechanistic and organic methods both impact on complaining customers' evaluations, but the mechanistic method has a greater effect.

1. The authors could have used another method to collect the data, as the majority of the respondents, especially expert individuals, seem to prefer to answer the questions by phone.
2. The authors could have categorised the complaints rather than just going about finding solutions.
3. To turn the conceptual framework from complaint to justice, we need to have mediators to create a flow in the procedure.
4. The authors do not mention interactivity and its impact on complaint reduction, although it is an important element of customer complaint management.

Stauss [110] proposes an approach for complaint satisfaction. Complaint has two dimensions which are "outcome complaint satisfaction and process complaint satisfaction". Based on the results, these two dimensions have an impact on the satisfaction of customers, increasing the relationship with customers, and increasing customer willingness to repeat the purchase. Stauss also discusses the determinants of customer complaint satisfaction as being customer-oriented and problem-oriented and these might be related to the quality of the customer complaint management system in the company. The researcher conducted an empirical study and selected a random sample for distribution of a questionnaire. For measurement purposes, a 5-point Likert scale was used ranging from "totally satisfied" to "dissatisfied". In the data analysis section, Strauss used the Chi square test to determine whether the variables were dependent or independent; and factor analysis was used to identify the main factors in satisfaction such as "cold fact satisfaction and warm act satisfaction".

1. The author proposes a method to find the dimensions of customer complaint satisfaction, but fails to pictorially show the relationships.
2. While it is true that relationship satisfaction is an important factor, the author does not provide a methodology for it.
3. The author does not propose a method by which customer satisfaction can be estimated and evaluated.
4. No means is proposed for predicting future customer complaints and for calculating future customer satisfaction.

Ro and Wong [111] propose opportunistic resolutions for customer complaints in service encounters. To this aim, they have collected qualitative data by questioning people based on their previous experiences. They then categorised 346 accidents based on the customer complaints and evidence in restaurants and hotels using a critical incident technique. The results of this study indicate that

opportunistic customers intend to complain more about tangible products; and people in authority in categorizing and defining complaints, need evidence to ascertain the nature of the complaints. Hotels were found to be more conservative than restaurants for repayments and rectification procedures. Employees in hotels were more skilled in dealing with complainants compared with restaurant employees. Likewise, hotels appear to have more resources than restaurants, enabling them to recognize and follow opportunistic customer complaints.

1. The authors identify and classify the opportunistic complaints; whereas, they could have taken the other less favourable side into account in order to obtain better results.
2. Their proposed method for opportunistic customer complaints just investigates the compensations, but they do not provide any remedial action to prevent complaints.
3. The authors do not propose any means by which a new reader who needs to apply the framework can pictorially model the relationships between the significant factors in order to simplify the representation.
4. The authors could use several tools and techniques for addressing the customer complaints. To this end, they have categorised the complaints using two researchers to read, store and revisit the complaints, in order to provide a solution for each customer. Although they were concerned about their customers and aimed to address their issues, they did not achieve this.
5. The authors do not include the prediction of future customer complaints in their discussion of follow-up procedures.

Karatepe [112] suggests that companies make different responses to similar customer complaints which could be considered as distributive, procedural or communicational justice. Also, the author examined how these could be related to satisfaction and loyalty. Hence, a survey was conducted of Turkish guests in Cyprus hotels. They tested the hypotheses using LISERAL. They discovered that compensation has a positive link with distributive justice and assistantship; agility has a direct link with procedural justice; while apology, explanation and effort were the other important responses that have a direct relationship with communicational justice. The drawbacks of this study are as follows:

1. The author proposed a conceptual framework for dimensions of complaint and its relationship to satisfaction and loyalty, but does not clarify how satisfaction will be addressed.
2. The author proposed a conceptual framework and depicted outcomes of the model as satisfaction and loyalty, but loyalty has not been measured.
3. The author tested the hypotheses correctly; however, the model needs to be formulated to evaluate each of the significant factors.
4. The author does not discuss the level of satisfaction in this study, although it is vital to the discussion.

5. The author considered only the positive points involved in this study; however, negative points could be considered to make the study more comprehensive and challenging.

Davidow [113] proposes a summary for customer complaint sorting and various responses complaints that companies generate. Furthermore, he discusses how companies' responses can impact on future customer attitudes. The author creates a framework by which organizational response which has six dimensions (benefit, punctual, assistance, apology, reliability and cautious) will lead to customer satisfaction and this alone can produce positive post-complaint behaviour which could be positive word of mouth and/or willingness to repeat the purchase.

1. While the author proposes a conceptual framework that illustrates organizational responses to the customer complaints, no approach is provided to analyse customer complaints and address customers' dissatisfaction.
2. The author does not propose any method that deals essentially with complaint sorting and discovering post-complaint customer behaviour.
3. The author does not propose any means for predicting post-complaint customer behaviour and satisfaction.
4. The author does not propose any means by which a reader can understand when the company should expect to receive post customer complaints when they discuss timeliness, attentiveness and facilitation.
5. The author discusses the issues only in a discussion format; there is no methodology available to measure satisfaction.

2.4.7 Customer Satisfaction-Focused CRM Approach

Luo and Homborg [114] claimed that customer satisfaction is a significant factor in profitability. Based on the results of this study, it appears that the issue of customer satisfaction has been neglected. Based on their conceptual framework, customer satisfaction outcomes would be customer-related, effectiveness-related, employee-related and performance-related. Customer-related outcomes will lead to attitudinal willingness and commitment, re-purchasing willingness and intention to pay for an item. Customer behavior derived from this procedure will be turned into loyalty; complaining behavior into defection. They collected data from archival sources and to determine customer satisfaction, they used a survey. For analysis of customer satisfaction, they used data envelopment analysis (DEA). This chapter suffers from the following shortcomings:

1. The authors do not propose a decision-making methodology for customer satisfaction outcomes.
2. Although the authors provide a prediction and estimation methodology for customer satisfaction, they fail to provide a methodology for customer satisfaction and evaluation.

3. They do not have any suggestions for the management system of a company; furthermore, they do not have any prediction regarding time management of each of the procedures.
4. The authors do not present a methodology to prove whether or not the current conceptual framework is applicable in other work settings.

Mithas [49] investigated the impact of CRM on customer satisfaction and customer knowledge. Customer satisfaction is expected to be one of the outcomes of CRM. For this reason, the hypotheses were provided to ascertain the relationships. The author generated the data from a weekly IT publication and used the Probit method. The findings show that CRM applications are related to customer knowledge and customer satisfaction. What is more, customer knowledge acts as an aggregator between the procedure of CRM and customer satisfaction. This chapter suffers from the following drawbacks:

1. The author proposes no method to analyse each of the factors. For example, customer satisfaction must be evaluated and the relationship of satisfaction with its antecedents must be ascertained.
2. The author does not propose any approach to quantitatively analyse the relationships. Furthermore, the author fails to quantify the level of customer knowledge and customer satisfaction.
3. The author did not provide a conceptual framework to depict the relationship between the variables.
4. Although the author mentions that customer knowledge acts as a mediator and creates an impact within the procedure of CRM applications and customer satisfaction, the author did not formulate the relationships or the indirect impact of customer knowledge in that procedure.
5. The author does not provide a prediction model for future customer satisfaction analysis.

Flint et al. [50] propose a customer value anticipation methodology as suppliers do not appear to value the customers. They highlight the importance of customer satisfaction and loyalty. The authors propose a conceptual framework by which the company can assess how customer value anticipation contributes to satisfaction and loyalty. They establish hypotheses to test whether customer value anticipation does link with satisfaction, and loyalty. To achieve this, the authors conducted two surveys and their sampling was randomly selected from mailing lists. They then applied subjective analysis and factor analysis to check the validity in the first survey. Then using LISERAL and structural equation modelling, they analysed the data. For the second survey, they tested the same model with various satisfaction and loyalty measures. Again they conducted the sampling and the analysis based on AMOS. According to the results of the first analysis, customer value anticipation (perceived value) has a direct bond with satisfaction and loyalty. Likewise, satisfaction positively related to loyalty. Based on the second analysis results,

perceived value negatively impacts on customer satisfaction. This chapter has the following shortcomings:

1. While the authors have rejected the hypothesis in the second study which is the relationship between customer anticipation value and loyalty, they do not propose any method to revalidate this.
2. They fail to provide any methodology regarding the future prediction of customer satisfaction and customer loyalty.
3. While they discuss the relationship between customer value anticipation with satisfaction and loyalty, they do not discuss the effect of loyalty and satisfaction on customer value anticipation.
4. They do not show how the methodology can predict further satisfaction and loyalty, and how these factors affect customers.

Kwong et al. [115] present a new methodology to ascertain customer satisfaction using a non-linear and neuro-fuzzy inference system. To identify and understand who the customers are and their perceptions, a survey was conducted among laptop users. For measurement purposes, they used a 5-point Likert scale from 1 “very bad” to 5 “very good”. Then following a customer satisfaction model, they validated their proposed methodology. The first test indicates that the model established by the proposed method can provide an accurate result of a typical ANFIS using the same datasets convincingly. The results of the second test show that their model surpasses the models developed using statistical regression based on mean errors and variance of errors.

1. The proposed method does not formulate a methodology for customer satisfaction.
2. The proposed methodology does not illustrate the levels of customer satisfaction.
3. While the analysis was completely done based on the fuzzy inference system, it does not illustrate how future customer satisfaction trends will be estimated.
4. They do not show how to determine customer satisfaction and important variables within the process. Hence, they should have used antecedents and descendants of customer satisfaction.

Briggs et al. [116] propose results from an empirical study using an online survey of third party logistics customers to test the impact of these two types of performance on third part logistics (3PL) service satisfaction. When companies accomplish the services, the clients would be able to assess positional and velocity of performance. For analysis, they use Chi square and AMOS with maximum probability of computation.

Based on Fig. 2.8, the results show that the velocity performance is a more effective motivator of satisfaction; however, positional performance positively influences satisfaction. Furthermore, market turbulence and competitive intensity are both moderators in velocity performance. Also, the results propose to

implement metrics and use velocity performance during customer negotiation. Below are the shortcomings of this study:

1. The authors fail to include expectation as one of the significant factors in customer satisfaction and a variable which is important in logistics.
2. Although, there is a significant correlation between velocity and positional performance and the model has an acceptable fit to the data, the authors do not formulate satisfaction.
3. While the authors have used an online survey, it is best to conduct interviews and some real-world surveys to ascertain proof of the responses. Also, they could have used other industries from which to collect the data.
4. While the authors prove that satisfaction can be achieved, they do not mention how they address the impact of satisfaction.
5. Also, this study does not discuss the decision-making process and optimization of customer satisfaction.

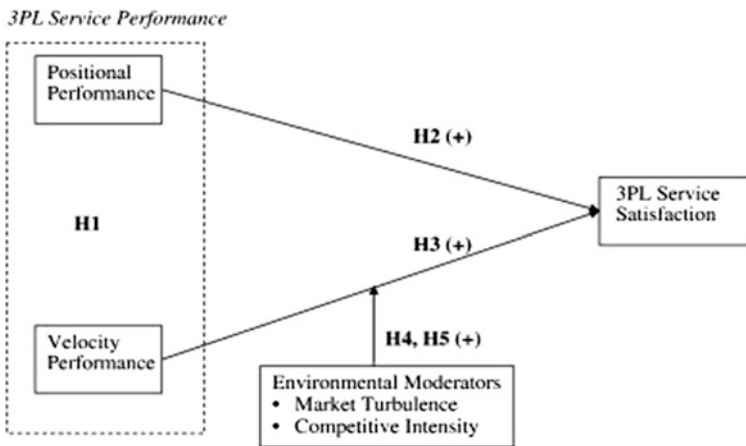


Fig. 2.8 Conceptual model [115]

Sivadas et al. [117] propose a method by which they test and assess the relationship between service quality, customer satisfaction, and loyalty. They defined each of the variables and inter-relationship of those variables. They then propose hypotheses followed by introducing the participants and data collection method which is the computer-assisted telephone interview. Their measurement tool was a 5-point Likert scale. They estimated the model using structural equation modelling.

Figure 2.9 shows that service quality creates satisfaction and attitude. Relative attitude and satisfaction can generate recommendations and encourage the customers to repeat their purchase and these two factors may produce customer loyalty. They assessed that service quality has a direct link with satisfaction. Also, there is a huge probability that customers will produce positive word of mouth and

recommend the store to others. Likewise, satisfaction relates to relative attitude. The relative attitude is negatively associated with recommending the store. Finally, satisfaction and attitude are not linked with loyalty. Some of the study's drawbacks are listed below:

1. The authors do not propose a methodology to provide decision-making for satisfaction.
2. They fail to optimise the process as they have an adequate amount of collected data.
3. Although they have introduced the methodology for loyalty, they neglect to discuss the feedback of the loyalty program to the system.
4. The authors do not propose any means for analysing the impact of service quality on loyalty and in turn loyalty on service quality, although the whole process is an iterative one.

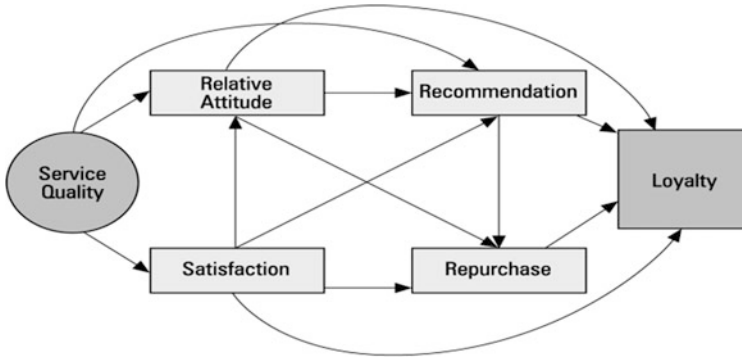


Fig. 2.9 Conceptual framework [116]

Steven et al. [118] propose a methodology by which they find the bonds between customer service, satisfaction, and company performance in airline industry. They introduce hypotheses followed by enhancing the model and data. According to the model, customer service must be linked with satisfaction. Also, customer-centric performances of the company and satisfaction of customers may lead to profitability. To date, airline services have been using previous systems to determine satisfaction. The authors evaluated customer complaints first and then calculated values for these complaints. They collected the data from a panel set. They derived predictions of customer complaints according to the results. According to the assessed customer complaints, all of the customer service variables obtain a 5 % enhancement from their mean values. On-time performance based on customer complaints has the most important impact on satisfaction. “Also, 5 % increase in on-time performance decreases complaints by 2.6 % from 1.077 to 1.049 in each 100,000 passengers. Furthermore, decreasing the number of lost baggage by 5 %, decreases the number of complaints by 1.9 %, whereas a 5 % decrease in ticket in sales and a 5 % decrease in cancellations of the tickets

decline customer complaints by 0.65 % and 1.1 %”. Steven et al’s [118] study has the following drawbacks:

1. While the authors discuss the prediction about optimization, they do not provide any methodology for it.
2. The authors do not create a complete conceptual framework to show all the relationships. Instead, they depict the outcomes on the model.
3. When analysing the satisfaction and loyalty, they could use other non-linear models to obtain the sensitivity of the relation and sensitivity of the complaints.
4. They do not discuss prediction of customer complaints and customers’ post-complaint behavior, after satisfaction.

Bayraktar et al. [119] highlight the concept of satisfaction and loyalty and propose that increasing customer satisfaction and loyalty will result in profitability and market share. They define variables and draw up a conceptual framework. The important factors are corporate image, expectation of customers, perceived quality and perceived value. The authors analysed customer satisfaction and loyalty using DEA. The sample is selected from a Turkish mobile phone brand. A European customer satisfaction index model is used for this study as a base indicator. Then, prior to doing the DEA, they conducted exploratory factor analysis to reduce the amount of data. Based on the comparison and analysis, Nokia performs as the most effective brand followed by LG and Sony-Ericsson for effectiveness in customer satisfaction and loyalty, while Motorola, Samsung and Panasonic are ranked as the bottom line brands. Below, we provide the drawbacks of this study:

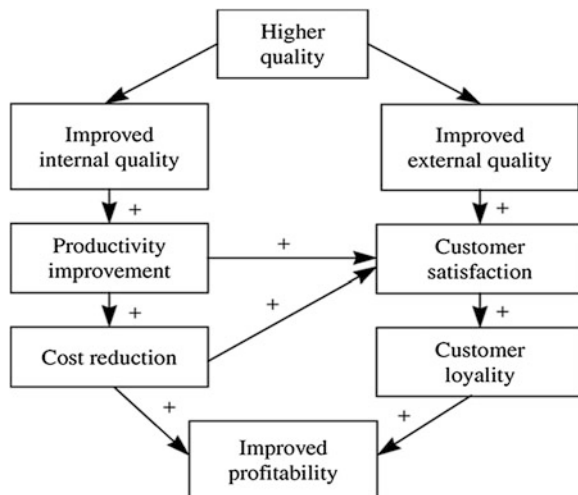
1. Although, the data is transformed to a different scale to become normal, it is more effective to use principal component analysis to reduce the amount of data.
2. They do not propose any means for predicting the future satisfaction and loyalty value and to make future decisions.
3. They do not provide any future direction for customer satisfaction and loyalty regarding post-complaint behaviour of the customers.
4. They only ranked the brands but did not suggest ways by which brands could improve and become top brands in future.
5. They do not illustrate whether or not customer satisfaction and loyalty are fed back to the system.
6. The authors do not mention whether or not each of the main variables has a direct impact on customer satisfaction and loyalty.

Edvardsson and Gustafsson [120]’s method is intended to enhance and control operational relationships with customers. They use an exploratory, qualitative research method and for data collection they use in-depth interviews with personnel from the Volvo Auto Company. They analyse the impact of enhanced internal and external quality on productivity and customer satisfaction when the company sells trucks. Productivity must lead the system toward cost reduction and customer satisfaction will be turned into loyalty. If the company meets these

important criteria, they will increase profitability. Results illustrate the major impediments to improvements in the Volvo car manufacturing company. The company cannot always focus on customers due to a problem in the CRM system. People rely on product quality but there is a plethora of customer complaints regarding the problems they have with their trucks. The company aims to offer the best ever service experience to its customers, but there are times when the company is not able to provide the desired services due to problems with the CRM system. Company employees cannot meet their commitments, and this may reduce competence. Based on Fig. 2.10, good quality of services and products may result in improved internal and external quality, whereby the internal one may improve productivity and the external produces satisfaction. Simultaneously, improving the quality leads to cost reduction and satisfaction results in loyalty; together, they create profitability and growth. Information technology can bring about much advanced communication and interactivity between company and employees at the Volvo Company and may enable the employees as well as customers to become more loyal. However, the information technology processes are inadequate and give rise to unfavourable issues. Customer satisfaction, which is one of the key factors of CRM, must be monitored on a daily basis by expert operators.

1. This study analyses the variables using qualitative analysis, whereas having data for variables, the authors may have more precise results.
2. The authors do not propose a methodology by which they can estimate customer satisfaction as well as customer loyalty.
3. The authors fail to provide a direction for future prediction of customer satisfaction.

Fig. 2.10 Relationships between main variables [119]



Source: Flodin *et al.* (1997)

4. Also, the authors fail to mention the sensitivity of each of the variables. Also, the reader cannot determine which variable in the conceptual framework has the most impact.

2.5 Models and Methods Used in CRM

2.5.1 AHP Method

Since the creation of the analytic hierarchy process, it has been used as a decision-making tool for multiple criteria. Based on [121], AHP can be integrated with linear programming to analyse tangible and intangible elements. Also, using AHP, we can determine the priority of the major factors.

Javadi [122] proposed an analytical hierarchy method to analyse data and Expert Choice software is used as the analysis tool. The Analytic Hierarchy Process (AHP) is a structured technique for dealing with complicated decisions. An advantage of the hierarchical analysis procedure is manipulation of decision compatibility. Also, using AHP, researchers are able to obtain the weight of variables, model the issues, prioritise them and make appropriate decisions and judgement regarding the issues.

The AHP is designed to solve complex multi-criteria problems. It is based on the innate human ability to make sound judgments about small problems. It also creates a flow in the decision-making process by means of including recognitions, emotions and judgement in a model [123].

2.5.2 ANP Method

“ANP is a generalization of analytic hierarchy process” or simply, it is an abstraction of AHP. According to Öztayşi [72], the analytical network process is a decision-making approach and can be used for multiple criteria. “Analytical network process (ANP) is a multi-criteria decision making approach in which, it can consider the inner and outer dependencies among multiple criteria”. In this study, Öztayşi [72] compared CRM performance of companies who deal with e-commerce. ANP finds the priority of factors in the network and determines the best decision. The main challenge of ANP is to discover the priorities of the factors in the network and the alternatives of the decision. They also conducted sensitivity analysis to determine the strength of the priorities and ranking among alternative websites against changes in weights and interdependency situations.

2.5.3 Clustering Method

Clustering or the linguistic data sequences are proposed by fuzzy data sequences and a fuzzy compatible relation. In fact, individuals utilise various attributes when choosing a service or a product and these attributes are highlighted by clustering or linguistic data sequence. It was established to ascertain the binary relationship between two data sequences. Then, a fuzzy equivalence relation is deduced by conclusion using maximum and minimum transitive conclusions from the fuzzy compatible relationships. According to the fuzzy equivalence relationship, the linguistic data sequences for that particular product or service can be simply categorised into clusters. The clusters presenting various clients' preferences for a product or service are considered as the basis for enhancing customer relationship management [124]. As an example of clustering and based on [124], a bank wanted to employ CRM in relation to credit cards. To achieve this aim, the managers surveyed clients regarding fees, interest, loans, line of credit and other criteria. Then, they grouped all criteria into five clusters and the linguistic preferences are pinpointed as "very low" to "very high" based on a 7-point Likert scale. Next, they evaluated the application of credit cards.

2.5.4 An Object-Oriented Analysis Method

This method is used to create a use-case diagram that characterizes the view of the customers and their attitudes and preferences when using the system and it also creates an activity diagram that illustrates the enhancement of that specific behaviour to satisfy the expectations. Furthermore, it produces a model that shows internal objects and entities that cooperate to enrich these behaviours. As mentioned above, an object-oriented analysis method can be applied for the analysis of a CRM [125].

2.5.5 Content Analysis

Content analysis is an approach used for the text mining of text-based data and to find the frequency of the words and important phrases within a text. As the information about CRM is widespread and ongoing, using that, researchers can streamline the literature in this area [126]. Also, Bowen and Sparks [127] used content analysis with a comprehensive overview of literature and provided a summary of most of the analyses done by researchers in the marketing area. McDonald [128] introduced content analysis as a method of observation to categorise and summarize the interviews which could be either verbal or written. In this study, the author used content analysis to qualitatively analyse quantitative data.

After content analysis, the researcher did the clustering and then developed new strategies based on the results. Gebauer [129] proposed content analysis for the factors that users consider significant. Then, using structural equation modelling, their performance and usability was found. McAlister [130] proposed a content analysis approach to monitor, categorise and code customer complaints. Using this method, the author analysed the words and concepts and found relationships throughout the text.

2.5.6 Single-Case Approach

A single-case approach is used because of the complex nature of relationship management and its generic implementation [22]. When using this approach, we need to have many variables to determine their relationships and the way in which variables are being managed. Although, many researchers think that this method produces only superficial results, the use of real surveys and secondary data in this approach will provide appropriate results.

Single-case creates discussion regarding the significance of the case and clarifies the main variables in the system that may create the issues. It also formulates research questions that clearly describe the problematic areas. Using this approach, we can describe and utilise quality control measurements, provide an acceptable conclusion, and verify the results. This approach can be trusted as we are able to ensure the validity of results [131].

2.5.7 A Simulation Model Approach

This is applied to create the conceptual model and convert it into a simulation framework. However, the process of simulation must be manipulated and arranged according to the criteria and perception of the benefits. Simulation may encourage more explorations of possible results utilising the framework of a realistic situation. When obtaining various results, the usefulness of various performances in a system can be assessed [19]. Also, based on Lemon et al. [132], simulation was used to investigate the leverage of customer mental analysis concerning the effects of satisfaction.

2.5.8 Web-Based Questionnaire Survey

Nambisan [133] collected data utilising a web-based questionnaire which is a very cost-effective approach. It is the best hassle-free option which allows more questionnaires to be distributed to a wider range of respondents outside a region.

However, the data collection would be random. In another web-based survey conducted by Limayem [134], an email invitation was sent to the respondents, and to encourage them to participate in the survey questionnaire, a voucher was given. Respondents then answered the questions to assess perceived usefulness and customer satisfaction.

2.5.9 Survey, Questionnaire, Interview and Hypothesis Testing

Mithas [49] surveyed the top IT managers in more than 300 large U.S. firms. Using a quantitative approach, the author distributed a survey to collect the data and performed statistical analysis on it. The survey method is an approach to collect data from a particular selected sample. It has two subsets which are questionnaire and sampling. For example, [6, 135] structured a questionnaire to gather information about the managerial areas of CRM.

Hypotheses testing is another way of finding the relationship between the variables [12, 136]. Based on Stein [137], an in-depth interview is proposed for data collection in a qualitative research and to identify every small characteristic of an individual, product, and a service. The interviewees are given the opportunity to express themselves.

2.5.10 Data Mining

According to Rygielski [138], the data mining technique can be used for the analysis of data in CRM. Data mining implies a comprehensive search for data using statistical algorithms to reveal the correlations between the data. Data mining can be described as a complicated data search to find patterns and correlations. It can collect the data and build a realistic model for interpretation. The model is useful for prediction, discovery of the data and various data analysis. In this study, Rygielski adopted two case studies and used two different data mining approaches, namely Chi square automated interaction detection (CHAID) and neural network. Regarding the first case, they utilised a neural network to optimise the profit and provide a solution, and in the second case, they used CHAID to increase the effectiveness of targeting extant customers and to entrench predictive models.

2.5.11 Case-Based Reasoning (CBR)

According to Choy et al. [139], case-based reasoning is one of the sub-divisions of knowledge-based systems. It explains activities in case form and thus creates

useful information to guide evaluation. CBR is a general model of an intelligent science-based approach to solving problems. Using previous information and reusing it, CBR defines how individuals use previous information to deal with a situation. CBR builds a conceptual framework in which to store operator experience and makes that experience available to various users to create a flow in the situation assessment. Its process includes retrieval of identical cases which it uses to find a solution to the problem, adjust the proposed solution if necessary, and keep the solution as a new case.

2.6 Existing CRM Systems

Since companies face the challenge of winning customers from their competitors in the existing market, they need to have a stringent system with high management capability and prediction of issues prior to their occurrence. Moreover, companies are challenged to implement the most effective system to optimise and streamline customer-oriented procedures across all functional areas to enhance effectiveness and productivity. Each system creates a new solution and each system has its own characteristics and each of the systems meets various customer and business requirements [140].

2.6.1 SAP CRM and its Challenges

Based on the information provided by [140], SAP is a giant software organization which was founded in Germany in 1972. It concentrates mainly on enterprises and mid-size companies. It also helps companies like AMD and Colgate-Palmolive. SAP proposes various CRM systems for a variety of reasons. The SAP business model is on-premise and hosted. SAP proposes on-demand subscription-based CRM resolutions that are Internet-based. SAP CRM was improved to address the unique, end-to-end requirements of major industries including: automotive, chemical, client products, retail, telecommunications, professional services, public sector, media, utilities, oil and gas, and wholesale distribution [141].

SAP has about 3,000 CRM clients and more than 90,000 customers around the globe. About a third of these have been catered for completely. Several clients obtain mySAP CRM licenses but some have progressed to full implementations. Various SAP customers required mySAP CRM quickly but did not have the appropriate facilities to accommodate its applications. Many SMEs may not be able to acquire SAP's impressive on demand CRM software, as SAP's framework prevents customers from crossing over to the SMEs. Still, SAP has not revealed what is the estimated capacity and space each customer may achieve with an individual usage time framework. Even a well-known company such as SAP cannot fully deal with customer complaints.

2.6.2 Salesforce.com and its Challenges

According to [140], salesforce.com, provides customized CRM applications and could be utilized by all sorts of companies regardless of their size. It was founded in California, USA in 1999. The business model of salesforce.com is hosted. This firm offers a considerable number of CRM and business application services [141]. It assists businesses to monitor customer accounts, follow sales leads, assess marketing campaigns, and prepare after-sales services. It concentrates on sales force automation, marketing automation, and customer service and support automation. In addition, it creates one of the best security systems for a company. Moreover, in recent years big companies like salesforce.com are becoming cloud-oriented; their services are becoming accessible by everyone with free investment.

Offline client customization is not endorsed by salesforce.com. There is a shortage of efficient marketing automation. The sales procedure ability is restricted. There is no allowance made for users to efficiently work with groups. Data is often incorrect and irrelevant. The mail merge facility is deficient. Salesforce.com provides no simple channel for conveying data. It does not have adequate tools to guarantee data quality. In addition, its mobile and offline abilities are restricted. It is expensive to customize and personalise and relies on the Sandbox environment. There are restricted enterprise intelligence resolutions and it needs capable information technology experts to make important changes to the solutions [142]. Its inadequacy in satisfying customers is another important issue. Also, the high rate of customer angst, customers' website accountability, and heavy limitations are the other significant problems that the company must resolve. Ultimately, there is a lack of capability to ensure best practices [142].

2.6.3 Oracle-Siebel and its Challenges

According to business-software.com [140], Oracle is one of the biggest application software firms in the world catering for virtually all of a company's requirements to control its business. It was founded in California in 1977; the business model is hosted and is on-premise and serves companies such as Dell, Visa and AT&T. Oracle has created PeopleSoft and Siebel in the last two years. It has various functionalities such as sales automation, marketing capabilities, and implemented intelligent reporting system. Clients can easily prepare CRM software from either Oracle, Siebel, or PeopleSoft's Siebel CRM on Demand clients [141]. Oracle does not provide appropriate and successful training [143]. It cannot provide feedback and recommendations following customer complaints.

2.6.4 Maximizer and its Challenges

Maximizer is said [140] to be designed for larger companies and was founded in 1995 in Canada. The business model is on-premise and serves various companies like Cathay Pacific and Oxford University. Maximizer CRM prepares a full-highlighted CRM encompassing marketing computerization and customer service and support. Maximizer CRM provides different connection options such as desktop, Web and PDA. By facilitating mobile tools with full-featured CRM, Maximizer enhances cooperation and customer engagement. Maximizer Software Inc. generates an affirmative, manageable CRM and contact management resolution that may assist SMEs to increase sales, simplify marketing, and improve customer service and support [141]. With the advance to Maximizer 10, Crystal Reports which are intelligent reporting tools, no longer play an effective role. This proves to be a problem with linking to the information source area [144].

2.6.5 Sugar CRM and its Challenges

Sugar CRM [140] was founded in California in 2004. It is an open source CRM application which is an on-premise and hosted business model. Creating an enriched set of business procedures, it improves marketing productivity and effectiveness, improves sales, amends and increases customer satisfaction and increases a company's level of business performance. Sugar CRM is implemented by companies such as Avis, Coca Cola and Athena Health [140]. It is a preferred choice for all kinds of customers across a broad range of industries due to its coordination and administration abilities, adjusting to the performance of every firm [145]. Sugar Suite is the best choice because of its improved features. It suits all sizes of companies and industries [141]. This software is easy to install and trouble-free, with an administration facility that provides a variety of selections and tools. Sugar CRM is open-source and as it has a flexible delivery model, there are no arrangement limitations. Also, it gives personalised service and workflow guarantee adjustment to the user.

Based on the evidence, Sugar CRM loads slower than V-Tiger CRM and is troublesome to the user. Issues arise when the user does not lock the installation upon completing it. Unlike V-Tiger CRM, many add-ons are not free to install and are supplementary.

2.6.6 Sage and its Challenges

According to the evidence [140], Sage was founded in Irvine, California in 1981 for mid-size and small enterprises. Sage is user friendly, prompt-to-adjust,

on-premise and on-demand CRM software resolution with out-of-the-box constructible business procedure automation. It serves companies such as Avent, Legoland and Panasonic.

It is a CRM solution that uses the convenience of the web to create a company's marketing, sales, and customer care teams with the required devices to market more efficiently [141]. Customer service and support encompass the following aspects: centralized client information, consolidated service and support, strong prediction system and reporting, improved opportunity management, comprehensive mobile CRM, prompt access to data, and effective resolution of client problems [146].

However, it provides no customer feedback facility. Customers are often dissatisfied with the product because they do not understand what they required it for at all [147].

2.6.7 Microsoft Dynamics and its Challenges

Microsoft Dynamics [140] was founded in Redmond, WA in 1975, with on-premise and hosted business model and its focus is on SMEs. Microsoft Dynamics for customer relationship management encourages employees to increase sales, satisfaction, and service with an automated CRM that is easy to use, customize, and maintain. Microsoft Dynamics business software offers a wide range of enriched, easy to access CRM resolutions to assist firms fulfill their needs. Using Microsoft Dynamics CRM customer service solutions, users can convert customer service into a strategic advantage. With a 360-degree view of the client, representatives can resolve problems promptly and decrease adjustment times with improved client service software. In addition, with computerized procedures, companies can decrease expenses and ensure that customer service is carried out across all touch points. The client service solution encompasses the following: accounts, contracts, knowledge base, programming, workflows in a setting, and analytics [141]. Business solutions from Microsoft Dynamics CRM are: (1) flexible, with selections for arrangements, purchase, and approach; (2) familiar and easy to use because it works like other Microsoft products; (3) designed to suit a business through broad customization and partner proposal [148].

Customer feedback indicates that customers do not have an adequate communication CRM server for Microsoft Dynamics. Also, the toolbar in the software tends to disappear. What is more, sometimes accounts which need to be separated from each other are combined. Also, users may receive many unwanted emails continuously. Microsoft Explorer may close abruptly without warning [149].

2.7 Critical Evaluation of the Existing Literature

In this section, four major areas of research work related to CRM are considered: definition, approach, methodology and software. We identify and define all relevant variables within our conceptual framework. For the approaches, we consider those methods which have been useful and essential for our thesis, particularly those approaches which clarify the link between our variables. For methodology, we choose those approaches that are the most efficient and that will ensure consistency. Finally, we need to choose the most efficient and applicable software to analyse the data.

2.7.1 *Interpretations and Definitions of CRM*

Different researchers have proposed various definitions of CRM. For example, [6, 7, 14] define CRM as a set of strategies that creates an interactive relationship with customers to provide customized services and products and increase profitability, and manages sales, marketing and services. Also, [6, 8–10] define CRM as an entity that is a core strategic approach that unites marketing activities and information technology to establish a long-term bond with clients and creates competition among organizations. While these definitions are acceptable, we create a new definition for CRM which covers all definitions in the literature intelligently and will be fully defined in [Chap. 4](#).

Our main focus in this thesis is on customer satisfaction which is a growing concern that is strongly connected with its antecedents and expected consequences such as loyalty and customer acquisition. The studies that were discussed previously had relevant and new ideas, but contained no particular features that were found useful for our research; however, each is unique with distinctive features.

Customer satisfaction refers to the ways that the company can meet the requirements of the customer and make them happier than they used to be and provide services beyond customer's expectations [41, 54]. However, we use a much broader definition in this thesis. Customer satisfaction has been previously analysed by many researchers. For instance, satisfaction has been evaluated using an empirical study of third party logistics customers [116], using a quantitative approach. Also, [117] propose a quantitative approach by which customer satisfaction can be examined. Likewise, [115] use a non-linear and neuro-fuzzy approach to analyse customer satisfaction. However, none of the approaches provides a complete methodology to meet the requirements of CRM systems. By a comprehensive methodology, we mean an approach to the issue of customer satisfaction that covers a complaint management system and creates thorough interactivity. However, none of the above approaches ascertain customer satisfaction.

2.7.2 CRM Approaches Which Focus on a Specific Area

There are plenty of CRM approaches and we have considered those which are relevant to our thesis. For example, [71] propose an analytical CRM which deals with quantitative data and is intended to solve customer problems. However, the authors do not consider optimization and trust of the system and fail to address the time spent on each customer. In another study by [23], a conceptual model is proposed in which they provide value drivers, brand and relationship, but neglect to determine the expectation of the customers, and the risk factors cannot be assessed using this model. [72] proposes an approach whereby they increased the benefits achieved from clients using quantitative analysis, but they do not determine the validity and reliability of the data. Furthermore, [73] propose an approach to find the impediments to the success of CRM; however, they do not mention customer complaint sorting as a success factor of CRM.

To analyse customer satisfaction, [117], propose hypotheses followed by computer-assisted telephone interviewing. Their measurement tool is a 5-point Likert scale. [118] proposes a methodology to find links between customer service, satisfaction, and company performance in the airline industry. They introduce hypotheses followed by enhancing the model and data and collecting the data from a panel set. [49] provided hypotheses to ascertain the relationships and generate the data from weekly IT publications and then used the Probit method. In another study [119], the author highlights the concept of satisfaction by drawing a conceptual framework and the sample is selected from Turkish mobile phone brands. A European customer satisfaction index model is used for this study as a base indicator. While all of the methodologies are valid, they do not fully address the issue of customer satisfaction as they cannot deal with customer complaints and their categorization. Simultaneously, they are not adequately interactive and do not give the customers the best experience.

2.7.3 Different Models and Methods Used to Analyse CRM

To analyse CRM, [71] use an analytics model to solve customers' business problems to optimise the decision-making process. However, they do not provide any prediction or optimization regarding customers' post-complaint behavior. Also, [23] consider that managing CRM activities will positively impact on business performance, but they do not have a performance measurement. [72] propose an approach in which they increased the benefits achieved from clients, but they do not consider the effect of customer complaints on customer relationship management. [73] mention major obstacles to the success of CRM in pharmaceutical companies, but they do not discuss customer complaint sorting as a success factor of CRM, and there is no analysis and estimation of it. [74] proposes an integrated approach for designing, evaluating and implementing a CRM system,

but it does not determine how to analyse customer expectation and satisfaction. [2] provide consolidated methods to address the shortcomings of CRM, but the authors do not mention how they are going to estimate CRM consequences, such as customer satisfaction and loyalty. Among the other approaches which measure CRM, [19] proposes CRM operational and development consequences, but this study lacks valid data and does not have a methodology for validation of word of mouth and customer satisfaction.

As seen in the customer complaint section, the literature reveals various approaches to defining and analysing customer complaints. Some are quite unique with distinctive features that will be examined in the evaluation section. For example, [105] examine the impact of anger and dissatisfaction on customer behavior, but they do not propose a mathematical framework to solve the problem. Also, [106] proposes the correlation of one response regarding the dissatisfaction, but does not take into account the dynamic nature of complaint management. Also [35] maintains that customer complaints are inevitable, but the author does not provide any tool or means of analysing the data collected, and fails to estimate the level of customer satisfaction.

Customer perceived value is a significant factor that sometimes can be considered as synonymous with customer satisfaction and customer experience [76]. However, there are differences such as cognitive construct in perceived value and influential construct in satisfaction. Also, perceived value is strategy-centered whereas satisfaction is tactics-centered.

As discussed earlier, loyalty is one of the consequences of CRM and customer satisfaction, and it pinpoints the strength of customer retention. Min et al. [93] propose an approach to control turnover of the company and enhance truck driver satisfaction and loyalty. However, they do not propose any future direction and prediction for post-complaint customer behavior analysis. [94] developed a method for establishing and validating a loyalty framework, but they do not mention how they evaluate the perceived value and trust from the performance. [96] examine the impact of personalisation of services on loyalty and evaluate the psychological impact on loyalty, but fail to include the customer complaints can be dealt with using a fuzzy inference system to show the sensitivity of personalisation.

2.7.4 Different Systems and Tools Used for CRM

Based on the methodologies and the software that have been examined through the literature review, we select the most significant of these but in no particular order. For example, [71] use a customer focus measure as a tool to create a customized automatic report in order to recognize issues and contacts, and to generate statistics. To control the process, they use a dashboard. Also, they use business analytics software, but this method does not allow for the prediction of customer satisfaction and behavior. In another study, [72] uses an analytical network

process, but this study does not consider the effect of customer complaints on customer relationship management. Also, [73] use a focus group and the survey method to collect data and identify problems. The collected data was divided equally. To discuss the main issues and using the first set of data, exploratory factor analysis was used. To verify the factors and with the second set of data, the authors applied structural equation modelling. They do not clearly discuss customer complaint sorting as a success factor of CRM. Nor do they provide a complete methodology for the analysis and estimation of this success factor.

To analyse perceived value, [77] propose a two-step method in that they first use EFA (exploratory factor analysis) and in the second step, confirmatory factor analysis (CFA), but they fail to evaluate customer loyalty. Roig et al. [78] use a survey for data collection followed by CFA and structural equation modelling to validate the propose scale of perceived value. However, this study must be conducted using other sets of data to revalidate the relationships. Chang [79] devised a questionnaire based on e-service quality, perceived value, satisfaction and loyalty, and then introduced several hypotheses using a conceptual framework. Moreover, structural equation modelling (AMOS 5.0) techniques and linear hierarchical regression models were used to test the causal model, the formulation of the relationship was not explained; nor was the process for evaluating customer satisfaction and loyalty.

To analyse interactivity, [84] presents confirmatory factor analysis but does not provide any means by which loyalty can be assessed. Also, there is no approach for predicting future behavior of customers regarding loyalty. Also, [85] proposes a qualitative analysis approach, but it is unlikely to obtain a precise result on interactivity. Additionally, [86] introduce hypotheses, and to analyse the data, structural equation modelling is used (Amos 6.0) to assess the model, but this model cannot evaluate interactivity and customer satisfaction.

As seen in the customer satisfaction section, researchers use various techniques to evaluate customer satisfaction. In this section, we will summarize those that are most effective and applicable. [114] use a survey for data collection, and for analysis of customer satisfaction, they use data envelopment analysis (DEA), but they do not propose a decision-making methodology for customer satisfaction outcomes. Nor do they make recommendations to ensure satisfaction. [49] generate the data from weekly IT publications and use the Probit method, but they do not evaluate customer satisfaction and its antecedents. Furthermore, [50] provide two surveys and the sampling is randomly selected from mailing lists. They then applied subjective analysis and factor analysis to check the validity in the first survey. Then using LISERAL and structural equation modelling, they analysed the data. For the second survey, they tested the same model with slightly different satisfaction and loyalty measures. Again they conducted the sampling and the analysis based on AMOS. While this methodology and its analysis are valid, they cannot evaluate and formulate customer satisfaction.

This section builds upon the previous critical evaluation of various methodologies. It contributes to a consolidated effort to determine the major issues that emerge from the literature and that must be addressed. To the best of our

knowledge, insufficient attempt has been made to design a comprehensive methodology for customer relationship management and its elements. We acknowledge that it is quite difficult to estimate and evaluate each of the factors included in customer relationship management. However, in [Chap. 3](#) we discuss the issues and in [Chap. 4](#) we will pictorially illustrate our conceptual framework and discuss our methodology in detail. Firstly, we need to have a complete methodology which pinpoints and presents different facets that ought to be analysed and may lead to better decision-making processes.

The literature demonstrates the various approaches proposed by different researchers to analyse customer relationship management related to complaints or other variables such as perceived value, interactivity, customer satisfaction, loyalty and customer acquisition. However, although numerous, none of these approaches presents a complete methodology that illustrates the interaction process of the company with a customer.

When we talk about a complete or comprehensive methodology, we really mean that although we are determining the level of perceived value, for example, we need to take into account the possible outcomes that will disadvantage a company. This alone has a negative relationship with customer satisfaction.

2.8 Open Source CRM on the Cloud

Open-source is a software the initial codes and source code of which can be published and made accessible to everyone. They are becoming very popular because of their low cost. There are many open-source software packages, which are competing to obtain a greater share of the market. In this thesis, due to the time constraint, we discuss only the major open-source CRM software including their functionality and their pros and cons.

2.8.1 Advantages of Adopting CRM Open-Source Software

Sales activities are better organised and facilitated using customer relationship management software. The software can easily track and identify business opportunities and weaknesses based on a company's requirements and administer current relationships with the customers. Apart from that, open-source software has been created to provide better interaction within companies. Using the software, a company can better address customers' feedback and generate recommendations and solutions for it. Moreover, the software in CRM is implemented to avoid wasting both company and customer time. This allows the company to accurately track and search the issues and find appropriate solutions for them. Below, we will discuss some of the most important, useful and commonly-used open sources in the market.

2.8.1.1 Vtiger

According to [140], “V-tiger CRM which is an open source can be utilized to administer all activities. It supports customers, services, marketing automation, and fulfillment effectively”. V-tiger provides year-long 24/7 customer-service-oriented activities with technical and email support, appropriate and timely scheduled backup and recovery of customer data [150].

Vtiger was first introduced in 2004 and is constantly being updated. It is utilised by more than one hundred thousand companies around the world and is accessible in fifteen languages. It is one of the best-known CRM packages that can be utilized by both small and medium-sized enterprises. Anyone is able to use, copy or disseminate it without requiring permission or payment. It is constructed from SugarCRM with additional sales force automation. So far, there have been over two million downloads from the website due to its effectiveness and applicability. In 2010, Vtiger provided a cloud solution in addition to its other services.

It has the ability to cover fifteen different aspects of business including marketing, customer service and support, sales and managerial functions. It is an ideal solution for companies and can be simply customised using different features. It creates customer report, establishes a flow in the work setting; controls user permission, can be accessed from mobile phones, consolidates with emails and selects a third party extension.

As it provides on-demand services and solutions, it has various advantages. For example, it does not need any installation, thereby saving company costs. There is no need to pay extra for system upgrade. Also, the system regularly upgrades and scans itself and it is accessible from anywhere. It is also absolutely secure as it is hosted on reputable servers such as Amazon EC2.

On the website, there is a preference page that will allow the user to configure personal settings such as time zone, language and personal information. One can also change the logo of the company using the website and update the company's details. Vtiger also allows the users and customer to submit, track trouble tickets, access the knowledge and other important documents which will be provided in further detail. Customers are able to create new contact details and search through the lists. One of the powerful features of Vtiger is that Microsoft Outlook or Word can be completely installed as add-ons.

2.8.1.2 Workflow Stages in Vtiger

Users must supply their names in order to obtain an account and login information. Then, based on their issues, they will be able to submit their trouble ticket. After the customers get through to the web site, they encounter the knowledge base part of the web page. If customers can find a solution or recommendation for their problem, they will leave the page; otherwise, they must fill in a trouble ticket in a ticket submission section. Then, the ticket will transfer to the server and will be presented to the help desk module. In the next stage, the administrator in charge of

customer support finds the ticket and solves the problem. However, prior to that, the system automatically may send an email regarding the status of the customer's ticket. Then the solution is shown in the customer portal page. This process is interactive and every now and then the customer can make changes to the ticket and obtain more feedback from the system. Although it has various advantages, it also has disadvantages like any other software. To be completely installed, it may need different file changes as the software cannot supply and process the database while being installed.

2.8.1.3 Sugar CRM

Sugar CRM is accessible in open-source and commercial source applications. It has different functions such as sales force automation, marketing automation including campaign management and email marketing, collaboration, report and customer service and support includes case management and pursuing an accident. To meet customers' needs and for security, Sugar CRM proposes on-demand, on-premise CRM solutions.

Using in-house resources, organizations can customize and extend CRM applications. Sugar Professional and Sugar Enterprise are two commercial products of Sugar CRM which make this brand distinctive and increases its competency and the commercial versions would be a better source for most of the organizations because of their variety of features.

Although Sugar CRM is affordable, has proper documentation, is collaborative and customizable, it has some disadvantages. Open-source software has been introduced to science, but it is still not completely accepted by businesses. Sugar CRM provides solutions only for small businesses. Overall, its pipelines, predictions and reporting are very weak in comparison with major open-source systems.

2.8.1.4 OpenCRX

OpenCRX is an open-source customer relationship management system that provides solutions and is able to meet many company requirements in terms of sales, coordination, marketing and service activities to most of the stakeholders of the company, including mediators, suppliers, customers and partners. This software is customizable based on XML, fast, flexible and can always be measured. Its security is high and as the software is a professional one, it has various features regarding sales, call centre, management problems and marketing issues. It also performs on different platforms such as MySQL, SQL, MS, Oracle and Apache Tomcat. It is also a commercial open-source CRM.

2.8.1.5 Daffodil CRM

This CRM package again is a commercial open-source CRM and enables companies to create solutions and administer their relationships effectively. In general, it covers all facets of interaction that a company is likely to have with its clients. It develops sustainability within the company and facilitates interactions with customers. It also consolidates all facets of customer dealings from identification, customer acquisition to maintaining the customer and giving the customer lifetime value in order to secure their loyalty to the company. It is an automatic way of performing functions in the company as the system is completely time-dependent and critically analyses the data to obtain the best possible solution.

What must be remembered is that Daffodil CRM does forecasting, manages performance and attends to customer satisfaction which simply makes the open source distinct among other software. Daffodil CRM includes effective customer support to create loyalty and allow management to acquire new customers. It is user-friendly, being easy and simple to learn and use, and affordable for companies [151].

2.8.1.6 Hypergate CRM

This is an open-source Java customer relationship management system that provides customer support, marketing, virus tracker, project management, content management, intranet, webmail and sharing. It has various modules such as, for example, the ability to include rich media such as video and flash. It has a quick form-based query wizard and its reports are online and in HTML format. One of the very good features of the software is that the company provides training courses for anyone who wishes to use it.

2.8.1.7 Salesforce CRM

Salesforce is one of the well-known CRM open source packages. It has already covered the majority of customer touch-points in dealing with customers. Customers can customize and consolidate CRM based on their requirements. It assists companies to manage customer accounts, track sales leads, assess marketing, and provide post sales services. It is focused on sales force automation, marketing automation, and customer service and support automation. It also provides one of the best security systems for an organization.

One of the failings of this software is that offline customers are not offered customization. There is a shortage of effective marketing automation and sales process capability. There is no provision for customers to effectively work with groups. Sometimes, data is irrelevant and not genuine. There are limited business intelligence solutions and qualified information technology expertise is required to make significant changes to the solution [142]. In terms of customer satisfaction, it is inadequate.

2.9 Major Weaknesses of Current CRM

Galitsky [152] maintains that in order to handle customer complaints effectively, companies must be equipped with a complaint management system. Also, complaints should be considered as an opportunity to improve the quality of the services. However, although Ro [111] examined complaints in the hotel and restaurant industry as opportunities for improvement, the issues were not addressed methodically and no recommendations were provided.

According to Stauss [110], customer complaint satisfaction has a big influence on the post-behavior of the customers and companies need to know the structure of each individual complaint. Companies mostly receive the complaints and archive them in their repositories and forget to address and investigate them as they think they can always retain their own customers. However, as a consequence of ignoring complaints, the company may encounter negative word of mouth and lose its reputation. If the company cannot provide a proper response to a received complaint and meet the expectations of the complainant, the customer remains dissatisfied.

Atalik et al. [153] mentioned that although customer complaints are on the increase, studies are restricted in this field. Also, big companies cannot manage complaints effectively and the failures exacerbate the situations. Also, according to [153], once the complaint arrives at the system, companies simply create service recovery which in the majority of the cases does not resolve the issues.

Ferguson et al. [154] mentioned that companies are deficient in providing feedback to the customers and satisfying them. They analysed negative customer voices within the company and third party recipient of complaints. They also investigated the complaint recipients and analysed their behaviors.

Based on [155], customer complaints systems have a common low level of listening and they only accumulate the complaints, while failing to methodically address customer complaints and propose a valid solution for the issues. According to [156], the majority of companies using CRM systems have service failures and encounter a huge number of complaints. Their inability to sort out and attend to complaints has led to customer defection and negative word of mouth. According to [35], customers do not make their complaints known because they believe that they will either be ignored by the company or any action taken by the company will be unsatisfactory for the customer. Also, customers do not go looking for disasters and they do not know how to go about lodging a complaint and to whom. Finally, most of the complaints addressed by companies satisfy 30–70 % of the customers, and the rest of them remain dissatisfied.

Ro and Wong [150] examined opportunistic customer (dysfunctional customers) issues and they identified and categorised the complaints. Through their results, they were able to establish the percentage of customers who are unhappy about product, service or both product and service failures, and the source of the complaints. However, they fail to provide a complete methodology for the approach. Predicated upon [150], when a company alone cannot easily handle complaints, they call on a third party which is usually a government agency to act

as mediator in resolving the issue. Here, the researchers used content analysis to identify and address the complaints.

Cossument [157] provided a methodology to address the complaints using automatic email classification which differentiates between various customer feedbacks. While they thoroughly analyse the issues, they fail to provide a solution and recommendations. In a similar study conducted by Galitsky et al. [158], the customer complaints have been modeled and categorised and then analysed for validity. Also, they mention that complaints can turn into knowledge about the customers and add to their profile. While all of the statements are valid and they successfully processed the complaints using pictorial representation of the communicative actions and attack relations, they fail to provide a complete methodology to illustrate the quantitative relationship between the factors. Also, they did not provide any solution to address the customer complaints. In none of the above scholarly works have researchers transformed the dissatisfaction to satisfaction and provided a complete methodology for customer satisfaction and loyalty. Likewise, to the best of our knowledge, none of the academic papers to date has proposed a methodology to create business opportunity from customer complaints which is one aim of our research.

From the literature review and to the best of our knowledge, no previous researches in the CRM area have tackled the issue of customer complaints in order to effectively address them and provide strategic recommendations. Likewise, this is the first thesis to address customer issues from the perspective of converting them into opportunities for customers as well as employees at the Fremantle port. Additionally, in this thesis, we convert customer dissatisfaction to customer satisfaction. The model that we propose has the potential to decrease customer complaints which follow service failures.

2.10 Summary of the Literature Review and the Need for an Intelligent CRM

According to our understanding of extant literature, all the above challenges give rise to our thesis which is different in terms of definitions and methodology. The most salient feature in this thesis is that our respondents are exclusive, given our area of interest. Hence, we use an optimization approach to search for the key customers. To the best of our knowledge, no researchers have previously conducted a study in the area of logistics which focuses on customer relationship management and customer satisfaction.

Intelligent customer relationship management has not been previously defined from the perspective of categorizing and analyzing customer complaints in a work setting which deals with various customers. Furthermore, sometimes the customers can be the employees of that organization. The major inadequacy of the current approaches in the literature review conducted to identify the gaps and to propose a comprehensive methodology can be summarized thus:

1. There is no methodical approach for converting perceived value to customer satisfaction in individual cases, especially when key customers of that company must be evaluated. Also, in this thesis the feedback of I-CRM will be converted to perceived value.
2. There is no methodology to illustrate the relationship between interactivity and customer satisfaction. Using feedback from I-CRM, we must evaluate customer satisfaction.
3. There is no methodology for converting customer satisfaction into loyalty using key customers.
4. There is no methodology to convert customer satisfaction into customer acquisition using key customers.
5. None of the current methodologies are adaptive and learner, but using methods, the approaches and models can be learners too.

The current literature on CRM focuses mainly on the business-to-customer relationship, which is the traditional CRM according to our research. Our aim is to integrate B2C and B2B processes which are central to all sorts of transaction involving purchasing and business processes. In the current literature, as discussed in this chapter, none of the researches addresses the issues in a B2B environment. For instance, a stevedore company which is a giant entity and does business with more than 200 road transport logistics companies may deal with this particular situation and work with plenty of other enterprises using CRM. The CRM that we introduce is quite different from the traditional CRM. In this thesis, we address this exclusive situation that has not been investigated before.

As discussed in the previous section, the current literature does not propose an appropriate methodology which allows customers to voice their opinion. The company must provide a safe and trustworthy environment on which customers and employees can rely, so that if they need to complain about a matter, they can lodge their complaint without fear of recrimination. Individuals also expect to obtain appropriate and prompt feedback. Every CRM system must have this ability to estimate the threshold of customer complaints as complaints sorting is a pivotal part of the service evaluation procedure. Only after the implementation of such a system might a company be able to generate customer satisfaction and customer loyalty. To the best of our knowledge, no existing CRM system can generate feedback regarding customer satisfaction and loyalty, and provide a means for customer acquisition. The visual modelling of I-CRM will be extremely beneficial. In [Chap. 3](#), we will define this problem precisely from the perspective of the current literature. In [Chap. 4](#), we propose the solution overview for this problem. We also illustrate that our CRM is intelligent because it can be adapted to specific cases using various approaches. Using intelligent CRM, employees as well as customers will be able to lodge their complaints whenever they wish. Moreover, they have a chance to benefit from the feedback given to other individuals. Intelligent CRMs try to prevent customers from leaving a company by providing guidelines, incentives and steps for improvement that are visible and responsive to customer needs and requirements.

2.11 Conclusion

In this chapter, we conducted a survey of the current literature relevant to our subject. After providing various definitions for customer relationship management and its major components for the purposes of this thesis, we categorised various approaches based upon this research. Ultimately, we critically assessed the current literature in order to categorise customer complaints in terms of intelligent customer relationship management. We then evaluated customer satisfaction in relation to its antecedents and its outcomes. In [Chap. 3](#), we define the problem that we attempt to address in this thesis.

References

1. Chen, I. J., & Popovich, K. (2003). Understanding customer relationship management (CRM). *Business Process Management Journal*, 9, 672–688.
2. Frow, P., Payne, A., Wilkinson, I. F., & Young, L. (2011). Customer management and CRM: Addressing the dark side. *Journal of Services Marketing*, 25, 79–89.
3. Chen, K., & Sockel, H. (2004). The impact of interactivity on business website visibility. *International Journal of Web Engineering and Technology*, 1, 202–217.
4. Mendoza, L. E., Marius, A., Pérez, M., & Grimán, A. C. (2007). Critical success factors for a customer relationship management strategy. *Information and Software Technology*, 49, 913–945.
5. Ueno, S. (2006). The impact of Customer Relationship Management. *USJP Occasional Paper*, pp. 6–13.
6. Özgencer, S., & Iraz, R. (2006). Customer relationship management in small-medium enterprises: The case of Turkish tourism industry. *Tourism Management*, 27, 1356–1363.
7. Hoots, M. (2005). Customer relationship management for facility managers. *Journal of Facilities Management*, 3, 346–361.
8. Payne, A., & Frow, P. (2005). A strategic framework for customer relationship management. *Journal of Marketing*, 69, 167–176.
9. Kerr, C., & Anderson, K. (2002, 01-may-2011). *Customer Relationship Management*. New York: McGraw-Hill.
10. Kim, H.-S., & Kim, Y.-G. (2009). A CRM performance measurement framework: Its development process and application. *Industrial Marketing Management*, 38, 477–489.
11. Faed, A., Ashouri, A., & Wu, C. (2010). The efficient bond among mobile commerce, CRM and E-loyalty to maximise the productivity of companies. In *Information sciences and interaction sciences (ICIS), 2010 3rd international conference on*, pp. 312–317.
12. Robinson, L., Jr, Neeley, S. E., & Williamson, K. (2011). Implementing service recovery through customer relationship management: Identifying the antecedents. *Journal of Services Marketing*, 25, 90–100.
13. Chaudhry, P. E. (2007). Developing a process to enhance customer relationship management for small entrepreneurial businesses in the service sector. *Journal of Research in Marketing and Entrepreneurship*, 9, 4–23.
14. Lawson Body, A., & Limayem, M. (2004). The impact of customer relationship management on customer loyalty: The moderating role of web site characteristics. *Journal of Computer Mediated Communication*, 9, 00–00.
15. Limayem, M. (2006). *Customer relationship management: Aims and objectives*. Tehran: Tarbiat Modares University of Tehran.

16. Ngai, E. W. T., Xiu, L., & Chau, D. C. K. (2009). Application of data mining techniques in customer relationship management: A literature review and classification. *Expert Systems with Applications*, 36, 2592–2602.
17. Bose, R. (2002). Customer relationship management: Key components for IT success. *Industrial Management & Data Systems*, 102, 89–97.
18. Furuholt, B., & Skutle, N. (2007). Strategic use of customer relationship management (CRM) in Sports: The Rosenborg case. *Advances in information systems development*, 123–133.
19. King, S. F., & Burgess, T. F. (2008). Understanding success and failure in customer relationship management. *Industrial Marketing Management*, 37, 421–431.
20. Reinartz, W., Krafft, M., & Hoyer, W. D. (2004). The customer relationship management process: Its measurement and impact on performance. *Journal of Marketing Research*, 41, 293–305.
21. Goldsmith, R. E. (2010). The Goals of Customer Relationship Management. *International Journal of Customer Relationship Marketing and Management (IJCRMM)*, 1, 16.
22. Lindgreen, A., Palmer, R., Vanhamme, J., & Wouters, J. (2006). A relationship-management assessment tool: Questioning, identifying, and prioritizing critical aspects of customer relationships. *Industrial Marketing Management*, 35, 57–71.
23. Richards, K. A., & Jones, E. (2008). Customer relationship management: Finding value drivers. *Industrial Marketing Management*, 37, 120–130.
24. Iriana, R., & Buttle, F. (2007). Strategic, operational, and analytical customer relationship management. *Journal of Relationship Marketing*, 5, 23–42.
25. Foss, B., Stone, M., & Ekinci, Y. (2008). What makes for CRM system success—Or failure? *Journal of Database Marketing & Customer Strategy Management*, 15, 68–78.
26. Chan, J. O. (2005). Toward a unified view of customer relationship management. *Journal of American Academy of Business*, 6, 32–38.
27. Cho, Y., Im, I., & Hiltz, R. (2003). The impact of e-services failures and customer complaints on electronic commerce customer relationship management. *Journal of Consumer Satisfaction Dissatisfaction and Complaining Behavior*, 16, 106–118.
28. Reinartz, W., Thomas, J. S., & Kumar, V. (2005). Balancing acquisition and retention resources to maximize customer profitability. *Journal of Marketing*, 69, 63–79.
29. Heung, V., & Lam, T. (2003). Customer complaint behaviour towards hotel restaurant services. *International Journal of Contemporary Hospitality Management*, 15, 283–289.
30. Ndubisi, N. O., & Ling, T. Y. (2006). Complaint behaviour of Malaysian consumers. *Management Research News*, 29, 65–76.
31. Stauss, B., & Seidel, W. (2010). *Complaint management*. Wiley Online Library.
32. Cho, Y., Im, I., Hiltz, R., & Fjermestad, J. (2001). Causes and outcomes of online customer complaining behavior: Implications for customer relationship management (CRM). In *Proceedings of the 7th americas conference on information systems*, pp. 900–907.
33. Florenthal, B. & Shoham, A. Four-mode channel interactivity concept and channel preferences. *Journal of Services Marketing*, 24, 29–41.
34. Liu, Y., & Shrum, L. (2002). What is interactivity and is it always such a good thing? Implications of definition, person, and situation for the influence of interactivity on advertising effectiveness. *Journal of Advertising*, 31, 53–64.
35. Goodman, J. (2006). Manage complaints to enhance loyalty. *Quality Control and Applied Statistics*, 51, 535.
36. Vos, J. F. J., Huitema, G. B., & de Lange-Ros, E. (2008). How organisations can learn from complaints. *TQM Journal*, 20, 8.
37. Faed, A. (2010). A conceptual model for interactivity, complaint and expectation for CRM,” in *Computer Information Systems and Industrial Management Applications (CISIM)*. International conference on 2010, pp. 314–318.
38. Becker, J. U., Greve, G., & Albers, S. (2009). The impact of technological and organizational implementation of CRM on customer acquisition, maintenance, and retention. *International Journal of Research in Marketing*, 26, 207–215.

39. Hidalgo, P., Manzur, E., Olavarrieta, S., & Farías, P. (2008). Customer retention and price matching: The AFPs case. *Journal of Business Research*, 61, 691–696.
40. Larivière, B., & Van den Poel, D. (2005). Predicting customer retention and profitability by using random forests and regression forests techniques. *Expert Systems with Applications*, 29, 472–484.
41. Avlonitis, G. J., & Panagopoulos, N. G. (2005). Antecedents and consequences of CRM technology acceptance in the sales force. *Industrial Marketing Management*, 34, 355–368.
42. Sánchez-Fernández, R., & Iniesta-Bonillo, M. Á. (2009). Efficiency and quality as economic dimensions of perceived value: Conceptualization, measurement, and effect on satisfaction. *Journal of Retailing and Consumer Services*, 16, 425–433.
43. Chen, P.-T., & Hu, H.-H. (2010). The effect of relational benefits on perceived value in relation to customer loyalty: An empirical study in the Australian coffee outlets industry. *International Journal of Hospitality Management*, 29, 405–412.
44. Hua, H. H., Kandampullyb, J., & Juwaheer T. D. (2009). Relationships and impacts of service quality, perceived value, customer satisfaction, and image: An empirical study. *The Service Industries Journal*, 29(2), 111–125.
45. Faed, A. (2011). Maximizing productivity using CRM within the context of M-Commerce. *International Journal of Information Processing and Management*, 2, 1–9.
46. Korda, A. P., & Snoj, B. (2010). Development, validity and reliability of perceived service quality in retail banking and its relationship with perceived value and customer satisfaction. *Managing Global Transitions*, 8, 187–205.
47. Hu, H.- H., Kandampully, J., & Juwaheer, T. D. (2009). Relationships and impacts of service quality, perceived value, customer satisfaction, and image: An empirical study. *The Service Industries Journal*, 29, 111–125.
48. Georges, L., Eggert, A., & Goala, G. (2010). The impact of Key Account Managers' Communication on Customer-Perceived Value and Satisfaction. URL: <http://www.cr2m.net/membres/ngoala/travaux/pdfs/D-Gilles%20NGoala-Recherche-Article%20AMS%20EMAC%20KAM-KAMcommunication%20emac.pdf>. Quoted, vol. 26.
49. Mithas, S., Krishnan, M. S., & Fornell, C. (2005). Why do customer relationship management applications affect customer satisfaction? *Journal of Marketing*, 69, 201–209.
50. Flint, D. J., Blocker, C. P., & Boutin, P. J., Jr. (2011). Customer value anticipation, customer satisfaction and loyalty: An empirical examination. *Industrial Marketing Management*, 40, 219–230.
51. Caruana, A. (2002). Service loyalty: The effects of service quality and the mediating role of customer satisfaction. *European Journal of Marketing*, 36, 811–828.
52. Minami, C., & Dawson, J. (2008). The CRM process in retail and service sector firms in Japan: Loyalty development and financial return. *Journal of Retailing and Consumer Services*, 15, 375–385.
53. Wang, M. L., & Yang, F. F. (2010). How does CRM create better customer outcomes for small educational institutions? *African Journal of Business Management*, 4, 3541–3549.
54. Gee, R., Coates, G., & Nicholson, M. (2008). Understanding and profitably managing customer loyalty. *Marketing Intelligence & Planning*, 26, 359–374.
55. Faed, A., & Chang, E. (2012) Adaptive Neuro-Fuzzy inference system based approach to examine customer complaint issues. *Presented at the second world conference on soft computing*, Baku, Azerbaijan.
56. Gommans, M., Krishnan, K. S., & Scheffold, K. B. (2001). From brand loyalty to e-loyalty: A conceptual framework. *Journal of Economic and Social research*, 3, 43–58.
57. Kumar, V., & Shah, D. (2004). Building and sustaining profitable customer loyalty for the 21st century. *Journal of Retailing*, 80, 317–329.
58. Anderson, R. E., & Srinivasan, S. S. (2003). E-satisfaction and E-loyalty: A contingency framework. *Psychology and Marketing*, 20, 123–138.
59. Bridson, K., Evans, J., & Hickman, M. (2008). Assessing the relationship between loyalty program attributes, store satisfaction and store loyalty. *Journal of Retailing and Consumer Services*, 15, 364–374.

60. Lee-Kelley, L., Gilbert, D., & Mannicom, R. (2003). How e-CRM can enhance customer loyalty. *Marketing Intelligence & Planning*, 21, 239–248.
61. Reynolds, K. E., & Beatty, S. E. (1999). Customer benefits and company consequences of customer-salesperson relationships in retailing. *Journal of Retailing*, 75, 11–32.
62. Cortiñas, M., Elorz, M., & Múgica, J. M. (2008). The use of loyalty-cards databases: Differences in regular price and discount sensitivity in the brand choice decision between card and non-card holders. *Journal of Retailing and Consumer Services*, 15, 52–62.
63. Reinartz, W., Thomas, J. S., & Kumar, V. (2005). Balancing acquisition and retention resources to maximize customer profitability. *Journal of Marketing*, 69, 63–79.
64. Rowley, J. (2005). The four Cs of customer loyalty. *Marketing Intelligence & Planning*, 23, 574–581.
65. Sharp, B., & Sharp, A. (1997). Loyalty programs and their impact on repeat-purchase loyalty patterns. *International Journal of Research in Marketing*, 14, 473–486.
66. Bridges, E., & Freytag, P. V. (2009). When do firms invest in offensive and/or defensive marketing? *Journal of Business Research*, 62, 745–749.
67. Thomas, J. S. (2001). A methodology for linking customer acquisition to customer retention. *Journal of Marketing Research*, 262–268.
68. Lewis, M. (2006). Customer acquisition promotions and customer asset value. *Journal of Marketing Research*, 43, 195–203.
69. Verhoef, P. C., & Donkers, B. (2005). The effect of acquisition channels on customer loyalty and cross-buying. *Journal of Interactive Marketing*, 19, 31–43.
70. Xu, M., & Walton, J. (2005). Gaining customer knowledge through analytical CRM. *Industrial Management & Data Systems*, 105, 955–971.
71. Azvine, B., Nauck, D., Ho, C., Broszat, K., & Lim, J. (2006). Intelligent process analytics for CRM. *BT technology journal*, 24, 60–69.
72. Öztaysi, B., Kaya, T., & Kahraman, C. (2011). Performance comparison based on customer relationship management using analytic network process. *Expert Systems with Applications*, 38, 9788–9798.
73. Torkzadeh, G., Chang, J. C.-J., & Hansen, G. W. (2006). Identifying issues in customer relationship management at Merck-Medco. *Decision Support Systems*, 42, 1116–1130.
74. Dimitriadis, S., & Stevens, E. (2008). Integrated customer relationship management for service activities: An internal/external gap model. *Managing Service Quality*, 18, 496–511.
75. Phan, D. D., & Vogel, D. R. (2010). A model of customer relationship management and business intelligence systems for catalogue and online retailers. *Information & Management*, 47, 69–77.
76. Eggert, A., & Ulaga, W. (2002). Customer perceived value: A substitute for satisfaction in business markets? *Journal of Business & Industrial Marketing*, 17, 107–118.
77. Yang, Z., & Peterson, R. T. (2004). Customer perceived value, satisfaction, and loyalty: The role of switching costs. *Psychology and Marketing*, 21, 799–822.
78. Roig, J. C. F., Garcia, J. S., Tena, M. A. M., & Monzonis, J. L. (2006). Customer perceived value in banking services. *International Journal of Bank Marketing*, 24, 266–283.
79. Chang, H. H., & Wang, H. W. (2011). The moderating effect of customer perceived value on online shopping behaviour. *Online Information Review*, 35, 333–359.
80. Lai, F., Griffin, M., & Babin, B. J. (2009). How quality, value, image, and satisfaction create loyalty at a Chinese telecom. *Journal of Business Research*, 62, 980–986.
81. Ryu, K., Han, H., & Kim, T. H. (2008). The relationships among overall quick-casual restaurant image, perceived value, customer satisfaction, and behavioral intentions. *International Journal of Hospitality Management*, 27, 459–469.
82. Chang, W. L., & Wu, Y. X. (2011). A framework for CRM E-services: From customer value perspective. *Exploring the Grand Challenges for Next Generation E-Business*, 52, 235–242.
83. Mimouni-Chaabane, A., & Volle, P. (2010). Perceived benefits of loyalty programs: Scale development and implications for relational strategies. *Journal of Business Research*, 63, 32–37.

84. Blocker, C. P., Flint, D. J., Myers, M. B., & Slater, S. F. (2011). Proactive customer orientation and its role for creating customer value in global markets. *Journal of the Academy of Marketing Science*, 39, 216–233.
85. Florenthal, B., & Shoham, A. (2010). Four-mode channel interactivity concept and channel preferences. *Journal of Services Marketing*, 24, 29–41.
86. Yoo, W.-S., Lee, Y., & Park, J. (2010). The role of interactivity in e-tailing: Creating value and increasing satisfaction. *Journal of Retailing and Consumer Services*, 17, 89–96.
87. Bonner, J. M. (2005). The influence of formal controls on customer interactivity in new product development. *Industrial Marketing Management*, 34, 63–69.
88. Kirk, C. P., Chiagouris, L., & Gopalakrishna, P. (2012). Some people just want to read: The roles of age, interactivity, and perceived usefulness of print in the consumption of digital information products. *Journal of Retailing and Consumer Services*, 19, 168–178.
89. Lee, T. M. (2005). The impact of perceptions of interactivity on customer trust and transaction intentions in mobile commerce. *Journal of Electronic Commerce Research*, 6(3), 165–180.
90. Ballantine, P. W. (2005). Effects of interactivity and product information on consumer satisfaction in an online retail setting. *International Journal of Retail & Distribution Management*, 33, 461–471.
91. Liu, Y., & Shrum, L. (2002). What is interactivity and is it always such a good thing? Implications of definition, person, and situation for the influence of interactivity on advertising effectiveness. *Journal of Advertising*, 53–64.
92. Roh, T. H., Ahn, C. K., & Han, I. (2005). The priority factor model for customer relationship management system success. *Expert Systems with Applications*, 28, 641–654.
93. Min, H., & Lambert, T. (2002). Truck driver shortage revisited. *Transportation journal*, 42, 5–16.
94. Lin, H. H., & Wang, Y. S. (2006). An examination of the determinants of customer loyalty in mobile commerce contexts. *Information & Management*, 43, 271–282.
95. Sweeney, J., & Swait, J. (2008). The effects of brand credibility on customer loyalty. *Journal of Retailing and Consumer Services*, 15, 179–193.
96. Ball, D., Coelho, P. S., & Vilares, M. J. (2006). Service personalization and loyalty. *Journal of Services Marketing*, 20, 391–403.
97. Gómez, B. G., Arranz, A. G., & Cillan, J. G. (2006). The role of loyalty programs in behavioral and affective loyalty. *Journal of Consumer Marketing*, 23, 387–396.
98. Leenheer, J., Van Heerde, H. J., Bijmolt, T. H. A., & Smidts, A. (2007). Do loyalty programs really enhance behavioral loyalty? An empirical analysis accounting for self-selecting members. *International Journal of Research in Marketing*, 24, 31–47.
99. Wallenburg, C. (2009). Innovation in logistics outsourcing relationships: Proactive improvement by logistics service providers as a driver of customer loyalty. *Journal of Supply Chain Management*, 45, 75–93.
100. Verhoef, P. C., & Donkers, B. (2005). The effect of acquisition channels on customer loyalty and cross-buying. *Journal of Interactive Marketing*, 19, 31–43.
101. Oztaysi, B., Kaya, T., & Kahraman, C. (2011). Performance comparison based on customer relationship management using analytic network process. *Expert Systems with Applications*, 38, 9788–9798.
102. Schweidel, D. A., Fader, P. S., & Bradlow, E. T. (2008). A bivariate timing model of customer acquisition and retention. *Marketing Science*, 27, 829–843.
103. Arnold, T. J., Fang, E., & Palmatier, R. W. (2011). The effects of customer acquisition and retention orientations on a firm's radical and incremental innovation performance. *Journal of the Academy of Marketing Science*, 39, 234–251.
104. Villanueva, J., Yoo, S., & Hanssens, D. M. (2008). The impact of marketing-induced versus word-of-mouth customer acquisition on customer equity growth. *Journal of Marketing Research*, 45, 48–59.

105. Bougie, R., Pieters, R., & Zeelenberg, M. (2003). Angry customers don't come back, they get back: The experience and behavioral implications of anger and dissatisfaction in services. *Journal of the Academy of Marketing Science*, 31, 377–393.
106. Richins, M. L. (1983). Negative word-of-mouth by dissatisfied consumers: A pilot study. *The Journal of Marketing*, 68–78.
107. M. Jarrar, R. Verlinden, and R. Meersman (2003). Ontology-based customer complaint management. In *On the move to meaningful internet systems 2003: OTM 2003 workshops* (pp. 594–606). Berlin Heidelberg, Springer.
108. Hulten, P. (2011). A Lindblomian perspective on customer complaint management policies. *Journal of Business Research*, 65, 788–793.
109. Homburg, C., & Fürst, A. (2005). How organizational complaint handling drives customer loyalty: An analysis of the mechanistic and the organic approach. *Journal of Marketing*, 69, 95–114.
110. Stauss, B. (2002). The dimensions of complaint satisfaction: Process and outcome complaint satisfaction versus cold fact and warm act complaint satisfaction. *Managing Service Quality*, 12, 173–183.
111. Ro, H., & Wong, J. (2012). Customer opportunistic complaints management: A critical incident approach. *International Journal of Hospitality Management*, 31, 419–427.
112. Karatepe, O. M. (2006). Customer complaints and organizational responses: The effects of complainants' perceptions of justice on satisfaction and loyalty. *International Journal of Hospitality Management*, 25, 69–90.
113. Davidow, M. (2003). Organizational responses to customer complaints: What works and what doesn't. *Journal of Service Research*, 5, 225–250.
114. Luo, X., & Homburg, C. (2007). Neglected outcomes of customer satisfaction. *Journal of Marketing*, 71, 133–149.
115. Kwong, C. K., Wong, T. C., & Chan, K. Y. (2009). A methodology of generating customer satisfaction models for new product development using a neuro-fuzzy approach. *Expert Systems with Applications*, 36, 11262–11270.
116. Briggs, E., Landry, T. D., & Daugherty, P. J. (2010). Investigating the influence of velocity performance on satisfaction with third party logistics service. *Industrial Marketing Management*, 39, 640–649.
117. Sivasdas, E., & Baker-Prewitt, J. L. (2000). An examination of the relationship between service quality, customer satisfaction, and store loyalty. *International Journal of Retail & Distribution Management*, 28, 73–82.
118. Steven, A. B., Dong, Y., & Dresner, M. (2012). Linkages between customer service, customer satisfaction and performance in the airline industry: Investigation of non-linearities and moderating effects. *Transportation Research Part E: Logistics and Transportation Review*, 48, 743–754.
119. Bayraktar, E., Tatoglu, E., Turkyilmaz, A., Delen, D., & Zaim, S. (2012). Measuring the efficiency of customer satisfaction and loyalty for mobile phone brands with DEA. *Expert Systems with Applications*, 39, 99–106.
120. Edvardsson, B., Gustafsson, A., & Roos, L. U. (2010). Improving the prerequisites for customer satisfaction and performance: A study of policy deployment in a global truck company. *International Journal of Quality and Service Sciences*, 2, 239–258.
121. Tahiri, F., Osman, M. R., Ali, A., Yusuff, R. M., & Esfandiary, A. (2008). AHP approach for supplier evaluation and selection in a steel manufacturing company. *Journal of Industrial Engineering and Management*, 1, 54–76.
122. Moshref Javadi, M. H., & Azmoon, Z. (2011). Ranking branches of system group company in Terms of acceptance preparation of electronic customer relationship management using AHP method. *Procedia Computer Science*, 3, 1243–1248.
123. Bayazit, O. (2005). Use of AHP in decision-making for flexible manufacturing systems. *Journal of Manufacturing Technology Management*, 16, 808–819.
124. Wang, Y.-J. (2010). A clustering method based on fuzzy equivalence relation for customer relationship management. *Expert Systems with Applications*, 37, 6421–6428.

125. Lin, J., & Lee, M.-C. (2004). An object-oriented analysis method for customer relationship management information systems. *Information and Software Technology*, 46, 433–443.
126. Anderson, J. L., Jolly, L. D., & Fairhurst, A. E. (2007). Customer relationship management in retailing: A content analysis of retail trade journals. *Journal of Retailing and Consumer Services*, 14, 394–399.
127. Bowen, J. T., & Sparks, B. A. (1998). Hospitality marketing research: A content analysis and implications for future research. *International Journal of Hospitality Management*, 17, 125–144.
128. McDonald, W. J. (1994). Developing international direct marketing strategies with a consumer decision-making content analysis. *Journal of Direct Marketing*, 8, 18–27.
129. Gebauer, J., Tang, Y., & Baimai, C. (2007). *User requirements of mobile technology—Results from a content analysis of user reviews*, Champaign: University of Illinois at Urbana-Champaign.
130. McAlister, D. T., & Erffmeyer, R. C. (2003). A content analysis of outcomes and responsibilities for consumer complaints to third-party organizations. *Journal of Business Research*, 56, 341–351.
131. Atkins, C., & Sampson, J. (2002). Critical appraisal guidelines for single case study research. In *Proceedings of the European Conference on Information Systems, June* (pp. 6–8).
132. Lemon, K. N., White, T. B., & Winer, R. S. (2002). Dynamic customer relationship management: Incorporating future considerations into the service retention decision. *The Journal of Marketing*, 1–14.
133. Nambisan, S., & Baron, R. A. (2007). Interactions in virtual customer environments: Implications for product support and customer relationship management. *Journal of Interactive Marketing*, 21, 42–62.
134. Limayem, M., & Cheung, C. M. K. (2008). Understanding information systems continuance: The case of Internet-based learning technologies. *Information & Management*, 45, 227–232.
135. Ko, E., Kim, S. H., Kim, M., & Woo, J. Y. (2008). Organizational characteristics and the CRM adoption process. *Journal of Business Research*, 61, 65–74.
136. Krasnikov, A., Jayachandran, S., & Kumar, V. (2009). The impact of customer relationship management implementation on cost and profit efficiencies: Evidence from the US commercial banking industry. *Journal of Marketing*, 73, 61–76.
137. Stein, A., & Smith, M. (2009). CRM systems and organizational learning: An exploration of the relationship between CRM effectiveness and the customer information orientation of the firm in industrial markets. *Industrial Marketing Management*, 38, 198–206.
138. Rygielski, C., Wang, J. C., & Yen, D. C. (2002). Data mining techniques for customer relationship management. *Technology in Society*, 24, 483–502.
139. Choy, K. L., Lee, W. B., & Lo, V. (2002). Development of a case based intelligent customer-supplier relationship management system. *Expert Systems with Applications*, 23, 281–297.
140. Business-Software. (2012). TOP 40 CRM Software Vendors. Available: <http://www.business-software.com/crm/crm.php>.
141. Business-Software. (2010). TOP 40 CRM Software vendors revealed. 100. Available: <http://www.business-software.com/top-40-crm-vendors.php>.
142. Integrity, Q. (2009). Sage SalesLogix vs. Salesforce.com. Available: http://www.qualityintegrity.com/compare_saleslogix_vs_salesforce.asp.
143. N. R. Inc. (2007). Guidebook, Oracle's Siebel CRM on demand. Available: http://crmondemand.oracle.com/ocom/groups/public/@crmondemand/documents/webcontent/6071_en.pdf.
144. M. Software. (2009). Maximizer CRM Central. Available: <http://www.maximizercrmcentral.com/forums/p/183/490.aspx>.
145. SiteGround. (2009). What is Vtiger. Available: <http://www.siteground.com/tutorials/vtiger/>.
146. S. Software. (2007). SageCRM Customer Care. Available: <http://www.sagecrmsolutions.com/assets/Collateral/SageCRM CustSupprtLo.pdf>.

147. U. S. Inc. (2007). Sage CRM—What it Can and Cannot Do—Part 1. Available: <http://blog.unisoft.net/category/sage-crm/>.
148. M. Dynamics. (2009). Microsoft Dynamics CRM. Available: <http://crm.dynamics.com/solutions/crm-solutions-overview.aspx>.
149. Faed, A., Wu, C., & Chang, E. (2010) Intelligent CRM on the Cloud. In *Network-Based Information Systems (NBIS), 2010 13th International Conference on 2010*, pp. 216–223.
150. H. V. LLC. (2009). VTiger Summary. Available: <http://www.seekdotnet.com/vtigerhosting.aspx>.
151. D. CRM. (2011). Daffodil. Available: <http://crm.daffodilsw.com/>.
152. Galitsky, B. A., González, M. P., & Chesñevar, C. I. (2009). A novel approach for classifying customer complaints through graphs similarities in argumentative dialogues. *Decision Support Systems*, 46, 717–729.
153. Atalik, Ö. (2007). Customer complaints about airline service: A preliminary study of Turkish frequent flyers. *Management Research News*, 30, 409–419.
154. Ferguson, J. L., & Johnston, W. J. (2011). Customer response to dissatisfaction: A synthesis of literature and conceptual framework. *Industrial Marketing Management*, 40, 118–127.
155. Bennett, R., & Savani, S. (2011). Complaints-handling procedures of human services charities: Prevalence, antecedents, and outcomes of strategic approaches. *Managing Service Quality*, 21, 484–510.
156. Kaltcheva, V. D., Winsor, R. D., & Parasuraman, A. (2013). Do customer relationships mitigate or amplify failure responses? *Journal of Business Research*, 66, 525–532.
157. Coussement, K., & Van den Poel, D. (2008). Improving customer complaint management by automatic email classification using linguistic style features as predictors. *Decision Support Systems*, 44, 870–882.
158. Galitsky, B. A., González, M. P., & Chesñevar, C. I. (2009). A novel approach for classifying customer complaints through graphs similarities in argumentative dialogues. *Decision Support Systems*, 46, 717–729.

An Intelligent Customer Complaint Management System
with Application to the Transport and Logistics Industry
Faed, A.

2013, XXII, 349 p., Hardcover

ISBN: 978-3-319-00323-8