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MIDDLE EAST UNIVERSITY

The Effect of Information Technology (IT) Capabilities and Customer Relationship Management (CRM) on Marketing Performance

An Empirical Study on Commercial Jordanian banks in Amman

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AUTHORIZATION

I, Mariam Sobol, do authorize Middle East University to provide a hard or electronic copy of my thesis to Libraries or organizations or Institutions that are concerned in researches and scientific studies once they request.

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DEDICATION

To my father and mother for their endless love, support and encouragement

No words can make me express my gratitude and love

To my brothers and sisters

To my best friends in MEU

To my dream and hope

To the souls of martyrs of freedom everywhere

ACKNOWLEDGEMENT

All the praises and thanks be to Allah, the Lord of all worlds and existance, the most Gracious and the most Merciful.

To my parents for their love and support throughout my life. Thank you both for giving me strength to reach my dreams. My sisters and brothers especially Raed, Ashraf, Abdulhamid and Noor who deserve my wholehearted thanks as well.

Iwould like to sincerely thank my supervisor Dr. Laith Al-Rubaiee for his guidance and support throughout this study.

To all my friends, thank you for your understanding and encouragement in my many moments of crisis.

This thesis is only a beginning of my journey.

To each of the above, I extend my deepest appreciation.

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ABSTRACT

This study aimed to measure The Effect of Information Technology (IT) Capabilities and Customer Relationship Management (CRM) on Marketing Performance _ An Empirical Study on Commercial Jordanian banks in Amman .

The study sample included general and branch managers that were working in Commercial Jordanian banks in Amman that apply IT on CRM performance (150) Questionnaires were distributed to them, but (131) questionnaires were recovered and only (117) questionnaires were suitable for statistical analysis with a rate of (78%).

The study contains five chapters. The first chapter reviews problem , goals , importance , hypotheses of study .The second chapter includes the previous studies in the same area .The third chapter containes the methodology , population , sample , tools , and variables study. The fourth chapter shows the statistical analysis results within testing of hypotheses. The fifth chapter discusses the results and recommendations which the researcher suggests.

Two software packages are used in statistical analysis; SPSS (statistical package for social sciences) for test direct effects and Amos – 7 for indirect effect.

The study results show that there is significant positive direct effect of CRM on marketing performance and indirect significant positive effect of IT capabilities on marketing performance.

الملخص

تهدف هذه الدراسة لقياش تأثير قدرات تكنولوجيا المعلومات (IT) وإدارة علاقات الزبائن (CRM)على الأداء التسويقي _ دراسة تطبيقية على البنوك التجارية في عمان، وشملت الدراسة عينة عامة ومديري الفروع والعاملين في البنوك التجارية في الأردن (عمان) لقياس تطبيق تكنولوجيا المعلومات على أداء إدارة علاقات الزبائن، وزع (150) استبيان لهم، وتم اختيار (131) استبيان وكان من بينها (117) مناسبة للتحليل الإحصائي مع معدل (78%) وتحتوي الدراسة على خمسة فصول. الفصل الأول يستعرض المشكلة والأهداف والأهمية وفرضيات الدراسة. الفصل الثاني يشمل الدراسات السابقة. الفصل الثالث يحوي المنهجية المستخدمة في البحث. الفصل الرابع يعرض نتائج التحليل الإحصائي في اختبار الفرضيات وأخيرا الفصل الخامس مناقشة النتائج والتوصيات وبينت نتائج الدراسة أن هناك تأثيرات إيجابية مهمة مباشرة الأثر على أداء إدارة علاقات الزبائن والتسويق وغير المباشر الأثر على قدرات تكنولوجيا المعلومات على أداء التسويق.

Chapter One

Study

General Framework

1.1 Introduction

1.2 Study Problem and Questions

1.3 Objective of Study

1.4 The Significance of the Study

1.5 Study Hypotheses

1.6 Study Model

1.7 Study Delimitations

1.8 Study Limitations

1.9 Terminologies of the Study

(1-1): Introduction

Today, many businesses such as banks, insurance companies, and other service providers realize the importance of Customer Relationship Management (CRM) and its potential to help them acquire new customers, retain existing ones and maximize their lifetime value. At this point, a close relationship with customers will require strong coordination between IT and marketing departments to provide a long-term retention of selected customers. This research deals with the role of IT Capabilities and customer relationship management in the banking sector and the need for customer relationship management to increase customer value by using the number of implemented customer relationship management systems generally in the form of IT of databases and communication systems. These had grown and become a top priority for companies and very affective on the performance of the companies so they can compete in today's highly changeable economy and market. They've become a key strategic tool for all companies. (Mangale, Chavan & Randive 2011).

Despite this, little is known about the factors of successful CRM implementations and the role of information technology in this context. Many

companies have integrated customer relationship management (CRM) technology into their marketing processes to improve their performance by enabling users to extract relevant and timely information out of it, leading to superior CRM performance. CRM technology integrates a firm's marketing activities (e.g. segmentation, targeting, product development, sales, service, order management, market research, and analytics) and automated all aspects of a firm's relationships with its customers to focus on acquisition, retention, and profitability (Rigby & Ledingham, 2004).

(1-2): Study Problem and Questions

Banking has been a pioneer in adopting CRM, but not so much empirical data is available on the benefit of IT capabilities and CRM together and their impact on the Marketing performance of the banks that is why this study addresses the topic.

Considering the discussion above this study is to gain a better understanding of the benefits of CRM and IT capabilities together and their impact on marketing performance in the banking industry.

To justify the purpose, the following questions are addressed:

1. To what extent do IT capabilities effect on Marketing Performance in Jordanian commercial banks?

2. To what extent do IT capabilities effect on Customer Relationship Management in Jordanian commercial banks?

3. To what extent does Customer Relationship Management effect on Marketing Performance in Jordanian commercial banks?

4. Is there a role to Customer Relationship Management in improving the effect of IT capabilities on Marketing Performance in Jordanian commercial banks

(1-3): Objectives of the Study

The main objective of the current study is to conceptualize and operationalize the aspects that are related to CRM and IT capabilities and their impact on the marketing performance of the Jordanian commercial banks in Amman through achieving the following objectives:

1. To determine the effect of IT capabilities on Marketing Performance in Jordanian commercial banks.

2. To explore the effect of IT capabilities on Customer Relationship Management in Jordanian commercial banks.

3. To test the effect of Customer Relationship Management on Marketing Performance in Jordanian commercial banks.
4. To investigate the mediating effect of CRM in the relationship between IT capabilities and Marketing Performance in Jordanian commercial banks.

(1-4): Significance of the Study

The significance of the study is to develop the service industry and Jordanian banks' performance and enhance the loyalty of customers through achieving higher levels of satisfaction and, therefore, increasing increases customer satisfaction for its services. The study is a preliminary step to encourage researchers to undertake further studies which show the importance of customer relationship management. The results of the current study lead to subsequent more studies useful to development banks performance after the image has been well demonstrated.

(1-5): Study Hypotheses

Based on the study problems and the literature review, the following research hypotheses will be examined:

H_1: There is a positive direct effect of IT capabilities on Marketing Performance (Sales Growth ; Market Share) in Jordanian commercial banks at level ($\alpha \leq 0.05$).

H_2: There is a positive direct effect of IT capabilities on Customer Relationship Management in Jordanian commercial banks at level ($\alpha \leq 0.05$).

H_3: There is a positive direct effect of Customer Relationship Management on Marketing Performance (Sales Growth ; Market Share) in Jordanian commercial banks at level ($\alpha \leq 0.05$).

.H_4: There is a Positive indirect effect of IT capabilities on Marketing Performance (Sales Growth ; Market Share) through CRM as mediator at level ($\alpha \leq 0.05$). **Derived from:**

.$H_{4\text{-}1}$: There is a Positive indirect effect of IT capabilities on Sales Growth through CRM as mediator at level ($\alpha \leq 0.05$).

.$H_{4\text{-}2}$: There is a Positive indirect effect of IT capabilities on Market Share through CRM as mediator at level ($\alpha \leq 0.05$).

(1-6): Study Model

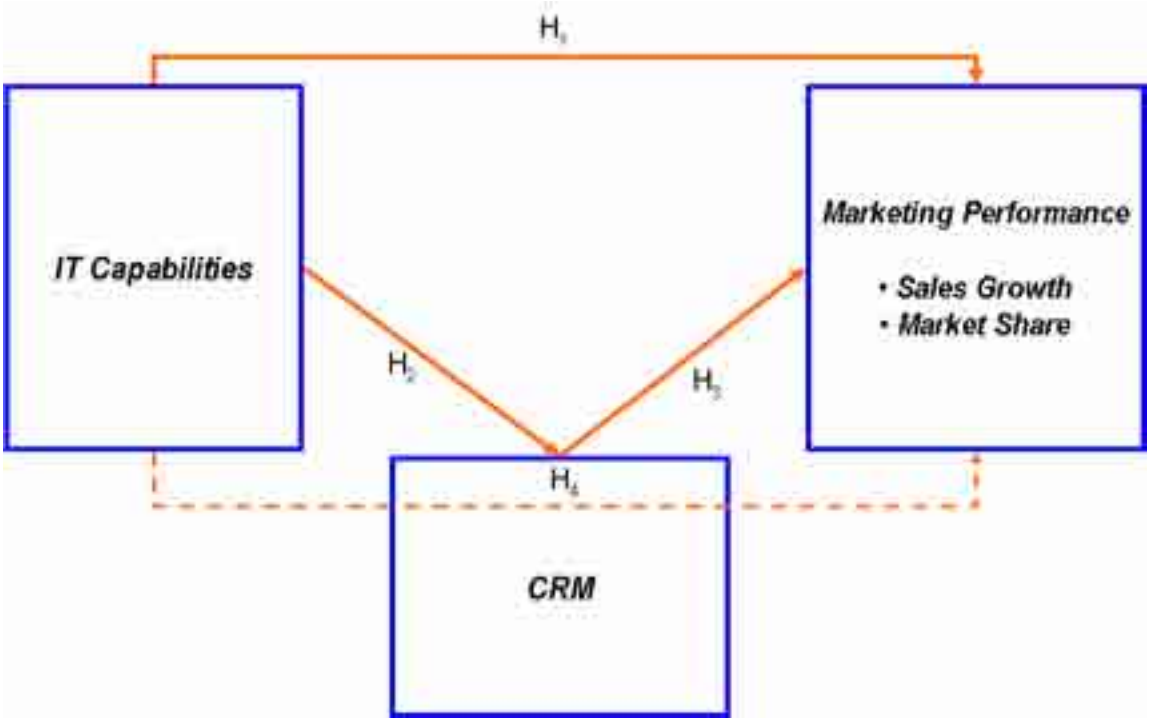


Figure (1-1)

Study Model developed by author

(1-7): Study Delimitations

The study scope deals with the following:

Human Limitations: the managers working in the Jordanian commercial banks (Amman) whom occupied these positions (General Managers and branch managers).

Place Limitations: Jordanian commercial banks in Amman.

Time Limitations: the time absorbed to study accomplishment.

Scientific Limitations: The researcher depends on Information Technology that is suggested by Byrd & Turner (2000: 167 – 208). However, in the Customer Relationship Management, the researcher depends on (Jayachandran, et..al, 2005: 177-192; Hanvanich, et..al, 2003: 124-135 & Rosenbaum, et..al, 2005: 222-233). Finally, in the Marketing Performance, the researcher depends on (O'Sullivan & Abela, 2007 ; O'Sullivan, et..al, 2009).

(1-8): Study Limitations

1. Implementing the study on the Jordanian commercial banks in Amman.
2. The study is limited to the General, Executive, department and branch managers in Jordanian commercial banks in Amman.

(1-9): Study Terminologies

Customer Relationship Management (CRM): a combination of business process and technology that seeks to understand a company's customers from the perspective of who they are, what they do, and what they're like. (Ryals & knox, 2001: 3)

Information technology capabilities (IT): is the ability to easily and readily diffuse or support a wide variety of hardware, software, communications technologies, data, core applications, skills and competencies, commitments, and values within the technical physical base and the human component of the existing IT infrastructure (Byrd & Turner, 2000: 172).

Marketing Performance: is the assessment of the relationship between marketing activities and business performance (O'Sullivan, et..al, 2009: 844).

Market Share: is the percentage of a market (defined in terms of either units or revenue) accounted for by a specific entity. This is a key indicator of market competitiveness - that is, how well a firm is doing against its competitors? (Farris, et..al, 2010)

Chapter 2

Theoretical Framework and Previous Studies

2.1 Information Technology Capabilities

2.2 Customer Relationship Management

2.3 Marketing Performance

2.4 Previous Studies

(2-1): Information Technology Capabilities

Advances in information technology have considerably bolstered the institutionalization of relationship marketing (Payne & frow 2005, Winer 2001) the most visible and prolific technological manifestation of this institutionalization is in customer relationship management (CRM) software applications (Reinartz, et al, 2004).

Information technology (IT) is the general term that describes any technology that helps to produce, manipulate process, store, communicate, and\or disseminate information" (William Sawyar 2005).

Less attention has been paid to the degree of usage of information technology in the context of CRM (Jayachandran, et al, 2005). Technology usage is regarded a key driver of organizational success (Devaraj and Kholi 2003, Mahmood, Hall and Swanberg 2001) The usage of CRM technology results in performance impacts only when the CRM systems are suitable for the assumed task.

Shelly, et al, (2004) say that IT includes hardware, software, databases, networks and other related components which are used to build information systems.

At the enterprise level, many researchers have defined capabilities as broadly referring to the entire gamut of skills, entrepreneurial, managerial, and

technical, that are needed to establish and operate firms internally. Bone and Saxon (2000) defined capability as “the combination of the right people with the right skills, using the correct plant and equipment through effective business processes, and thereby delivering the company’s strategic intent," (Bone & Saxon,2000: 52). Capabilities of one enterprise cannot typically be repeated at another enterprise because they cannot be explicitly defined and codified. More specifically, organizational capabilities are a set of skills, routines, and complementary assets. They are partly tacit and non formalized, based on procedural knowledge and they are not easily transferable (Nelson, 1991).

Capabilities involve not only the ability to internally produce efficiently, but also to have a degree of knowledge of the various components of activity such as capability to increase productivity, an understanding of the process and product design, the ability to setup production facilities efficiently and to keep up with information technological changes (Stalk, et..al, 1994). A capability is a lower-order functional, operational, or technical capacity that may be further subdivided into specific (individual) skills or specialized capabilities (Foss & Christensen, 1996).

A capability has several attributes, namely, speed; process consistency, agility, cross-functionality, and complements core competencies (Stalk, et..al, 1994).

Although there is no one formula for developing capabilities, Feeny and Willcocks (1998), suggested that nine capabilities form the foundation of a firm. These included: leadership, business-systems-thinking, relationship building, architecture planning, contract facilitation, making information technology work, contact monitoring, informed buying, and vendor development.

Capabilities involve the know-how of all the processes, meaning, and the minimal necessary routine to make work a productive process (Byrd, 2001). This routine is constantly improved through the learning process. The permanent exchanges between the organization and its external environment bring new types of know how, innovating the product, the process, or the organization management. This ability to make things work in a different way can be understood as the internal company's capability of innovation, that is, the technological capability of the organization. These internal capabilities are unique to each company. Therefore, they change according to the organization (Duysters & Hadedoorn, 2000).

Drawing on the resource-based view, Mata, Fuerst, and Barney (1995) investigated the potential of several IT resources (access to capital for IT investments, proprietary technology, technical IT skills, and managerial IT skills) to generate sustainable competitive advantage. They concluded that only managerial IT skills can be a source of sustainable competitive advantage because, unlike other IT resources, they are not subject to easy imitation.

Managerial IT skills or knowledge represent the fusion of IT-related and business-related knowledge possessed by and exchanged among IT managers and business unit or line managers (Mata et al., 1995).

IT capabilities (hardware, software, executive systems, proprietary software, shared services, IT human skills, and processes) are integrated and interrelated capabilities of internally consistent elements that are focused toward the fulfillment of an IT or business objective (King, 2002). Without such focus on an IT capability, the firm may make expenditures in a fragmented manner. King's (2002) research results have demonstrated that the primary mechanisms through which IT capabilities impact overall business performance are through internal business process efficiency and streamlining. The continued emphasis on business processes as real targets for IT investment and IT capability innovation should incorporate the notion of real options. That is, the idea that in making an IT investment today, the immediate benefit may not be realized until the future.

The focus on IT capabilities and the influence they exert through business processes leads to management realizing a need for focused IT capabilities investment (Prahalad & Hamel, 1990). These IT capabilities can be extended and manifested as an IT competency to a customer. For example, using Enterprise Application Software, IT can integrate major systems internally and then this capability can be used to integrate customers (with a firms order management system).

A firm's internal resources and IT capabilities must also be examined relative to the value, rareness, and imitability of these resources and IT capabilities. In the process of auditing the internal resources and capabilities (Barney, 1991), an organization must assess if these internal capabilities are to become drivers of competitive advantages (Prahalad & Hamel, 1990). A firm's competitive advantage potential depends on the value, rareness, and imitability of its internal resources and capabilities. However, to fully realize this potential, a firm must also be organized to exploit its internal resources and capabilities.

The phrase "IT capability" describes different aspects of an organization's base of IT resources. These resources influence and determine the organization's ability to convert IT assets and services into strategic applications (Bharadwaj 2000), and to mobilize and deploy IT based resources with other resources and capabilities. There are five dimensions of IT capability.

1. **IT Infrastructure:** This includes physical IT assets in terms of hardware, software and networks (Broadbent, et..al, 1999) on which systems are built. It provides the technical basis for carrying out IT based product and process innovation. Infrastructure also includes the extent to which the assets are integrated (Bharadwaj, 2000).
2. **IT Human Resources:** These include technical and managerial skills of IS employees, such as programming, systems analysis, network administration,

database management, project management, co-ordination and leadership, interaction with use community and effective management of IS functions (Copeland & McKenny, 1988). These skills are highly firm specific and difficult to imitate - hence they serve as a source of competitive advantage. (Fuerst & Barney 1995).

3. **IT-related Intangible Resources:** Sustained use of IT can lead to the creation of various intangible benefits, which can serve as the basis for additional capabilities. For example, the effective use of CRM systems for tracking customer preferences can increase the customer orientation of the firm (Bharadwaj 2000). Similarly, the use of knowledge management technologies can help in knowledge formalization, consolidation and dissemination. This can lead to the creation of inimitable knowledge assets (Quinn & Bailey 1994). IT- enabled sharing of resources can increase the flexibility of different organizational units by eliminating temporal and spatial limitations to communications. IT enabled business process integration with partners can similarly result in close relationships and help in collaborative commerce (Bharadwaj, et..al 1999).

4. **IT Coordination:** Mulligan (2002) recognizes IT coordination as an independent construct in the measurement of IT capability. Coordination runs the continuum from a low level, in which transaction processing systems within different functions are independent, to a second level, in which data flows across functions, to a third level described by processing

interdependence, work flow, and the use of IT for integrated activities such as CRM.

5. **IT Governance:** Governance describes the authority, control, and audit in the allocation and delivery of IT resources and services. The existence of IT governance systems has been shown to affect firm profitability and strongly influences the value that an organization generates from IT (Weill & Ross, 2004).

Extending prior research, we conceptualize IT capability as a latent construct reflected in three dimensions: IT infrastructure capability (the technological foundation), IT business spanning capability (business–IT strategic thinking and partnership), and IT proactive stance (opportunity orientation). IT infrastructure capability is a firm's ability to deploy shareable platforms — a capability that captures the extent to which the firm is good at managing data management services and architectures, network communication services, and application portfolio and services (Weill, et..al, 2002).

IT business spanning capability is the ability of a firm's management to envision and exploit IT resources to support and enhance business objectives— a capability that reflects the extent to which the firm develops a clear IT strategic vision, integrates business and IT strategic planning, and enables management's ability to understand the value of IT investments (Wade and Hulland, 2004).

IT proactive stance is a firm's ability to proactively search for ways to embrace IT innovations or exploit existing IT resources to create business opportunities — a stance that measures the extent to which the firm strives to be always current with IT innovations, continues to experiment with new IT as necessary, constantly seeks new ways to enhance its effectiveness of IT use, and fosters a climate that is supportive of trying out new ways of using IT (Galliers, 2007).

(2-2): Customer Relationship Management

An exploration of some of the more common definitions of CRM will illuminate the ways that these multiple definitions have slowed progress in measuring CRM investments. To simplify the discussion, current definitions will be classified into one of two categories: strategic or operational. This bifurcation of definitions is similar to that of Leigh and Tanner (2004) who suggest that CRM is either analytical or operational.

In this Thesis, I making a distinction between strategic and operational definitions. First, CRM is often defined as a form of relationship strategy. Considered from a top-management perspective, The Sales Educators (2006, p. 93) define strategic CRM as "the process that identifies customers, creates customer knowledge, builds customer relationships, and shapes customers' perceptions of the firm and its products/ solutions". Determining how a firm will relate to its customers via channels, messages, products and services is also thought of as strategic CRM. "A comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer" is one strategic definition offered by Parvatiyar and Sheth (2001, p. 5)

However, Parvatiyar and Sheth continue by explaining that CRM involves the integration of marketing, sales, customer service, and the supply-chain functions of the organization to achieve greater efficiencies and effectiveness in delivering value. This extension to the definition is similar to the way that The Sales Educators define a more process-oriented view of CRM later in their book. These dualistic definitions indicate that strategic definitions and operational definitions may be closely related. This relationship is further born out in a practitioner's definition: CRM aligns business processes with customer strategies

to build customer loyalty and increase profits over time (Rigby, Reichheld, & Schefter, 2002).

The second category of CRM definition is more process oriented and less strategic than the first. These non-strategic definitions, or operational definitions, are more closely related to the processes and technologies associated with enabling better customer relationships. Bain and Company executives have offered this explanation in a recent Harvard Business Review article, "CRM allows companies to gather customer data swiftly, identify the most valuable customers over time, and increase customer loyalty by providing customized products and services" (Rigby et al., 2002, p. 101). To add to the confusion, some of the earlier process definitions were very narrow in scope relating CRM to database marketing by emphasizing the promotional aspects of marketing linked to database efforts (Bickert, 1992).Winer (2001) builds on this notion that CRM is ill defined. He states,

More recently, Reinartz, Krafft, and Hoyer (2004: 294) conceptualized CRM at the customer-facing level. Based on their view that CRM is process related, they also posit that there are three customer relationship stages: initiation, maintenance, and termination that impact the CRM process. Following this they define CRM as, "A systematic process to manage customer relationship initiation, maintenance, and termination across all customer contact points in order to maximize the value of the relationship portfolio".

Early CRM researchers had hypothesized that CRM benefits varied by industry as the processes and technologies associated with CRM were tailored to specific industry structures (Rust, Lemon, Zeithaml, 2001). However, findings in a recent cross-cultural, multi-industry study of CRM done by Reinartz et al. (2004) support the notion that desired CRM benefits do not vary greatly across industries or countries, as had earlier been thought. This later finding lends support to the

idea that core benefits associated with CRM initiatives exist across contexts. It is this set of core benefits that we will identify and use to build our model linking CRM benefits to the three components of CE: relationship, value and brand equity. We will position each desired benefit as a value driver for CRM. These value drivers represent the activities associated with the goal of improving customer relationships.

The following lists of desired CRM benefits were collected and summarized froman extensive survey of recent CRM studies. Each benefit was selected based on two criteria. First, for a benefit to be considered a core benefit it must be cited multiple times by different authors. This suggests that the benefit is sought across many types of CRM implementations. Second, the benefit must be conceptually consistent with our definition of CRM, which includes both software and process changes intended to support the development of important customer relationships based on a firm's strategy. Table 1 provides a summary of the sources of each of these benefits from the relevant literature.

During the identification of the benefits, careful attention was paid to both novel and common benefits across the literature. For example, improving sales force efficiency and effectiveness is listed in fewer studies related to CRM, but has strong connections in sales force automation (SFA) studies which is a subset of CRM (Jones, Sundaram, & Chin, 2002). One potential CRM benefit that did not make the list includes improved employee motivation (Rigby et al., 2002). This benefit was mentioned in only one study and therefore fails to achieve critical

mass for inclusion in a list of core/foundational benefits. Our goal in creating this list was to capture the core benefits of CRM initiatives that represent CRM benefits in a fairly comprehensive way capturing both the revenue generation (e.g., improved sales performance) and cost saving (e.g., integrated across channels) attempts often associated with investments in customer relationships. Given the close conceptual alignment of CRM and CE noted above, we will use these core benefits as value drivers that managers employ to create CE across their customer relationships.

Table
Summary of CRM benefits and indications of their support of the value drivers

Authors/date	Value drivers						Core CRM benefits
	Target	Integrate	Sales	Customize	Customer service	Pricing	
Buttle (2004)					*	*	• Reduces cost to serve • Increases revenue • Increases customer satisfaction and loyalty
Chen and Popovich (2003)	*	*	*		*		• Increases data sharing across selling organization • Improves customer service • Improves cross-selling/up-selling • Improves customer targeting • Enables better personalization of marketing messages • Provides better self-service options for customers • Improves buyer–seller integration
Croteau and Li (2003)			*	*	*		• Enables customization of products and services • Provides customers a “one-to-one” experience • Improves sales force efficiency and effectiveness • Enables customized marketing plan for each customer
Eggert, Ulaga, and Schultz (2006)		*			*	*	• Improves support for product development • Increases supply-chain efficiencies via personal contact • Enhances supplier know-how
Jones, Brown, Zoltners, and Weitz (2005)			*	*	*		• Improves customization of services and product offerings • Enhances ability to create long-term partnerships • Improves salesperson efficiency and effectiveness
Jones, Stevens, and Chonko (2005)	*	*		*	*		• Improves ability to find, obtain and keep customers • Increases salesperson efficiency • Assists in gathering competitive intelligence • Coordinates communication • Enables salespeople to have a lifetime value perspective

Table 1

Summary of CRM benefits and indications of their support of the value drivers

Authors/date	Value drivers						Core CRM benefits
	Target	Integrate	Sales	Customize	Customer service	Pricing	
Jones, Sundaram and Chin (2002)		*			*	*	• Improves sales force efficiency and effectiveness • Improves pricing • Reduces cost-to-serve
Leigh and Tanner (2004)		*	*				• Improves sales force effectiveness and efficiency • Enables knowledge management • Improves knowledge sharing within the selling firm
Park and Kim (2003)				*	*	*	• Simplifies customer support • Reduces cost-to-serve • Improves product differentiation • Improves pricing
Parvatiyar and Sheth (2000, 2001)	*	*		*		*	• Improves customer segmentation • Enables key account management and business development • Improves customer loyalty • Improves cross-selling/up-selling • Enables co-branding, joint-marketing and strategic alliances
Reinartz, Krafft and Hoyer (2004)	*				*	*	• Improves pricing • Enables segmentation based on economic value of customer • Improves resource allocation to accounts
Rigby, Reichheld and Schefter (2002)	*			*	*		• Improves customer acquisition and retention efforts • Enhances ability to offer right products and services to right customer • Enables companies to pursue “best processes” • Motivates employees to foster customer relationships

Table 1
Summary of CRM benefits and indications of their support of the value drivers

Authors/date	Value drivers						Core CRM benefits
	Target	Integrate	Sales	Customize	Customer service	Pricing	
Rigby and Ledingham (2004)	*	*	*	*			• Improves information sharing within the selling company • Automates all aspects of customer relationship cycle (development of offering, sales, superior experience, retention and win-back, and targeting and marketing)
Rivers and Dart (1999)			*			*	• Reduces administrative duties • Improves sales effectiveness • Improves pricing
Sabri (2003)			*	*			• Enables personalized products and services • Improves sales force efficiency • Enhances product development
Sheth, Sisodia and Sharma (2000)				*		*	• Improves customization of marketing efforts to individual customers • Enhances ability to understand costs
Sheth and Sharma (2001)				*		*	Improves the financial efficiency of marketing efforts
Spekman and Carraway (2006)	*						• Enhances decision making • Improves supply-chain planning and integration
Tanner, Ahearne, Leigh, Mason, and Moncrief (2005)	*	*				*	• Improves customer segmentation and valuation • Enhances acquisition, development and retention of customers • Enables better allocation of resources across the customer portfolio • Enhances communication across multiple selling channels

Table 1
Summary of CRM benefits and indications of their support of the value drivers

Authors/date	Value drivers						Core CRM benefits
	Target	Integrate	Sales	Customize	Customer service	Pricing	
The Sales Educators (2006)			*	*	*		• Enhances customer knowledge and feedback • Supports new product/service development • Improves customer solutions and relational values
Thomas, Blattberg, and Fox (2004)	*			*			• Enables companies to win-back lost customers
Thomas, Reinartz and Kumar (2004)				*	*		• Improves marketing effectiveness • Enables customization of products and services • Improves customization of marketing efforts to individual customers
Verhoef (2003)					*		• Improves customer commitment, satisfaction and loyalty
Wilson, Daniel, and McDonald (2002)		*				*	• Improves channel choice • Allows multi-channel integration • Enables individualized pricing
Winer (2001)				*			• Enables better customer attraction, conversion and retention of target customers
Zikmund, McLeod, and Gilbert (2003)	*	*		*	*	*	• Improves customer focus • Improves retention efforts • Increases share of customer • Enhances long-term profitability • Enables continuity across channels • Personalizes service • Enhances satisfaction

Some of the Commonly Established CRM Objectives are as follows (Richards & Jones, 2008: 122 – 125):

1. **Increase in Customer Service**

Establishing customer loyalty as one of your top CRM goals is absolutely fundamental to CRM successful implementation .For this task it is essential that the whole organization realize that they play a part in this goal. This objective cannot be achieved with the help of a few employees only.

Customers need to feel that they have received excellent service. This ensures their continued patronage. This is by far one of the most essential goals of customer relationship management. Customer retention and brand loyalty is absolutely essential to ensure success. Undoubtedly it is far harder to gain a new customer than to actually keep one. Customer service is the pivotal point around which CRM revolves.

2. **Increasing Efficiency**

One of the most important goals of CRM is the increase in organization efficiency and effectiveness. This is almost always adopted by every organization. It is necessitated by the fact that increase in efficiency is required to boost success. CRM achieves this through cost reduction and customer retention. Adequate CRM training achieves this goal.

3. **Lowering Operating Costs**

CRM goals also include the reduction of costs of operation. This goal should be clearly established and conveyed to all those involved in the CRM implementation process. CRM manages to reduce operating costs through a workforce management system. This helps to maximize skills and thus reduce cost. These reduced costs enable an organization to achieve greater efficiency. If cost reduction is management's objective then the CRM implementation should be carried out in such a way that this is achieved. Throughout the process maximum reduction in costs should be adhered to in order to meet this particular CRM goal.

4. Aiding the Marketing Department

Another goal of CRM is generally aiding the marketing department in all its efforts. This includes marketing campaigns, sales promotions etc. If this is fixated as one of the goals of CRM, then it should be communicated to those involved. This goal is fundamental as it boosts sales indirectly thereby increasing the profitability.

Theoretically, CRM is based on the concept of relationship marketing which refers to all marketing activities directed toward" establishing, developing and maintaining successful relational exchanges" (Morgan & Hunt, 1994).

Successful customer relationship management begins with acquisition of the right customers, the need to better understand customer behavior and focus on customers who can deliver long-term profits changed the marketer's orientations. Traditionally marketer's goal was to acquire customers and this has required doses of mass advertising and promotions to customers and channel members but today things have changed from customer acquisition to customer retention. A Framework for Customer Relationship Management.(Russell S. Winer 2001)

Rigby et al. (2002a) state that most executives cannot readily define CRM, and Greenberg (2002) quotes ten different definitions provided by leading CRM software development business CEOs. Early definitions of CRM focused on the acquisition and long-term retention of customers (Ling & Yen, 2001; The Data Warehousing Institute, 2000; Wyner, 1999). CRM as a business strategy is another common definition: "CRM is an approach or business strategy which provides seamless integration of every area of business that touches the customer" (Sathish et al., 2002, p. 545). Others have defined CRM in terms

of the opportunity for profit maximization, as in attracting and retaining "economically valuable" customers while getting rid of "economically invaluable" ones (Pan & Lee, 2003; Romano & Fjermestad, 2001). A number of studies take a more integrative and holistic approach to CRM, attempting to define CRM jointly through its relationship with technology and as a business strategy (Bose, 2002; Buttle, 2004). This type of definition moves us closer to capturing the dual aspects of CRM that need to be given consideration when assessing the success or otherwise of actual CRM implementations. Each aspect considered on its own is likely to yield an incomplete picture.

(Reinartz, et..al, 2004) defined CRM as a cross-functional process that focuses on initiating, maintaining, and retaining long-term relationships to achieve a better economic performance.

Kalakota & Robinson (1999) considered that customer relationship management (CRM) can be seen as the consistent organizational activity under usage of integrated selling, marketing and service strategy. In 2001, they also offered the concept of CRM system to synthesize with functions of sales, customer service, and marketing activity, all based on customer orientation

A real successful CRM should integrate information technology (such as basics installation, applicable system), information resource (such as customer data base, well interaction with customer), organizational resource (for example, customer-oriented business culture, etc) all these can actually exert the best effectiveness (Pushkala, et al, 2006)

CRM applications are relatively new to the business world, conceived in the 1980s, but only attaining marketing prominence in the late 1990s primarily due to advances in information technology, data management systems, improved analytics, enhanced

communications, systems integration and the rapid adoption of the Internet (Greenberg, 2002). The adoption of such technologies provides efficiencies for business change initiated by customer demand for customized, personal service. By collecting past customer transaction information, demographics, psychographics, media and channel preferences marketers hope to create personalized product and service offers that capture customer share, build customer loyalty and enhance profit over time (Ling & Yen, 2001).

There is considerable overlap in business orientation and implementation issues between the CRM marketing, management and IT literature domains. However there are distinct differences in the focus of CRM research between the domains. (Werner, et..al 2004).

The management literature is primarily concerned with organizational issues surrounding CRM business strategy development and implementation, and the critical success factors important to the successful adoption of a CRM business strategy. These Organizational issues may also include the firm's market orientation and relationship marketing approach. (James, 2008).

The basis of CRM has been around since 1956 (e.g., the segmentation of discrete customer groups), it is only within the last 6 to 10 years that CRM has created a significant impact in the business world (Nairn, 2002). The management focus on relationship marketing (specifically one-to-one marketing techniques) (Peppers, et..al., 1999) and market orientation (focused on collecting, analyzing and disseminating large quantities of customer data) helped create the opportunity for CRM technology. The rapid growth of CRM can be attributed to: (a) fierce business competition for valuable customers, (b) the economics of customer retention (i.e., life-time value) and (c) technology advances (Buttle, 2004; Goodhue et..al., 2002;).

CRM has been described from a number of different perspectives including functional, technical and managerial aspects (Doherty & Lockett, 2007; Ngai, 2005). From a management perspective, due to the inherent focus on the customer, CRM is viewed as an important business strategy and philosophy (Almquist et al., 2002; Chang, et..al, 2002). Marketing academics view "CRM as a concept that adds [practical] value to the meaning of customer orientation" (Wright et..al., 2002: 340), helps operationalise MO and provides marketing value (Ryals,2005); while IT researchers appear primarily interested in the technological and implementation aspects of CRM (Chalmeta,2006)

Vendor (e.g., Oracle, PeopleSoft, SAP, and Siebel) and practitioner magazine (e.g., destinationCRM.com, CRM Magazine, and CRM Today) definitions focus on the profit potential of CRM technology implementation. For example: "CRM…is a company-wide business strategy designed to reduce costs and increase profitability by solidifying customer loyalty" (destination CRM, 2002).

CRM technology has also been viewed as providing the "glue" that integrates "front office" (sales, support and marketing) and "back office" (ERP and/or order fulfillment) applications for sales and marketing, via tools for detailed analysis and modeling, along with the technology infrastructure to seamlessly provide a single cohesive and comprehensive customer-facing unit (Buttle, 2004).

At the most rudimentary level CRM functionality consists of contact manager software that captures, stores and retrieves customer information in a stand-alone configuration (e.g., Microsoft Outlook – Contact application) (Zikmund, et..al., 2003). At the other end of the scale, CRM consists of a number of complex, integrated IT components including data warehouses, data marts, analytical tools and applications used to capture and

analyze customer information from a variety of inbound touch points, and provides integration to outbound touch points (My SAP and Oracle) (McLean, et..al, 2003). The most highly sophisticated systems integrate other functional areas of the business (incorporates ERP) (O'Brien, 2004).

The CRM strategic framework is based on the view that effective and successful CRM is the result of coordinated cross-functional processes and activities within organizations (Payne & Frow, 2006).

A traditional CRM process highlights the potential disconnect between the CRM process and a relationship marketing approach. CRM systems are an integral component of the information technology growth to support and improve the business "front office" and the customer relationship (O'Brien, 2004).

CRM technology is an IT application that consists of three basic subsystems – a collection (input) component, a data base component, and a delivery system (Zikmund, et..al, 2003). Other components may include (but are not limited to) analysis tools and campaign management tools (Ling & Yen, 2001). Some research literature differentiates between CRM and e-CRM (electronic CRM) (Fjermestad & Romano, 2003), while others view e-CRM as an extension of CRM technology into the e-commerce realm, rather than a different application or system (Greenberg, 2002).

The coordination of activities with customers is one of the skills, abilities, and processes that must be mastered to develop a customer- linking capability (Day, 1994).

CRM technology capability is broadly defined as the effective deployment of information technology solutions that are designed to support customer relationships. This includes systems that provide support for sales (e.g., sales force automation), marketing (e.g.,

planning and budgeting, campaign and promotions management, etc.), customer service, analysis (e.g., calculating customer retention rates, customer lifetime value, etc.), data integration, and external collaboration (Jayachandran et al., 2005). Recognizing that resources need to be combined to develop idiosyncratic capabilities, several scholars provide evidence that suggests CRM technology capability may best be conceptualized as a multidimensional construct comprised of not only technology resources but also complementary resources. Bharadwaj (2000) demonstrates that IT infrastructure, when combined with human resources and IT-enabled intangibles, leads to improved performance.

Coltman (2007: 9) identifies human, business, and technology resources as the key drivers for superior CRM capability suggesting that CRM technology capability requires "the orchestration of a combination variety of resources and capabilities, none of which is superior in isolation, but when combined with others, make for a better and more effective program." Based on these studies, we view CRM technology capability as the integration of technology, human and business resources.

The technology resources dimension of CRM technology capability represents a firm's implementation and usage of a broad set of technologies that can enhance the formation and management of robust relationships with customers. In IS nomenclature, our technology resources dimension is considered IT infrastructure, which is comprised of physical IT assets (Bharadwaj, 2000).

The human resource dimension represents the organization's know-how and skills related to CRM initiatives. Scholars have shown that human resources are key contributors to information technology adoption and success (Ko. et..al., 2008).

Business resources represent the final dimension of CRM technology capability. Powell and Dent-Micallef (1997) view management's plan to integrate a new capability into the overall business process of a firm as a form of business resource. They find that business resources alone do not influence IT performance. Instead, business resources are shown to contribute to IT performance only when combined with complementary human and technology resources.

(2-3): Marketing Performance

Performance is the end result of activities; it includes the actual outcomes of the strategic management process. The practice of strategic management is justified in terms of its ability to improve the organization's performance (Wheelen and Hunger, 2010:70)

Organizational performance comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives). According to Richard, et al, (2009) organizational performance encompasses three specific areas of firm outcomes: (a) financial performance (profits, return on assets, return on investment, etc.); (b) product market performance (sales, market share, etc.); and (c) shareholder return (total shareholder return, economic value added, etc.).

Research on organizational performance varies as a function of the outcome variables. The variety of outcome variables can be categorized into two groups: finance outcome (return on investment (ROI), return on assets (ROA), return on equity (ROE), return on sales (ROS), sales, market share, productivity, etc.) and non- finance outcome variables (labor turnover, absence of employees, conflict, quality of product and/ or service, innovation, etc.). (Thang, et al., 2008: 178-179)

While alternative financial indices and ratios have been used as indicants of business performance, many studies have adopted single-item measures, which can only serve as a proxy for the underlying phenomenon. Business performance is multidimensional in nature and accounting measures may be misleading because of ‘‘their (1) inadequate

handling of intangibles and (2) improper valuation of sources of competitive advantage''. (Morgan and Strong, 2003: 165)

Many reasons account for this multidimensional interest in business performance evaluation. First, after a significant period of global downsizing in many industries, organizations are experiencing diminishing returns on increasing profits from reductions in staff numbers and increasing operational efficiency. This has led to emerging interest on the drivers of future growth (sales) with market-based performance being seen as central to such development. Second, there has been a call from analysts and investors for more information to better understand the subtle but compelling features underlying accounting-based performance, so commonly under reported or poorly emphasized within annual reports and financial statements. Third, ever-improving modes of competitive behavior and innovative maneuvers by firms demand that the role of the customer in organizational decision making is moving up the boardroom agenda thus demanding a rounded articulation of business performance incorporating market-based issues. (Morgan and Strong, 2003: 166)

By revising a group of specialized references for authors in the Strategy, Strategic Management, and Organization Theory; the researcher noticed that most authors have focused on the following dimensions of Organizational Performance showed in table (2-1).

Table (2-1): The dimensions of Organizational Performance as reflected by number of researchers

Dimensions	**Researchers**	**Year**
Sales Growth; Profitability; Market share	Nwokah	2008
Sales Growth; Profitability; Market share	O'Sullivan, et al	2007
Growth of sales and revenues; Growth of net income; Return on assets; Return on sales; Growth in productivity	Acquaah	2007
Revenue growth; asset growth; Net income growth; Market share growth	Allen & Helms	2002
Market share; Customer satisfaction; Competitive position; Customer retention; Sales growth; Return on investment	Morgan & Strong	2003

Marketing performance measurement (MPM) is a term used by marketing professionals to describe the analysis and improvement of the efficiency and effectiveness of marketing (Gerard, 2008). This is accomplished by focus on the alignment of marketing activities, strategies, and metrics with business goals (Collins, 2007). It involves the creation of a metrics framework to monitor marketing performance, and then develop and utilize marketing dashboards to manage marketing performance.

Performance management is one of the key processes applied to business operations such as manufacturing, logistics, and product development. The goals of performance management are to achieve key outcomes and objectives to optimize individual, group, or organizational performance. MPM however, is more specific. It focuses on measuring, managing, and analyzing marketing performance to maximize effectiveness and optimize the return of investment (ROI) of marketing (Ament, 2008).

Marketing performance measurement is the assessment of "the relationship between marketing activities and business performance" (Clark & Ambler, 2001: 231). While evidence continues to mount that investments in marketing activities contribute to increases in shareholder wealth (Rao & Bharadwaj, 2008), demonstrating this link in the case of specific firms continues to be an elusive challenge. Reflecting this, marketing managers, face an unabated demand to show greater accountability for their own specific marketing investments. In turn, this has led marketers to display an almost insatiable appetite for marketing metrics and other measurement data (Kumar, 2004).

Following O'Sullivan & Able (2007) since the challenge faced by marketers is their inability to demonstrate the effectiveness of marketing activities.

Also, since the interest of marketing managers is to demonstrate the value of their marketing activities, we focus on marketing not as the "underlying products, pricing, or customer relationships" (Rust, et..al, 2004: 76) but instead as the "marketing activities" themselves, defined as marketing communication, promotion, and other activities that consume most of the typical marketing budget (O'Sullivan & Abela, 2007).

Marketing performance measurement research can be divided into three research streams: measurement of marketing productivity (Morgan, et..al, 2002), identification of metrics in use (Barwise and Farley 2003), and measurement of brand equity (Lehmann & Neslin 2002).

Rust and colleagues (2004) build on the work of Srivastava, Shervani, and Fahey (1998) to describe a "chain of marketing productivity" that extends from marketing activities to shareholder value. Marketing activities influence intermediate outcomes (customer thoughts, feelings, knowledge, and, ultimately, behavior), which in turn influence financial performance of the firm. The MPM research we cited examines how marketers can measure the relationships along the chain of marketing productivity; which metrics firms use or could use along this chain, particularly financial, nonfinancial, and market-based assets; and contextual factors, particularly the firm's market orientation (Clark & Ambler 2001).

(2-4): Previous Studies:

Parvatiyar & Sheth (2001) under the title "Customer Relationship Management: Emerging Practice, Process, and Discipline", explore the conceptual foundations of CRM by examining the literature on relationship marketing and other disciplines that contribute to the knowledge of CRM. A CRM process framework is proposed that builds on other relationship development process models. CRM implementation challenges as well as CRM's potential to become a distinct discipline of marketing.

(**Carayannis & Alexander, 2002**) Under the title "Is technological learning a firm core competence, when, how and why? A longitudinal, multi-industry study of firm technological learning and market performance". The study proposes the conceptual outline for a general theory of higher order technological learning within and across firms and attempts to empirically test the power of correlation between technological learning and market performance in selected multi industry firm clusters over multi-year periods. After reviewing relevant extant literature, this paper constructs an integrated, multidimensional framework for the analysis of technological learning activities and their associated impact on firm market performance. Using a subset of the concepts in this framework, a pilot study was conducted to test the relationship between technological learning effort and firm market performance. The analysis combines traditional quantitative indicators of learning with a qualitative index constructed through inductive examination of corporate annual reports. The empirical analysis shows some strength in the relationship between technological learning and market performance, but this relationship is dependent on temporal, non-linear, firm specific factors. The results of the study are discussed in the context of expanding research to integrate all

aspects and levels of technological learning, especially differentiating between higher order (strategic and tactical) and basic (operational) learning.

Verhoef (2003) under the title "Understanding the Effect of Customer Relationship Management Efforts on Customer Retention and Customer Share Development", investigates the differential effects of customer relationship perceptions and relationship marketing instruments on customer retention and customer share development over time. Customer relationship perceptions are considered evaluations of relationship strength and a supplier's offerings, and customer share development is the change in customer share between two periods. The results show that affective commitment and loyalty programs that provide economic incentives positively affect both customer retention and customer share development, whereas direct mailings influence customer share development. However, the effect of these variables is rather small. The results also indicate that firms can use the same strategies to affect both customer retention and customer share development.

(**Reinartz, et al, 2004**) Under the title "The CRM Process: Its Measurement and Impact on Performance", proposes to investigate the organizational performance consequences of implementing CRM processes. Our research questions are addressed in two cross-sectional studies across four different industries and three countries. Our first key outcome is a theoretically sound CRM process measure, which outlines three key stages -- namely the initiation, maintenance and termination phase. Our second key result is the finding that implementing CRM processes has a moderate positive association with both perceptual and objective company performance.

(**Payne & Frow 2005**) under the title "A strategic frame work of customer relationship. Management" develop a conceptual framework for customer relationship management (CRM) that helps broaden the understanding of CRM and its role in enhancing customer value and, as a result, shareholder value. The authors explore definitional aspects of CRM, and they identify three alternative perspectives of CRM. The authors emphasize the need for a cross-functional, process-oriented approach that positions CRM at a strategic level. They identify five key cross-functional CRM processes: a strategy development process, a value creation process, a multichannel integration process, an information management process, and a performance assessment process. They develop a new conceptual framework based on these processes and explore the role and function of each element in the framework. The synthesis of the diverse concepts within the literature on CRM and relationship marketing into a single, process-based framework should provide deeper insight into achieving success with CRM strategy and implementation.

(**Jayachandran, et al, 2005**) Under the title "The Role of Relational Information Processes and Technology Use in Customer Relationship Management", proposes to examine the key drivers and outcome of relational information processes and the role of technology in implementing CRM using data collected from a diverse sample of firms. The results show that relational information processes play a vital role in enhancing an organization's customer relationship performance. By moderating the influence of relational information processes on customer relationship performance, technology used for CRM performs an important and supportive role. The study provides insights into why the use of

CRM technology might not always deliver the expected customer relationship performance outcome.

(**Ryals, 2005**) under the title "Making Customer Relationship Management Work: The Measurement and Profitable Management of Customer Relationships", demonstrates that the implementation of CRM activities delivers greater profits. Using calculations of the lifetime value of customers in two longitudinal case studies, the research finds that customer management strategies change as more is discovered about the value of the customer. These changes lead to better firm performance.

(**Ahearne, et al, 2007**) Under the title "Why sales reps should welcome information technology: Measuring the impact of CRM-based IT on sales effectiveness", proposes to seek to answer the following question: Can sales representatives enhance their performance through their acceptance of information technology (IT) tools? Using data collected from two companies, we show that despite uncertain results and the frequent resistance among salespeople to IT interventions, IT acceptance indeed has a positive effect on sales performance. This occurs because salespeople using IT expand their knowledge and, in turn, gain improved targeting abilities, enhanced presentation skills, and increased call productivity. Thus, sales representatives have a strong incentive to accept IT because doing so is likely to sharpen their own job performance.

(**Richard, et..al, 2007**) Under the title "An Examination of Customer Relationship Management (CRM) Technology Adoption and its Impact on Business-to-Business

Customer Relationships", explores the linkage between CRM technology adoption and B2B relationships. CRM technology adoption is considered as a possible antecedent to relationship strength and relationship performance. Ten marketing and sales managers, and their respective customers, from a variety of New Zealand companies were interviewed. Their perspectives on the relationship between CRM technology and relationships. Findings indicate that CRM technology does have a role to play in sustaining and maintaining B2B relationships, but it is the customer communications and people aspect that may be most important. Customers have expectations of CRM technology and are generally more optimistic that CRM will provide benefits to the customer in terms of customer satisfaction and service. Respondents were in agreement that the important elements of relations include trust, commitment and communications. Relationship performance is generally measured using customer satisfaction, loyalty and/or customer retention. Future research will focus on developing a CRM technology adoption instrument and empirically testing the conceptual model with larger samples.

(**Michael, et..al, 2008**) Under the title "Distinctive Marketing and Information Technology Capabilities and Strategic Types: A Cross-National Investigation", examine the relationship between strategic type and development of distinctive marketing, market-linking, technology, and information technology (IT) capabilities to implement innovation strategy. They hypothesize that prospectors must build technical and IT capabilities, whereas defenders develop market-linking and marketing capabilities. The authors collect data from 709 firms across the United States, Japan, and China. They find support for their capability hypotheses, as well as for some of their cross-national hypotheses that are based on cultural

and business environment differences among the three countries. In particular, they find support for the hypotheses that Japanese firms have greater technology and IT capabilities than U.S. firms of the same strategic type. They conclude with implications for management.

(**Kasim & Minai, 2009**) Under the title "Linking CRM Strategy, Customer Performance Measures and Performance in the Hotel Industry", reports on a study that examines the relationship between CRM strategy and performance and determines whether the use of customer performance measures plays a mediating role in the relationship between CRM strategy and performance. This study contributes to the limited literature on CRM strategy since little is known about the use of CRM strategy and customer performance measures and their relation with performance in the hotel industry in Malaysia. Data were collected through a questionnaire survey of hotels in Malaysia. Hierarchical regression analyses on a sample of 95 hotels revealed that only the information technology dimension of CRM strategy has a significant and positive effect on performance. In addition, the hypothesis concerning the role of customer performance measures as a mediator was supported.

(**Shin, et al, 2009**) Under the title "Structural equation model for effective CRM of information infrastructure industry in Korea", proposes to develop a structural equation model for Customer Satisfaction Index (CSI) to measure the quality level of information infrastructure reflecting the aspects of information infrastructure industry. Then, we compare the KII (Korea Information Infrastructure) satisfaction Indices from various customer groups

using the structural equation model (SEM). It is expected that the results suggest helpful strategies to increase the satisfaction level of KII customers.

(**O'Sullivan, et al, 2009**) Under the title "Marketing performance measurement and firm Performance: Evidence from the European high-technology sector", aims to test whether the ability to measure marketing performance affects the actual performance of firms, in the context of the European high-tech sector. It also aims to test whether performance-reporting frequency and size of marketing budget mediate the relationship between measurement ability and performance. Survey responses collected from 157 marketers were supplemented with firm performance data. Results show that marketing performance measurement ability positively impacts firm performance and that reporting frequency mediates this relationship.

(**Chang, 2010**) Under the title "How does CRM technology transform into organizational performance? A mediating role of marketing capability", aims to reveal how CRM technology transforms into organizational performance and to investigate a mediating role of marketing capability. Recent studies demonstrate that only 30% of the organizations introducing CRM technology achieved improvements in their organizational performance. These conflicting findings hint at the potential influences of unexplored mediating or moderating factors and the need of further research on the mechanism by which CRM technology leads to improved business performance.

(**Rapp, et..al, 2010**) Under the title "Performance implications of customer-linking capabilities: Examining the complementary role of customer orientation and CRM

technology", aims to examines how technology and complementary resources are bundled to form capabilities that foster durable customer relationships. Drawing from the literature in marketing, strategic management, and information systems, the first outcome is a theoretically grounded conceptualization of CRM technology capability comprised of three complementary resources: technology, business, and human resources. The second key finding is that CRM technology capability and customer orientation have a positive association with the development of durable customer relationships. These resources also have a positive interactive effect on customer-linking capability, highlighting the importance of aligning strategic business and technology resources. Finally, the authors find that customer-linking capability has a positive relationship with customer relationship performance and that the rapidity of changes in the external environment moderates this relationship. This study addresses these research questions in a cross-sectional study of 215 organizations using a partial least squares modeling approach.

(**Shaukat & Zafarullah, 2010**) Under the title "Impact of Information Technology on Organizational Performance: An analysis of Quantitative Performance Indicators of Pakistan's Banking and Manufacturing Companies". This paper aims to examined the impact of IT on organizational performance with respect to increase/decrease in organizational income and in no of employees Vs IT expenses incurred by the organizations working in manufacturing and banking sectors of Pakistan over period of 1994-2005. The primary data was collected through in-depth interviews and field surveys of 48 companies, 24 in manufacturing sector (12 local and 12 foreign) and 24 in banking sector (12 local and 12

foreign). The data was tested by applying different statistical/financial techniques. The conclusion of research is that, IT has positive impact on organizational performance of all the organizations. The banking sector performance outstrips the performance of manufacturing sector. In the banking sector local companies are taking the lead, while in manufacturing companies multinationals are at the top.

(**Lee, et..al, 2010**) Under the title "Business performance and customer relationship management: The effect of IT, organizational contingency and business process on Taiwanese manufacturers". Aims to discuss the relationship of information technology (IT), organizational contingency, business process re-engineering and organization performance in the Taiwanese manufacturing industry. The 800 companies surveyed in this study belong to Taiwan's manufacturing industry and are listed on the Taiwan Stock Exchange 2005. Using canonical correlation tests and a multi-regression approach, the results present a significant positive relationship between organization performance and the factors of IT-route integration, information sharing, supply chain integration, decentralization and coordination, and business extension. The results show a positive interaction between IT and organizational contingency; and IT and business process, organizational contingency and business process.

(**Saini, et al, 2010**) Under the title "Putting market-facing technology to work: Organizational drivers of CRM performance", aims to conceptualize a model to understand the drivers of superior CRM performance after CRM technology has been adopted by a firm and examine strategic utilization of CRM technology as driven by user acceptance and

proficiency in the form of employee buy-in and expertise. Top management championship practices, employee information technology (IT) skills, and CRM knowledge are identified and examined as key building blocks toward strategic utilization. The empirical test of the conceptual model is based on a mail survey of North American firms that have adopted information technology-based CRM systems. The results, based on random effects model, show that strategic utilization of CRM technology leads to higher performance when there is an emphasis on using it to manage business-to-business rather than business-to-consumer relationships, user expertise (but not buy-in) impacts CRM performance through strategic utilization, and top management championship practices, CRM knowledge, and employee IT skills impact strategic utilization through buy-in and expertise.

(**Chailom & Mumi, 2010**) Under the title "The Effect of Information Technology Capability, Network Competency and Organizational Learning on Logistics Innovation, Competitive Advantage and Performance of Food Business in Thailand", aims to examine the effects of logistics innovation on performance of food business in Thailand. Moreover, the investigation of the mediating influence of competitive advantage is also conducted. This paper indicates that information technology capability, network competency and organizational learning, were antecedents of logistics innovation. In addition, competitive environment is the moderating variables of the research. Food business firms in Thailand are the resources of the data collection process. Above all, both direct and indirect significant positive influences of logistics innovation on firm performance via competitive advantage as the mediator have shown as the findings of this study. Furthermore, information technology capability, network competency, and organizational learning on food business, have positive

effects on logistics innovation of the firm. For moderating effect, competitive environment has statistically significant influences on the relationships.

(**Battor & Battor, 2010**) Under the title "The impact of customer relationship management capability on innovation and performance advantages: testing a mediated model", aims to investigate the mediating role of innovation between CRM and performance. The authors examine the direct impact of both CRM and innovation on firm performance. Moreover, they investigate the role of innovation as a mediating mechanism to explain the effect of CRM on performance. The authors use structural equation modelling to test the relationships among these constructs. The results support the direct impact of CRM and innovation on performance. Also, the findings indicate that the indirect effect of CRM on firm performance through innovation is significant. These results reinforce the view that developing close relationships with customers enhances a firm's ability to innovate.

(**Lu & Ramamurthy, 2011**) Under the title "Understanding the Link between Information Technology Capability and Organizational Agility: An Empirical Examination", aims to propose and theorize this frequently observed but understudied IT-agility contradiction by which IT may enable or impede agility. We develop the premise that organizations need to develop superior firm-wide IT capability to successfully manage their IT resources to realize agility. We refine the conceptualization and measurement of IT capability as a latent construct reflected in its three dimensions: IT infrastructure capability, IT business spanning capability, and IT proactive stance. Also the researchers conceptualize two types of organizational agility: market capitalizing agility and operational adjustment

agility. We then conduct a matched-pair field survey of business and information systems executives in 128 organizations to empirically examine the link between a firm's IT capability and agility. Business executives responded to measurement scales of the two types of agility and organizational context variables, and IS executives responded to measurement scales of IT capabilities and IS context variables. The results show a significant positive relationship between IT capability and the two types of organizational agility. We also find a significant positive joint effect of IT capability and IT spending on operational adjustment agility but not on market capitalizing agility. The findings suggest a possible resolution to the contradictory effect of IT on agility: while more IT spending does not lead to greater agility, spending it in such a way as to enhance and foster IT capabilities does. Our study provides initial empirical evidence to better understand essential IT capabilities and their relationship with organizational agility.

(**Ringim, et..al, 2011**) Under the title "Effect of Business Process Reengineering Factors on Organizational Performance of Nigerian banks: Information Technology Capability as the Moderating Factor", aims to examine the factors or dimensions of BPR that may influence the bank performance. Additionally, it also explores the implementation level of business process reengineering (BPR) in Nigerian financial institutions. A pilot test was conducted to seek these objectives. Instruments content and face validity, and reliability were examined through panel of expert in both academic and practice. The data received from the commercial bank departments was analysed using the SPSS software. The results show that the dimensions of BPR are reliable and valid. In addition, BPR implementation was found in various operations processes in Banks.

(**Alsmadi, 2011**) Under the title "Empirical Investigation of the CRM Concept in the Jordanian Context: The Case of Banks and Financial Institutions", aims to develop a CRM model and empirically test its underlying constructs in the banking and financial sector in Jordan. The empirical data was collected from a convenient sample of 141 banks and financial institutions, drawn from three major Jordanian cities (Amman, Irbid, and Al-Zarqa). A drop-off method of data collection was used (Aaker et al. 2004). The findings show that Jordanian banks and financial institutions were likely to have a clear CRM strategic vision with specific goals and programs, possess necessary resources to establish CRM, be able to manage CRM programs, and use two way communications to handle CRM. Nevertheless, the analysis unveiled that these firms were not likely to have a sufficient marketing database, nor customer intelligence, with little motivation to either measure effectiveness of CRM programs or take actions to improve an unpopular CRM strategy. Further analysis of the findings indicated that the CRM concept did not seem to be well incorporated in the business strategy of most Jordanian banks and financial institutions.

(**Holger, et..al, 2011**) Under the title "Customer relationship management and company performance — the mediating role of new product performance", aims to develop a conceptual framework in which multiple facets of CRM are linked to new product and company performance. They test this model based on a cross-functional sample consisting of 115 R&D and 122 Marketing managers from firms spanning multiple industries. The results provide evidence that CRM has a positive effect on new product performance and further, that this effect is moderated by CRM reward systems but not CRM technology. Also the

results show that new product performance mediates the relationship between CRM and company performance.

(**Hadzagas, 2011**) Under the title “Applying Customer Relationship Management Systems for Customer Satisfaction: An Empirical Approach for Small-and-Medium-Sized Companies”, aims to examines the extent to which Customer Relationship Management (CRM) systems contribute to the increase of: (i) customer satisfaction, and (ii) growth of Small-Medium-Sized (SMS) companies, according to an empirical research conducted in Greece. The four hypotheses formulated from literature review refer to the influence of CRM systems to customers' satisfaction, customers' loyalty, attraction of new customers, performance of personnel, and the operating and financial growth of SMS companies. The four hypotheses were matched against the views of 43 business managers of SMS companies; all hypotheses, except one, were not rejected. CRM systems improve customers' satisfaction, personnel performance, and the growth of SMS companies. On the other hand, CRM systems do not seem to influence significantly customers' loyalty and the attraction of new customers.

(**Hashemzadeh, et..al, 2011**) Under the title “Technological dimension of customer relationship management.”, aims to review the technological dimension of CRM (independent variable) on customer satisfaction (dependent variable) and in the context of customer values (mediator variables).The present study is practical, descriptive and is of correlative type. Hence, hypotheses of the study will be analyzed using path analysis test in

Structural Equation Modeling (SEM). The population sample of the study is all customers of LG domestic products in Shiraz. Questionnaire to gather information (based on Likert 5 scale multiple-choice) was used. Questionnaire reliability 95 percent and validity study to test content validity was used. In order to analyze the data LISREL 8.5 and SPSS18 software were used. The results showed that the technological dimension of the CRM in the context of customer value (functional value, social value, emotional value and customer perceived sacrifices) is influential on customer satisfaction.

(**Soliman, 2011**) Under the title "Customer Relationship Management and Its Relationship to the Marketing Performance", aims to exploring the theoretical foundations of customer relationship management and its relationship to the marketing performance from the several perspectives. Findings: the study finings concluded positive relationship between CRM and marketing performance. In additional to, being effect of the dimensions of CRM on marketing performance in financial institutions. Originality / value: the study treats the question of CRM and its relationship marketing performance for marketing academicians and professionals by investigating structural relationship among focus on main customers, the organizational efficiency and customer knowledge management, and marketing performance.

(**Rodriguez & Honeycutt, 2011**) Under the title "Customer Relationship Management (CRM)'s Impact on B to B Sales Professionals' Collaboration and Sales Performance", aims to examine the impact of customer relationship management (CRM) technology on business-to-business (B2B) sales professionals' ability to collaborate with internal stakeholders and also assesses the relationship between CRM utilization and sales performance. The study

moves from assuming that CRM utilization positively impacts salesperson effectiveness and performance to assessing this outcome from the perspective of the salesperson. A survey that was comprised of four scales was sent to 115 B2B sales professionals and usable surveys were received from 70 respondents. The data were analyzed using partial least squares regression to test the hypothesized paths. Partial least squares regression has been shown to work for small sample sizes. The findings emphasis there is empirical evidence that CRM adoption and utilization positively impacts sales performance, sales effectiveness, and collaboration. As a partial mediator, collaboration positively influenced CRM utilization's effect on sales performance. However, collaboration did not positively influence sales process effectiveness. Explanations of the findings are offered.

Chapter 3

Method and Procedures

3.1 Introduction

3.2 Study Methodology

3.3 Study Population and Sample

3.4 Study Tools and Data Collection

3.5 Statistical Treatment

3.6 Reliability and Validity

(3-1): Introduction

This chapter is divided into the following Six sections: Study Methodology; Study Population and Sample; Study Tools and Data Collection; Statistical Treatment; Reliability and Validity

(3-2): Study Methodology

Descriptive Studies involves collecting data in order to test hypotheses and answer questions concerning the current status of the subject(s) of a study. Typical descriptive studies are concerned with the assessment of attitudes, opinions, demographic information, conditions, and procedures. In this Study the researcher chose the Analytical descriptive method using an applied manner.

(3-3): Study Population and Sample

The population of the study is the whole of the Commercial banks that apply IT on CRM performance in Jordan. Focus on general and branch managers. (150) questionnaires distributed as a sample of the study, only (131) questionnaires returned , this make (87 %) from the total distributed questionnaires. Also (14) of the returned questionnaires were removed the statistical analysis was insufficient so the number of questionnaires used for analysis equaled to (117), this mean that approximately (78%) from the total distributed questionnaires entered the analysis.

(3-4): Study Tools and Data Collection

The current study consists of three Variables, theoretical and practical. In the theoretical dimension the researcher depended on the scientific studies' thoughts that are related to the current study. Whereas, in the practical side the researcher depended on the descriptive and analytical methods using the practical manner to collect, analyze data and test hypothesis.

The data collection, manners analysis and programs used in the current study are based on two sources:

1. Secondary sources: books, journals, articles thesis to write the theoretical framework of the study.

2. Primary source: the questionnaire that was designed to reflect the study objectives and questions.

In this study, both primary and secondary data were used. Data for the model collected via questionnaire .After conducting a thorough review of the literature pertaining to Bottlenecks in Operations Management, the researcher formulated the questionnaire instrument for this study.

The questionnaire instrument sections are as follows:

Demographic Variables: The demographic information was collected with closed-ended questions, through (5) variables.

Cause & Effect Factors: This section measured the Cause and effect factors of three variables such as; Information Technology Capabilities (ITC) thorough (15)items , Customer

Relationship Management (CRM) through (19) items and Marketing Performance through (6) measures and all items are measured on a Likert-type scale, such as:

Disagree Strongly	Disagree	Disagree Some what	Neutral	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

(3-5): Statistical Treatment

Data from the returned responses were collected for analysis and conclusions of the study questions. The researcher used the Statistical Package for the Social Sciences SPSS and AMOS Package . Finally, the researcher used the suitable Statistical methods that consist of:

- Cronbach's Alpha (α) to test Reliability.
- Percentage and Frequency.
- Arithmetic Mean and Standard Deviation to answer the study questions.
- Simple Liner Regression analysis to test first three hypotheses , with (F) test statistic from ANOVA table and t test statistic to inference the significance to both estimated regression and it's coefficient which mean the effect of cause and effect factors on Customer Loyalty.

- Multiple regression and variance inflection factor as the assumption to apply path analysis to identify direct and indirect effect between study variables.

- Relative importance:

$$\text{Level of Importance} = \frac{\text{Upper limit of response} - \text{Lower limit of response}}{\text{Number of Levels}}$$

Number of levels are (3) as ; High , Mid and Low.

The following table(3 – 1) show how the range of number of levels computed

Table (3 – 1)

Range of Level of Importance Scale

Mean Range	level
Less than 3	Low
3 to 5	Mid
More than 5	High

(3-6): Reliability and Validity

A) Validity

To test the questionnaire for clarity and to provide a coherent research questionnaire, a macro review covers all the research construction was accurately performed by academic reviewers- from Jordanian universities - specialized in management information systems, Total Quality Management; Production and Operation Management, and Statistical science. Some items were added based on their valuable recommendations .Some other were reformulated to become more accurate which is expected therefore to enhance the research instrument. The academic reviewer's amount (5), (see appendix "A ").

B) Study Tool Reliability

The reliability analysis applied the level of Cronbach's Alpha **(α)** as the criteria of internal consistency which at a minimum acceptable level were **(Alpha ≥ 0.60)** suggested by **(Sekaran, 2003).** The coefficients after removable of some items from each construction are as in Table (3 - 2).

Table (3 - 2)

Cronbach's Alpha Coefficients for Main Dimensions and Constructs

No.	Dimension	Number Of Items	Coefficient
Information Technology Capabilities		15	**0.883**
Customer Relationship Management		19	**0.922**
Marketing Performance		6	**0.888**
All Dimensions		40	**0.933**

The Cronbach's Alpha coefficient of main variables " Information Technology Capabilities (ITC)" including (15) statements as a scale to it was (88.34%), while for Customer Relationship Management (CRM) was (92.2) which is the highest coefficient , the third variable Marketing Performance had a Cronbach's Alpha (88.8%).. Finally the overall Cronbach's Alpha coefficient was equal to (93.39%). These results are an acceptable level suggested by **(Sekaran, 2003).**

Chapter 4

Results and Hypothesis Testing

4.1 Introduction

4.2 Study Questions Answers

4.3 Study Hypothesis Testing

(4-1): Introduction

According to the research purpose and research framework presented in the previous chapter, this chapter describes the results of the distribution of responses for each demographic variable , statistical analysis of the data collection for research question and research hypothesis.

The data analysis included a description of the means and standard deviations, ranking and level of importance for study questions; simple and multiple regression analysis to test the first three hypotheses. Finally, path analysis applied to identify direct and indirect effect between cause and effect factors.

(4-2): Study Questions Answers

A. Demographic Variables of Sample

Eight demographic variables are included in this study (Age, Gender , Educational Level , Experience years , Scientific Specialization According Certificate and Managerial Position .The results in table (4 – 1) represent distribution of sample individuals according to demographic variables:

Table (4 -1)

Distribution of Sample individuals according to demographic Variables

No.	Variable	Class	Frequency	Percentage
1	**Age**	**Less than 30 years**	49	41.9
		30 – 40 years	39	33.3
		41 – 50 years	26	22.2
		51- 60 years	3	2.6
Total			**117**	**100.0**
2	**Gender**	**Male**	76	65
		Female	41	35
Total			**117**	**100.0**
3	**Educational Level**	**Diploma or less**	13	11.1
		BS.C	79	67.5
		Master Or Higher	25	21.4
Total			**117**	**100.0**
4	**Experience**	**(5) years or Less**	29	24.8
		From 6 – 10 Years	33	28.2
		From 11 – 15 Years	25	21.4

		From 16 - 20 years	30	25.6
Total			**117**	**100.0**
5	**Scientific Specialization According Certificate**	**Financial & Banking (Accounting)**	66	56.4
		Business Administration	36	30.8
		Others	15	12.8
Total			**117**	**100.0**
6	**Managerial Position**	**General Manager**	2	1.7
		Branch Managers	60	51.3
		Department Managers	55	47.0
Total			**117**	**100.0**

Result in table (4 - 1) indicated that there (49) responses of people less than 30 years of age their age reached (41.9%) as a percentage of "Age" classes while only (3) responses were found in "more than 61 years of age " class with (2.6%). For their gender (65 %) of the sample were "Male" while the remainders were "Female ".

(67.5 %) of sample were of “BS.C " "Educational Level". This percentage made this class the highest in educational level demographic variable; wheare, the smallest one was the class where the sample response have " Diploma or Less " with percentage equal to (11.1 %).

The largest number of responses had experience " from 6 – 10 years "with (28.2%) as a percentage ,while (25) of them had an experience " from 11 – 15 years".

Also (56.4%) of the responses, majored in Financial and Banking(Accounting)and (36%) in Business Administration.

The last demographic variable is " Managerial Position " which is divided into (3) classes as in the above table results, more than half of the responses are Branch Managers . Exactly (60)responses made a percentage of (51.3%) , while only two of sample responses are General Mangers.

B. Descriptive Variables

This section illustrates the descriptive statistics for each variable and its item as Mean and standard deviation, beside the rank and the level of importance.

1. **Information Technology Capabilities**:

Main dimension Information Technology Capabilities (ITC) was measured by (15) items .The descriptive statistics of this dimension and the items belonging to it are in table (4-2).

Table (4 - 2) : Descriptive statistics of Information Technology Capabilities

Item	Statement	Mean	Standard Deviation	Rank	Level of Importance
1	IT Business Applications (ERP, CRM) integrate business processes and improve individual department efficiency in your bank	6.1624	.89015	5	High
2	IT Executive systems (DSS, EIS, ES) improve and enhance the decision-making capability in your bank	6.1282	.86641	6	High
3	IT Proprietary Software results in more integrated and efficient software that is more closely aligned with the business processes of your Bank	6.1282	.96077	6	High

4	IT alignment with business strategy is critical to success of your Bank	6.2564	.85252	3	High
5	With advent of Automatic Teller Machines (ATM), banks are able to serve customers outside the banking hall	6.5214	.86700	1	High
6	IT streamlining (integrating internal processes, reducing redundant processes, eliminating non-value added processes) of your internal value chain is a key driver of reducing operational costs and improving efficiencies in your Bank	6.2479	.92760	4	High
7	IT streamlining (integrating external processes, efficient transaction processing) of your supply chain results in more efficient and effective supplier collaboration and communications	6.1624	.76516	5	High
8	IT leadership, such as the CIO, is a key factor in driving change, innovation and service enhancements, and cost control and reduction in your Bank	6.1282	.82565	6	High
9	Internet service in our bank are fast and easy to use	5.9487	1.21660	10	High
10	ATM usage Flexible account access allows clients to access their accounts at their convenience	6.3932	1.06639	2	High
11	technology Integration in our bank assists to communicating periodically with our	6.0598	.98515	8	High

	customers				
12	technology Integration in our bank supports the decision-making process and enhance the promotion of banking services	6.0684	.94437	7	High
13	Our bank collect customer information using external & Internal sources	5.8462	1.06363	11	High
14	ATM usage Increased hours of operation fit client schedules	6.0427	1.24840	9	High
15	Our bank merge and analysis information collected from various sources for each customer	5.7265	.98807	12	High
Grand Mean & Standard Deviation of IT Capabilities		6.1214	.59921		High

From table (4-2) the " ITC " variable scale had a High level of importance with mean (6.1214) and standard deviation (.59921). All items belongs to it had a "High" level of importance; the highest mean of it's items was (6.5214) with standard deviation (.86700) to " With advent of Automatic Teller Machines (ATM), banks are able to serve customers outside the banking hall ", this made it in the first rank when compared with others items. The second highest mean to " ATM usage Flexible account access allows clients to access their accounts at their convenience " which equal to (6.3932) and standard deviation (1.06639) . These results made it in the second rank. The smallest mean (5.7265) belongs to statement " Our bank merge and analysis information collected from various sources for each customer " in the (12^{th}) rank with standard deviation (.98807).

2. **Customer Relationship Management**

Main dimension Customer Relationship Management was measured by (19) items. The descriptive statistics of "Customer Relationship Management" and its items in table (4-3)

Table (4 – 3) : Descriptive statistics of Customer Relationship Management

Item	Statement	Mean	Standard Deviation	Rank	Level of Importance
16	The CRM system is generally regarded as a success in my bank	5.9145	.97885	4	High
17	The CRM system improve our customers' satisfaction	6.1197	.76747	1	High
18	The CRM system improves integration among our bank different systems	5.9231	.90166	3	High
19	The CRM system improves the efficiency of business operations in our bank	5.9316	.89757	2	High
20	Our bank established CRM committee to monitor CRM implementation process	5.7009	1.19817	9	High
21	End users are involved in the CRM committee and the implementation process	5.5726	1.08530	11	High
22	The reward system was established to encourage the participation of CRM implementation	5.1538	1.45398	15	High
23	The CRM system adopted module-by-module implementation methods	5.5299	1.14901	13	High

24	The bank tried to minimize the	5.3162	1.14958	14	High
25	The CRM system adopted web-based infrastructure	5.5641	1.22041	12	High
26	CRM system enables our bank integrating customer information from different contact points	5.8034	1.07671	6	High
27	CRM system provide information to our top management in time	5.8034	.96704	6	High
28	CRM system in our bank enables to access service quality information	5.8803	1.05995	5	High
29	CRM system allowing customer support employees to access	5.9231	.95731	3	High
30	CRM technology within our bank is capable of providing front-line employees with customer information	5.8034	.97591	6	High
31	CRM technology enables to integrate a formal strategic plan with technology initiatives	5.7265	.97930	8	High
32	The technology within our firm is capable of allowing customer support employees to access data on customer interactions	5.9231	1.15336	3	High
33	The technology within our firm is capable of assessing channel member performance	5.5812	1.10046	10	High
34	The technology within our firm is capable of tracking customer information	5.7265	1.07177	7	High
Grand Mean & Standard Deviation of CRM		5.7314	.69120		High

From table (4-3) the "CRM" scale had a High level of importance with a mean of (5.7314) and a standard deviation of (.69120), all it's items had a "High" level of importance.

The highest mean of it's items was (6.1197) with standard deviation (.76747) to " The CRM system improve our customers' satisfaction", this made it in the first rank when compared with others items. The second highest mean to " The CRM system improves the efficiency of business operations in our bank " which equal to (5.9316) and standard deviation (.89757) ; these results made it in the second rank. The smallest mean (5.1538) belong to the statement " The reward system was established to encourage the participation of CRM implementation " with a standard deviation of (1.45398) and in the (15^{th}) rank.

3. **Marketing Performance**

Third variable **Marketing Performance** was measured by only (6) items. The descriptive statistics of Marketing Performance with his six items in the table (4-4) .

Table (4 - 4)

Descriptive statistics of Marketing Performance

Item	Statement	Mean	Standard Deviation	Rank	Level of Importance
35	Sales growth relative with Competitor	5.5385	1.00463	3	High
36	Market Share relative with Competitor	5.4188	1.06057	4	High
37	Profitability relative with Competitor	5.2650	1.14012	6	High
38	Return on investment relative with Competitor	5.3590	1.13306	5	High
39	Customer Satisfaction relative with Competitor	5.7179	1.08156	1	High
40	Customer Retention relative with Competitor	5.5897	1.07602	2	High
Grand Mean & Standard Deviation Marketing Performance **		5.4815	.86817		High

From table (4 - 4) the "Marketing Performance" factor had a "High" level of importance with the mean of (5.4815) and a standard deviation of (.86817),also all his items had a "High" level of importance.

The highest mean of it's items was (5.7179) with a standard deviation of (1.08156) to " Customer Satisfaction relative with Competitor " this made it in the first rank when compared with others items. The second highest mean went to " Customer Retention relative with Competitor " which equals (5.5897) and has a standard deviation of (1.07602). These results made it in the second rank. The smallest mean (5.2650) belongs to the statement " Profitability relative with Competitor " with standard deviation (1.14012) and in the (6^{th}) rank.

(4-3): Study Hypotheses Testing

Study Hypotheses

Based on the study problems and the literature review, four hypotheses were being tested in this study. The researcher used Statistical Package for Social Sciences (SPSS) to test the first three hypotheses and Analysis of Moment Structures (AMOS) to test the 4th hypothesis. Many statistical criteria have been taken into analysis as simple and multiple regression , F – test for estimated equations significance , t – test for effect significance of independent variable (ID) on dependent variable (DV) and coefficient of determination (R^2) to know how the ID explain the variation in DV.

The following are the main research hypotheses examined:

H_1: "There is a positive effect of Information Technology Capabilities (ITC) on marketing performance in Jordanian commercial banks at level ($\alpha \leq 0.05$)"

Simple regression is used to test this hypothesis. The final results of these effects are in table (4 – 5).

Table (4-5) : Effect of ITC on Marketing Performance using simple regression

DV	R^2	F	D.F	Sig*	Regression Coefficient				Decision
					ID	β	SE	t	
Marketing Performance	.026	3.012	1 115 116	**.085**	ITC	.160	.133	1.736*	**Not support**

*significant if sig ≤ 0.05

Simple regression to fit the relationship between independent variable (ITC) and dependent variable (Market Share) was not significant according to F test (3.012) which when comparing with level (sig =0.085 > 0.05) coefficient of determination R^2 indicate Corporate Governance explains (2.6%) in the differences of Marketing Performance , while the increasing degree in ITC will increase Marketing Performance by (0.160). This is the positive effect of ITC on Marketing Performance , but also is not significant , since t test , which is equal to (1.736)indicates that the result is not supported.

H_2: There is a positive direct effect of IT capabilities on Customer Relationship Management in Jordanian commercial banks at level ($\alpha \leq 0.05$)

The same procedure as done in the first hypothesis used to test this hypothesis, by using simple regression, where ITC is an independent variable and CRM is a dependent variable. The final results for testing these effects are in table (4 – 6).

Table (4-6) : Effect of ITC on CRM using simple regression

DV	R^2	F	D.F	Sig*	Regression Coefficient				Decision
					ID	β	SE	t	
CRM	.321	54.326	1 115 116	**.000**	ITC	.566	.089	7.371*	**Not support**

*significant if sig ≤ 0.05

From table (4-6) results , the simple regression is a good fit to the relationship between independent variable ITC and dependent variable CRM according to F test (54.326) which is significant when comparing with level (sig =0.000 < 0.05) , coefficient of determination

indicates that ITC explains (32.1%) in the differences of CRM , while the increasing degree in ITC will increase CRM by (0.566) . This is the positive effect of ITC on CRM and at the same time is significant which is measured by t test and is equal to (7.371) the opposite (sig = 0.000<0.05) .This result supports **H_2**; there is a positive effect of ITC variable on Customer Relationship Management (CRM) in Jordanian commercial banks at level ($\alpha \leq 0.05$).

These results confirm the second hypothesis, so:

"There is a positive effect of IT capabilities on Customer Relationship Management in Jordanian commercial banks at level ($\alpha \leq 0.05$)"

H_3: "There is a positive direct effect of Customer Relationship Management on Marketing Performance in Jordanian commercial banks at level ($\alpha \leq 0.05$)"

Again simple regression used to test this hypothesis were the independent variable Customer Relationship Management (CRM) and Marketing Performance as the dependent variable. The result for testing the effect in H_{31} are represented in table (4 – 7) :

Table (4 -7)

The effects of CRM on Marketing Performance

DV	R^2	F	D.F	Sig*	Regression Coefficient				Decision
					ID	β	SE	t	
Marketing Performance	.115	14.926	1 115 116	**0.000**	CRM	.339	.110	3.863*	**support**

*significant if sig ≤ 0.05

From table (4-7) results , the simple regression is a good fit to the relationship between independent variable CRM and dependent variable Marketing Performance according to F test (14.926) which is significant when comparing with level (sig =0.000 < 0.05) , coefficient of determination indicates that CRM explain (11.5%) in the differences of Marketing Performance , while the increasing degree in CRM will increase CRM by (0.339). This is the positive effect of CRM on Marketing Performance and at the same time is significant which is measured by t test and equals to (3.863) the opposite (sig = 0.000<0.05) .This result support $\mathbf{H_3}$, where t here is a positive effect positive of Customer Relationship Management variable on ion Marketing Performance in Jordanian commercial banks at level ($\alpha \leq 0.05$).

These results confirm the third hypothesis, so:

"There is a positive direct effect of Customer Relationship Management on Marketing Performance in Jordanian commercial banks at level ($\alpha \leq 0.05$)"

H_4: "There is a positive indirect effect of IT capabilities on Marketing Performance through CRM as mediator at level ($\alpha \leq 0.05$)".

The first step to test f hypothesis is to verify if the assumption of no " Multicollinearity " which means no higher correlation between independent variables and mediator variables in our case before starting with path analysis as a tool to test this hypothesis.

It is clear that the " IT capabilities " and the mediator variable " CRM " are independent varaiables , while" Marketing Performance" is a dependent variable.

The study used the stepwise regression; the results are shown in the following table (4 – 8) .

Table (4 - 8)

The effects of IT capabilities and CRM on Marketing Performance

DV	R^2	F	D.F	Sig**	Regression Coefficient				
					ID	β	SE	t	Sig**
Marketing Performance	0.116	7.510	2	0.001	ITC	-0.047	.155	-.444	.658
			114		MCR	0.366	.134	3.424	.001

*significant if sig ≤ 0.05

First of all, the multiple regression fit the relationship between three study variables as goodness fit, since F test (7.510), which indicator a significant model to represent the relationship (sig=0.001 < 0.05). Both IT capabilities and Customer CRM explain (11.6 %) of the differences in Marketing Performance values.

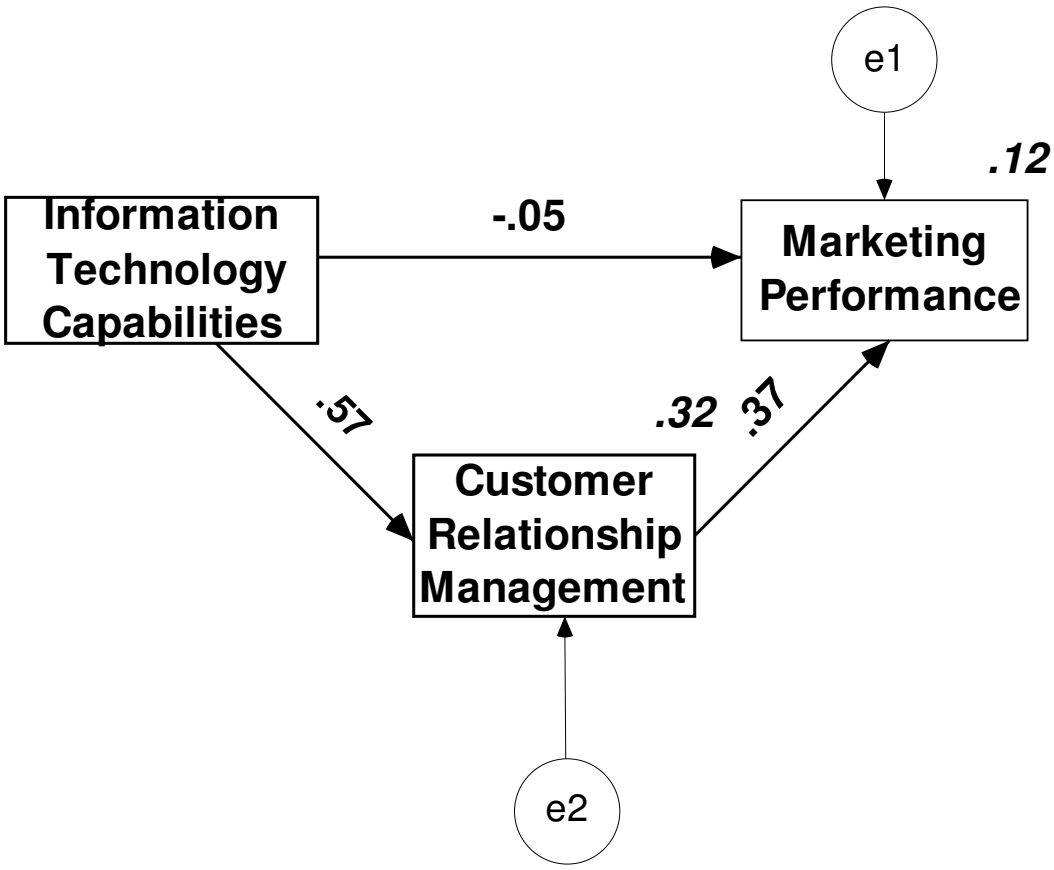
Increasing one degree in the ITC will decrease Marketing Performance by (-0.444) , this is a negative direct effect from IT capabilities on Marketing performance, but it isn't significant because the t test associated with it equal (-.444); and the comparing value is (sig 0.658 > 0.05) ,while increasing one degree in the CRM will increase Marketing Performance by (0.366) . This a significant positive direct effect of CMR on Marketing performance , where the t test is (3.424) and is associated with (sig =0.001 < 0.05).

For the multicollinearity problem, the indicator Tolerance equal to (0.679) which failed in range (greater than 0.1 and less than 1).The values didn’t pose a problem between independents variables in multiple regression analysis.

After satisfying the assumption of path analysis, the Researcher used Amos 7 soft ware to test the fourth hypothesis. Figure (4-1) presents the model study paths.

Figure (4 - 1)

Study Path Model



The numbers on path arrow are the direct effects of independent variables on dependent variable (in italic font), while the numbers above rectangular are the coefficiency of variation (in bold font), so the direct effect of Information Technology Capabilities (ITC) on Marketing Performance are equal to (-0.05). The direct effect of Customer Relationship Management (CRM)on Marketing Performance equal to (0.37) and the direct effect of Information

Technology Capabilities (ITC) on Customer Relationship Management (CRM)equal to (0.57) , all these direct effects are significant except for the first as we found in previous discussions. Information Technology Capabilities (ITC) explains the (32%) differences in the Customer Relationship Management (CRM) Value , while (12%) of the differences in Marketing Performance is explained by independent variable Information Technology Capabilities (ITC) and mediator variable Customer Relationship Management (CRM)

.

Table (4-9) summaries direct, indirect and total effects of study model factors.

Table (4 - 9)

Direct, indirect, total effects in path analysis

	Direct Effect		Indirect Effect		Total Effect	
From / To	Information Technology Capabilities (ITC)	Customer Relationship Management (CRM)	Information Technology Capabilities (ITC)	Customer Relationship Management (CRM)	Information Technology Capabilities (ITC)	Customer Relationship Management (CRM)
Customer Relationship Management (CRM)	.566	.000	.000	.000	.566	.000
Marketing Performance	-0.047	.366	**.207**	.000	.160	.366

Only one indirect effect appears in the above table (4 - 9).This indirect effect (0.207) belong to Information Technology Capabilities (ITC) on Marketing Performance through Customer Relationship Management (CRM). This result increase the total effect of ITC on Marketing Performance to reach (0.160).Finally, some goodness of fit indicators to study model are computed and shown in the following table (4-10) .

Table (4 - 10)
Indicators Goodness of Fit for Study Model

Chi χ^2 Square	D.F	Chi Square / D.F	Sig	NFI	CFI	GFI	RAMSA
1379.707	715	1.930	0.000	.621	.767	.636	.088

GFI : Goodness of fit index must Proximity to one
NFI : The Bentler-Bonett normed fit index
CFI:The comparative fit index
RMSEA: Root Mean Square Error of Approximation must Proximity to zero

From table (4 - 19), we observe that there is a significant impact of optimizing the ITC on Marketing Performance through CRM .The Chi^2 was (1379.707) at level ($\alpha \leq 0.05$), and after divided it on degree of freedom , the result equals (1.930) , whereas the Goodness of fit index , GFI equal to (.636), The comparative fit index , CFI equals (.767). Root Mean Square Error of Approximation, RAMSA equals (.088). At the same time the NFI equal (0.110) .

According to all the results in path analysis, and the goodness of fit indicators our conclusion is that the fourth hypothesis is true, in other words :

"There is a positive indirect effect of IT capabilities on Marketing Performance through CRM as mediator at level ($\alpha \leq 0.05$)".

Chapter 5

Results Analysis &

Recommendations

5.1 Results Analysis

5.2 Recommendations

(5-1): Results and Conclusions

The current study asks a set of questions and constructs a hypotheses related to the positive effects between study variables. The study arrived at many results that contributeto solving the study problem, answering the study questions and it's hypotheses. The main results are:

1. The importance level of **Information Technology Capabilities** in Jordanian Commercial Banks was high.
2. The importance level of **Customer Relationship Management** in Jordanian Commercial Banks was high.
3. The importance level of **Marketing Performance** in Jordanian Commercial Banks was high.
4. There was even a positive effect of **Information Technology Capabilities** on **Marketing Performance** in Jordanian Commercial Banks but it was not significant at level **($\alpha \leq 0.05$).**
5. There was a significant positive effect of **Information Technology Capabilities** on **Customer Relationship Management** in Jordanian Commercial Banks at level **($\alpha \leq 0.05$).**
6. There was a significant positive effect of **Customer Relationship Management** on **Marketing Performance** in Jordanian Commercial Banks at level **($\alpha \leq 0.05$).**

7. There was a significance positive direct effect of **Customer Relationship Management** on **Marketing Performance** in Jordanian Commercial Banks at level **($\alpha \leq 0.05$)** with negative direct effect of **Information Technology Capabilities** on **Marketing Performance** in Jordanian Commercial Banks but without significant at level **($\alpha \leq 0.05$)** when the **Information Technology Capabilities and Customer Relationship Management studies together .**
8. There was a significant positive indirect effect of **Information Technology Capabilities** on **Marketing Performance** through **Customer Relationship Management** as mediator variable.

From the above results, the important conclusions can be:

1. In spite of all the three factors, there was a high level of importance, and the marketing performance closed to upper limit of mid level of importance.
2. The indirect effect of ITC was positive and significant ,in spite of both its positive total effect and negative direct effect were no significance on Marketing Performance. This means that the path analysis is a good tool to find the (total , direct , indirect)effects when mediator variables are used in fitting model between independent variable and dependent.

(5-2): Recommendation

Due to the results, the researcher present some of recommendations:

The commercial banks should take care of its IT capabilities by developing publicities' to make more effect on Marketing Performance:

1. Commercial Jordanian banks in Amman have to integrate the IT Business Applications (ERP, CRM) and business processes to improve individual department efficiency.
2. Commercial Jordanian banks in Amman have to train their employees and IT leadership, such as the CIO, because it's the key factor in driving change, innovation and service enhancements, and cost control and reduction.
3. Commercial Jordanian banks in Amman have to put strategies and plans In the CRM system to improve customers' satisfaction
4. Commercial Jordanian banks in Amman have to adopt web-based infrastructure in the CRM system.
5. Commercial Jordanian banks in Amman have to enhance sales growth, market share, profitability and return on investment to improve the marketing performance.
6. Commercial Jordanian banks in Amman have to integrate the customer information from different contact points to support employees to access data on customer interactions.
7. Commercial Jordanian banks in Amman have to increase customer satisfaction to reach customer retention level.

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Appendix A the survey

Questionnaire to Study the

The Effect of Information Technology (IT) Capabilities and Customer Relationship Management (CRM) on Marketing Performance of Commercial Jordanian Banks

Mr/Mrs …….. Greeting

The researcher purposed to explore the impact of "The Effect of Information Technology (IT) Capabilities and Customer Relationship Management (CRM) on Marketing Performance of Commercial Jordanian Banks"

This Questionnaire is designed to collect information about your organization Information Technology Capabilities, Customer Relationship Management and their effect on Marketing Performance of Commercial Jordanian Banks. I would be very grateful if you could answer ALL questions as completely and accurately as possible.

Thank you

First Section: Demographics Information

(1) Age:				(1) العمر			
30 years or less	☐	From 31– 40 Years	☐	☐	من 31 - 40 سنة	☐	30 سنة فأقل
From 41– 50 Years	☐	51 Years More	☐	☐	51 سنة فأكثر	☐	من 41 - 50 سنة

(2) Gender:				(2) الجنس			
Male	☐	Female	☐	☐	أنثى	☐	ذكر

(3) Educate Level:				(3) المستوى التعليمي			
Diploma or less	☐	BSc	☐	☐	بكالوريوس	☐	دبلوم فأقل
Master or High Diploma	☐	PhD	☐	☐	دكتوراه	☐	ماجستير أو دبلوم عالٍ

(4) Experience:				(4) الخبرة العملية			
5 years or less	☐	From 6 – 10 Years	☐	☐	من 6 - 10 سنة	☐	5 سنوات فأقل
From 11 – 15 Years	☐	16 Years More	☐	☐	16 سنة فأكثر	☐	من 11 - 15 سنة

(5) Scientific Specialization According Certificate:				(5) التخصص العملي حسب الشهادة			
Business Administration	☐	Accounting	☐	☐	محاسبة	☐	إدارة أعمال
Economics	☐	Financial & Banking	☐	☐	مالية ومصرفية	☐	إقتصاد

(6) Managerial Position:				(6) المنصب الإداري			
General Manager	☐	Branch Managers	☐	☐	مدراء الفروع	☐	مدير عام

Second Section: Information Technology Capabilities الجزء الثاني: قدرات تكنولوجيا المعلومات

No	Item	بدائل الإجابة Answer alternatives							الفقرة	ت
		لا أتفق إطلاقاً Strongly disagree	لا اتفق Disagree	لا أتفق بعض الشيء Disagree somewhat	محايد Neutral	اتفق بعض الشيء Agree somewhat	أتفق Agree	أتفق كلياً Strongly Agree		
1	IT Business Applications (ERP, CRM) integrate business processes and improve individual department efficiency in your bank								تعمل تطبيقات تكنولوجيا المعلومات (تخطيط الموارد المؤسسية وإدارة علاقات العملاء) على دمج العمليات المصرفية وتحسين كفاءة الادارة الفردية في المصرف	1
2	IT Executive systems (DSS, EIS, ES) improve and enhance the decision-making capability in your bank								الانظمة التنفيذية لتكنولوجيا المعلومات تحسن وتعزز قدرة متخذ القرار في المصرف	2
3	IT Proprietary Software results in more integrated and efficient software that is more closely aligned with the business processes of your Bank								إحتكار تكنولوجيا المعلومات يمكن المصرف من التكامل والفعالية بشكل أكبر مع العمليات التجارية الخاصة به	3
4	IT alignment with business strategy is critical to success of your Bank								تعتبر محاذاة تكنولوجيا المعلومات مع استراتيجية الأعمال عنصر هام لنجاح المصرف	4
5	IT streamlining (integrating internal processes, reducing redundant processes, eliminating non-value added processes) of your internal value chain is a key driver of reducing operational costs and improving efficiencies in your Bank								تبسيط تكنولوجيا المعلومات (دمج العمليات الداخلية، الحد من العمليات ابزائدة، القضاء على العمليات التي لا تعطي قيمة مضافة) يعد محرك رئيسي لخفض التكاليف التشغيلية وتحسين الكفاءة في المصرف	5
6	IT streamlining (integrating external processes, efficient transaction processing) of your supply chain results in more efficient and effective supplier collaboration and communications								تبسيط تكنولوجيا المعلومات (دمج العمليات الخارجية وكفاءة معالجة المعاملات) يعد محرك رئيسي للتعاون مع أكثر من مورد وكفاءة وفعالية والاتصالات	6
7	IT leadership, such as the CIO, is a key factor in driving change, innovation and service enhancements, and cost control and reduction in your Bank								قيادة تكنولوجيا المعلومات، مثل الجهاز المركزي للمعلومات في المصرف، يعتبر عاملا أساسيا في دفع عجلة التغيير والابتكار وخدمة التحسينات ، والتحكم في خفض التكلفة	7
8	Internet service in our bank are fast and easy to use								خدمة الانترنت في مصرفنا تتميز بالسرعة والسهولة في الاستخدام	8
9	technology Integration in our bank assists to communicating periodically with our customers								تكامل التكنولوجيا في مصرفنا يساعد على التواصل مع الزبائن بشكل دوري	9
10	technology Integration in our bank supports the decision-making process and enhance the promotion of banking services								تكامل التكنولوجيا في مصرفنا يدعم عملية إتخاذ القرارات ويعزز ترويج الخدمات المصرفية	10
11	Our bank collect customer information using external & Internal sources								يقوم مصرفنا بالحصول على المعلومات عن الزبائن باستخدام مصادر خارجية وداخلية	11
12	Our bank merge and analysis information collected from various sources for each customer								يقوم مصرفنا بتصنيف وتحليل المعلومات عن كل زبون التي حصل عليها من المصادر المختلفة	12

Third Section: Customer Relationship Management الجزء الثالث: إدارة علاقات الزبائن

No	Item	بدائل الإجابة Answer alternatives							الفقرة	ت
		لا أتفق إطلاقاً Strongly disagree	لا اتفق Disagree	لا أتفق بعض الشيء Disagree somewhat	محايد Neutral	اتفق بعض الشيء Agree somewhat	أتفق Agree	أتفق كلياً Strongly Agree		
13	The CRM system is generally regarded as a success in my bank								يعتبر نظام إدارة علاقات العملاء بشكل عام نجاحاً في مصرفنا	13
14	The CRM system improve our customers' satisfaction								يحسن نظام إدارة علاقات العملاء من مستويا رضا العملاء لدينا	14
15	The CRM system improves integration among our bank different systems								يحسن نظام إدارة علاقات العملاء من التكامل بين النظم المختلفة في مصرفنا	15
16	The CRM system improves the efficiency of business operations in our bank								يحسن نظام إدارة علاقات العملاء من كفاءة العمليات المصرفية في مصرفنا	16
17	Our bank established CRM committee to monitor CRM implementation process								أنشأ مصرفنا لجنة إدارة علاقات العملاء لمراقبة عمليات تنفيذ العلاقات مع العملاء	17
18	End users are involved in the CRM committee and the implementation process								يشارك المستخدمين النهائيين في لجنة إدارة علاقات العملاء وعملية التنفيذ	18
19	The reward system was established to encourage the participation of CRM implementation								أنشأ مصرفنا نظام مكافأة للتشجيع على المشاركة في تنفيذ برامج إدارة علاقات العملاء	19
20	The CRM system adopted module-by-module implementation methods								نظام إدارة علاقات العملاء في مصرفنا يتبنى أساليب التنفيذ المعتمدة على وحدة بوحدة	20
21	The bank tried to minimize the customization of CRM system								يحاول مصرفنا الحد من عمليات الزبونه من خلال نظام إدارة علاقات العملاء	21
22	The CRM system adopted web-based infrastructure								يعتمد نظام إدارة علاقات العملاء في مصرفنا على البنية التحتية لشبكة الإنترنت	22
23	CRM system enables our bank integrating customer information from different contact points								يمكن نظام إدارة علاقات العملاء مصرفنا على تكامل المعلومات عن العملاء من خلال نقاط اتصال مختلفة	23
24	CRM system provide information to our top management in time								نظام إدارة علاقات العملاء في مصرفنا يوفر المعلومات للإدارة العليا في الوقت المناسب	24
25	CRM system in our bank enables to access service quality information								نظام إدارة علاقات العملاء في مصرفنا تمكن من الوصول إلى خدمة نوعية المعلومات	25
26	CRM system allowing customer support employees to access data on customer interactions								نظام إدارة علاقات العملاء يتيح للموظفين الوصول إلى البيانات لدعم العملاء	26
27	CRM technology within our bank is capable of providing front-line employees with customer information								تكنولوجيا إدارة علاقات العملاء المستخدمة في مصرفنا تعد قدرة لتوفير المعلومات للموظفين في الخطوط الأمامية عن العملاء	27
28	CRM technology enables to integrate a formal strategic plan with technology initiatives								تمكن تكنولوجيا إدارة علاقات العملاء من تكامل الخطة استراتيجية للمصرف مع المبادرات التكنولوجية	28

Fourth Section: Marketing Performance الجزء الرابع: الأداء التسويقي

No	Item	بدائل الإجابة Answer alternatives							الفقرة	ت
		أقل بكثير Much Less	أقل Less	أقل بعض الشيء Somewhat Less	مشابه Similar	أكثر بعض الشيء A little More	أكثر More	أكثر بكثير Much More		
29	Sales growth relative with Competitor								معدل نمو المبيعات قياساً بالمنافسين	29
30	Market Share relative with Competitor								معدل نمو الحصة السوقية قياساً بالمنافسين	30
31	Profitability relative with Competitor								معدل الربحية قياساً بالمنافسين	31
32	Return on investment relative with Competitor								العائد على الاستثمار قياساً بالمنافسين	32
33	Customer Satisfaction relative with Competitor								رضا الزبائن قياساً بالمنافسين	33
34	Customer Retention relative with Competitor								الإحتفاظ بالزبائن قياساً بالمنافسين	34
35	With advent of Automatic Teller Machines (ATM), banks are able to serve customers outside the banking hall								مكن ظهور ماكينات الصراف الآلي (ATM)، البنوك على خدمة العملاء خارج القاعة المصرفية	35
36	ATM usage Flexible account access allows clients to access their accounts at their convenience								ساعدت ماكينات الصراف الآلي (ATM) العملاء على الوصول المرن لحساباتهم بشكل سريع	36
37	ATM usage Increased hours of operation fit client schedules								وجود ماكينات الصراف الآلي (ATM) زادت ساعات العمل المصرفي بما يتلائم مع حاجات ورغبات الزبائن	37
38	The technology within our firm is capable of allowing customer support employees to access data on customer interactions								التكنولوجيا المعمول بها في مصرفنا تسمح للموظفين من الوصول لبيانات الزبائن والإجابة عن استفساراتهم	38
39	The technology within our firm is capable of assessing channel member performance								تمكن التكنولوجيا المستخدمة في مصرفنا من تقييم أداء العاملين في قسم إدارة علاقات الزبائن	39
40	The technology within our firm is capable of tracking customer information								تساعد التكنولوجيا المستخدمة في مصرفنا من تتبع المعلومات عن الزبائن	40

Appendix e --- The academic arbitrators

No	Name	working place
1	Dr. Mohammad Al N oaimi	Middle East University
2	Dr. Hamzeh Khrem	Middle East University
3	Dr. Hameed Al Shaibi	Middle East University
4	Dr. Feras Abu Gaoud	Middle East University
5	Dr. Amjad Tweqat	Middle East University
6	Dr. Ali Abbas	Middle East University