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A systematic review for the determination and classification of the CRM critical success factors supporting with their metrics

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Abstract

The successful implementation of customer relationship management (CRM) is not easy and seems to be a complex task. Almost about 70% of all CRM implementation projects fail to achieve their expected objectives. Therefore, most researchers and information systems developers concentrate on the critical success factors approach which can enhance the success of CRM implementation and turn the failure and drawbacks faced CRM into successful CRM systems adoption and implementation. In this paper, the number of the previous studies is reviewed to demonstrate the barriers behind this high failure rate. In addition, an extensive review is conducted in order to identify and prioritize the critical success factors (CSFs) that if the organizations are aware of and have knowledge of them properly; they will achieve success and will obtain the expected benefits of their CRM initiative. And then, an extensive CSFs classification is proposed. Finally, the work proposes an extensive list of metrics as the means to help in measuring these critical success factors.

1. Introduction

Today, with competitive business atmosphere, it's a challenge for the enterprises to retain their customers. Managing efficient and good customers' relations is occupied a significant position for all businesses regardless the sizes and types. Such significant position has developed rapidly as response to many requirements in the business environment as the integrating of sophisticated technologies in the information systems area.

Customer Relationship Management is considered one of the integrated concepts in the areas of information technology and business which the key aims are built long relationships between the organizations and customers. CRM is a customer-oriented business strategy that concentrate on improve customer satisfaction and customer loyalty rates by providing more personalized and customized services to the customers. CRM technological initiatives are commonly implemented in functional departments; customer services and support, sales and marketing to maximize organization's profit. Hence, the organizations invest heavily in the CRM's projects for gaining a better understanding of the customers and for responding quickly to their requests and needs.

Although the promising advantages and expectations can be achieved from implementing such projects within many organizations, a significant and a high number of CRM projects were failed or were resulted in disappointing outcomes that fall far short of expectations. In additionally, many authors

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reported that organizations ignoring the importance of the critical success factors required to CRM success implementation, which resulted in these high failures and losses in CRM projects. This motivated researchers and academics to focus on studying the reasons for failure and highlight the vital roles of the critical success factors in CRM implementation. Many publications and works confirmed that "for organizations to impalement the CRM projects it demands certain activities or factors that managed and controlled correctly to guarantee the effective implementation processes.

This literature designed a systematic review for investigating and defining the CRM critical success factors. The proposing of this systematic review is based on a number of extensive previous studies in the field of CRM especially the field of studying CRM success and failure. It is moreover relied on the common sense and knowledge of the authors in the CRM successful implementation area. In order to help identifying the significant elements for a successful CRM implementation projects the research reviewed and organized the literature on the CRM critical success factors.

In this systematic literature review as will be shown in section 4.1 the literature will firstly identify the main issues surrounding CRM implementation projects. Then, in section 4.2 an extensive review will be conducted in order to identify and prioritize the critical success factors (CSFs) for CRM successful implementation and adoption. After that, a significant CRM critical factors classification to manage and consolidate these factors effectively will be proposed in section 4.3. Finally, in section 4.4 a comprehensive list of CSFs metrics that can guide for measuring and evaluating CRM critical success factors also will be provided.

2. Background

Since the 1990s, customer relationship management (CRM) has emerged and grown rapidly in businesses environment. In fact, CRM was evolved from the Sales Force Automation (SFA) market, which was born of contact management [1]. Regardless of their type and size, businesses have been motivated to implement CRM to develop and manage a strong relationship with customers more effectively in an attempt to gain a comparative advantage. An enhanced relationship quality with customers can ultimately lead to increase customer satisfaction and an organization's profitability. In addition, the fast growth of the internet and its advanced technologies has greatly increased the opportunities for marketing and has transformed the way relationships between organizations and customers are managed [2].

CRM is considered a significant business strategic tool could help organizations to achieve a lot of goals and objectives. From industry perspective, CRM consists of enabling an organization to: identify and target the valuable customers [3], integrate business processes effectively, develop a competitive advantage, manage marketing campaigns with clear planned goals. Furthermore, it allows serving customers' demands at the right moment with a right service or product, treating each customer uniquely, help an organization to enhance telesales, accounting,

and sales management by optimizing information shared by multiple employees [4], allow the establish of individualized relationships with customers, provide secure services, and keep track of customers' needs and behavior all the time.

When the companies achieve these objectives, an increase in profits and benefits will be obtained. Reference [5], reported that CRM benefits include: enhance organizations' ability to retain and acquire new customers, maximize customers' lifetime, and improve service quality at lower costs.

Although Customer Relationship Management (CRM) is widely accepted as a business approach, it means different things for different people, and so there is no universally common and accepted definition for CRM.

Reference [6] defined CRM as "a company's approach to understanding and influencing customer's behavior through meaningful communications to improve customer acquisition, customer retention, customer loyalty, and customer profitability". Reference [7] viewed CRM as "an integration framework, enterprise strategy and process which provides services to customers and aims to maintain long-term relationship and fulfill customers' various and continuous needs."

Reference [8] introduced another definition of CRM; "A comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer. It involves the integration of marketing, sales, customer service, and the supply-chain functions of the organization to achieve greater efficiencies and effectiveness in delivering customer value".

Basically, this differences in CRM definition could be a result of the emergence CRM concept marketing and information technology fields. The failure rate of CRM implementation is high, that prevents the outcomes from these implementations. Thus, many works have been done on finding out the reasons which lead to the failure of CRM projects. These studies identified many reasons that can cause the failure of the CRM. Overall, the CRM failure reasons, as reviewed in the existing studies, are related to different aspects of CRM elements, components and processes.

On the other side, Critical Success Factors (CSFs) is a method that concentrate on identifying factors have critical role for an organization's success as an absence of such factors could lead to failure [9]. The development of this methodology was based on the work by Ref. [10], but little interested was taken towards this concept at this time. A decade later, the concept was used and gained more recognition by Ref. [11]. Identifying success factors is important activity in which it allows companies to direct their resources when implementing their systems to achieve these success factors.

Reference [12] defined the CSFs as "the fixed variables which help develop boundaries of process improvement; if they consider on every step of implementation based on the importance, they will have a greater effect." In additionally, reference [13] said that the Key success factors are "the minimum capacity that the company should have to enter the competition." However, these above definitions focus more on management in general. However, it is also possible to integrate the concept of CSF to CRM implementation projects.

No doubt, a successful CRM implementation demands an integration of the three key components of the CRM process, people, and technology. In nature, each critical success factor has direct or indirect effect on these CRM combination elements. Thus, many scholar, academics, and researchers have defined these CSFs from CRM view. Reference [14] defined the CRM CSFs as "the generic ingredient that has to be the essential part of any successful CRM implementation". Also, [15] defined these CSFs as "The limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization," also these authors assumed that a factor could be considered a CSF only when its presence guarantees the successful implementation of CRM. Also, [16] defined them as "the issues influencing the success of an IT-enabled intervention, which they are designed to affect business change."

Finally, reference [17] stated that these CSFs are "the activities that are carried out in order to guarantee a successful implementation of CRM," and they can cause a failure in projects if they are neglected or disregarded. However, not all CSFs can be critical failure factors, and vice versa, as a result a CSF can become critical failure factors [18]. Although the high number of all above definitions that related to success factors, [19] stated that, there is not a standard method to gather and analyze these success factors. That is the reason that there were a lot of studies and researchers used different methods to identify the CSFs, such as: questionnaires, interviews and literature review of the previous studies. In this study, it is thought that through a significant review of the literature about the CSFs of CRM in the IT and business field, it can come up with a group of the most CSFs required for successful CRM implementation projects.

3. Methodology

The aim of this paper is to perform a systematic literature review for identifying the most critical success factors (SFs) which positively related to the successful implementation of CRM systems. Furthermore, it aims to identify extensive metrics as means for help in measuring these critical success factors. For this purpose, this systematic review was based on the foundation and guidelines of [20], which they introduced three key steps in developing a systematic review as the following: planning the review, conducting the review, and reporting the review.

3.1. Research questions

According to [20], identifying the research questions is the most significant part of any systematic review. The review questions drive the entire systematic review methodology, for examples: the data extraction process must extract the data items needed to answer the questions. For this review, the main goals is to identify the critical success factors positively related to CRM projects success and identify how these factors can be measured. According to these, underlying goals, the high-level question addressed by this review is:

3.1.1. What are the most critical success factors required for successful CRM implementation, as identified through the theoretical and empirical studies and how these factors can be measured?

The high-level research question was divided into four specific research questions shown in Table 1, which the literature review will base on. The first question required searching the customer relationship management area's studies and literature for firstly presenting the CRM implementation failure rates to support awareness about the high failure for these systems. In addition, this question required searching the CRM systems studies and literature for identifying the problems behind the failure of CRM projects. The results of this searching were analyzed to demonstrate these shortcomings in an organized list.

The second question also required searching the CRM's studies with the purpose of explicitly identifying the definition of CSF, and also for conducting a brief critical literature review. To identify the CSFs those are positively related to the successful CRM implementation projects. As a result, this question will introduce a meaning of CSF, and then it will come up with an extensive list of critical success factors from the selected papers related to the research scope. Furthermore, it will calculate the frequency of each factor on the selected studies to identify the most accepted critical factors for CRM success by authors and researchers of the previous studies in this area.

The third research question, based on using the developed list of success factors resulted from questions 2, to present an extensive classification of the CSFs. Finally, after determining the most accepted factors theoretically that positively effect on CRM success, they should be measured to ensure their importance. As a result, the answer of the fourth question will define the potential metrics of each critical success factor.

Table 1
Research questions and motivations.

Questions	Motivation
Q1: What are the key challenges behind the high failure of CRM projects?	Define reasons for CRM failure to clarify the high rates of CRM projects failure.
Q2: What success factors, as identified through the theoretical and empirical studies, have a positive effect on implementing CRM and What are the most accepted ones theoretically?	Identify the CSFs aims to understand what makes these systems success, and associate these factors with the causes of CRM failures to overcome these failures and to enhance the CRM implementation success rate.
Q3: What is the expected classification of these CSFs?	Aims to provide a clear method for managers to adopt and maintain these factors.
Q4: How the critical success factors can be measure?	Measure the critical factors related to CRM to ensure its relevance and importance for CRM implementation projects success.

3.2. Literature search sources

The search process of this literature comprises the selection of databases, journals and conferences, and keywords. From the beginning, a list of databases was developed, and then a number of databases were selected, as shown in Table 2. The selected databases include journals and conferences focusing on: successful implementation of CRM systems, critical success factors of CRM, empirical studies, and problems and challenges related to CRM failure.

Also, the number of selected databases was minimized as possible as to avoid the redundancy of journals. The databases searches resulted in a significant list of possible studies. The databases are queried using a keyword-based search. For selecting the papers that exactly relevant to this research's questions, the inclusions and exclusions scope were developed for this purpose, as shown in Table 3. The process for selecting the papers related to our review was as follow:

- Exclude papers whose titles not related to review focus.
- Exclude papers there abstracts and keywords not related to review focus.
- Read the remaining sections on the papers and exclude any paper does not relevant to the scope.

The initial searches result in 6,750,000 papers, which were filtered to 33,200 papers based on their titles, also were filtered to 20,500 papers based on abstracts and keywords. Then, 543 were read to select the list of 182 papers related to the review focus. Of these 182 papers, 99 papers were published in 48 journals in computer sciences, information systems and technology fields. Also, 47 papers were published in 36 journals in business management and marketing fields. Furthermore, 36 papers were published in 23 conferences. A paper that is founded in more than one journal, it would be saved once in our research's list to prevent the duplication.

3.3. Search validation

This work started by searching for all published papers related to our research; hence we don't put any date boundaries. The search process was performed using a set of search terms (("customer relationship management" OR "CRM" OR "CRM Systems" OR "CRM successful implementation") AND ("critical success factors" OR "success factor" OR "failure factors" OR "risk factors" OR "challenges" OR "issues" OR "barriers" OR "problems"). This search's process resulted in finding a high number of certain relevant papers on IEEEXplore, ScienceDirect, AIS electronic library, Emerald and ACM digital libraries. On the other hand, for validation of this study, the development of this systematic review would be based on these final selected papers.

3.4. Publication quality assessment

After choosing the required papers, a quality assessment was conducted by preparing the quality checklist, and then choosing the certain papers based on this checklist. The quality checklist was involved the following questions:

- Is it clears how problems of the implementation CRM systems were determined/evaluated?
- Is it clears how the critical success factors related to CRM successful implementation were identified/analyzed?
- Is the analysis process of data appropriate?

3.5. Data extraction strategy

Basically, the aim of this systematic review is to collect the data from the final selected papers, which they focused on answering the research questions for the review. The study designed data extraction list contains 18 items, and then these items were used in extracting process to confirm an effectiveness and accuracy of data extraction process from each

Table 2
The overview of chosen databases.

Databases	Sources
AIS electronic library (AISel)	aisel.aisnet.org
EBSCOhost (Business Source Complete)	search.ebscohost.com
Emerald	www.emeraldinsight.com
IEEE Xplore	ieeexplore.ieee.org
ProQuest ABI/INFORM	search.proquest.com
Google Scholar	scholar.google.com
SCIRUS (Elsevier)	www.scirus.com
Science Direct	http://sciencedirect.com
Springer	www.springer.com
ACM Digital Library	http://dl.acm.org
e-prints in library and information science	Eprints.rclis.org
Wiley	onlinelibrary.wiley.com

Table 3
Inclusion and exclusion criteria.

Inclusion scope	Exclusion scope
Papers that focus on identifying/analyzing the critical success factors of CRM.	Studies have not answered any of the research questions.
Studies were determined criteria for a successful CRM implementation.	Studies were not identified issues for CRM implementation.
Studies were determined factors affecting CRM adopting/implementation.	Studies were not determined success factors for successful adaptation/ implementation of CRM systems.
Empirical studies (qualitative or quantitative) on the critical success factors for CRM systems.	Studies were not written in English.
Papers that survey the critical success factors of CRM.	Studies which their results were not clear.
	Studies other than CRM systems.

relevant paper. The following data mentioned in Table 4, will be extracted from each selected publication.

3.6. Data synthesis

According to the identified research questions for this systematic review, the synthesis of data was presented in four sections:

- For answer the research Q1, the data would be presented by designing a summary table, the table has the three columns (No., Challenges, and References) showing the list of the possible issues could face CRM implementation projects based on a number of extensive studies and researches; along with their references.
- For answer the research Q2, the data would be presented by designing three summary tables, the first table contains three columns (No., Critical success factors, References) providing a long list of the CRM critical success factors according high number of related references. The second table contains a summary of 51 significant studies in the area of CRM's success factors. Furthermore, the data would be presented by designing additional summary table includes five columns (No., Critical success factors, Frequency, Percentages, Ranking) showing the list of the ranked success factors along with their calculated percentages of their frequencies in 51 studies.
- For answer the research Q3, the data would be presented by designing one summary table, the table contains five columns (Critical success factors, Organizational factors, Technological factors, Process factors, Project factors) showing an extensive classification of CRM critical success factors.
- For answer the research Q4, the data would be presented by designing one summary table; the table contains one column (Critical success factors and its Metrics) showing the list of the CRM success factors and the potential metrics for measuring each factor.

4. Reporting the review

In this stage of systematic review process, this paper effectively reviewed all the selected papers and extracted data in. The paper used data extraction list (Table 4) to emphasis the consistent collection of the significant information from the selected studies for the purpose of this research. This extracted data was established to answer the study's questions as introduced in the following.

4.1. What are the key challenges behind the high failure of CRM projects?

Although a long range of benefits that can be obtained from implementing CRM system, many organizations failed in implementing and adopting these projects effectively.

Report According to, academic experts, significant research groups, research consulting companies and business reports related to CRM systems success and failure (Gartner [21],

Table 4
Data extraction form each paper.

1. Author
2. Title
3. Year
4. Reference
5. Study research area
6. Methodology (case study, survey, systematic literature review etc)
7. Study goals/purposes
8. Country location of the analysis
9. Sample population
10. Main concepts
11. Data analysis (qualitative, quantitative or both)
12. Data collection (interviews, questionnaires, observations, discussion etc)
13. Study results and conclusion
14. Type of article (journal, conference, technical report)
15. Issues of CRM adoption and implementation
16. Critical success factors/risk factors for successful implementation of CRM systems
17. Metrics of CRM critical success factors
18. Classification of critical success factors

Forrester [22], IBM Business Consulting Services [23], Giga Information Group [24], and Krigsman [25]), almost about 65% of CRM implementation projects resulted in failure. Here, the project failure interpreted to the project that is not meeting the expectations of costs, time, objectives and expected benefits which have been defined before the project started. Hence, this high failure rate motivated many academics and researchers to contribute a significant number of studies on researching the main barriers behind the high failure of CRM. Thus, based on these studies a wide range of potential problems for CRM failure have been introduced in their works.

These reasons for failure may be considered the series roots for many problems that can prevent a lot of CRM implementation projects to succeed and achieve their expected objectives. According to, [26] the author conducted a study on data collected from 700 companies, in order to discover the failure's reasons to achieve the expected CRM outputs, and stated that the main causes of failure were: "Organizational change (29%), Company policies/inertia (22%), Little understanding of CRM (20%), and Poor CRM sills (6%)." Thus, he confirmed that the main reasons for CRM projects implementation failure is lack top management support and a poor CRM strategy plan.

Significantly, this review conducted a list of the possible challenges and risks that could face the implementation and the adoption of CRM system based on comprehensive nineteen studies and publications that covered and talked about this area, as shown in Table 5.

The findings of Table 5 revealed that the most critical factors behind the high CRM failure take the forms of lack a top management support and commitment, Lack a clear vision and strategy, Poor management of change, Poor training program, Lack customer-centre orientation/vision, and Poor skillful human resources. Thus, all this barriers behind unsuccessful implementation of CRM projects should be taken with a great attention by highlighting and concentrating on the

Table 5
The CRM implementation problems.

No.	Issues/challenges	References
1	Lack of senior management support	[27−35]
2	Poor change management	[27,29−32]
3	Lack of clear vision and strategy	[29,30,32,36,37,8]
4	Lack of customer-centric orientation/vision	[27,30−32,38]
5	Poor training programs	[29,34,36,37,39,40]
6	Organizational Culture	[37,41]
7	Poor skillful human resources	[29,32,35]
8	Failing to re-engineer business processes	[27,30,31]
9	Treating the CRM initiative as a technology initiative	[27,30,31]
10	Initial start-up Costs	[37,42]
11	The planned CRM implementation	[36]
12	Underestimating the difficulties involved in data mining and integration	[27,30,31]
13	Failure to align CRM strategy to organization's strategy	[28,33]
14	Security issues in a CRM system	[43,37]
15	Lack of readiness/assessment process	[30,32]
16	Poor staff involvement in CRM project design	[44,30,38]
17	Poor quality data and quantity	[30,35]
18	Lake of communication channels	[29]
19	Lacking sufficient appreciation of customer lifetime value	[27,31]
20	Failure to focus on CRM ROI	[28,33]
21	Backup plan	[37]

CRM critical success factors approach in order to enhance the success rates of CRM systems projects.

4.2. What success factors, as identified through the theoretical and empirical studies, have a positive effect on implementing CRM? And which of these factors are the most accepted theoretically?

In response to the previous problems and criticisms, many authors indicated that focusing on success factors approach and studying its impact on the successful implementation of CRM projects are extensive methods to minimize the failure rates for these projects. As CRM projects would stand small chance of success without considering critical success factors.

Critical Success Factor (CSF) is defined as a method that can help the organizations to identify the factors which considered critical for its success and the ignorance of such factors always lead to the failure and loss of the organization [10]. This method has been widely used too many businesses sectors, and cited in different areas of research studies. Thus, many studies and topics discussed CRM critical success factors have occupied a significant coverage in the research field.

In the following, the paper reviewed the preceding studies in the area of CRM success factors, and then it would summarize the CSFs of CRM success implementation. Some of these significant studies are:

Reference [9] conducted a significant study to identify CRM success and failure factors from the planning phase to the implementation phase of a system project based on a qualitative study of 20 companies. Some of these factors were a customer-oriented organization, management support and implemented modules, flexibility in adapting work processes and management methods, and employee resistance. In addition, the study discovered that there was the complicated relationship between the success factors as some factors affect and then gets affected by other factors, and some change their inner properties during different stages in the CRM life cycle [9].

Reference [7] proposed the empirical model for CRM adoption, in which this model has been empirically verified by the findings resulted from a survey based on 508 hospitals in Taiwan. The main findings highlight that there were five key elements have a critical affect on CRM adoption, these elements are as follows: hospital size, IS capabilities of the staff, innovation of senior executives, Knowledge management capabilities and relative advantage.

Reference [45] mentioned that there was a need for strong theoretical models for the entire CRM system which can be a guidance to provide managers with the causes of success and failure. Thus, they created the conceptual model of CSFs (Sauer's model of information system innovation is used to group factors and provide high-level relationships), and introduced the set of the most important factors effecting CRM success, as followed: top management support, KM capabilities, Communication of CRM strategy.

Reference [46] supported the valuable insights into the critical success factors of CRM technological initiatives by using a proven technology adoption and impact framework. The result of this study proved that CRM initiatives would achieve a significant success in case of adequate top management support and accurate KM capabilities, supported by a suitable technology infrastructure.

Reference [47] executed overview to determine the CSFs for CRM based up on the related literature in academic journals, books, and papers proceeding to conferences. The result of this overview validated 20 CSFs for CRM were found to be accepted by most of the studies. Also, the research categorized the validated CSFs under the CRM's main components (process, human, and technology).

Reference [48] proposed the model which has 13 CSFs with their 55 related measures to guide any organization before investing in CRM project. Then, they provided a comprehensive evaluation of the CSFs model through using the features analysis survey method. Also, they provided a classification of the suggested CSFs of CRM strategy based on the three CRM aspects (processes, human, and technology).

Reference [49] constructed the empirical study used conjoint analysis (statistical technique for measuring people's preferences for the attributes of a product or service) to explore 15 critical factors related to CRM success. These 15 CSFs were categorized into five groups (Orientation, Support, Commitment, Readiness, and Execution). The findings of this empirical study indicated that Commitment has the highest importance in comparison to other categories.

Reference [50] provided the list of success factors that have positive impact on CRM successful implementation. Then, they ascertained the relationships between these suggested CSFs and the main development stages of the CRM project

(Planning stage, Defining stage, Discovery Stage, Design Stage, Validation Stage, and Deployment Stage). The authors pointed that every CSF should be executed in specific stages; otherwise it could achieve a negative impact on the CRM implementation success.

Reference [51] introduced the list involved 13 CRM success factors that received general acceptance by the previous studies in the field of CRM's success factors. Also, he provided taxonomy for these success factors based on the key components of CRM (People, Processes and Technology).

Depending on this extensive overview for the previous studies related to CRM success factors in this section, the paper firstly developed the extensive CSFs list; as shown in Table 6, which gathered 54 critical success factors related to CRM projects success. These factors were reviewed from more than 180 studies and researches. The purpose of reviewing these success factors is to manage and control them to find out similarities of these factors throughout all studies in order to identify most accepted factors as a part of guiding organizations before implementing of CRM projects. Moreover, the summarizing of 51 studies in the field of CRM successful implementation and CRM critical success factors through 12 years (from 2005 to 2017) was presented in Table 7 and Table 8. This summarization involved only 30 CSFs, which have been identified in these studies.

The findings of the previous tables [6–8] revealed that some success Factors such as top management support/ commitment, information technology, CRM strategy and organizational culture have the largest frequencies in studies. Thus, these factors are received a wide acceptance by researchers. While other factors realized they achieved low appearances in the literature such as Vendor experts, Size of organization, CRM champion, bench-marking and Procedures and policies. Moreover, some these factors were presented in a number of studies under different names such as top management support/top management commitment, cross-functional integration/cross-functional cooperation, and process change/structure redesign,.

In additionally, there are some factors could be too general such as time and budget management, marketing automation, sales automation, and bench-marking that they have not been mentioned widely in literature that may be due to its generality, for example, the bench-marking factor is related to any information system project, and not specialized to CRM project. For this reason, bench-marking could not be included widely in the studies discussed CRM's critical factors. Also, Knowledge management capability, which is the most critical factor affects on successful CRM implementation. This factor has not been mentioned largely; due to its generality again.

In the following part of this section, the research ranked the CRM success factors that have mentioned in tables [7,8]. This ranking was based on calculating the frequency of each success factor within the above 51 selected studies and researches recovered the topics of CRM critical success factors and CRM successful implementation, as illustrated in Table 9 that showing the percentage of frequencies and ranking for the

CRM success factors. Thus, the choosing of success factors for this systematic review was depend on the appearance of success factors in the relative studies in which the most identified factors would be chosen.

As can be seen above, some of the introduced CSFs were achieved the best level of acceptance such as: top management support/commitment factor, IT systems factor, Skillful, training, and motivated staff factor and organizational culture factor. While other factors recorded the lower appearances in the literature such as vendor experts factor, size of organization factor, Customers segmentation factor and Procedures and policies factor.

In the following, the most important success factors are explained in detail:

1 Top management support/commitment

Top management support is a highly accepted critical factor in the information systems and marketing research areas. Top management support refers to the extent to which information technology implementation efforts are promoted by the top management in an organization [19]. The main activities for top management is responsible for establishing measurable objectives and goals for CRM systems, and developing the knowledge of the benefits, capabilities, resources and potential challenges of CRM system.

2 Information technology (IT)

This critical factor investigates the role played by IT on CRM success. IT is an enabler that allows organizations to establish stronger relationships with customers by analyzing customer information and provides a complete view of the customer. Researchers often indicate that the investment in information technology allows organizations to gain in both profits and productivity and more investment in these tools have positive correlation with cost reductions. Organizations can design its products based on customers' needs and expectations depend on information technology and databases of customer.

3 Skillful, training, motivated staff

The firm must have knowledgeable, trained and skillful staffs that meet the required qualifications and skills to the implemented CRM system. Furthermore, they should understand their roles and responsibilities and should have the ability to understand customers' needs and gain customers' trust and respect.

4 Organizational Culture

One of the main requirements for CRM successful implementation and adoption is changing firm's culture orientation from product-focused to customer-focused. Customer-focused is a type of organizational culture which helps organizations to meet customer expectations and to be aware of customer needs. In general, customer-focused culture has a great impact on customer satisfaction.

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Table 6
The summarization of CRM critical success factors.

No.	Critical Success Factors	References
1	Top management support and commitment	[9,11,12,17,19,45−47,49,51−55] [56−60].
2	IT Systems management/integration	[27,48,51,52,55,58,61−70].
3	Define and communicate CRM strategy to staff	[45,47,48,54,56,58,68,71,72].
4	Organizational culture/culture change	[9,16,17,30,45,47,49,51,52,57,65,72−75].
5	Knowledge management capabilities	[6,7,19,45,50,55,58,66−68,76,77].
6	Interdepartmental integration	[12,48,51,52,54,68,71].
7	Customer information management	[48−52,54,59,62,63,68,69,72,78,79].
8	Customer contacts management	[45,47,48,52,55,68,71,75,84,85].
9	Monitoring, measuring, and feedback	[11,12,14,51−53,55,64,80−83].
10	Skillful, motivated, and trained staff	[7,14,17,27,47,51,52,56,61−64,75,80].
11	Sales automation	[48,47,52,54,65,67,68,71,75,76,86].
12	Marketing automation	[47,48,54,67,71,87,88].
13	Services automation	[47,48,52,54,67,71,75,88,89].
14	Staff commitment/involvement	[19,27,45,48,50,54,56,58,59,68,70,75,82,83,90].
15	CRM software selection	[12,17,47,48,50,61,63,91].
16	Managing change	[27,49,50,61,68,75,86].
17	Support for operational management	[48,54,71,75,81,84].
18	Customer involvement/consultation	[12,14,47,50−53,70,79,82,83,92].
19	CRM objectives and goals definition	[17,48,50,54,63,64,69,70,82,83].
20	CRM processes clearly defined	[51,52,59,72].
21	Project schedule and plan	[11,12,17,50,53,68,82,83,92,93].
22	Customer satisfaction	[47,52,59,63,78,87].
23	CRM champion	[12,16,49,50,58,59,65,69,74,94,95].
24	Time and budget management	[9,14,47,50,58,65].
25	Process change/structure redesign	[12,45,50,52,3,115,119,89].
26	Creation of multidisciplinary team	[16,48,49,54,71,96].
27	Customer segmentation	[50,58,66,69,97].
28	Procedures and policies	[16,50,55,66,98].
29	Minimize customization	[14,27,50,82,83].
30	Continuous evaluation	[63,79,93,99,100].
31	Integration of vendor expertise	[12,50,63].
32	Design for flexibility	[9,16,96].
33	Users/employees acceptance	[17,52,101].
34	Wailings to share data	[28,45,52,61,64,68,102].
35	Wailings to share process	[28,45].
36	Extensive IT support	[55,93].
37	Size of organization	[7,27,63,75].
38	Implementation of central Data Warehouse	[47,48,77,96,100,103−105].
39	Data mining	[17,47,67,106]
40	Enterprise resource planning ERP system	[104,105]
41	Alignment of business strategy with IT strategy	[52,74,82,83,107].
42	Reward systems	[87,103,108]
43	CRM vision and scope	[9,12,17,28,50,58,59,63,68,109]
44	Realistic expectations/Feasibility study	[77]
45	Provide efficiency resources	[12,50,58,59,72].
46	Government	[16,63].
47	Cost involved in the project	[11,63],
48	Identify new customers/Keep old customers	[52,110].
49	Personalization process	[17,47].
50	Long term orientation/Holistic approach	[11,16,49,62,79,111,112].
51	Ensure market orientation	[16,69],
52	Customer profitability	[78,113].
53	Benchmarking	[17,58].
54	CRM benefits	[7,19,49,63,70].

5 Customer data (Quality/share)

Customer information is considered a key success factor for CRM system. Customer information management is concentrate on the processes of acquiring, analyzing, and sharing the right quantity and quality of customer information to take effective and timely interaction throughout all communications channels and also to achieve the customers' needs.

6 CRM strategy (development/communication)

The CRM strategy is the backbone for the implementation of CRM systems projects, and has occupied a special position

Table 7
The summary of previous studies on CRM critical success factors.

Studies	Salah [114]	Mathur [115]	Nikzad [84]	Küçükoğlu [76]	ELkordy [85]	Pal [116]	Bibiano [102]	Šebjana [117]	Padilla-Meléndez [118]	Havu [55]	Fältmark [119]	Jayam [120]	Malthouse [121]	Zablah [94]	Alkhouri [97]	Garcia [52]	Koo [49]	Sanad [50]	Westrik [69]	Vazifehdust [58]	Mohd [65]	Garrido—Moreno [64]	Wang [80]	Alshawi [63]	Monem [122]	Andersson [56]
Factor																										
Top management support		√	√	√		√	√		√	√	√			√	√	√	√	√		√	√	√	√	√	√	√
CRM strategy (develop/ communicate)	√	√	√			√	√			√	√						√	√	√	√	√	√	√	√		√
Customer data (quality/ management)	√	√	√					√		√		√	√	√		√	√	√	√		√	√	√	√		√
Culture change	√	√		√	√		√		√		√	√	√	√	√	√	√		√	√	√	√	√			√
KM capabilities	√			√	√	√	√	√	√	√			√		√				√	√	√	√			√	
IT systems integration/ management	√	√		√	√	√	√	√	√	√	√		√		√	√			√	√	√		√	√	√	
Interdepartmental integration			√													√		√	√			√	√	√	√	√
Skillful, trained & motivated staff	√	√	√	√		√		√	√	√	√	√	√	√	√	√	√	√	√	√	√			√		
CRM software selection	√	√				√						√			√		√						√	√		
Customer/consultants involvement			√											√	√	√		√								√
Staff commitment/ involvement	√		√			√					√	√		√	√	√		√	√	√	√	√	√		√	√
Monitoring, measuring &feedback	√							√		√		√	√	√		√	√	√	√	√	√	√		√		√
Clear definition of objectives/goals	√		√			√						√	√		√			√	√							
Change management										√				√			√	√						√		
Size of organization																						√				√
Willing to share data							√									√										
Customer contact management	√		√		√					√	√					√			√	√	√					
Operation management support			√																							
Market automation	√		√		√																√					
Sales automation	√	√	√	√	√											√					√					
Service automation	√	√		√	√			√								√					√					
Software customization												√		√	√		√					√				
Organizational structure	√				√		√	√		√	√			√			√	√	√							
Procedures and policies										√									√						√	
CRM champion												√		√			√	√	√	√	√					
Time and budget management																		√		√	√					
Customer segmentation																√		√	√	√		√				
Customer satisfaction		√			√								√		√				√	√		√	√			
Process change						√	√							√	√		√	√			√					
Creation of multi disciplinary team																					√					

Table 8
The Summary of previous studies on CRM critical success factors.

Studies	Röschmann [54]	Arab [47]	Jiangming [88]	Hung [7]	Migdadi [66]	Faed [75]	Almotairi [51]	OU [62]	Hudhaif [91]	AL-Mudimigh [67]	Maleki [82]	Kavosh [70]	Rahimi [9]	Wu [61]	Foss [27]	King [45]	Ranjan [11]	Pan [14]	Kim &Kim [87]	Mendoza [48]	Eid [17]	Chalmeta [30]	Lindgreen [123]	Roberts [124]	Chen [74]
Factor																									
Top management support/commitment	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√		√	
CRM strategy (develop/ communicate)	√	√	√				√	√	√					√		√				√	√	√	√		
Customer data (quality/ share)	√			√	√	√	√	√				√	√	√	√					√				√	
Culture change		√	√			√	√						√	√	√	√		√	√	√	√	√	√	√	√
KM capabilities				√	√	√								√		√							√		√
IT systems integration/ management	√	√	√			√	√	√		√		√		√	√	√		√		√	√	√	√		√
Interdepartmental integration			√			√	√								√					√					
Skillful, trained & motivated staff		√		√	√	√	√	√			√	√		√	√		√	√	√		√			√	
CRM software selection		√	√			√		√						√	√							√			
Customer/consultant involvement	√	√					√				√	√						√							
Staff commitment/ involvement			√			√					√	√		√	√			√		√			√	√	
Monitoring, measuring & feedback	√					√	√				√	√			√		√	√			√	√	√		
Clear definition of objectives/goals			√								√	√		√	√				√	√	√	√		√	
Change management						√								√	√									√	
Size of organization					√	√									√										
Willing to share data	√					√							√	√		√		√							
Customer contact management	√	√				√														√					
Operational management support	√					√														√					
Market automation		√	√							√										√	√				√
Sales automation	√	√	√			√				√										√					
Service automation		√	√		√	√				√										√					
Software customization								√			√				√			√							
Organizational structure			√								√								√	√		√	√	√	
Procedures and policies																									
CRM champion																									√
Time and budget management		√									√		√			√	√	√		√					
Customer segmentation																									
Customer satisfaction		√																	√				√		
Process change	√		√											√	√	√							√		
Creation of multidisciplinary team															√					√					

Table 9
The frequency and ranking of CRM critical success factors.

No.	CRM Critical success factors	Frequency in 51 study	Percentage	Ranking
1	Top management support/ commitment	43	84.3%	1
2	IT systems integration/ management	39	76.5%	2
3	Skillful, training, motivated staff	35	68.6%	3
4	Culture change/customer focus	35	68.6%	3
5	Customer data (quality/ share)	30	58.8%	4
6	CRM strategy (development/ communicate)	28	54.9%	5
7	Staff commitment/ involvement	27	52.9%	6
8	Monitoring, measuring & feedback	26	50.9%	7
9	KM capabilities	22	43.14%	8
10	Clear definition of objectives/goals	18	35.3%	9
11	Organizational structure	16	31.4%	10
12	CRM software selection	15	29.4%	11
13	Interdepartmental integration	14	27.5%	11
14	Customer contact management	13	25.5%	12
15	Services automation	13	25.5%	12
16	Sales automation	13	25.5%	12
17	Customers/consultants involvement	12	23.5%	12
18	Process change	12	23.5%	12
19	Customer satisfaction	10	19.6%	13
20	Marketing automation	10	19.6%	14
21	Time and budget management	9	17.6%	14
22	Software customization	9	17.6%	14
23	Management of change	9	17.6%	14
24	CRM champion	8	15.7%	15
25	Willing to share data	7	13.7%	16
26	Customers segmentation	5	9.8%	17
27	Size of organization	5	9.8%	17
28	Operation management support	4	7.8%	18
29	Procedures and policies	3	5.9%	19
30	Creation of multidisciplinary team	3	5.9%	19

in the field of CRM. CRM strategy should align with a company's strategy and it should meet the main objectives and goals of the organization. Also, it has a great role in moving company's employees to achieve these goals. Thus, companies should be aware of how to integrate CRM strategy with the overall organization strategy. One of important tasks relative to CRM strategy is to establish and retain a customer base that representative as a key asset to any organization.

7 Employee involvement and commitment

People have a significant role in a CRM implementation and also when conducting CRM processes. A complete employee commitment is necessary to successful CRM adoption to better serve customers' needs. Reference [100] said that: "ensuring the delivery of a superior customer experience during times of unexpectedly high demand requires the active engagement and commitment of all customer-facing staff and is a hallmark of a well-planned CRM implementation."

8 Measuring, monitoring, tracking and feedback

Effective assessment and evaluation of the project is a critical point to ensure the continuous enhancement accomplished in performance. Since the implementation plan of CRM is a long-term scale, System's feedback should be taken at every phase in the implementation process. This feedback allows company to take any correction decision if they need.

9 Knowledge Management Capability

It has been considered one of the key factors for gaining a Competitive advantage for organizations. It is organizational capability that concentrate on organize the organization's knowledge effectively and efficiently. KM Capability is "the ability of an organization to capture, manage and deliver real time authenticated customer, products and services information to improve customer response and provide faster decision making based on reliable information." [46] Firms have a sophisticated tools and mechanisms for generating and producing knowledge continuously.

10 Clear definition of objectives/goals

Generally, for any CRM implementation project, companies should start with defining exactly the objectives and goals they are planning to accomplish and determining the possible ways to achieved them perfectly. Author [82] recommended that "the goals should be quantitatively articulated such as increase average revenue per sale, improvement in customer retention rates, lowering of customer acquisition costs, improvement in forecast accuracy, improvement in average time of customer respond, etc."

4.3. What is the expected classification for the success factors?

Many academics and researchers have already published a high number of works testing and examining the relationship between the CRM success implementation and the critical success factors. So, a wide range list of success factors provided in the information systems and marketing studies related to CRM success and CRM critical success factors topics. These various critical success factors were first reviewed by information systems and marketing academics and researchers in addition to CRM consultants.

For the purpose of this literature, through the success factors have been gathered and listed, it was realizes that, the CSFs have different names. In order to improve readability of

these CSFs and avoid a conflict, there is a need for proposing a careful consolidation and classification.

On the other hand, there are many CSFs classifications were introduced in many studies; such as the following:

1. Arab [47], Almotairi [51], Mendoza [48], and Röschmann [54], they classified the CSFs based on CRM components, which are human, processes and technology.
2. Westrik [69], classified success factors in five groups; strategy factors, organization factors, users' skills, staff attitude and implementation factors.
3. GAN Mao-qin & GAO Ling [125] presented CSFs in three levels, organization, operational systems, and human factors, such as staff and clients.
4. Jayashree [104] categorized them into four categories, Political, Economic, Social, and Technology.
5. Kamprath [126] classified these success factors into four groups: organizational, technological, process, and project factors.
6. Monem [122] categorized the CSFs in three groups resource Factors, management factors, and employee factors.
7. Chia-Jen [110] suggested that the critical success factors with high significance would be organized in three categories: technology, organization, and function.

In this paper, based on extensive previous studies, the work classified the success factors (presented in Table 9) into four groups: organizational factors, technological factors, process factors, and project factors. As shown in Table 10.

As shown above in Table 10:

1) Five factors were interconnected in organizational, technological, and process perspectives, they are: Customer information management, Staff commitment/involvement, Services automation, Customer/consultant involvement and Operation management support. This means that these factors have important roles and their integration within an implementation process is a critical.
2) One factor was classified in the four perspectives; which named 'Staff commitment/involvement, this reflects the important role of employees and their integration is a critical for a successful implementation.
3) Seven of the classified factors in organizational perspective are the same as in the technological perspective, there are: customer information management, Staff commitment/involvement, KM capabilities, Services automation, Customer contact management, Customers/consultants involvement, and Operation management support; this emphasized that there is significant interconnectivity of organizational and process perspectives.
4) Nine of the mentioned factors in organizational perspective are the same as in the process perspective, there are: Organizational culture, customer information management, CRM strategy, Staff commitment/involvement, Services automation, Customers/consultants involvement, Interdepartmental integration, Operation management support, and Procedures and policies; this reflects the great

interconnectivity of organizational and process perspectives.
5) Three of the introduced factors in organizational perspective are the same as in the project perspective, there are: Top management support and commitment, Skillful, motivated, and trained staff, Staff commitment/involvement, Management of change, and Process change; this also reflects the interconnectivity of organizational and project perspectives.

4.4. How these success factors can be measured?

In a response to the need of facing the high failure of CRM, many authors searching and studying the CRM critical success factors area. And consequently, there is a long list of factors that have positive impact on success of CRM; has identified in a lot of studies. Thus, there is a need for measuring and evaluating these success factors to know if the CSF is at an acceptable level to guarantee the success of the project? So, how can the CSFs are measured?

Depend on the identified CRM CSFs through this review; the comprehensive list of metrics (measurement scales) was generated to aids in measuring and assessing the success factors. This list of CSFs metrics is developed based on eight important existing studies relevant to CRM CSFs topic, as mentioned in references: [19,51,7,48,64,108,54,127]. Firstly, an initial list is developed which included more than 200 metrics. Then the uncommon and repeated metrics were eliminated, and the most accepted metrics in previous studies were selected. After this refinement process, the final list of metrics includes 90 items as shown in Table 11.

The aim of identifying these metrics or measurement scales is to use them as the means for measuring and evaluating these factors. Furthermore, they used to test, analysis, and reveal the relation between these critical success factors and the improvements in CRM projects success within organizations. Moreover, measuring and examining these factors would led to enhance the process of getting the feedback to finally end with making improvements in the outcomes of CRM. Reference [106] mentioned that "each CSF should be measurable and associated with a target goal; also, it may change over time, and may include items such as product quality, manufacturing flexibility, and brand awareness."

CRM, when effectively implemented, could lead companies to build a sustainable competitive advantage resulting in greater profitability [128]. So, CRM success can be considered an area that widely discussed in the literature. Following this line, numerous studies emerged examining, and measuring the critical success factors and their influence on CRM implementation success, to confirm the relation between these factors and the CRM projects success. Moreover, to identify which success factors have strong, positive, direct influence on CRM implementation success. For this purpose, many researchers used the statistical data mining techniques in a lot of their work as methods to help them in measuring and evaluating the CRM critical success factors.

Table 10
The classification of CSFs.

Categories	Organizational factors	Technological factors	Process factors	Project factors
Critical Success factors				
1. Top management support and commitment	√			√
2. Information Technology		√		
3. Skillful and trained staff	√			√
4. Organizational culture	√		√	
5. Customer information management (quality/share)	√	√	√	
6. CRM strategy (Define and communicate)	√		√	
7. Staff commitment/involvement	√	√	√	√
8. Monitoring, controlling, measuring, and feedback			√	
9. Knowledge management capabilities	√	√		
10. Define objectives/goals	√			
11. Organizational structure	√			
12. CRM software selection		√		
13. Interdepartmental integration	√		√	
14. Customer contact management	√	√		
15. Services automation	√	√	√	
16. Sales automation		√	√	
17. Customers/consultants involvement	√	√	√	
18. Process change	√			√
19. Customer satisfaction	√			
20. Marketing automation		√	√	
21. Time and budget management			√	√
22. Software customization		√		
23. Management of change	√			√
24. CRM champion	√			√
25. Willing to share data		√	√	
26. Customers segmentation	√		√	
27. Size of organization	√			
28. Operation management support	√	√	√	
29. Procedures and policies	√			√
30. Creation of multidisciplinary team			√	√

Basically, there is the broad scope of data mining techniques and much a variety of data mining methodologies; one of these methodologies is the Statistical Data Mining. Statistical data mining is the computational procedure of discovering valuable knowledge from extensive data sets including strategies at the crossing point of machine learning and databases technology. Statistics mining technology is a data mining technology, which is currently the most widely used. Generally, there are various well-established statistical mining techniques for data analysis, particularly for numeric data. Furthermore, these techniques are applied extensively to scientific data (e.g., data from experiments in physics, engineering, and manufacturing), as well as to data from economics and the social sciences. A number of these Statistical data mining techniques are: regression, survival analysis, analysis of variance, mixed-effect models, factor analysis, discriminant analysis, and quality control. This study reviewed a number of significant empirical studies and researches discussed effectively the measuring, evaluating, testing, and examining the critical success factors affected on CRM success, and it was realized that most of authors used regression and factor analysis techniques in their works.

On the other side, for drawing the guidelines to measure and evaluate of the CRM's success factors, in addition to, test and examine the influence of the CSFs on the CRM success by using statistical data mining techniques. Firstly, the metrics or measurements scales would be identified for each success factor. Secondly, it is a need for selecting a data set based on data required for the identified metrics; this data set would contain data collected from the companies which have implemented the CRM systems successfully. And then it is significant to choose an appropriate statistical data mining

Table 11
Metrics of CRM critical factors - multiple sources.

Top management support
1-Presence of the CRM project in the company's strategic plan.
2-Percentage of actively participating top-level management.

3-Percentage of budget in technology and communication area, assigned to system integration,
4-Percentage of board members objectives connected with fulfillment of CRM

5-Percentage of removing organizational constraints.

IT systems (integration/management)

6-The rate of customer data is stored in different firms' systems.
7-Percentage of systems that have information on customers and are integrated
8-Average time taken to update information among different information systems that share customer information.
9-Number of information systems on average that have to consult someone in the company for customer queries.

Skillful, motivated, and trained staff
10-Percentage of staff that is aware of objectives and benefits of CRM.
11-Percentage of staff has attended seminars to learn significance of CRM.
12-Firm has qualified employees and resources needed to succeed in CRM.

13-Existences training programs that designed to help employees to develop skills needed to manage customer relationships effectively.

Organizational culture
14-Firm's business objectives are oriented to customer satisfaction.
15-Firm closely assesses its level of commitment in serving customer needs.
16-Firm's competitive advantage based on understanding customer needs.
17-Firm's business strategies are driven by objective of increasing value for customers.
18-Firm frequently measures customer satisfaction.
19-Firm pays great attention to after-sales service.
20-Firm offers personalized products and services for key customers.

Customer data (quality/share)

21-Forecasting potential purchasing power.
22-Segmentation of the company's customers.

23-Integrity of customer information sources.

24-Rate of Existence of a customer retention plan.
25-Ratio of Customer satisfaction with the company.
26-Ratio of complaints related to the products or services sold.
27-Percentage of annual acquisition by customers.

CRM strategy (clear development/communication)
28-Presence of the CRM project in the company's strategic plan.
29-Existence of public documents stating in writing the objectives by CRM.

51-Open/two-way communication exists between different departments.
CRM Software Selection
52-Existance of CRM software works across all corporate departments to help harmonize customer-centric thinking in the every part of organization.
Inter departmental integration
53-Percentage of members of team responsible for implementing CRM who are leaders of their areas.
54-Percentage of participation by different areas involved in the follow-up meetings of CRM project.
55-Existence of public documents where each area is aware of the objectives related to CRM project of the rest of the company's areas.
56-Frequency of team meetings of the participating departments.
Customers contacts management
57-Rate of transactions carried out personally by customers at an office or branch of company.

58-Percentage of transactions carried out by customers remotely, by phone fax, or using electronic means.
Customer service
59-Average response time when dealing with requests from customers for information.
60-Average response time for dealing with customer complaints.
61-Percentage of the company budget earmarked for activities related to pre and post-sales services.
62-Rate of customer satisfaction with company.

63-Frequency of measuring customers' satisfaction.
64-Rate of customers' complaints related to the products or services sold.
Sales automation
65-Rate of integration with other IT systems.
66-Average time taken to update the sales forecast.
67-Average of time spent by salespeople on administrative work.
68-Average time spend by salespersons in placing an order.
69-Average time spend by salespeople in obtaining information on all the offers made and on documentation sent to customers.
70-Average time spent by sales manager in obtaining a unified view of status of each of its customers.
Customers/consultants involvement
71-Existence of consultants that may be involved in various stages of project implementation: performing requirements analysis, recommending a suitable solution, and managing implementation.
72-Rate of Direct and indirect involvement of customers that helps firm to analyze the customer relationship life cycle and find the areas of problems that can be solved by CRM.
Customer satisfaction
73-Increase of friendly interaction with customers.
74-Enhancing brand value.
75-Decrease of customer complaints.
76-Increase of overall customer satisfaction level.
Marketing automation
77-Average time taken to launch a new marketing campaign.

Table 11 (*continued*)

30-Percentage of staff is aware of the objectives and benefits of the CRM.

31-Percentage of staff has attended seminars to learn the significance of CRM.

Employee involvement/commitment

32-Rate of personnel turnover during the implementation project.

33-Annual rate of staff absenteeism.

34-Percentage of staff who fails to comply with company working hours.

35-Employee performance is measured and rewarded on the basis of their ability to effectively satisfy customer needs.

Monitor, control, measure &feedback

36-Frequency of CRM project implementation follow-up meetings.

37-Frequency of monitoring reports.

KM capabilities

38-Percentage of establishing processes to acquire knowledge about customers and about its competitors.

39-Percentage of establish processes to apply knowledge to resolve new problems.

40- Percentage of ability to take decisions rapidly thanks to availability of knowledge about customers.

41-Prediction future customers' expectations.

42-Forecast of products that is based on previous data.

43-Percentage of having Knowledge about market segments.

44-percentage of providing channels to enable ongoing two-way communication with customers.

45- Percentage of designing processes to facilitate knowledge transmission between various functional areas.

Objectives definition clearly

46-Existence of documentation of objectives sought by CRM project.

47-Percentage of Publicly available objectives documentation.

48- Percentage of knowledge of potential benefits of CRM for a company.

Organizational structure

49-Organizational structure designed following customer-centric approach.

50-The different departments work together to achieve CRM objectives.

78-Average time taken to see the impact of a new campaign on sales.

79-Average time spent updating all the information related to sales.

80-Average time spent updating all information about customer service.

81-Average time taken to obtain an updated sales report by type of product, geographical zone.

Time & budget management

82-Average of CRM implementation has been controlled based on the whole project time and budget.

Size of organization

83-Number of employees in the organization.

Support for operational management

84-Existence of a support unit for internal users.

85-Average frequency with which equipment that supports company's operation breaks down.

86-Percentage of technology area's budget that is earmarked for supporting operational management.

87-Percentage of a value of operating equipment set aside for its spares inventory.

88-Average time taken to fix an operating problem in a company.

Creation of a multidisciplinary team

89-Percentage of the company's areas belongs to a team responsible for CRM implementation.

90-Percentage of actively participating departments.

techniques effectively according to a purpose of analysis, evaluate, or measuring process.

5. Results

The objective of this systematic review was to determine and prioritize the critical success factors which have strongly and positively affected on the CRM success, and to identify the potential metrics for the purpose of examining, analyzing, and measuring these CSFs. Thus, this literature review was conducted by covering high number of significant research studies in these areas. Using the information extracted from the review, a comprehensive initial SCFs list was developed; furthermore an extensive CSFs taxonomy was conducted. In addition, a significant list of CSFs metrics was provided. The principal results of the review are:

1. The attempt to organize the main 21 reasons behind the high failure rate for CRM projects implementation.
2. The clear descriptions for the critical success factors concept with explaining their importance on the CRM success.
3. The study reviewed and managed the high number of previous research studies and literature which focus on CRM success factors and CRM successful implementation topics.
4. The comprehensive CRM success factors list was developed, in which it summarized about 54 success factors that possibly have positive effect on the success and failure of CRM implementation and adoption within organizations.
5. The study calculated the existences' percentages for each success factor within the 51 of extensive previous studies discussed the CRM success and failure topics. Based on these estimated percentages, the study ranked these factors to determine the most accepted success factors.
6. The final CRM's critical success factors list that showed the most critical success factors was produced. Whereas, the factors in this list have a high acceptance by authors and researches, and also have a direct association with CRM failure challenges.
7. The taxonomy for CRM success factors was conducted which classified the thirty CSFs (resulted from the summarizing of 51 previous studies presented in this systematic review) based on the four suggested categories, organizational factors, technological factors, process factors and project factors.
8. The significant list of metrics that involved all the possible measurement scales supported in the previous works and others suggested by this review was generated as a mean to guide for measuring and evaluating the CRM critical success factors.

6. Conclusion and future work

This work typically attempt to help enterprises for improving the success rates of CRM implementation and adoption, and try to overcome the challenges behind the high failure rates of CRM projects; focusing on the critical success factors approach. The study started with identified and summarized the main challenges face the implementation of CRM projects for creating a clear understanding of the reasons why the majority of CRM projects were failed. Consequently, the paper found out that the most significant CRM challenges take the form of lack a top management support, Lack a clear vision and strategy, Poor management of change, Poor training program, Lack customer-centre orientation/vision, and Poor skillful human resources.

After that, the study conducted extensive review and survey in order to identify the CSFs that strongly influence on the successful CRM implementation. So this literature reviewed a high number of existences studies (which clearly and effectively covered the areas of CRM success and examining the relation between the CSFs and CRM success) and generated the summarizing of all the potential success factors within these selected studies. Moreover, it created another summarizing of 51 comprehensive studies.

And then, the study identified the frequency of each CSF within these 51 previous CRM studies to estimate the percentages of its existences in these studies. Based on the estimated percentages, the CSFs were ranked to determine the most important and accepted critical factors by researchers and authors as reported in their works. With this gained knowledge this review generated a final list of CSFs that informs that the most important factors were: top management support, IT systems integration/management, Skillful, training, motivated staff, organizational culture, and customer data (quality/share).

In order to improve readability of this high number of CSFs and avoid a conflict, there is a need for proposing a careful consolidation and classification. For this purpose, this work produced an extensive CSFs classification according to four perspectives: organizational factors, technological factors, process factors, and project factors. We realized that some factors were classified in more than one perspective; this reflects the importance of these factors and the inter-connectivity between these four perspectives.

Finally, evaluating and measuring these CSFs can confirm and emphasize the relation between these CSFs and the success or failure in the implementation and adoption of CRM projects. For this line of thinking, this review developed a comprehensive list included 90 metrics (measurements) that can be used in measuring these CSFs and in examining the relations between these CSFs and CRM success.

For future research, the researchers suggest testing and examining the most critical success factors identified in this work, using the proposed list of metrics within organizations has implemented successful CRM projects. Also, it would suggest developing a method to rank and prioritize the CRM critical success factors. Finally, it suggests for more investigation in the areas of measuring the CSFs differently and monitoring them.

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