

The Critical Success Factors (CSFs) of Social CRM Implementation in Higher Education

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Abstract— Social CRM is an evolution of CRM systems that now includes social media as an important component with many companies using social CRM to facilitate customer engagement. The use of social CRM in the higher education industry lags behind many other industries primarily because social CRM models do not exist for higher education. This research aims to provide the critical success factors for implementing a social CRM system for higher education institutions in Jakarta, Indonesia. A questionnaire was sent to fifty eight private universities in Jakarta. Each questionnaire had one hundred thirteen questions which were sent to top level higher education officials in order to understand the critical success factors needed to build a social CRM model. Seventeen universities replied and sixteen critical success factors were identified as core components after performing a statistical technique named Principle Component Analysis (PCA).

Keywords— *critical success factors (CSFs), customer relationship management (CRM), Social CRM model, higher education, principle component analysis (PCA)*

I. INTRODUCTION

As technology is continuously developing and business is becoming more competitive, companies continue to focus on executing their customer relationship management (CRM) strategy to gain a competitive advantage. However, the growth of social media has introduced a new layer of complexity which is forcing companies to rethink their CRM strategy in how to best serve their customers. With social media as a new communication channel between companies and customers, Social CRM [1] is introducing a paradigm shift in how companies interact with customers as they move from thinking about customer management to customer engagement.

Despite the potential benefits, social CRM is an enterprise software technology whose implementation is costly and risky. The benefit of having a social CRM model is that it allows companies to better manage their customer engagements, but the success of Social CRM implementation greatly depends on several critical success factors (CSFs). Based on the previous literature review [2], 31 CSFs that are often used for determining the success of CRM implementation in organizations were identified. The top ten of the 31 CSFs which were most frequently cited by authors in research are (1) technology selection and adaptation

(technology readiness), (2) top management commitment, support and involvement, (3) CRM process (business process), (4) customer relationship/engagement, (5) organizational culture, (6) knowledge management, (7) skillful, motivated, and trained staff, (8) company strategy (strategy fit), (9) employee/staff/end-user & stakeholder involvement, commitment, and support, and (10) organizational structure.

[3] as well as [4] have proposed a general framework for a social CRM model, which identifies key components that a social CRM model in any industry should have. Industry specific social CRM models have been proposed by other authors such as: [5] for the telecommunication industry; [6] and [7] for the health care industry; [8] for the pharmaceutical industry; [9] for the hotel and hospitality industry; and [10] for SME (Small Medium Enterprise).

However, few (if any) research has been conducted on building a social CRM model for universities. A strong social CRM model can help universities manage the student experience. A study by [11] showed how a CRM system can be used to improve the service quality especially for international university students studying in the UK. Social CRM can also be used to improve learning outcomes for online courses [12]. One unique characteristic of higher education as a service industry is the long-term commitment that students make when they enroll in a university. The time commitment is much shorter in industries such as health care or hotel & hospitality, because when customers are dissatisfied with the service they receive they can more easily choose another doctor or go to another hotel. Yet most students will spend more than 3 years completing their degree and because the switching cost of attending a different university is high, students will continue to attend a university even if they are not satisfied with their experience. This can negatively affect a university if students are reluctant to recommend their university once they graduate. Thus, a social CRM model provides a way to manage the student engagement throughout the student's academic cycle.

A key challenge in building a university social CRM model is that it must be tailored to the specific requirements and challenges of universities, and because the customer engagement cycle is significantly different from that of other service industries, existing social CRM models are difficult to adopt or adapt. This underlying problem drives the following

research question addressed in this paper: What are the critical success factors (CSFs) that top university management feels is needed to build a social CRM model in a university setting?

This research used a quantitative approach to examine the CSFs that higher education officials in Indonesia deemed as the most important in building a Social CRM model for the Indonesian higher education industry. The statistical approach that was used for data assessment was the Principal Component Analysis (PCA) method. To answer the research question and meet the specified goals, this research was carried out in 17 private universities in Jakarta (Indonesia) as the research objects.

II. LITERATURE REVIEW

A. Social Customer Relationship Management (Social CRM)

CRM is a strategy or methodology that uses technology to help companies manage customer relationships. Early versions of CRM were invented in the late 1980's, early 1990's, but had limited functionality and were costly to maintain [13]. When properly deployed "a CRM business strategy leverages marketing, operations, sales, customer service, human resources, R&D and finance, as well as information technology and the Internet to maximize profitability of customer interactions" [14]. Companies that provide CRM solutions include Salesforce.com, Oracle, and SAP. Their customers come from multiple industries including but not limited to automotive, banking, construction, healthcare, and telecommunications.

The growing popularity of the internet has brought about changes in how it is used. The initial version of the internet (web 1.0) served to provide customers with information, but did not offer interactivity or as [15] explain users were simply "consumers of content". Web 2.0 enabled the customer interactivity that was missing in web 1.0 and saw the advent of popular social media platforms such as mySpace, Facebook, and Twitter, which allowed internet users to not only interact with companies, but also with each other. Web 2.0 created a new way for companies to stay in touch with their customers since both companies and users could create blogs, social networks, content communities like YouTube, bulletin boards to exchange ideas, or aggregate web content with applications like RSS [16]. The combination of CRM and web 2.0 created a need for social CRM which [1] defines as a business philosophy and strategy, supported by technology platforms, business rules, processes and social characteristics, designed to invite customers into a collaborative conversation to increase customer satisfaction.

An example of social CRM in action, is seen when airlines provide customers with flight information updates using Twitter, or answer customer questions via a Facebook page [17], or when large computer manufacturers like Dell leverage social CRM to drive sales promotions [18]. Thus, social CRM can help companies create a positive customer experience that will help develop customer loyalty and advocacy [19, 20]. Customers will see themselves as partners, and feel that they share in the company's success [20, 21]. In the world of higher education social CRM can give universities the chance to

better connect with students, who are accustomed to using social platforms, since they are primarily from the millennial generation and grew up in the era of web 2.0.

B. Critical Success Factors (CSFs)

In order to identify CSFs in a CRM implementation, we first need to identify what a "success factor" actually means. [22] identified a success factor as "the limited number of areas that when satisfactory will successfully improve the organization's competitive performance". [23] viewed critical success factors "as the generic ingredient that has to be the essential part of any successful CRM implementation". [24] explained that there is no universal procedure to gather and analyze CSFs and for that reason, a number of studies have used diverse methods to identify those factors such as interviews, questionnaires, etc.

Using a systematic literature approach of papers published between 2001-2014, [2] reviewed 53 relevant papers to identify the most frequently cited critical success factors needed for CRM implementation. Their research unveiled 31 critical success factors shown in Table I.

TABLE I. LIST OF CRM'S CRITICAL SUCCESS FACTORS (CSFs)

| No | Critical Success Factors (CSFs)* |
|----|---|
| 1 | Available resources |
| 2 | Balance project team |
| 3 | Budget |
| 4 | Change management |
| 5 | Clear goals and objectives |
| 6 | Communication |
| 7 | Company strategy (strategy fit) |
| 8 | CRM processes (business process) |
| 9 | CRM system roll out and configuration |
| 10 | Customer relations/engagement |
| 11 | Customer satisfaction |
| 12 | Data warehouse and data mining (customer data and information) |
| 13 | Employee/staff/end-user and stakeholder involvement, commitment and support |
| 14 | External consultant/expertise |
| 15 | Inter-departmental integration and commitment |
| 16 | IT structure and legacy system |
| 17 | Knowledge management |
| 18 | Monitoring/measurement of performance |
| 19 | Organisational culture |
| 20 | Organisational structure |
| 21 | Project champion |
| 22 | Project management |
| 23 | Skilful, motivated, and trained staff |

| No | Critical Success Factors (CSFs)* |
|----|---|
| 24 | System acceptance and usage |
| 25 | System integration |
| 26 | Technology selection and adaptation (technological readiness) |
| 27 | Top management commitment, support, and involvement |
| 28 | Troubleshooting |
| 29 | User training |
| 30 | Vendor relationship and support |
| 31 | Web 2.0 features |

III. RESEARCH METHODOLOGY

A systematic literature review by [2] posited 31 critical success factors (CSFs) for CRM development in any industry. Then a questionnaire with 113 questions was developed, with each question tagged to one of the 31 CSFs. After that, the questionnaire was distributed to top level university officials or approved subordinates from 58 private universities. A total of 17 universities responded and returned the questionnaires. The research steps are summarized in Figure 1.

After all questionnaire data was collected, it was analyzed and interpreted using the Principal Component Analysis (PCA) method. PCA is a data reduction statistical technique which aims to classify a large number of variables into a smaller group of variables based on the uniformity of their characteristics [25].

By analyzing the answers to the 113 questions, with each question being a variable for analysis, PCA produced matrix eigenvalues and matrix loading factors which were then used to reduce the original 113 variables into a new reduced variable set consisting of 16 new variables also defined as 16 principal components. Each of the 16 new variables or principal components is composed of variables from the original variable set.

The new reduced variable set was then shown to the high level university officials or appointed subordinates and taken through a relabeling process whereby the new variables (which, as mentioned, are composed of variables from the original variable set) must be given a name which then becomes the new critical success factor. The 16 new variables after being named give the 16 new CSFs for implementing social CRM in a higher education setting in Indonesia.

A. Data Collection

The research questionnaires were distributed to 58 private universities in Jakarta, the capital of Indonesia. The number of universities who returned the questionnaires was 17. The universities were selected based on the institution's ranking listed in the webometric ranking (www.webometrics.info) and 4ICU ranking (www.4icu.org) as these ranks reflected the institution's capability and competency in implementing Social CRM. Data collection was conducted by sending the printed-form questionnaires to the respondents through parcel

services, then the respondents returned their responses either by using parcel/postal services, in person, or by emailing the scanned copy of the answers. The respondents in this research were top level managers of higher education institutions, such as rectors, chairmen or directors, or qualified assistants who have knowledge of the issues.

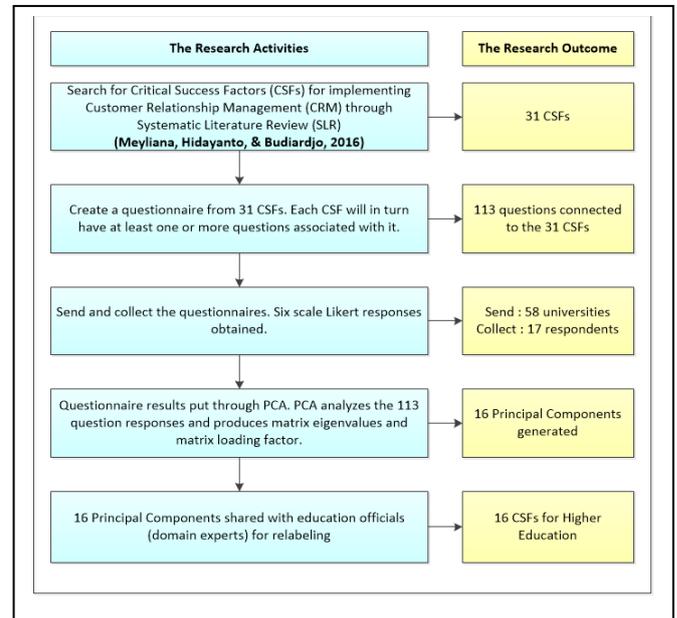


Fig. 1. Research Steps

B. Data Instruments

This research used close ended questions as the data instrument. Respondents were asked to score the level of importance for each question using a 6-level Likert scale where scale 1 indicated not very important and 6 indicated that the question was very important for them.

Details of the mapping between 31 CSFs into the 113 questions used in this research can be found at <https://meyliana.me/critical-success-factors/>.

C. Data Analysis

Data collected from the respondents were analyzed using Matlab (Matlab R2014a) to perform Principal Component Analysis (PCA). PCA was performed to eliminate unimportant variables so that new groups of remaining variables could be determined (reabeled). These remaining variables then became the critical success factors for building a social CRM model in higher education. The PCA calculation used a 17 x 113 data matrix size.

IV. RESULTS AND DISCUSSIONS

A factor analysis calculation using the Principal Component Analysis (PCA) method, resulted in an accumulated eigenvalue matrix with only 16 eigenvalues.

These 16 eigenvalues accounted for 100% of the whole data variance. This result indicated that the data which was initially represented by 113 variables could be represented by only 16 new variables or principal components (each new variable now becoming a combination of some of the original variables). The results can be seen in Table II. The contribution values of each variable to the formation of each principal component can be seen in the table loading matrix which has been posted online at <https://meyliana.me/critical-success-factors/>.

TABLE II. MATRIX ACCUMULATE EIGENVALUES

| No | Eigenvalues | Percent | Accumulated Eigenvalues |
|----|-------------|---------|-------------------------|
| 1 | 41.7141 | 0.602 | 0.602 |
| 2 | 5.7779 | 0.083 | 0.686 |
| 3 | 3.7315 | 0.054 | 0.740 |
| 4 | 3.1805 | 0.046 | 0.786 |
| 5 | 2.8326 | 0.041 | 0.827 |
| 6 | 2.1623 | 0.031 | 0.858 |
| 7 | 1.9922 | 0.029 | 0.887 |
| 8 | 1.7785 | 0.026 | 0.912 |
| 9 | 1.6769 | 0.024 | 0.937 |
| 10 | 1.2861 | 0.019 | 0.955 |
| 11 | 1.0471 | 0.015 | 0.970 |
| 12 | 0.8246 | 0.012 | 0.982 |
| 13 | 0.5866 | 0.008 | 0.991 |
| 14 | 0.3246 | 0.005 | 0.995 |
| 15 | 0.2678 | 0.004 | 0.999 |
| 16 | 0.0593 | 0.001 | 1.000 |

From the loading matrix calculated using the PCA method, the scores that determined which variables were directly contributing to the 16 dimensions above were the scores that were calculated from the 113 questionnaire questions (C1 – C113). The grouping of PCA results and relabeling of each group into 16 new dimensions (PC1-PC16) can be found at <https://meyliana.me/critical-success-factors/> under “Table PCA grouping results and each group’s relabeling”. Based on the calculation results in the loading matrix, each new dimension was summed up according to the new relabeling groups and the summary can be seen in Figure 2.

The sixteen variables shown in Figure 2 were identified as the critical success factors that could be used in creating a Social CRM model for higher education.

V. IMPLICATIONS

A. Theoretical Implications

This research proved that the critical success factors theory [23, 24, 26, 27, 28, 29] can be used to find the critical success factors for developing a Social CRM model for higher education in Indonesia based on the components (variables) produced from Principal Component Analysis (PCA) calculation methods. Nowadays, Social CRM models are mostly built for general purposes [3, 4, 10]. Research proposing a Social CRM model for higher education institutions is virtually non-existent. The contribution of this paper to the field is in providing the critical success factors for an initial social CRM model that can be leveraged in higher education.

The research assumes that the critical success factors that are most important in higher education can be culled from the systematic literature review conducted by [2]. It is possible, though unlikely, that there may be a factor or factors that have not been addressed in the literature on implementing social CRM models. Another possible limitation of this paper is that it focused on private universities in Jakarta, Indonesia. Therefore one future research suggestion would be to see if the same critical success factors apply to public universities.

This research study focussed on obtaining feedback from key management stakeholders at universities. There are other stakeholders such as parents, employees, government and other industries that interact with these universities. This research could be further extended to identify whether the critical success factors that university management found most compelling aligns with the critical success factors that other stakeholders value.

B. Practical Implications

Armed with the Social CRM critical success factors in higher education it is possible to propose a Social CRM model built upon those critical success factors. Thus, this research can be used by higher education institutions as a guideline in successfully implementing Social CRM. In addition, the result of this research can also be further utilized by Social CRM vendors as a baseline in developing systems or Social CRM technologies that align with the needs of higher education institutions. Major CRM companies such as Oracle, SAP and Microsoft could use this research to build a base Social CRM model for higher education.

Understanding the critical success factors will also help content managers create more targeted social media campaigns which should result in better branding and customer engagement for their universities [30]. Customer satisfaction should also receive a boost as universities will be able to deliver “service personalisation” since the social CRM platform will be able to better determine student’s needs [11].

| No | Variable | PC1 | PC2 | PC3 | PC4 | PC5 | PC6 | PC7 | PC8 | PC9 | PC10 | PC11 | PC12 | PC13 | PC14 | PC15 | PC16 | Total |
|----|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|-------|
| 1 | Application | | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 15 |
| 2 | Budget and Project Management | v | | | | | | | | | | | | | | | | 1 |
| 3 | Culture | | v | v | v | | v | v | | v | v | | v | | | v | v | 10 |
| 4 | Data and Information | | | | v | | | | v | | | | | | | | | 2 |
| 5 | Knowledge Management | v | | | | v | v | | v | v | v | v | v | | | v | | 9 |
| 6 | Leadership | | | v | | | v | v | v | v | v | | v | | v | v | v | 10 |
| 7 | Metrics/Outcomes | v | | | | | | | v | v | | v | | | | v | | 5 |
| 8 | Business Process | v | v | v | v | v | v | v | v | v | v | v | v | v | v | | | 14 |
| 9 | Social Media | | | | | | | | | | | v | | | | | | 1 |
| 10 | Strategy fit | v | v | | v | | | v | v | v | v | | | v | | | v | 9 |
| 11 | Student & Alumni Engagement | | v | v | v | v | v | v | v | v | v | v | v | v | v | v | v | 15 |
| 12 | Technology Selection & Adaptation | | v | v | | | | v | v | | v | | | | v | | | 6 |
| 13 | Training | | | v | v | | v | v | | | v | | v | v | v | v | | 9 |
| 14 | Units | | v | v | | v | v | | v | | v | v | v | | | v | v | 10 |
| 15 | Vendor Relationship | v | v | v | v | v | | | v | | | v | v | v | | | | 9 |
| 16 | Vision | | | | | | | | | | | | | v | | | v | 2 |
| | : core component | | | | | | | | | | | | | | | | | |

Fig. 2. Summary of New Relabeling Group

VI. CONCLUSIONS

This research has identified the critical success factors (CSFs) that can be used as a baseline to produce the necessary components for constructing a Social CRM model in higher education. The calculation result of Principal Component Analysis (PCA) method gave us an understanding of the most important variables/dimensions that higher education managers at private universities feel are very important to focus on when implementing a Social CRM model. The PCA process provided us new dimensions (113 questions producing 16 new dimensions). These results can be used to formulate a social CRM model for higher education in Indonesia.

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