Implementation of Cloud Customer Relationship Management in Banking Sector: Strategies, Benefits and Challenges

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Abstract—The cloud customer relationship management (CRM) has emerged as an innovative tool to augment the customer satisfaction and performance of banking systems. Cloud CRM allows to collect, analyze and utilize customer-associated information and update the systems, thereby offer superior customer service. Cloud technologies have invaluable potential to ensure innovative customer experiences, successful collaboration, enhanced speed to marketplace and IT effectiveness. As such, many leading banks have been attracted towards adoption of such innovative and customer-driver solutions to revolutionize their existing business models. Chief Information Officers (CIOs) are already implemented or in the process of implementation of cloud CRM. However, many organizations are still reluctant to take such initiative due to the lack of information on the factors influencing its implementation. This paper, therefore, aims to delve into the strategies, benefits and challenges intertwined in the implementation of cloud CRM in banking sector and provide reliable solutions.

Keywords—Banking sector, cloud computing, cloud CRM, strategy.

I. INTRODUCTION

WITH numerous changes in the shape of increased usage of IT, changed consumer behavior, new regulations and intense competition, the contemporary banking industry has become intensely turbulent and dynamic [1]. Usage patterns have been gradually shifting from in-house legacy system to web-based applications, with mobile ones assisting innumerable users in accordance with the explosive growth of information systems [2]. The diffusion of cloud computing also plays a salient role in this accelerating trend, specifically enabling cloud CRM to become more common. Furthermore, these scholars have demonstrated that a diverse range of enterprises take the 80/20 principle into consideration since they spend a lot of money to attain new customers instead of retaining loyal customers [1], [2]. Cloud CRM has become one of the most broadly used applications in lieu of the substantial influence of CRM. To illustrate this, Saleforce.com as one of the most influencing worldwide companies has initiated with 50 billion market value and 500 million US dollar resources of CRM software as implemented on its website and there are other providers (e.g., IBM Congnos,

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NetSuite, Microsoft Dynamics CRM and so forth) [2]. Unlike the traditional CRM modules, cloud CRM solutions assist in numerous organizational sizes testing and implementing these solutions much faster. More importantly, many financial institutions tend to adopt cloud-based CRM for managing their data more efficiently and thereby supporting them to provide friendlier, faster and easier customer services to their clients [3]. Security and trust also play a significant role in developing or updating a bank's cloud strategy and infrastructure [4]. Accordingly, this paper discusses several key factors, such as strategies, benefits, challenges and technology that are closely associated with cloud-based CRM implementation. We also elaborate these factors using case study of different banks of Australia and New Zealand.

II. LITERATURE REVIEW

A. Cloud CRM Definition

Cloud CRM can be deemed as CRM software that is hosted in the cloud. This software is accessed on the go, helping all users easily access the same customer data whenever and wherever they need [5].

B. Cloud-Based CRM and Its Key Issues

Strategy - The Process of Strategy Development

Fundamentally, CRM strategy is 'a high-level plan of action that aligns people, processes and technology to achieve customer-related goals' [6]. A process of strategy development should have various steps as mentioned in the following sections.

- *Situation Analysis*: Once business plans are established and defined, companies might start tailoring a customer strategy cube (see Fig. 1), comprising customers or segments, offers and channels by using all information, data and analytics at their disposal and thereby understanding a customer interaction map which determines customer touchpoints and these interactions [6], [7].
- *Commence CRM Education*: An education program for all stakeholders, involving third parties who can make substantial contribution to the interactions with the enterprise's customers is inevitable to enhance an effective collaboration [6], [7].
- *Develop the CRM Vision*: A clear CRM vision frequently changes the way the company associates with its customers. It can be senior management's perspective

relating to what they learned from the education program or be the product of a wider visioning process that engages stakeholders, namely employees, partners and customers [6].
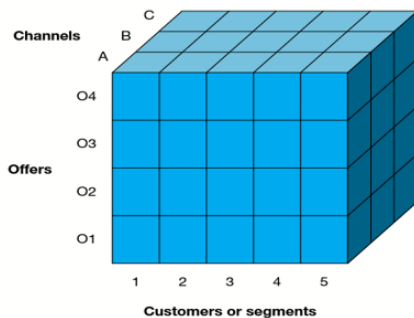

Fig. 1 Customer Strategy Cube [6]

- *Set Priorities*: Setting clear priorities in CRM strategy plays a salient role in cutting cost or improving customer experience. These priorities relate to customer-facing parts of a company – service, marketing and sales. The implementation of longer-term priorities is often difficult as CRM projects inevitably vary in their scope [6].
- *Establish Goals and Objectives*: Thanks to the visioning and prioritizing processes, the emergence of goals and objectives is indispensable. More importantly, CRM strategy generally clusters some objectives simultaneously, consisting of lowering customer service costs and improving customer satisfaction, loyalty or retention (see Fig. 2) [6].

Table 14.1 Strategic goals for CRM

Customer loyalty/satisfaction	Revenue growth	Cost reduction
Increase customer satisfaction	Increase sales revenues	Reduce cost of sales
Increase customer retention	Enhance cross-sell and up-sell opportunities	Reduce customer service costs
Increase customer loyalty	Increase customer profitability	Reduce marketing costs
Increase partner loyalty	Acquire new customers	Increase margins
	Increase marketing campaign response	
	Improve lead numbers and quality	

Fig. 2 Strategic Goals for CRM [6]

- *Identify People, Process and Technology Requirements*: This stage ensures organization, process and people changes as well as technology requirements in order to achieve objectives and goals. A broad idea of the changes is essential for identifying costs, timescales, and investments of the business plans [6].
- *Develop the Business Case*: This step is constructed around benefits (immediate and latent) and costs of CRM. Business case indicates not only costs but also revenues. These costs and benefits can be generated in different methods when implementing a CRM project [6].

Strategy - Application of CRM in Banking Sector

There can be a few appropriate and effective CRM application strategies for improving bank's competitive position in the market [8], including:

- *Changing Mindsets*: In terms of the change of mindsets, leaders play a pivotal role in change process. This means that banks need to employ experienced professionals with leadership skills, which can, in turn, have a positive influence on the company to motivate and convince for change. Additionally, financial institutions have to take employee career development and leadership training into account because with the support of leadership coaching, they are more likely to deal with the issue of absence of skilled people with respect to CRM by training employees.
- *Organizational Learning Philosophy*: A fast-adaptive culture can be thought as an organizational learning philosophy (OLP), which is a significant core strategy for today's banking industry. By effectively exploiting OLP, such as conducting regular discussion sessions alongside CRM strategies, can capitalize on customers and employees' expectations, feedback, satisfaction and dissatisfaction points to enhance its implementation and strategies.
- *Re-integration of Operational CRM*: Despite high analytical CRM capabilities in many banks, they are lacking in CRM operation and collaboration. Therefore, deploying an integrated CRM system and interacted channel management can be an optimal strategy to overcome the challenge of insufficient quality of customer data. For example, online banking is of considerable importance for reducing costs and increasing speed of transactions.
- *Increasing Switching Cost*: Banks have to develop increasing switching cost strategies such as excellent service, customer intimacy and focus differentiation with the purpose of retaining customers and increasing existing customers' share of wallet. Other methods consist of giving more reward points and using competitive pricing and promotion strategies. And all of these strategies can make customers feel as a valued customer.
- *Focus on Private and Premier Banking*: Practicing private and premier banking is always a top priority but in order to develop CRM to the highest, it has to be a strong player in private market. Profitable customer retention and acquisition are considered as the core and ultimate goal of CRM. More specifically, banks have to offer more individualized and attractive products and services to customers by the use of advertisement, packing and referral programs to attract more private banking customers.

For instance, Australian and New Zealand Banking Group (ANZ) considers that Salesforce CRM can play a pivotal role in Australian corporations but ANZ executes a range of activities globally consistently as well [9]. Cloud-based CRM is deemed as an ideal solution towards a focus on loyalty related strategies. Any customer data will be depersonalized and encrypted prior to implementing public cloud settings. Therefore, ANZ will handle all regulations and legislation

with respect to privacy and data storage. In the context of ANZ CRM model, it has improved employee retention and customer satisfaction by its individual marketing strategy. Further, a successful management and collaboration of people, processes, technology and so forth are paramount for executing an effective CRM system. "Super-Regional Strategy" was implemented by ANZ to facilitate innovative business propositions and customer services [9].

Benefits

Generally, a study of cloud-based CRM conducted by a variety of scholars and practitioners has revealed that there are several major benefits of cloud CRM [10]-[13]. As such, small and medium-sized enterprises (SMEs) can take advantage to improve their effectiveness and productivity, including:

- *Immediate "Savings" Benefits*: With a cloud CRM solution, many institutions might greatly lower upfront costs, consisting of hardware and software infrastructure, networking and complicated operating systems, maintenance and the like [10]. Also, employees frequently tend to be trained quickly and projects might be implemented and shared on the Internet. Hence, their costs are maximized in two key cost centers such as management and IT labor [10]-[13].
- *User-Driven Customization*: There is no requirement to determine customization per user due to the deficiency of infrastructure. Thanks to pre-built flexibility and less customization provided by cloud-based CRM vendors, this initiative is flexible and customizable for the end-user who can complement personal messages, logos and

acclimate the user experience where they see fit [10], [11].
- *24/7/365 Accessibility*: Sales and marketing departments tend to access data directly and simultaneously whenever and wherever they need based on the cloud CRM system [10]. It also provides a real edge to transnational teams and virtual workforces to easily access, which helps businesses scale the heights [10], [11].
- *Structured Data and Automated Salesforce*: Technically, customer data can be structured by cloud CRM application to demonstrate business's target segment and customize target marketing campaigns to fulfil customer's requirements, in turn, share better insights and act with essential strategies and speed [10], [11].
- *Actionable Customer Information*: Cloud CRM allows all departments, particularly sales and marketing, to easily access systems and get quicker, faster, more frequent and precise information on where many customers are in the buying lifecycle [10], [11].
- *Increased Productivity*: Utilizing a cloud CRM service is of crucial importance for SMEs. More precisely, employees tend to work without being tethered and tied to an office desk, office servers or desktops. Instead, they can contact clients and prospects on the go for real time information [10]. Consequently, such employees can improve productivity through providing more frequent and actionable client insights [10], [11].
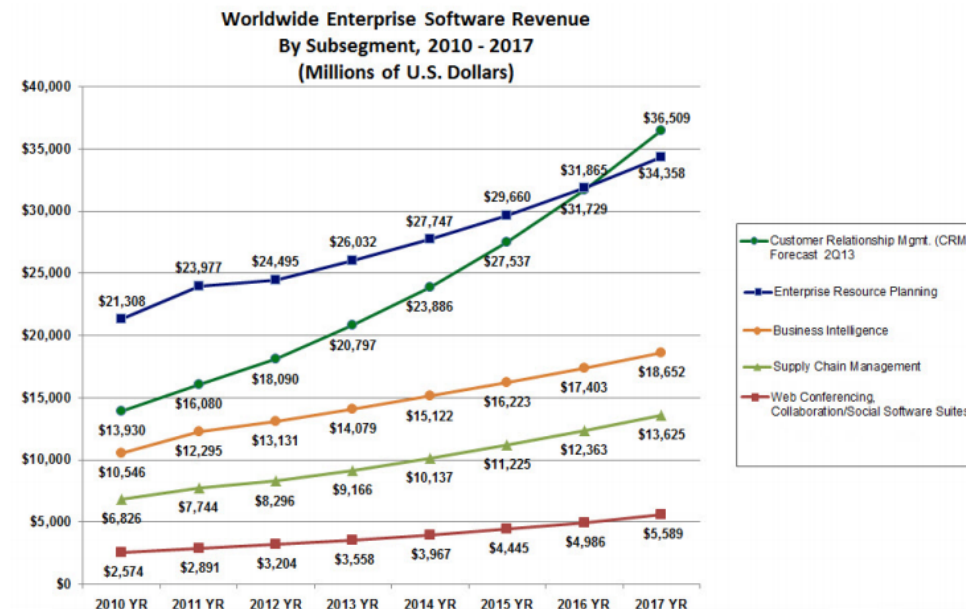

Fig. 3 Gartner Forecast: Enterprise Software Markets, Worldwide, 2012-2017, 2Q13 Update [15]

For example, in an empirical evidence of 186 banking technology professionals carried out by Bank Systems and Technology and Information Week Analytics, bankers are simply passionate about cloud-based CRM in banking sector [14]. The overwhelming majority, 73%, pointed towards many capabilities to fulfil user's requirements and accomplish scale

in the cloud [14]. The prediction of the latest enterprise software from Gartner illustrates CRM going up to a \$36.5 billion global market by 2017 and thus CRM has led all enterprise software types in increase forecast (see Fig. 3) [14], [15].

The Executive Director of Eghtesad Novin Bank has acknowledged cloud CRM has a great strategic importance [16]. The bank has no cost and concern about categories (e.g., software and hardware infrastructure and the personnel of service maintenance and so forth) since a central branch is accountable for all these categories and derivatives, so such bank just connects to the cloud and utilizes user interface easily [16]. Moreover, Commonwealth Bank (CBA)'s cloud model allows them to avoid substantial upfront costs and long-term commitments. This model also enables CBA to employ the capabilities of various vendors effectively to achieve high performance, flexibility and low costs. The automated provisioning of development, maintenance and implementation environments has been facilitated by blueprint standards (see Fig. 4) [17].

Examples of Cost and Time Savings from CBA's Cloud

CBA's website, commbank.com.au, which is used by individuals and retail banking customers, is now delivered via a standardized web server platform. A standardized website allows CBA to run the site on the cloud platform rather than on specialized dedicated hardware. CBA reported website costs of about A\$650,000 per year before the cloud model and about A\$30,000 with the cloud model.[21]

CBA's use of blueprint standards for software development environments that many cloud providers then can fulfill has effectively automated the deployments of such environments. Environment deployments that had taken several weeks before the cloud now take only 10 minutes. This results in an overall reduction in time to market for new applications of about 4-6 weeks with the cloud model.
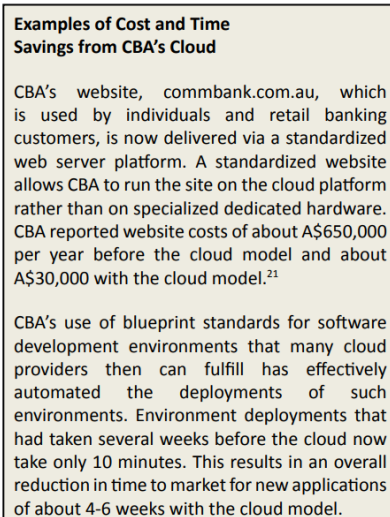
Fig. 4 Example of CBA's Cloud Strategy [17]

Challenges

Although there are several critical benefits, cloud CRM also has some challenges when implementing it, for instance:

- *Security*: Information nowadays becomes a valuable asset to the companies. It is a particular concern to users of cloud CRM, when data and application are located in the cloud [26]. It requires a cloud service provider to ensure security requirements. Especially, a banking sector where transaction information is customer information is sensitive [18].
- *Downtime Issue*: When cloud CRM application suffers an outage, it not only costs the enterprise in terms of money, but customers also question the reliability of the application. It can lead to a situation when the customer can stop using the service and choose other service providers as their current service provider is not reliable

[19], [25].

- *System Integration*: Cloud CRM uses integration approach to identify and retain customers. It requires smooth coordination across departments and geographies [24]. A failure of the integration of departments or geographies can result in an increase in manual processes, data inaccuracies and it can make report collection process challenging [18].
- *Privacy Concern*: There is a different legislation between countries in the world when it applies to data privacy. US government agencies have power in acquiring confidential data with regard to national security, while European nations are more restrictive and in favor of protecting the right of privacy [20]. In the nature of cloud, it locates storage infrastructure across various geographical locations around the world so that it can be the potential concern to its users. ANZ is an example of privacy concern, it will pass legislation and regulation regarding privacy and location by encrypted and depersonalized customer data before transferring it to public cloud [9].

Technology – The CRM Deployment Models Based on Cloud Computing

SMEs like banks can take cloud CRM adoption into account when choosing three types of deployment models [21], [27] such as:

- *Private cloud* typically refers to setting up behind a firewall with cloud computing technologies in-house. Many companies choose its private cloud in an early stage, because it helps control the access to cloud service and data.
- *Public cloud* is cloud system set up in public domain by cloud service provider such as Microsoft Azure or Google.
- *Hybrid cloud* is a combination of private and public cloud. It allows workload to move between private and public cloud, also provides flexibility and data retrieve options. In reality, most of the institutions have been using both private and public cloud across their departments [21].

Furthermore, cloud CRM integrates storage and software resources to build a large virtual resource pool which is designed to provide a convenient, economical and scalable service [22]. It is expected to be more effective in sharing resources and capabilities for achieving the goal of high productivity and low costs by providing for users with effective and easy service of the resource virtualization [22], [23]. The CRM system based on cloud computing includes four parts:

- *The first layer* is hardware infrastructure; it contains computing resource and storage resource.
- *The second layer* is platform service where there are software supports which are provided by the virtual resource. This layer also includes database and application server.
- *The third layer* is software parts where CRM applications

and system software are integrated for providing service maintenance and implementation environments on the cloud.

- Security management system is *the last layer* in CRM cloud system, it manages security for the whole cloud system including CRM service applications [22].

Technology – The CRM System Framework Based on Cloud Computing

There are three different software distribution models that cloud CRM can apply to, including infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (SaaS).

- *IaaS* is a model where user uses infrastructure services such as storage, networking from a cloud provider. Cloud CRM service provider manages data integrity and consistency. The user implements operating system and CRM software in the cloud infrastructure and it is also responsible for updating and maintaining its applications. Further, it takes advantage of an abundant physical resource by IaaS, it supplies service to users with the way of multi-tenancy and thereby allowing users to have greater control of their application [22].
- *PaaS* of cloud CRM users get core hosting operating system from the service provider, which enables them to run their own CRM application or third-party CRM application. This provider is accountable for a fully functional operating system with major platform software. PaaS users only need to implement its custom application and easily change application if the demand changes. Implementing PaaS in banking service generates a positive impact on the cost and time-consuming when sending an employee to training or services in distant branches [16].
- *SaaS* is a model which CRM software is owned and managed by a cloud provider. There is no need for SaaS users to install the application on their computers and systems. This model owns the application and is responsible for everything involving in running application. SaaS users pay a monthly or annual fee to use CRM applications. However, the level of application customization of SaaS cloud CRM is not as good as IaaS and PaaS cloud CRM. Using this model in banking service, the branch bank takes no cost and no concern about hardware or software related, as the central bank takes responsibility for these tasks [16].

Case Study of CBA's Cloud Model

CBA initiated to implement its multi-provider cloud model in 2011, which enables it to deploy stateless applications wherever it goes for. CBA cooperated with numerous other industry partners and cloud providers to develop and govern cloud standards (e.g., application programming interfaces (APIs)) across providers and applications. There are three key layers in CBA's cloud model. The top lay (CBA's apps) includes a group of applications adopting the cloud standards. Nevertheless, the central layer of the model – the cloud management system – dynamically and automatically allocates the computing capacities they require, thereby allowing CBA to move applications and their workload on the go for compliance, security or availability. The bottom layer – cloud providers – consists of different types of APIs and hypervisor such as internal, private external and public clouds complying with CBA's standards (see Fig. 5). Thanks to the CBA case, IT executives of other organizations will have a better understanding of implementing multi-provider cloud models, which can reduce IT costs, increase the application development speed, and take advantage of the flexibility and scalability [17].
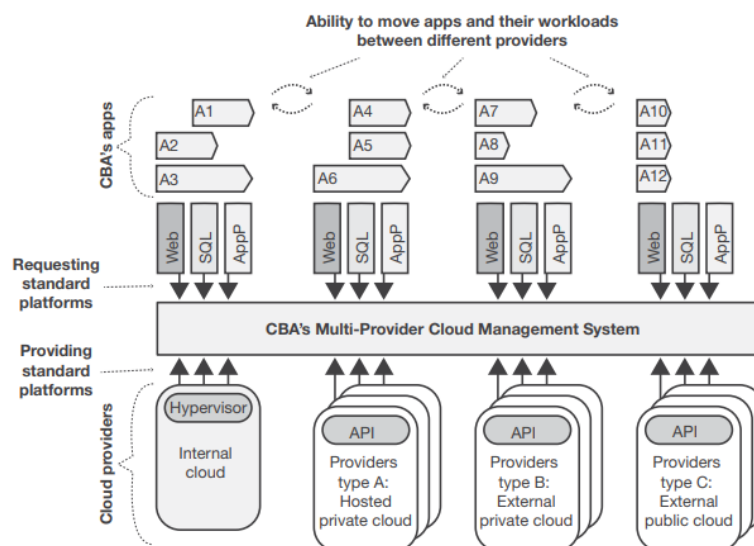

Fig. 5 CBA's Multi-Provider Model of Cloud Computing [17]

III. CONCLUSION

The paper aims to explore the factors that influence early adoption of cloud CRM in order to instigate better strategies and metrics in different industries, particularly in the banking sector. This paper can enable numerous researchers and executives to be on the right track for cloud CRM implementation, reduce cost and ensure revenue growth. We argue that cloud CRM can help departments share the same customer information and integrate processes, people and technology to serve customers and enhance customer satisfaction and loyalty. Cloud CRM can optimize the value chain and ease information system in order to improve working skills and knowledge of employees and gain a competitive advantage. We suggest that SMEs of financial institutions should take real challenges of cloud CRM into consideration thoroughly in order to avoid unexpected aftermaths. With the implementation of cloud CRM software, banks can simply predetermine potential profitability of customers and understand their various demands and thereby being able to employ the suitable resources for making the profit. However, there are some challenges that the institution needs to consider concerning cloud CRM such as operating system, security and privacy issues. As such, while implementing cloud CRM, companies should consider how to tack such challenges for smooth functioning of the system. As to technology, it depends on nature of business, its particular functions and users' requirements relating to CRM process; accordingly, many institutions can combine different models and technology capabilities to deploy the most suitable system for their cloud CRM.

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