



# Small Businesses and CRM: An Application Framework for a Light Approach

Leonardo Mangia  
SET-Lab, University of Lecce,  
via per Arnesano, 73100 Lecce, Italy, tel/fax +390832320229  
[leonardo.mangia@unile.it](mailto:leonardo.mangia@unile.it)

## ABSTRACT

*For a long time the big companies have spoken about tools for CRM (Customer Relationship Management). Many projects in this theme have failed, maybe, because the technological aspect has taken over in comparison to the marketing one. The necessity to create good relation that gives satisfaction for the customer and income for the company is a strong need also in the small business. Besides, in relation to the big companies, the small companies can not even think about big investments in IT.*

*The main purpose of this paper is that to give an overview about an application framework for a CRM innovative tool, of simple implementation and maintenance for the small businesses. This paper describes the requirements, the functionalities and the important aspects that characterize this framework and the design approach to follow for its implementation. Other papers will illustrate, instead, in details the components of this framework, their design and implementation, the results that derive from the adoption of this framework in the existing reality.*

## 1. INTRODUCTION AND BACKGROUND

All managers agree that the knowledge of the customer is one of the most important element of business success for a company that should work to obtain the loyalty of the actual customer and to make new ones [1]. This is true in the big companies, where it's always spoken about the attention for the customer, and also in the small business where the reduced dimensions can however work well, on a competitive market, with many customers with different needs.

In the small business, unlike of the large companies, the IT systems are many times bought from third parts, or in outsourcing, or in ASP mode and so it's not thought to create CRM project which, in IT side, try to change, in same part or completely, these systems [2]. So it's necessary for the small business to design and realize systems that collect the customer's information coming from different channels and by the various components of the IT system to obtain an integrate tool for the knowledge and the completed management of the customer or prospect without changing the systems that already exist.

The CRM systems can give enormous advantages in the correct use of modern network technologies and in particular of Internet technology [3]. In fact with this technology, and with the consequently standardization of the communication protocols and interfaces, it's possible to offer the services of the CRM systems on the Internet channel to anyone who have a web-browser and is able to connect himself on Internet. So it's easy to understand that the CRM tool, by different operation and information viewing, is released directly to the customers and to the various operators that are interested in the customers relationship (for example call and contact center operator, financial promoters, and sales director).

Also the new release of the leader products has demonstrated that the CRM tool obtains a big advantage to incorporate the Internet tech-

nology standard. In fact Siebel, for example, has distributed in '99 a CRM package completed based on Web and also Kana Corporation with its Kana e-service.

The tool is an essential component of a large strategy that transforms the management of the relation with the customer from a single component of the company, in most cases that are limited to a call center, to a really business process that also include new channels (web in all of them) and that always aim to develop constant and long term relation with the most important customers. Large investments in big IT architecture that promise an integrate CRM without the right attention to the marketing strategy and to a new organization are the principle aspects of big failure.

Thinking about light tools that easily and continually adapt themselves to the marketing strategies linking itself, without changes, the already existing IT modules can be the key to understand the CRM project management in IT aspects.

This is still true in the SB that, like the big company, feel the need of the CRM tool but hasn't economic capabilities to confront the large investments, neither the possibility to modify the existing IT.

So in the small business IT the design of a CRM tool can be referable to a design of a Web Application which, respectfully with the marketing strategy, allows a complete customer knowledge to all the operators involved in direct and indirect relation. For the design and the development of such Web Application it's useful to use a methodology and tools like HDM with its last development (W2000) [5], OOHDM and WebML [6].

## 2. THE CHARACTERISTICS OF THE FRAMEWORK

The actual and complex configuration of the CRM system is, like in ERP system, the synthesis of various evolutions. Understanding these evolutions, without thinking about the CRM system as a new revolution in IT, means to understand the effective function, its limits with other applications and the requirements of such system.

Already the traditional system of management of the interaction with the customers (for example, order management in a commercial company or the traditional desk system in the credit companies) have the customer entity, but the interaction with the customer is very low and so the customer's centric characteristic became less.

The first step toward the CRM, as interaction with the customer supported by the computer, are the sales force automation system (SFA).

Following the increase diffusion of the free telephone call numbers has multiplied the interaction by phone between customer and company creating a vast support center (known as call center or contact center) that offer operation and information services, help desk and complaint desk. This support centers sometimes substitute the traditional channel (for example a bank branch).

At the end, the web at the beginning of 1995 became the standard information channel for the public and for the customer and evolves in

an interactive channel for the self service sale according to the Amazon case for the mass public (B2C commerce) and CISCO case for the business customers (B2B commerce).

The effect of Internet on the CRM world is very profound. Schematically, Internet has influenced the CRM world in two ways.

- Internet has transformed the interaction between the companies and the customer, in terms of quantity and quality of contacts forcing the CRM system to collect all these information to create a large view to the customer.
- Internet has raised the contractual power of the customer. The customers have now an easy access to a large quantity of information and transaction. This has develop the self service aspects of the customer forcing the companies to open a part of the IT system toward the outside.

These four application areas - Order Management, SFA, Call Center, Web – born as separated and independent automatization, have standardized themselves in applicative package, and, already at the end of 90's are CRM suites, following a similar evolution to the ERP. So in this way we have a global management architecture of the customers that became an essential competitive tool for all the typologies of the companies [7].

### 2.1. Operational CRM and Analytical CRM

With the preceding considerations in mind we can understand as an CRM architecture can be divide in two different parts:

Analytical CRM (or Customer Insight functionality):

- business event monitoring (ex. birthday day, nameday, loan maturity or stock maturity);
- Design, creation and monitor for marketing campaign;
- Tableau de Bord: summary of customer situation by a set of KPI (Key Performance Indicator) also in comparison to the budget;
- Business Intelligence: customer behaviour analysis to extract target that answer to a set of appropriate business requirements;
- Data Mining e Customer Scoring;

Operational CRM (or Customer Interaction functionality):

- Channel and campaign management
- management and development of the customer relation;
- product sales;
- Help desk and Customer Care;
- expert evidence and Contact Center;
- maintenance and enrichment of the customer information.

The inheritance of the Customer Care systems has made to concentrate, in some projects, the attention on the Customer Interaction functionalities. The companies, instead, feel the need to integrate the commercial functions inside the CRM to improve the ability to design and to plan new marketing actions and new products, to plan and to control the results of the marketing investments also in comparison to the budget. All of this because on the markets has became strong the need to push to increase the proper share and the customer loyalty especially in the moments of crisis when the attention to the aspects of commercial strategic planning is still greater: the good knowledge of the customer base and their correct demands represents not a negligible competitive advantage.

More and more therefore to the CRM systems it's not only in demand a support in the activities of interaction, through the various channels, with the customer (operational CRM /Customer Interaction) but also a support to explore well the customer base and their demands (analytical CRM /Customer Insight) [8].

This type of support is not only destined to the central marketing but also to the outskirts. In a credit company, for example, a sales division manager, or a bank branch director, or a simple advisor can have the necessity to extract a target of clients that answer to determined business requirements (possession or not possession of products, particular values on the behavioural indexes, etc.) to create a mini marketing campaign on a new product for his customers.

## 2.2. The requirements

According with the preceding considerations the requirements for an application framework destined to the design of a CRM system in a Small Business are the followings:

### Adaptability

Easily the framework has to suit himself for the various and dynamics demands of the marketing strategies with low production costs and times. Nothing has to be tied up to hardly maintainable architectures.

### Operational CRM and Analytical CRM

The framework has to integrate both the functionalities of operational CRM (direct customer interaction) and those of analytical CRM (functionalities that allows to plan and to control commercial activity on a set of customer).

### Separation between CRM tools and legacy system

The framework has to foresee a separation between the functionalities of the CRM and the modules of the legacy system.

This separation is submitted:

- to a middleware layer when the purpose is to integrate real-time functionality in the CRM system (for example products trading on-line)
- to a CRM system local database, populated through ETL tools (Extraction, Transformation and Loading); this database memorizes the information ready for the analysis in the Analytical CRM functionalities.

This separation allows different times and ways to develop CRM system and legacy system.

### Multi channel

The support to the multi channel is one of the most important characteristic for a innovative CRM system and it must be analysed under two different aspects:

- the CRM system use a multi channel architecture to contact in the best way the customer;
- a CRM system integrates all information coming from the different channels

### Multi level

All the actors of the commercial hierarchy have to be able to use the CRM system; from operational marketing operators (for example advisors and financial promoters for a credit company) to strategic marketing operators (bank branch director, sales division director, marketing director). Different informative and operational view are able for every role.

### Custom designed for every role

In the framework every logical resource (menu items, data, functionality, web links, ...) must be defined and connected to the user's role and/or to the customer's service model. This will allow to dynamically customize the application according to the role of the user login to the system or according to the type of the customer on which the user is operating (ex. retail customer or corporate customer).

### Flexibility through Standards

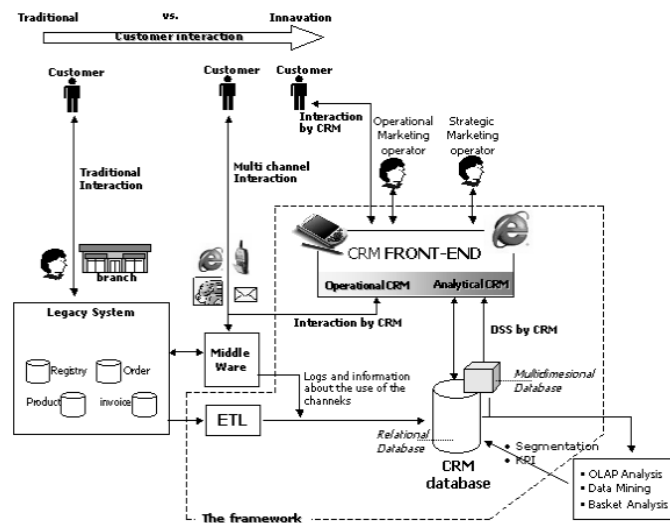
The possibility for a CRM system to receive information from, or to provide information to, other tools (such as Data Mining tools, Campaign Management), should be based upon well-accepted technical standards (ex. XML).

## 3. THE FRAMEWORK

The architecture, in agreement to the preceding requisite, is represented in the Figure 1. Such architecture is composed from two main elements:

- a customer database;
- a web and palm-based front-end with the Operational CRM and the Analytical CRM functionalities.

Figure 1: The architecture of the application framework



The framework doesn't include as main component the real-time connection to the legacy system: the purpose for CRM architecture is to support the complete knowledge of the customer with the scope to increase the company value proposition and not to support, with any cost, the direct interaction with the customer. Such connection can be inheritance of that is already realized for a direct customer interaction (ex. Internet banking or call center).

### 3.1. The Database.

The direct access from the CRM tools to the departmental database is sufficient in the Operational CRM functionalities

but not in Analytical CRM ones. So it is necessary that the suites of the CRM has its own database that collects all the information of the customers in a centric customer logic. It can be called Customer Database, or Data Mart Marketing, or other, but one thing is sure, it contains all the information that are needed for the functional side of the analytical CRM in a different logic of that of the legacy system or of the company data warehouse. It is, in fact, a database characterized from all the information that are needed to individualize the profile and the behaviour of the customer, either linked directly to the business (ex. possession and use on different channels of products of the company), or that linked indirectly to the business (ex. participation to commercial in-bound or out-bound campaigns with a relative outcome).

This database is supplied through ETL procedures registered at established frequency. The main area for the CRM database are: Users, Customer and Products.

Even though the logic of construction of the database remains the same, the data model diagram can change with regards to the specific company (ex. credit banks, multi utilities, training center).

As one part of the database is a relational database it is also characterized by a multidimensional part (OLAP cubes) that consents to have a tableau de bord (DSS that support the marketing decisions) on every level of hierarchy of operators that use CRM.

### 3.2. The front-end

The front-end is a Web portal application and an Palm Based application (to support as best possible the mobility of the sales agents) that gives availability to the operators the functionalities of the Operational CRM and that of the Analytical CRM.

This Web Application is designed and realized following the W2000 methodology. This methodology models the viewed and operated information differentiated by the users type but also the multi device delivering. This approach guarantees the usability, coherence in the presentation and in the navigation of the information, easy maintenance and

accuracy in the execution of operations/transactions on Internet technology.

This Web application is customisable according to the needs of the company.

Similar to the CRM database the front-end is characterized by three fundamental sections:

- user desktop,
- customer dashboard,
- product form.

At the moment of the users login the front-end presents the user's desktop. Such desktop visualises all the commercial information that interests the user (ex. news, to do list, appointments of the day, business alert). With the user's desktop it is possible to enter, according to his profile, to all the functions of the CRM.

These functions (ex. customer search, extraction of personalised targets, management targets of campaigns) help to reach to the selection of a customer.

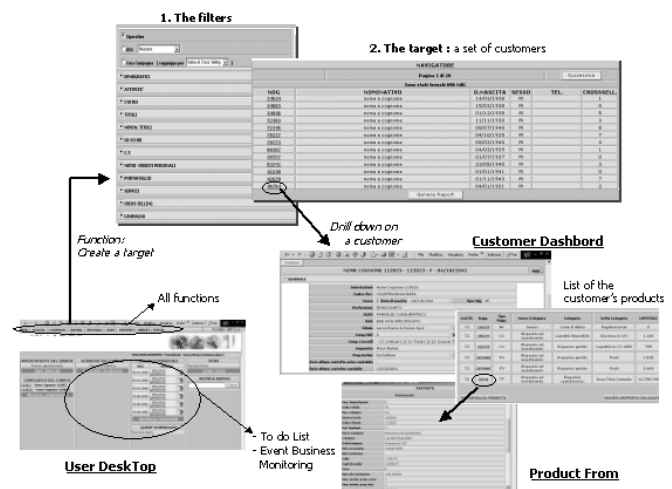
After the selection of the customer there will appear the customer's dashboard. This form refers all the synthesis information (ex. KPI) and operational information (ex. anagrafic and owned products). From this form it is possible to recall all the operations on the customers (fix and carry out an appointment, the purchase of a new product, etc.). This dashboard opens automatically (through the use of the CTI technology – Computer Telephone Integration) to the call center operator, for example, when the customer telephones. This same customer form can be used with informative and operational views clearly distinct, even by the customer itself when the company wants to give the repeated functions to the customer by Internet for example.

The selection of a product gives way to the opening of the product form that has all the information on the product, and also on the same products that are in competition and, eventually, the use of the product on a customers. Figure 2 shows an example of a navigation between the three main parts of one possible front-end.

## 4. THE APPROACH

To collect, keep and run the information on an only one database, is the first step for the realisation of a CRM project; this is in perfect agreement with the centralization of the CRM database in the framework previously described. In this stage it is fundamental to be able to focus the informative requirements of the customer in this way to be able to value and decide for the best data model diagram to keep this informative property.

Figure 2: An example of a navigation between the three front-end parts



Once it's known the set of information that wants to be managed you need to understand which forms of informative systems are able to give us this information and with what frequency. For the aggregated information (heritage segment, risk index of the customer, etc.) you must provide to ( in case they are not present in the legacy system or in the company data warehouse) local algorithms to the database (ex. store procedure) for their calculation.

Completed the information stage you must pass to the development of the front-end. The strategy to use is certainly an increasing development strategy. Once the general structure that wants to be given to the CRM portal is given you must insert slowly the functions of the Operational CRM and those of the Analytical CRM. These functions must respond perfectly to the marketing strategies of the company and in no way obstruct or modify the way of operating, re-define by any eventual and suitable projects of own change management orientated to the customer of the company. It is important to consider the possibility that at new releases of the functions on the CRM Web portal must correspond informative notes, days of formation in classes or tools of CBT (Computer Based Training) so to spread the learning between the operators of the CRM on instruments that they have in their disposition to reach the budget targets putting in practise commercial and marketing strategies of the company.

## 5. CONCLUSION

The application framework and the relative approach presented in this article has already been used in a middle sized bank (about 80 bank branch and 400 CRM operators). At the moment it is in a experimentation stage in a smaller bank (45 bank branch and 250 operators). These two experiences have put to evidence many good points in the approach presented and they have given a way to test a database model, a set of parametric procedures for its filling and a personalized front-end completing in this way, even in the technological details, the solution that has just been proposed.

More than adjusting the approach with experience, the present attentions are also turned to test possible database and front-end models for the multi-utility and commerce retail companies.

The approach, that has just been proposed, is addressed to SB but presents some aspects that can be followed also in CRM projects in large companies when the management want to follow a step by step development not letting the technological aspect prevail, with large investments in big architectures, on the marketing one.

## 6. REFERENCES.

- [1] Thompson, B. (2001): "What is CRM", retrieved from the web at <http://www.CRMguru.com>, January 2001
- [2] Gupta, B. (2002) "Success of Outsourcing Customer Relationship Management Functions: An Empirical Study", IRMA2002, Seattle, Washington, USA
- [3] Dunn, J. and Varano, M. : "Leveraging Web-based Information System", Information System Management, Fall 99, 60 - 69
- [4] Kos, A. J., Sockel, H. H. and Louis K. Falk (2001). Customer Relationship Management Opportunities. *Ohio CPA Journal*, 60 (1)
- [5] V.Perrone, M. Maritati, P. Paolini, L. Baresi, F. Garzotto, L. Mainetti: "Hypermedia and Operation Design: Model, Notation and Tool Architecture". Official Deliverable D7 of the European Project UWA IST2000-25131.
- [6] S. Ceri, P. Fraternali, A. Bongio: "Web Modeling Language (WebML): a modeling language for designing Web sites", to appear on Proc. Int. Conf. WWW9, Amsterdam, May 5 2000
- [7] Thomas, P. and Rainer, A.: "Customer Relationship Management in the Pharmaceutical Industry" 34<sup>th</sup> Hawaii International Conference on System Sciences – 2001
- [8] Jutla, D., Craig, J. and Bodorik, P. : "Enabling and Measuring Electronic Customer Relationship Management Readiness" 34<sup>th</sup> Hawaii International Conference on System Sciences – 2001.

0 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/proceeding-paper/small-businesses-crm/32143](http://www.igi-global.com/proceeding-paper/small-businesses-crm/32143)

## Related Content

---

### Cost Estimation and Security Investment of Security Projects

Yosra Miaoui, Boutheina A. Fessiand Nouredine Boudriga (2018). *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 4849-4861).

[www.irma-international.org/chapter/cost-estimation-and-security-investment-of-security-projects/184189](http://www.irma-international.org/chapter/cost-estimation-and-security-investment-of-security-projects/184189)

### Covering Based Pessimistic Multigranular Approximate Rough Equalities and Their Properties

Balakrushna Tripathyand Radha Raman Mohanty (2018). *International Journal of Rough Sets and Data Analysis* (pp. 58-78).

[www.irma-international.org/article/covering-based-pessimistic-multigranular-approximate-rough-equalities-and-their-properties/190891](http://www.irma-international.org/article/covering-based-pessimistic-multigranular-approximate-rough-equalities-and-their-properties/190891)

### The Influence of Digital Currency Popularization and Application in Electronic Payment Based on Data Mining Technology

Xiaoyuan Sun (2023). *International Journal of Information Technologies and Systems Approach* (pp. 1-12).

[www.irma-international.org/article/the-influence-of-digital-currency-popularization-and-application-in-electronic-payment-based-on-data-mining-technology/323193](http://www.irma-international.org/article/the-influence-of-digital-currency-popularization-and-application-in-electronic-payment-based-on-data-mining-technology/323193)

### Performance Measurement of a Rule-Based Ontology Framework (ROF) for Auto-Generation of Requirements Specification

Amarilis Putri Yanuarifiani, Fang-Fang Chuaand Gaik-Yee Chan (2022). *International Journal of Information Technologies and Systems Approach* (pp. 1-21).

[www.irma-international.org/article/performance-measurement-of-a-rule-based-ontology-framework-rof-for-auto-generation-of-requirements-specification/289997](http://www.irma-international.org/article/performance-measurement-of-a-rule-based-ontology-framework-rof-for-auto-generation-of-requirements-specification/289997)

### An Optimal Policy with Three-Parameter Weibull Distribution Deterioration, Quadratic Demand, and Salvage Value Under Partial Backlogging

Trailokyanath Singh, Hadibandhu Pattanayak, Ameeya Kumar Nayakand Nirakar Niranjan Sethy (2018). *International Journal of Rough Sets and Data Analysis* (pp. 79-98).

[www.irma-international.org/article/an-optimal-policy-with-three-parameter-weibull-distribution-deterioration-quadratic-demand-and-salvage-value-under-partial-backlogging/190892](http://www.irma-international.org/article/an-optimal-policy-with-three-parameter-weibull-distribution-deterioration-quadratic-demand-and-salvage-value-under-partial-backlogging/190892)