

2012

# CRM ADOPTION IN A HIGHER EDUCATION INSTITUTION

Guy-Emmanuel Rigo  
*ISEG*, emmanuelrigo@gmail.com

Cristiane Pedron  
*ISEG*, cdpedron@gmail.com

Mário Caldeira  
*ISEG*, caldeira@iseg.utl.pt

Follow this and additional works at: <http://aisel.aisnet.org/mcis2012>

---

## Recommended Citation

Rigo, Guy-Emmanuel; Pedron, Cristiane; and Caldeira, Mário, "CRM ADOPTION IN A HIGHER EDUCATION INSTITUTION" (2012). *MCIS 2012 Proceedings*. 22.  
<http://aisel.aisnet.org/mcis2012/22>

This material is brought to you by the Mediterranean Conference on Information Systems (MCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in MCIS 2012 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# CRM ADOPTION IN A HIGHER EDUCATION INSTITUTION

Rigo, Guy-Emmanuel, School of Economics and Management – Technical University of Lisbon, Miguel Lupi 20, Lisbon, Portugal, emmanuelrigo@gmail.com

Pedron, Cristiane Drebes, School of Economics and Management – Technical University of Lisbon, Miguel Lupi 20, Lisbon, Portugal, cdpedron@iseg.utl.pt

Caldeira, Mário, School of Economics and Management – Technical University of Lisbon, Miguel Lupi 20, Lisbon, Portugal, caldeira@iseg.utl.pt

## Abstract

*More and more organisations from private to public sectors are pursuing to reach high customer values of satisfaction, loyalty and retention. Following that idea, Higher Education Institutions (HEI) seek to develop more efficient management processes through the adoption of CRM – Customer Relationship Management initiatives. This paper discusses strategic issues that enable a HEI to build a suitable CRM strategy. To develop it, an action research was conducted in a European Institute, focused on answering to: How to adopt a CRM strategy in a Higher Education Institution? Some critical success factors figured prominently: Students are the most important “customers” in a HEI, but there are other stakeholders that CRM project must consider, as enterprises, partners, government and funding agencies; In the CRM software selection process, software integration and know-how of the supplier related to academic management are critical; The university can use its internal resources (professors, students and, marketing and information systems staff) in the CRM project adoption; A dynamic software methodology to implement CRM enables a fast implementation of business requirements providing a first software version that can be used and tested in the organization. As a consequence, the CRM software is closer to fulfil users’ expectations and help to change organizational culture.*

*Keywords: Customer Relationship Management, Higher Education, Selection and Implementation Software, Action Research.*

*This work is funded by national funds through FCT – Fundação para a Ciência e Tecnologia under the project Pest-OE/EGE/UI4027/2011.*

## 1 Introduction

European Higher Education Institutions (HEI) are starting to adopt CRM (Customer Relationship Management) initiatives (Santiago et al., 2006; Hilbert et al., 2007). These initiatives are expected to increase performance by establishing better management practices, common in other industries, and improve the relationship between the school and the students, especially in executive education. Through an educational CRM system, they may have a full understanding of student's needs and expectations in important student interaction phases, for example: admission, registration, fees payment, assessment and learning processes (Seeman and O'Hara, 2006; Grant and Anderson, 2002).

As mentioned by Hilbert et al. (2007), nowadays a new concept of CRM education is emerging but it is still in development: Student Relationship Management (SRM). SRM is oriented specifically to Higher Education's environment where all the strategic, process and philosophical lines are oriented and focused to the academic and student needs. The specific aim of a SRM is to offer capabilities to develop a 360° vision of the student life and needs, where HEI's will increase the retention and loyalty of their customers. To reach such objectives, HEI have to increase and develop strong CRM strategies where the Information System (IS) solution can fit into.

This paper discusses strategic issues to enable a University to build a suitable CRM initiative. To develop it, action research was conducted in a European University, focused on answering the following question: "How to adopt a CRM strategy in a Higher Education Institution?" We organized the paper in six sections. After this introduction, we discuss critical success factors of CRM adoption. The following section describes the research method used in the study. After that, we analyse data collected, through action research, with the implementation of CRM at the Sigma Institute. Finally, we present the discussion and conclusions of the paper.

## 2 People, process and technology vs. CRM critical success factors

CRM is a strategy which connects three important organisational dimensions (Strategy, Philosophy and Technology) and combines three important resources (People, Technology and Processes) to reach high levels of customer satisfaction, retention and loyalty (Edwards, 2008; Chen and Popovich, 2003). The literature shows several Critical Success Factors for CRM adoption (Rahimi and Berman, 2009). The following tables present which CSF are related with the different internal resources. In Table 1, it can be considered that the main idea of the CRM CSF related to people is to define a central organisational culture focused on customer relationship.

Critical Success Factors	Description	Authors
1. Top Management commitment	Top Managers need to be strongly integrated in all the adoption of the CRM solution.	Xu et al. (2002); Chen and Popovich (2003); Sin et al. (2005); Mendoza et al. (2007); Rahimi and Berman (2009).
2. Communication of CRM strategy	CRM strategies must be clearly communicated in all departments.	Xu et al. (2002); Chen and Popovich (2003); Sin et al. (2005); Rahimi and Berman (2009).
3. Customer services have to take advantage of the personal employees' characteristics	The value of the relationship can be increased through taking advantage of their personal characteristics.	Xu et al. (2002); Sin et al. (2005); Mendoza et al. (2007); Bull (2010); Lin et al. (2010); Shang and Lin (2010).
4. Customer-centric organisational culture	CRM enables all staff, from operational to executive roles, to share the same customer view.	Xu et al. (2002); Adebajo (2003); Chen and Popovich (2003); Sin et al. (2005); Mendoza et al. (2007); Rapp et al. (2010).
5. The end-users need to be involved since the beginning	Users' requirements and expectations must be considered since the beginning of project.	Xu et al. (2002); Chen and Popovich (2003); Rahimi and Berman (2009); Chang et al. (2010); Shang and Lin (2010).
6. Managing expectations is a key factor for acceptance	Managing the CRM expectations allows the growth of their motivation and commitment.	Xu et al. (2002); Light (2003); Mendoza et al. (2007); Rahimi and Berman (2009); Shang and Lin (2010).

7. Integrate all different departments through a CRM project team	A multi-department CRM project team will enable better communication.	Xu et al. (2002); Chen and Popovich (2003); Mendoza et al. (2007); Rahimi and Berman (2009); Shang and Lin (2010).
8. The whole organisation has to work towards common goals	A CRM project must define a common set of customer relationship goals.	Chen and Popovich (2003); Sin et al. (2005); Mendoza et al. (2007); Chang et al. (2010); Shang and Lin (2010); Rapp et al. (2010).
9. Training people	It is important to improve CRM performance and reduce resistance to change.	Xu et al. (2002); Chen and Popovich (2003); Mendoza et al. (2007).

*Table 1. CRM CSF related to people*

Table 2 presents a set of CSF related to process. As the authors referred, people are the key factor for CRM success, but without organizational processes, people will not be able to coordinate their CRM and organisational needs.

Critical Success Factors	Description	Authors
1. Build an all-embracing approach	An integrated approach for sales, customer service, marketing or maintenance, is important in CRM.	Xu et al. (2002); Light (2003); Chen and Popovich (2003); Sin et al. (2005); Mendoza et al. (2007); Rahimi and Berman (2009); Chang et al. (2010); Rapp et al. (2010).
2. Identify corporate needs and translate general goals into CRM requirements	Business objectives and goals must be clearly identified and properly translated into CRM requirements that will select the best CRM system's tool.	Xu et al. (2002); Light (2003); Chen and Popovich (2003); Sin et al. (2005); Mendoza et al. (2007); Rahimi and Berman (2009); Bull (2010); Chang et al. (2010); Shang and Lin (2010); Rapp et al. (2010).
3. Automate the decision-making process and re-engineer processes when necessary	It is important to define or redefine business processes and include rules for process automation and decision-making.	Xu et al. (2002); Chen and Popovich (2003); Light (2003); Sin et al. (2005); Mendoza et al. (2007); Rahimi and Berman (2009); Shang and Lin (2010); Rapp et al. (2010); Lin et al. (2010).
4. Define clear and measurable business objectives for each phase of the implementation.	It is important to define specific objectives as measures to achieve at the end of each phase of the CRM systems implementation.	Xu et al. (2002); Adebajo (2003); Light (2003); Mendoza et al. (2007); Rahimi and Berman (2009).
5. Learn from campaign mistakes and successes, and analyse customer database	An analysis of previous campaigns and customer databases will help to improve processes and customer data.	Xu et al. (2002); Sin et al. (2005); Chang et al. (2010).
6. Technical competencies are multifunctional	It is important to involve IT in CRM processes.	Adebajo (2003); Chen and Popovich (2003); Mendoza et al. (2007); Chang et al. (2010); Rapp et al. (2010).
7. Develop one-to-one marketing	1to1 marketing allows customers to receive unique solutions for their needs.	Sin et al. (2005); Mendoza et al. (2007); Rahimi and Berman (2009); Chang et al. (2010).
8. Integrating innovation capabilities	Thinking innovatively will help to develop an efficient CRM.	Mendoza et al. (2007); Lin et al. (2010); Chang et al. (2010).

*Table 2. CRM CSF related to process*

CRM CSF related to processes link the organisational and CRM needs to the technology.

Critical Success Factors	Description	Authors
1. Accessing the central customer database	By using a common customer database, people in the organisation can know all the details of each customer.	Xu et al. (2002); Adebajo (2003); Chen and Popovich (2003); Sin et al. (2005); Mendoza et al. (2007); Bull (2010); Chang et al. (2010); Rapp et al. (2010).
2. Automated scripting based on known solutions	The efficiency and quality of the call centre are improved through pre-defined procedures.	Xu et al. (2002); Sin et al. (2005); Mendoza et al. (2007); Rahimi and Berman (2009); Chang et al. (2010).

3. Develop a central data warehouse including analytical tools for new and old data	This data can be analysed to discover new customer characteristics and to create new business opportunities.	Xu et al. (2002); Light (2003); Chen and Popovich (2003); Adebajo (2003); Mendoza et al. (2007); Rahimi and Berman (2009); Chang et al. (2010); Rapp et al. (2010).
4. Configurable and easy-to-use software	The CRM software must be configurable according to business requirements and easy to use.	Adebajo (2003); Light (2003); Chen and Popovich (2003); Sin et al. (2005); Mendoza et al. (2007); Rahimi and Berman (2009); Chang et al. (2010).

Table 3. CRM CSF related to technology

### 3 Methodology

This study was developed through a qualitative research approach based on Action Research method. According to Altrichter et al. (2002), Action Research is a method where researchers and participants work together to reach and find answers for specific problems in organizations. On one hand, this collaboration intends to allow participants to increase their skills, as to solve specific issues bringing improvements in their processes. On the other hand, researchers have the opportunity to reach new scientific knowledge (Baskerville and Myers, 2004).

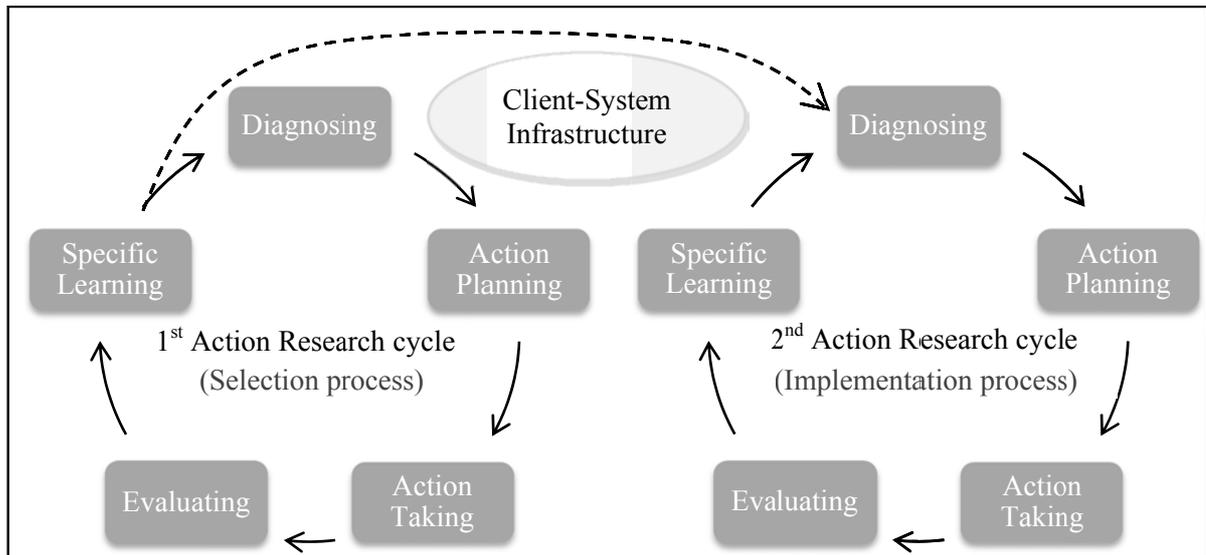


Figure 1. Action Research cycles (Adapted from Baskerville, 1999, p.14)

Baskerville and Myers (2004) refer that Action Research has an important role in IS research due to its focus on real organisational problems and where they can be applied action-oriented changes. As presented in Figure 1, Baskerville (1999) explains that it is important to interpret this method as an organic process with five systematic phases which sometimes can involve repetitive cycles.

The following Action Research cycles were developed in an Higher Education Institution called Sigma. In the first Action Research cycle, the project team was composed by one director of the school, one marketing collaborator and two researchers. During the selection phase, we did several studies to: (1) collect information's about similar cases; (2) understand what could be done in the school; (3) set a number of guidelines for the future steps and (4) define good practice into the adoption of CRM solutions. During the second Action Research cycle, the restructured project team was composed by the same members of the first project, including two programmers, one project manager and another analyst. In this new cycle, we seek to: (1) define the best methodology to implement the solution; (2) analyse the work process of each different department and (3) transform the work processes of each department in CRM processes.

## 4 Action Research - The Sigma Institute CRM project

Sigma Institute is a European school of business and economics with approximately: 4800 students (undergraduate and graduate students), 200 academic staff and 50 employees. The concept of this CRM project was not just focused directly on the retention and satisfaction of students. Sigma wanted to improve relationship management with client enterprises (for consultancy and executive education) and partner Universities (e.g. research projects). However, that type of “customers” was not the only target of the School. Sigma also wanted to develop programs to attract talented students.

### 4.1 First Action research cycle: Selection of a CRM software

When an organization decides to acquire a CRM software, it is important to know what kind of requirements and needs it will fulfil. To select the right software solution for a CRM project, the project team has to follow and respect a set of recommendations (Ahituv et al., 2002). The first Action Research cycle took approximately eight months and a half to be conducted. Through the analysis of four different software selection methodologies (Ahituv et al., 2002; Jadhav and Sonar, 2009; Chau, 1995; Colombo and Francalanci, 2004), a software selection approach was defined and used for this project. The phases are described in the following sections.

- **Diagnosing**

Sigma Institute has good national reputation, with good financial results, well-known Professors, promising students, and organizational processes clearly defined. Since it is a state owned school, most non-academic staff are civil servants, more oriented to perform tasks “by the book” than adopt a customer service culture.

Selection phase	Description of the Selection phase
1. Definition of the project objectives and aims	The main issue was how to create a strong relationship with stakeholders. We also realized that adopting a CRM strategy would also help the organization to centralize the information as well as to increase the productivity of its collaborators.
2. Market Analysis of IS solutions	We must define the “guidelines” of what has to be done to select the right solution that better fits organizational needs. We did a market analysis and benchmarking studies to collect information and identify software solutions for similar organizations.
3. Analysis of the Business needs and services issues	We interviewed: undergraduate students’ office, executive students’ office, Erasmus office, library, alumni association, marketing department, career development office, international relations’ office, counselling office and student ombudsman. That data was used to identify CRM systems requirements and create a Request for Proposal.
4. Define and select group of vendors and consultants	In this phase market research was done to select the CRM software solution among five different suppliers by looking at aspects like: (1) The type of software solution (i.e.: user-friendliness); (2) Software-house reputation; and (3) Cost.

Table 4. Description of the first 4 selection phases

- **Action Planning**

This phase seeks to involve participants and researchers to work together in order to specify actions to be taken to improve the primary problems identified. The actions of this phase are guided by a theoretical framework which intends to define the future targets and how to achieve them.

Selection phase	Description of the Selection phase
5. Build a RFP to send to software suppliers	The creation of this document represents how a CRM solution has to answer to its real business needs: first, intended to describe the CRM vision shared by the organisation; second, described the principal requirements (38) for the business needs of the school; third, presented all the important functional requirements (60) to take in consideration.
6. Preliminary analysis of CRM software solutions	Potential CRM software suppliers were invited to present their solutions to the project team and school board.

Table 4. Description of the selection phase 5 and 6

- **Action Taking**

The action taking looks to implement the planned action. At this stage, researchers and participants work together with the same purpose: ensure that improvements are made.

Selection phase	Description of the Selection phase
7. Analyse technically each suppliers proposal	After the reception of each proposal, we started the analysis of each software solution proposed by the suppliers. We looked to assess the following issues: (1) business requirements fulfilment; (2) software implementation method and (3) how the software fits School's information technology architecture and other technical requirements.
8. Assess the global proposal	After analysing technically each supplier proposal, the team used a method where we created an assessment map divided in five important groups: (1) requirement fulfilment; (2) methodology chosen for software implementation; (3) software-house team competences and experience; (4) timing planned for the development of the project and (5) "supplier assessment".
9. Select the 2/3 most interesting proposals and start negotiations	In this phase, each software-house was invited to present his proposal to the school to be discussed. The school board looked to evaluate the strengths, weaknesses and details of the proposed solutions.
10. Choose the software supplier	Considering software reputation, in-house expertise, the level of integration with existing software systems, and cost, the board selected the CRM software.

Table 5. Description of the last 4 selection phases

- **Evaluating**

We evaluate the results reached during the selection process through the analyses of the some most important CSF. (1) Top Management commitment: Having the school board integrated in all the phases, it played an important role for a better evolution of the whole selection process. (2) Communication of CRM strategy: Through a good communication of the CRM strategy, we could have a clear vision of the CRM needs and define correctly all the steps for the software selection process. (3) The end-users involvement: End-users were involved since the beginning. During all the action research cycle it was very important to contact and interact with end-users to understand their needs and perspectives about the future CRM solution. (4) Identify corporate needs and break general goals into narrow specifics: The project team was concerned in identifying detailed users' needs to define properly the characteristics of the CRM software. (5) Configurable application: It was really important for Sigma to select a CRM solution that can be easily adapted to the specific needs of each school department.

- **Specific Learning**

The most significant learning in this phase is the fact that we started to work out the CRM philosophy since the beginning of the selection process. In fact, the interviews conducted with staff from different departments and School services were important to develop a CRM philosophy in the School. During each of these interviews we could reach the involvement, motivation, enthusiasm and commitment of the people involved. This one-to-one strategy enabled a better understanding of organizational requirements and individual perspectives. It is important to refer that for Sigma the CRM philosophy was incorporated in each daily activity through a "bottom up process". However, many suggestions made by the users were not supposed to be managed by the CRM software. Managing users' expectations was a major concern of the project team.

## 4.2 Second action research cycle: CRM Implementation

We choose an Agile methodology and Scrum method (Sutherland, 2005) to implement the CRM software at Sigma. This methodology looks to complete implementation processes in various short and fast periods ("sprints") in order to deliver progressively to the client small parts of a certain module.

The following Action Research cycle represents the first implementation sprint developed during the implementation of the CRM solution for Sigma. That sprint corresponds to the first module

implemented: *tailor-made training programmes*. That module is one of the modules achieved for the first epic of the Sigma CRM concept: *enterprise relationships*. This Action Research cycle took approximately three months to be conducted.

- **Diagnosing and Action Planning**

When started the design of the project, we did several meetings with the school board to define the concept of the CRM project. The use of “epics” was important for the project. An Epic is a set of “stories” defined by a user that help exemplifying business processes and requirements. The discussions looked to define how the implementation of the CRM strategy would be done: (1) in how many epics it will be divided; (2) which epics are main priorities; (3) what will be the methodological process to follow and (4) what will be the team constitution. The main epics are:

- Enterprise relationships: Development of strategies and processes to increase the relationship between the school and organizational partners.
- Marketing campaigns: Development of marketing tools to automate all the process of marketing campaigns.
- High school relationships: Development of strategies and processes to increase the relationship between high school and the university to attract future students.
- Student/Alumni relationships: Development of strategies and processes to increase loyalty and satisfaction of the present and former students.
- Internal and external events: Creation of processes to better control events (e.g.: conferences).
- University relationships: Development of strategies and processes to increase the relationship between the school and other Universities.
- Internal and external communication: development of marketing tools for better communication with stakeholders (e.g. email, telephone).
- Leads: Development of strategies and processes to register any contact that can be a potential opportunity in the future.
- Social networks: Through IT tools, the School will be able to take advantage of its social networks by collecting information of its members who can be potential students.
- Crowd-sourcing: Development of strategies and processes to motivate the stakeholders in giving ideas and/or suggestions for future improvements in the school.
- Research centres relationship: Development of strategies and processes to increase the relationship between the school and its research centres.

- **Action Taking**

Inside of each sprint we had to collect work’s information processes developed in the daily work of the Sigma departments. That information was collected through interviews with the aim of creating processes based on the entire CRM concept. Once the new processes were created, we created “user-stories”. The “user-stories” looked to describe how the user intends to work with the CRM software. But, besides that, they were created to help and orient the future work of the programmers during the IS implementation and customization. When the first version of the CRM module was ready, we presented the solution to the first department of Sigma. During the presentation we did a first training to give the possibility to that person to be independent in his future uses. On the other hand, we offered a manual of use as a support tool and we also organized small trainings during the two first weeks.

- **Evaluating**

During this first sprint we had some difficulties in creating a specific mechanism for our work. Due to that lack of experience the sprint took four weeks to be done. It is important to refer that the intensive training in using the CRM software helped us to know how to use the CRM software as to have more autonomy and a better understanding in how to integrate the specific needs of each end-user in the CRM solution. But, on the other hand, we felt that the training should have been done before the moment they started to define the implementation processes and not after. That feeling arisen because the training gave a better vision and understanding of the CRM solutions potential where they were able to solve and anticipate certain problems by themselves. In order to evaluate this Action Research

cycle, we chose the main CSF: (1) Top Management commitment: Through the commitment of the school board, the decisions were taken more quickly and the timings were closely respected. (2) Communication of CRM strategy: Communicating clearly the CRM strategies, we could define correctly the real CRM concept for the school (epics, processes and others). (3) Managing expectations is a key factor for acceptance: It was very important for the team to motivate and meet the expectation of the end-user. (4) Define clear and measurable business objectives for each phase of the implementation: Before the implementation of the first module started, we defined all the steps to follow and achieve. With that organisation the final product delivered meets the expectations of all the group and end-user. (5) Configurable application: Without a flexible application, it could not be possible to manage correctly the motivation, expectation and objectives of all the actors.

- **Specific Learning**

We could observe some initial resistance because for stakeholders, IS professionals are always responsible of all their IT/IS problems. Otherwise programmers were not always confident of the work and issues presented by the analysts of the project. But, after a while, through a good and clear communication between all the members, the team started to create a spirit of trust and understanding. It is important to refer that in the beginning of the implementation process the project team had to face diverse unexpected difficulties, such as: (1) bureaucracy, (2) cultural behaviour and (3) organization policies. During this first implementation process an important fact observed which add value to all the work and productivity of the team was training. If the team had been trained before the beginning of the implementation process, we could have developed a stronger and clear vision of all the capabilities of the CRM software chosen.

## 5 Discussion

High Education Institutions are complex organizations, with many different types of stakeholders: students, academic staff, non-academic staff, government, regulatory bodies, customer enterprises (for executive courses, consultancy and research projects), other Universities (research partners), etc. Each stakeholder may bring different requirements into the system and have its specific expectations. Implementing a CRM system requires a previous detailed analysis of major business requirements.

To embrace this set of complex requirements, Sigma's project team included people from different departments (as information systems, marketing, students office, and Professors) and with different backgrounds. This fit a very important CSF of CRM project, "integrate all different departments through a CRM project team."

The Agile method with sprints proved to be very interesting in implementing the CRM software, since it enabled a dynamic requirements identification and real-time testing of those requirements. The use of sprints enabled a slow but continuous change in the organizational processes of relationship management. A culture of customer relationship was improved while the CRM software was being developed and configured. There was a perspective in the board that a CRM philosophy requires time to be implemented. Unlikely most information systems projects, where time usually is a major concern, this project deliberately was conducted slowly to consolidate requirements, expectations and technology. Having in-house expertise, professors of CRM, marketing and strategic information systems, helped managing critical success factors related to the three major resources of CRM, presented in this paper: people, process and technology.

The first one is related to CRM technology. We observed that Sigma had lack of technological tools to support its relationship with customers. In this CRM project, we emphasize the software adoption but the CRM strategy and philosophy were always clear for the project team. Related to "people", the main CSF were "managing expectations" and "training people". Different departments of the school received a personalized module, which answers to their specific requirements. While the final users were progressively incorporating the CRM software in their routines, a member of the project team was always following their evolution. Executive education was used to test the project, since these

programs are less complex (less courses), the number of students is also lower and the staff was more motivated to use the solution. It was important to the project team to have some maturity with CRM software before go into more complex Sigma services. Another CSF related to people must be mentioned. A customer-centric organisational culture enables all staff to share the same customer view. In the Sigma's case, people from different services are used to enrol in post-graduation or master programmes where CRM is taught. Through that CRM course, the staff get a different understanding of how can a company improve its relationship with customer. As a consequence, it helps to change the culture to focus in the customer.

According to Seeman and O'Hara (2006), all HEI have a diversity of stakeholders but the most important of them are the students. In the Sigma CRM project, the creation of the "high school relationship" epic was important because the school can strategically attract potential prospects (new students). This is a CSF related to a "process", defined as "develop one-to-one marketing". As can be understood over this paper, the definition of customer for the Sigma organization is very large. In fact, there is a need to consolidate and centralize the information about the relationship with their students, organizations and partners.

## 6 Conclusions

Higher Education Institutions are constantly in transformation, to try to follow and adapt themselves to the tendencies of market orientations and behaviour. As a result, their management style is evolving through the adoption of new management practices, as Customer Relationship Management strategy.

There are a set of questions related to CRM adoption in a HEI to be highlighted as: how to develop and build CRM values in a HEI environment; how the organizational culture can be effectively modified, how to win the commitment of the collaborators of the organization, etc. In order to answer these questions, we have studied the critical success factors of CRM adoption and analysed a case using action research method. We were looking to answer the following research question: How to adopt a CRM strategy in a Higher Education Institution? After discussing in detail many important issues, we can resume that HEI must consider: (1) In the CRM software selection process, to be worry about the software integration and know-how of the supplier related to academic management software. (2) Students are the most important "customers" in a HEI, but there are others stakeholders that CRM must consider, as enterprises and partners. A CRM project can develop a global view of customers and create strategies to be closer to all of them. (3) A university can use its internal resources, as (a) CRM, marketing and information systems professors, (b) masters students, (c) Staff from marketing and information systems departments to develop a CRM project. These people have CRM know-how and they are actors involved in the relationship between the university and its "customers". (4) The use of a dynamic software methodology to implement CRM. It allows defining requirements and quickly providing software module to use. As a consequence, the CRM software is nearest the user expectations and can help to change organization culture.

To conclude, as suggestions for future studies, we suggest analysing the impact of the CRM in the performance of the organisation and how CRM adds value to Sigma. We also would like to have a deep analysis of how CRM can help professors and students in the research field.

## References

- Adebanjo, D. (2003). Classifying and selecting e-CRM applications: an analysis-based proposal. *Management Decision*, 41 (5/6), 570-577.
- Ahituv, N., Neumann, S. and Zviran, M. (2002). A system development methodology for ERP systems. *Journal of Computer Information Systems*, 42 (3), 56-67.

- Altrichter, H., Kemmis, S., McTaggart, R. and Zuber-Skerrit, O. (2002). The concept of action research. *The Learning Organisation*, 9 (3/4), 125-131.
- Baskerville, R. (1999). Investigating Information Systems with Action Research. *Communications of AIS*, 2 (19), 1-30.
- Baskerville, R. and Myers, D.M. (2004). Special Issue on Action Research in Information Systems: Makin IS Research Relevant to Practise – Foreword. *MIS Quarterly*, 28 (3), 329-335.
- Bull, C. (2010). Customer Relationship Management (CRM) systems, intermediation and disintermediation: The case of INSG. *International Journal of Information Management*, 30 (1), 94-97.
- Chang, W., Park, J.E. and Chaib, S. (2010). How does CRM technology transform into organisational performance? A mediating role of marketing capability. *Journal of Business Research*, 63 (8), 849-855.
- Chau, P.Y.K. (1995). Factors used in the selection of packaged software in small businesses: Views of owners and managers. *Information and Management*, 29 (2), 71-78.
- Chen, I.J. and Popovich, K. (2003). Understanding customer relationship management (CRM): People, process and technology. *Business Process Management Journal*, 9 (5), 672-688.
- Colombo, E. and Francalanci, C. (2004). Selecting CRM packages based on architectural, functional, and cost requirements: Empirical validation of a hierarchical ranking model. *Requirements Engineering*, 9 (3), 186-203.
- Edwards, J.S. (2008). Knowledge management in the energy sector: review and future directions. *International Journal of Energy Sector Management*, 2 (2), 197-217.
- Grant, G.B. and Anderson, G. (2002). Customer relationship management: a vision for higher education, in Katz, R.N. and Associates, *Web Portals and Higher Education: Technologies to make IT Personal*, John Wiley & Sons, Inc., New York, 23-32.
- Hilbert, A., Schönbrunn, K. and Schmode, S. (2007). Student Relationship Management in Germany – Foundations and Opportunities. *Management Review*, 18 (2), 204-219.
- Jadhav, A.S. and Sonar, R.M. (2009). Evaluating and selecting software packages: A review. *Information and Software Technology*, 51 (3), 555-563.
- Light, B. (2003). CRM packaged software: a study of organisational experiences. *Business Process Management Journal*, 9 (5), 603-616.
- Lin, R.J., Chen, R.H. and Chiu, K.K.S. (2010). Customer relationship management and innovation capability: an empirical study. *Industrial Management and Data Systems*, 110 (1), 111-133.
- Mendoza, L.E., Marius, A., Pérez, M. and Grimán, A.C. (2007). Critical success factors for a customer relationship management strategy. *Information and Software Technology*, 49 (8), 913-945.
- Rahimi, I.D. and Berman U. (2009). Building a CSF framework for CRM implementation. *Journal of Database Marketing and Customer Strategy Management*, 16 (4), 253-265.
- Rapp, A., Trainor, K.J. and Agnihotri, R. (2010). Performance implications of customer-linking capabilities: Examining the complementary role of customer orientation and CRM technology. *Journal of Business Research*, 63 (11), 1229-1236.
- Santiago, R., Carvalho, T., Amaral, A. and Meek, L.V. (2006). Changing Patterns in the Middle Management of Higher Education Institutions: The Case of Portugal. *Higher Education*, 52 (2), 215-250.
- Seeman, D.E. and O'Hara, M. (2006). Customer relationship management in higher education: Using information systems to improve the student-school relationship. *Campus – Wide Information Systems*, 23 (1), 24-34.
- Shang, S.S.C. and Lin, S.F. (2010). People-driven processes in customer relationship management. *The Service Industries Journal*, 30 (14), 2441-2456.
- Sin, L.Y.M., Tse, A.C.B. and Yim, F.H.K. (2005). CRM: conceptualization and scale development. *European Journal of Marketing*, 39 (11/12), 1264-1290.
- Sutherland, J. (2005). Future of Scrum: Parallel Pipelining of Sprints in Complex projects. *AGILE 2005 Proceedings*, (Proceedings of the Agile Development Conference), 90-99.
- Xu, Y., Yen, D.C., Lin, B. and Chou, D.C. (2002). Adopting customer relationship management technology. *Industrial Management and Data Systems*, 102 (8), 442-452.