

# Using Microsoft CRM to Boost Independent Skills for Requirements Modeling in a Graduate-Level Systems Analysis Class

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**Abstract:** Microsoft CRM was introduced into Metropolitan State University's graduate course in systems analysis and design in order to boost students' abilities to independently create diagrammatic models of requirements for information systems design. This innovation was part of a more general instructional approach to utilize ERP software in the classroom to provide students with more of a real life business context for the information systems design skills they are learning. This presentation will describe the motivations for this curricular innovation as well as some of its outcomes. Lessons learned and further challenges with the course curriculum will also be addressed.

## INTRODUCTION

Systems analysis and design is a central component of the curriculum for many academic programs in information systems (Topic et al, 2010). A key part of any course on systems analysis is teaching students how to create diagrams of the functional requirements for an intended information system to meet the needs expressed by business users. These requirements models are manifest in several different forms. They can be diagrams depicting the activities that make up organizational processes or specifications for the design for databases that will store business data. They can also be object models that depict both processes and data. However, the formats and rules for creating requirements models are somewhat abstract and therefore not easy for many students to learn.

The difficulty for student to learn how to create abstract models of information systems requirements is compounded by the lack of knowledge many students have about elementary business processes found in many organizations. Even at the graduate level many students do not know the component steps of processes such as purchase order execution, sales order fulfillment and production orders. However, the homework assignments found in many systems analysis textbooks often present case examples to students that assume students are familiar with these business processes in detail.

ERP software provides a real-life context to help students learn these basic business processes and thus strengthen students' comprehension of typical homework problems for requirements modeling. Moreover, ERP systems provide students experiential comprehension of such business processes. Since requirements modeling in Systems Analysis is quite abstract for many students, this experiential context helps to ground student understanding and to strengthen their ability to create diagrams that summarize information systems requirements.

## THE CURRICULUM INNOVATION

Much of the work done by business systems analysts is to customize existing software packages to meet the requirements of a business scenario rather than creating new software. To provide a real-life business context for their skills, it was felt that students should be doing requirements modeling using a business case scenario that extends an existing enterprise system, rather than a scenario that mandates creating a new enterprise system. However, in order to validate the students' acquired knowledge and skills from the systems analysis course, faculty

believed that students should utilize the final weeks of the course applying these skills with an enterprise system that would be different than the one they originally worked on.

For the course final project, not only was it important that students should be applying their skills independently but that the new target of analysis should be an enterprise system that could be learned quickly. In this way the students would spend most of their time creating requirements representations rather than learning the newly introduced enterprise system.

Although SAP ERP was used to teach students requirements modeling techniques in the context of learning essential business processes, Microsoft CRM was introduced as a supplemental instructional tool in the graduate course on systems analysis at Metropolitan State University.

The CRM software was used for the final project assignments in the course where students demonstrated their ability to independently apply their newly acquired skills in creating models for information systems requirements. With several text and video tutorials on Microsoft CRM available, the students could spend most of their time creating requirements representations rather than learning the newly introduced CRM software. Moreover, in order to facilitate rapid independent work by students, it was helpful that the business processes of Dynamics CRM were similar but not equivalent to the fundamental business processes of purchasing and sales fulfillment learned earlier in the course.

## **RESULTS OF THE PILOT FOR THE INNOVATION**

In the pilot iteration for this enhanced graduate curriculum, student teams completed their final project for the course by reverse engineering requirements models for one of three distinct CRM processes: Sales, Marketing or Customer Service. Each team produced a process model along with a data or object model. Teams also had to relate what each model was good for describing and what it was not. Finally, they had to add one more requirements model of their choice and justify that choice. For each requirements model, teams had to state the logical assumptions underlying that model as well as formulate follow-up questions (about the CRM process) engendered by the exercise of creating it.

Student teams performed well and produced a large package of documentation and models for each of the three CRM processes. Nevertheless, a few modifications to this curriculum emerged from the pilot.

First, student participants themselves requested more of a situational context to model. They thought the final project should not just be creating requirements models for one of the overall function of CRM but rather that they should model that CRM function for a particular use case scenario. In response to this, the enhanced curriculum now utilizes case studies provided in Chapter 8 of the Microsoft CRM 2013 training documentation (provided by the MS DynAA) as the basis for the final project assignments.

Secondly, the large scale of what student teams produce for the requirements project ended up de facto yielding two distinct final project assignments: (a) the actual production of the requirements and (b) a final project presentation that is an executive “walkthrough” for the use case scenario that has been modeled. This walkthrough presentation enables students to experience what a real walkthrough would be like. It also causes them to have to produce more summarized versions of the requirements models as deliverables that are less comprehensive in detail but better for communicating to a group of external evaluators less familiar with the CRM software. Such external evaluators are more representative of what would be a typical panel of business executives hearing a walkthrough presentation about an upcoming system implementation by IT staff.

## **FURTHER CHALLENGES**

As the enhanced graduate systems analysis curriculum progresses, there is more work to be done. Several challenges are anticipated for this innovation, both on an immediate and on an ongoing basis.

Notwithstanding the brief case studies contained in the Microsoft CRM 2013 training documentation, additional case studies are needed. It would help to have use case scenarios for CRM that would be fairly brief but still rich enough to provide an effective challenge for student teams.

Furthermore, since the student projects now encompass a walkthrough presentation of requirements models, external evaluators are needed in order as an audience for this presentation. To address this, managers from the local Business IT community in the metropolitan region will be recruited to serve as the guest evaluators for the final project presentations and to provide feedback.

Although the current training materials on Microsoft CRM from the Dynamics Academic Alliance program are useful, any additional resources that can help in bringing students up to speed on the CRM software would be helpful. At the end of the day, the purpose of this course project is not to learn Microsoft CRM but to apply it even faster and more comprehensively to the creation of requirements models.

As is common now for university curriculum on systems analysis, students need to be learn and apply popular systems development methods like Agile that are commonly used as part of industry practice. Merging Agile methodology into the design processes of the student teams as they generate the requirements models and documentation is certainly a next step in taking this curriculum forward.

## REFERENCES

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