IPRO It takes a team INTERPROFESSIONAL PROJECTS PROGRAM

IPRO 313

Advanced Systems Applied to Student Loan Rehabilitation Processes

Final Report

Spring 2006

Faculty	**Sponsor**
Prof. William Maurer	Financial Management Systems
Team	
Muhammad Atta Jean Bordelon Nathan Johnston Martin C. Krol Jong Park Sourabh Sethi Robert St. Clair Rahul Tayal	

May 5, 2006

Table of Contents

Introduction

IPRO 313 Advanced Systems Applied to Student Loan Rehabilitation Processes worked with the IPRO sponsor Financial Management Systems Company (FMS) to to design and build a student loan rehabilitation tool. FMS is primarily a collections company that is growing rapidly. Each year FMS receives accounts from private and government agencies and must collect from those accounts in order to receive a commission, their payment. The IPRO team had met with the sponsor many times over the course of the semester to gather requirements, map and layout FMS' process model and in general have a better understanding of what FMS does. The team needed a better understanding of the problem and what the problem meant for FMS. FMS is in need of a tool that is able to track accounts over the course of their loan rehabilitation program quickly and effectively allow the tracking of trends over a period of time.

This tool is independent of their existing infrastructure to allow for minimal down time and autonomy from issues that plague their existing system. The tool was designed with growing needs and changing business requirements in mind. The reporting services a major component of the tool is extremely flexible and allows FMS to change their reports and add additional reports when the situation calls for such action. Financial Management Systems was founded in 1990, and which provide operations and consulting services to government agencies and selected private sector organizations. They are a 90-person strong small business firm headquartered in Schaumburg, Illinois. FMS provides customer service operations, debt collection, outreach and case management, payment error reduction, due diligence reviews, and program management services to their clients.

Background

There are several encompassing issues that FMS must deal with before they can have an impact on the collections world. Their first obstacle is rapid growth - FMS is experiencing significant growth, to the point where it is out matching their current capabilities. Their second obstacle that must be addressed is failing infrastructure - FMS does not have the systemic structures in place to operate efficiently, and with the current growth that inefficiency is having a significant negative impact. FMS' third obstacle is insufficient software. One of their problems stem from relying on generalized software solutions from 3rd party developers that insufficiently meet their needs and require costly modifications and updates.

These obstacles have begun to hinder the progress that FMS has been making. It will come to a point where FMS will no longer be able to grow with the current issues pending. They are in need to correct these issues so that FMS may stay competitive with the larger collection firms.

FMS approached IPRO 313 with two problems that they were looking to solve that branch from the three encompassing obstacles. Their first issue is with account management and tracking. FMS being a collections company receives thousands of account a year from which they need to collect money for. At this point FMS has no tool that will enable them to track information about accounts, analyze trends, or allow personnel to view information in real time. Currently FMS' process involves a single individual that creates all the reports that FMS employees use to continue their efforts. This does not allow employees to receive information when they want it and how they want it. There is no real-time reporting of information that the employees can make use of. The student loan rehabilitation tool that the IPRO team had been given to design and build for FMS would allow the employees of FMS to view and generate reports from their work station. This would alleviate the dependence on the single person and according to FMS increase productivity.

Their second problem is with their student loan rehabilitation program. Again they do not have the software to track the accounts over time, to analyze trends, or give warning when an account may fall out of the program. Another problem with the student loan rehabilitation program falls into a tedious process that relies heavily on the manual input of accounts into the FMS database.

FMS has several shortcomings with their current system among them is the ability to store history. As an account enters their current system, an individual's information such as street address, home or work phone number may change over the course of the collections. The new information is saved into the system but the old information is not properly archived. One of the requirements of both problems is the ability to track and maintain history.

The IPRO team with FMS had chosen the loan rehabilitation tool. We felt this would be the better of the two problems to tackle for the semester. The loan rehabilitation tool gave the IPRO team many requirements to work with and many obtainable goals for the semester.

Purpose

The IPRO team had chosen to do the loan rehabilitation tool based on several important factors that were discussed as a team and confirmed with FMS. Given the time constraint of the semester it was decided that the loan rehabilitation tool would be accomplished within the semester. It was felt that the loan rehabilitation tool would be relatively easy enough to meet the goals of FMS. The most important point emphasized by FMS was that the student loan rehabilitation tool would have the most impact on their business by giving the information into the hands of the people that need the information at any time. This will allow FMS in maintaining an edge on the competition and with their loan rehabilitation program and they want to continue that edge. The tool would allow them to track accounts and gain "millions in revenue", according to Balaji Rajan, President of FMS.

These are the major reasons why we had attempted to solve the student loan rehabilitation problem rather than the account management problem. There was no previous IPRO or information that the IPRO could begin with to facilitate a running start. The team had to start from scratch gathering the necessary requirements at the beginning to be able to begin tackling the issue. It took several meetings with the sponsor to accurately model their process for the student loan rehabilitation and to meet all the stakeholders that will be using this tool.

As a team, the IPRO had established short term goals that would affect long term goals over the course of the semester. Since the IPRO team was starting from scratch, our primary goals at the beginning were to define and establish the problem correctly and accurately model their student loan rehabilitation process. After satisfying these goals, the IPRO team had made new goals that consisted of refining the requirements of the new tool that FMS wanted. More specifically the team had to define what kind of information the reporting services will display to the users, how the new independent system will work with the existing system, and defining user levels and the user interface for the system. Only after these goals were met did the team decide to begin piecing all the information together into a single document. The design document is the final goal of the semester for the IPRO team that was accomplished and given to FMS during the week of IPRO Day.

The new student loan rehabilitation tool would give many needed improvements to FMS' process. Many of the manual tasks performs by FMS before will now be automated. Automation will give FMS a more stream lined process allowing for a more efficient use of the time during work hours.

Research Methodology and Assignments

Because the IRPO is sponsored, the team gained much of its information directly from the sponsor. The initial trips were done on Saturdays when the entire team could make it to Schaumberg. At these first trips the team learned about the history of the sponsor, the problems facing the sponsor, and what solutions the sponsor was looking to implement. After finishing the first trip to FMS, the team faced two possible projects on which to focus its attention. The first option was to create an account transfer interface that would do portfolio analysis. However, after looking at the demands of FMS, it was decided to focus on the second problem facing the sponsor – the student loan rehabilitation program.

FMS needs a tracking database that generates reports based on their existing INTELEC database and their clients' databases. This meeting led the team to the project plan:

- Research – Visit the sponsor to gain first hand information
    - Collect and assess
- Problem statement: Create a tool to help FMS track the progress of customers in the loan rehabilitation program.
    - Map: what is happening/who is involved
        - ID Gaps
        - Qualify/Quantify information gathered

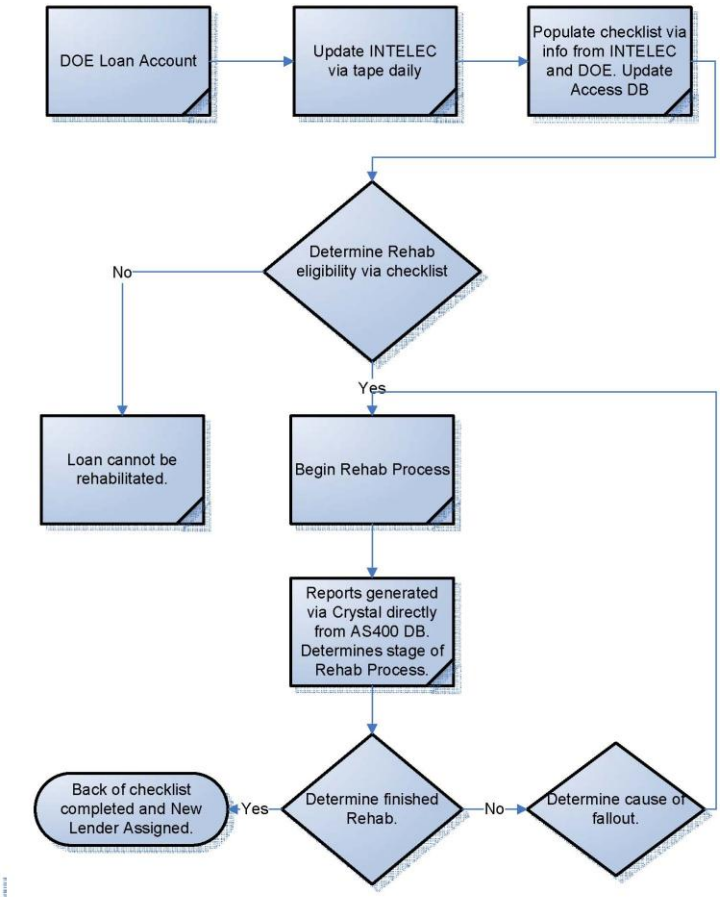
- Test our solution and rethink

Note: this plan follows the Deming Cycle of Plan, Do, Check, Act.

At this point, it was decided to split the team into two groups and make separate trips for each week. One team went on Mondays and another on Fridays to collect information. This way, the most information could be gained, and every member of the group could have two opportunities to participate in at least one of the trips. At least one member from each group would compare notes between meetings and the entire team met on Tuesdays and Thursdays to see where to focus efforts in research next. Early on, the team collected information on the student loan rehabilitation program, was hinted at the method of extracting data from clients and importing that data to INTELEC, and the team was promised an import tool that FMS ordered from a third party that would feed our eventual tool. It was believed that the project would go fairly quickly, and the focus of the team could become implementation of the tool.

However, a few weeks had gone by and the team did not receive any word on the third party import program, or further input from FMS on how the project is to be implemented. Moreover, the team's programming skill lies mostly in PHP programming and FMS hinted that they would like a .NET format instead. An emergency meeting was held at FMS on Saturday, February 25 to discuss the project with the major stakeholders. We learned from the president that FMS would like to have a .NET project with Microsoft Sequel Server as the database management tool. We convinced the president that PHP is a reliable and established language and is something the team is familiar with, which he later approved. Sequel Server was decided to be the platform for the database and report generation. The meeting ended with the team projecting the completion of a project plan with in two weeks pending the arrival of the import tool from the third party vendor.

The following week, the two teams gathered information pertaining to how FMS physically receives and inputs data to their database. The Monday team learned that much of this information is gathered from only a couple of people and manually inputted to the INTELEC system. Moreover, all the information required for our implementation is not available on INTELEC – but it was all on their external Access database. The Friday team confirmed the following task diagram:



The second team also found out the types of reports FMS wanted our tool to generate: missed payments, current payments, expected payments, missing information, washout accounts, completed accounts, and trend analysis (refer to design document for further detail). With five weeks left in the semester, the team projected a timeline and brought it to FMS at the next meeting. We then created a task breakdown (see below), and a rough draft of the design document.

Task Breakdown:

1. Software

1.1 Project Management

1.1.0 Design Document

1.1.1 Work Breakdown Structure

1.1.2 Project Plan

1.2 Import Tool

1.2.0 Parser

1.2.0.0 Unit Testing

1.2.1 Information Processor (also write data)

1.2.1.0 Unit Testing

1.2.2 Component Level Testing

1.3 Reporting

1.3.0 Generate Report

1.3.0.0 Report Services Definition

1.3.0.0.0 Unit Test

1.3.0.1 Web interface

1.3.0.1.0 Unit test

1.3.0.2 Component Testing

4. Data Base

- Data Model
- Unit Test

1.4.1 Component testing

1.5 Administrative Functionality

1.5.0 User Management

1.5.0.0 Add user

1.5.0.0.0 Internal Logic

1.5.0.0.0.0 Unit Testing

1.5.0.0.1 Web Interface

1.5.0.0.1.0 Unit Testing

1.5.0.0.2 Component testing

1. Delete User

1.5.0.1.0 Internal Logic

1.5.0.1.0.0 Unit Testing

1.5.0.1.1 Web Interface

1.5.0.1.1.0 Unit Testing

1.5.0.1.2 Component testing

- Edit User

1.5.0.2.0 Internal Logic

1.5.0.2.0.0 Unit Testing

1.5.0.2.1 Web Interface

1.5.0.2.1.0 Unit Testing

1.5.0.2.2 Component testing

- Component testing

1.5.1 Log-in Functionality

1.5.1.0 Internal Logic

1.5.1.0.0 Unit Testing

1.5.1.1 Web Interface

1.5.1.1.0 Unit Testing

1.5.1.2 Component testing

1.5.2 Component testing

1.6 System Integration

1.6.0 Integration testing

1.7 Client Sign-off

The first draft of the design document was brought to FMS and revised based on their criticisms. The major problem facing the team at this point was the fact that it still had not received the import tool, or further specifications from FMS in regards to our outputs. With the semester coming to a close, it was decided that the focus become the creation of a strong design document that will allow the next semester's team to start on the tool with less effort in collecting data from FMS for specifications. The team of eight divided once more to have half finish the design document and the remainder finish the ends of IPRO Day requirements.

Another meeting at FMS was held on April 17 do discuss any final input on the design document or any further changes to the plan as a whole. The platform from PHP to ASP .NET was changed because the next team is going to implement the design. It was then decided that the current timeline for the design document was sound and will be delivered at the final meeting at FMS.

Obstacles/Problems

Like in every project, the IPRO team was faced with a few obstacles. Information gathering from FMS was a major issue. It took the team more than 8 weeks to figure out what they want to implement. FMS' business is still growing unexpectedly for them to predict a particular behavior. And since there were a lot of people sharing responsibilities, it was even harder for us to extract common issues that needed to be addressed to implement the student loan rehabilitation. FMS hired a third party vendor to implement an import tool to send information from the existing system to our system. Another major obstacle facing the IPRO team was fluctuating requirements. There are new rules being introduced by the Department of Education on July 1 that will change the operation of the student loan rehabilitation. Thus, it was very hard for us to gather the required information and analyze it so that we may present the information that we had obtained to FMS for confirmation.

Another obstacle was among the IPRO team members. Not all team members had the same experience with database management and organization, data mining and the team lacked the required technical proficiency to implement the tool. As discussed earlier, there were two groups of teams meeting with FMS every week and trying to gather as much information as possible. It was very important for the team to gather the necessary information to be able to correctly model and refine the student loan rehabilitation tool for FMS.

Results

IPRO team was successful in creating a Design Document to be presented to FMS for them to implement. The basic function of the report was to efficiently define actions to allow for improved collector activities and determine effective business actions. The design document that was created by the IPRO team discussed in detail the software scope, data design, architectural design and user interface. This design document will serve as the starting point in building this new system. The design document covers the six basic reports that will make collector's activities be more effective and manage these accounts in a timely and organized manner. The six reports that FMS wanted generated and the IPRO team placed in the design document are missed payments, current payments, expected payments, missing information, washout accounts, and completed

accounts (refer to design document for further detail). There was a seventh report that FMS wanted to be generated but was out of scope for this team.

FMS can take this document to any software developer (or next IPRO team) and they can implement the new system following the modules described in our design document. It gives FMS an insight into which accounts to look for and which to discard over a period of time.

Recommendations

The IPRO team believes that, with the design document FMS has a very strong start to implement the student loan rehabilitation tool. An important recommendation will be the extensive testing of the whole system. It is a critical system with highly sensitive personal information and the testing will allow the developers to test security, and functionality. We thought that trend analysis reporting will be useful to FMS and should be provided by future teams.

All of this is possible if FMS plays a more active role to continue the effort that the IPRO team has put into this project. Together the tool can be effective and accomplish the goals set forth by FMS. We believe that FMS needs to consider the limitations of resources to students both in terms of exposure (experience) and the time constraints. With the design document as an excellent starting point and the ability to work closely together with FMS the next team should be able to implement the tool for FMS, test the tool for security and functionality purposes, and put the tool into production.