Edmonds Community College

Computer Information Systems

Research Project 2, System Requirements Document
Prepared 2/28/14
Prepared by Team Unicorn:

Angela Hesse
Brian McLeod
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team unicorn

Memorandum

To: Vice President Patrick Jay

From: Team Unicorn

Date: February 28th, 2014

Subject: System Requirements Document

The attached report contains the system requirements documentation & system proposal for implementation of an automated contractor payment system at the Bank of Xanadu. Team Unicorn would like to review the study with you on Saturday March 1st at the Bellevue Branch.

System Requirements Document

Bank of Xanadu

Contractor Account Tracking System Requirements Document

Prepared 2/28/14 Winter 2014

Prepared by Team Unicorn:

Angela Hesse
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Ryan Neff

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Section 1: Management Summary

Team Unicorn has prepared an inclusive Systems Requirement document for you to review. It explains each step taken during the System Analysis phase of the System development life cycle. The project came to be as a request from management for an automated system for Contractual Payments.

Our investigation started by examining and analyzing the current system being used.. This included interviews with project managers and other team members. By holding the interviews we were able to identify those that are involved in the current system and will be involved in the new system. After looking closely at the current procedures we have determined that the current system takes an excessive amount of time to process contracts and invoices. It is in efficient and costs Bank of Xanadu a lot of time and money.

After analyzing current software and hardware at the sites we have come to the conclusion it will be capable of supporting a new automatic system. Through the use of Data Flow Diagrams we were able to perform a data model assisting us in determining the various system processes and see how information flows through the current system. Team Unicorn then looked at the strengths and weaknesses of the current system and current problems. We have determined time used to complete current processes has become a nuisance on current team members and vendors. We have come to a conclusion that a new automated system would greatly improve how Contractual Payments are handled and reduce the calls from vendors or late payments.

We then began looking into the requirements for a new system. First we determined the project scope and decided it would contain information on Contracts, Project time lines, Vendors, programmers, departments, hourly charges and complete project funding. We have come to the conclusion the new system should be able to automatically determine all contracts and invoices are correct, and to generate exception memos automatically if there is an error on the contracts or invoices. By creating a Use Case Diagram and a complete set of Use Case Scenarios we were able to compare the new system with the current system to determine physical requirements of the new system.

With an understanding of the new system we were able to research software such as Contract Insight, Contract Eagle, Matrix software, Agiloft, and Outsourcing Management Services, LLC. Due to the research into the various features and costs of these options, we were able to come to the conclusion that it would be more cost effective and efficient to build an in house system. We have determined that it will take about 8 weeks for the designing, testing, and implementing of the new system. Allowing the system to be complete and fully functioning by mid June.

The outcome of all our research is included in the System Requirement document following this summary. This entails all the important information in the Appendix section. In conclusion we believe an automated system is crucial to the success of Bank of Xanadu. In the current system important time is being wasted during the input process. Which causes payments to be late and phone calls from unhappy vendors. This causes even more time spent on phone calls, which could be used towards other projects. Team Unicorn believes this project will benefit Bank of Xanadu greatly and would like to request permission to proceed to the System Design phase of the project.

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Section 2: As-Is Model - Current Situation Analysis

Introduction

The purpose of this documentation is to describe the current processes and problems with Xanadu Bank's vendor payment processing system. Remedying these problems with a more streamlined system will benefit workers and their schedules but most importantly will save money as outlined in the Financial Feasibility Study (See Appendix A) that Team Unicorn has compiled. The information outlined in this document highlight some of the strengths and weaknesses in the current system and explains how we intend to streamline it for cost savings and additional functionality.

Analysis Approach

The Functional Decomposition Diagram (See Appendix B) provided, documents the current system processes. The FDD was used to analyze the current system processes and made it very clear to our team that the steps to process contracts and invoices from the Buyer all the way to the contract programmer or vendor was unnecessarily difficult and time consuming. The automated system will not change the processes themselves, but the automation will save time and money.

The FDD shows the current processes in a hierarchal structure much like the directory structure in an operating system. The center of all the action is the Contractual Payment System, which is currently an Excel Workbook. All the activities shown below must currently be manually completed by updating the workbook. With all the steps currently not automated, the work that must be done is very time consuming and prone to error. The Invoice Exception process along with the Contract Exception processes are both very lengthy and could contribute to errors and untimely resolutions.

The Data Flow Diagram (See Appendix C) utilized by Team Unicorn documents Bank of Xanadu's system requirements from a data prospective. The DFD gives a graphical depiction of the data flow through the current Contractual Payment System and the various inputs and outputs between external entities and the system itself. Knowing where the data comes from and where it needs to go are in important part of the development phase, and the Bank of Xanadu's Payment System DFD showed us several things.

The first and most obvious thing we saw was that the Accountants are most in need of this automated system, as they are currently manually conducting many

processes, such as receiving pending contracts, processing requests for reports, creating invoice exceptions, and handling vendor inquiries just to mention a few.

Problem

The problem currently being experienced at Bank of Xanadu is not uncommon for large companies, but must be addresses specifically to fit their needs. Simply put, the current system takes too long to process invoices against contractual and time limitations. The manual system is also prone to human error, which requires employees to put in significant amounts of overtime. The lead accountant is spending too much time manually updating the Excel Workbooks. Because the lead accountant is spending a significant amount of time updating these workbooks, he regularly requires two to three employees to help him at the end of the month, and this is unacceptable for an employee of his status. The mistakes made through manual entry also affect the vendors. When the vendors don't receive timely payment, it is damaging to our business relationships, and reflects poorly on the organization. An automated system must be developed that will streamline and improve these labor-intensive processes.

People

Stakeholders

- **Accountants** – Accountants receive and process contracts and their related services. The Accountants have the most riding on an automated system and it will save them the most work and allow them to focus on other things, like day to day accounting, rather than updating workbooks.
- **Accounting Management** – The automated system will satisfy the Accounting Management's desire for up to date and easy to view real time reports.
- **Vendors (Contract Programmers)** – The Payment System is how these guys get paid, and the more accurately and timely the payment is, the happy vendors will be. An automated system will also ensure that their inquiries are responded to quickly and accurately.
- **Buyers** – The Buyers need an automated way to input new contracts, revised contracts, and revised invoices. This will save them a trip to accounting and the accounting team will be able to automatically send invalid contracts and invoices back for corrections.
- **Accounts Payable** – A/P will be able to directly input vendor numbers and receive official requests to pay invoices directly from the new system.
- **Bank Managers (Project Managers)** – Reports, Reports, and Reports. The Bank Managers biggest interest in the new system is the ease of acquiring and the diversity of the reports available.
- **Project Sponsor, Vice President of Accounting** – This project is his idea, so he is incredibly personally invested in the new system. The new system will free

up time for his employees and solve headaches for the VP. He will be able to better allocate the workload and perhaps even release some employees which will save money.

Processes

The current processes at Bank of Xanadu for processing payments for vendors are cumbersome and time consuming. See the outline below for a full step by step on current procedure for generating a payment for a Vendor.

1. The buyer hand delivers the contract copy (See appendix H) to the accountant. (He puts a piece of paper in the accountants inbox on his desk)
2. The accountant verifies that all info needed is there.
3. If any info is missing from the contract, the contract is logged in and returned to the buyer to fix.
4. The accountant enters all contract info into Excel and files the hardcopy for future reference
5. The Vendor submits an invoice by mail to the accountant.
6. The accountant verifies that all info required is present.
7. Accounting verifies that the invoice can be paid according to the contractual time & fee limitations.
8. If invoice is either missing info OR incorrect OR exceeds contractual limits, it is returned to the buyer for resolution, with an exception memo.
9. When an invoice problem is resolved, the invoice is returned to the accountant.
10. When the accountant has approved invoice payment, he/she creates a data entry sheet and sends invoice to accounts payable to have them cut a check and mail it to the vendor.
11. If vendor payment is late or missing, they call the accountant for resolution.
12. Accountant must then research the reason for non-payment and respond to the vendor.
13. If the invoice cannot be paid in the same period of the actual expense it has to be accrued.
14. At Months end, the accountant runs 5 reports, audits them for accuracy, and delivers two reports to accounting management, and 3 to bank management. (These are Contractual payment system reports)

Data & Information

Input Documents:.

- **Vendor Numbers** – A/P Sends vendor numbers to accounting be used on data entry sheet.
- **Contract** – Created by Buyers for Vendors and contains the specific information relating to contract programmer services.
- **Extension** – Extended by Buyers for Vendors and used to amend some part of the original contract.
- **Invoice** – Turned in by Vendor to the system for payment
- **Time Sheet** – Filled out by contract programmer to specify hours worked in a particular time period

Output Documents:

- **Invoice Reports** – The reports generated are used by the accountants to balance that account at the end of each month.
- **Data Entry Sheet** – Attached to invoices that are sent to the A/P Department for payment.
- **Accrual Report** – Shows invoices that have been accrued, so that accruals can be processed and then reversed the following month.
- **Monthly Expense Recap** – This report shows the contract programmers invoice expenses paid each month. It is sent to each bank division and is then sorted by charge unit.
- **Contract Programmer Report, Fee Maximum Vs. Actuals** – This report shows the contract fee maximum and the invoices that have been paid against each contract with the remaining fee max available. It is sent to each division and then sorted by charge unit.
- **Monthly Recap Report** – This report shows contract and invoice information for each Project Manager - it is used by them to keep track of the contract and programmers working for them.

Technology

The computer hardware on site is a typical large business system with Windows 7 user stations, both thin and thick clients that are all centrally networked with a Cisco Business Class network. Each computer in the office is a slim case style with a 19 inch LCD monitor and at least an Intel Core I5 or higher processor. All the work stations in the facility are equipped with email and Skype for inter-office communication. There is a server room on site with enough servers to handle the current load and a new Contractual Payment System.

The current software on site is a Windows OS with complete MS Office Suite, including your typical office environment email system using Microsoft Outlook. IT Administrators use Access and Sharepoint to bridge the gap between different departmental data needs. Project managers and IT Admins have access to Visio, Visual Studio and of course Sharepoint.

Strengths of current system

The strengths of the current system are its low-tech ease of use. It is more difficult than an automated system as far as time spent working on it goes, but maintaining an Excel Workbook is easy to do and the employees are all well versed in Excel. The employees are also very familiar with the current procedures and are able to use it well without much help from IT staff.

Weaknesses of current system

The current system also has some weaknesses. The biggest weakness being that it is so time intensive and the figures are entered manually. It takes far too long and far too many employees to keep the Excel Workbooks up to date. Since the information is all entered manually it is prone to errors. When mistakes on invoices are made, it causes the Vendors to call and complain and make inquiries. This uses valuable time and manpower, and streamlining the process will save money.

Section 3: To-Be Model - Overview of the proposed system

Proposed solution

Overview

Team Unicorn suggests the creation of a completely automated system for the Bank of Xanadu accounting department that will improve billing for programming contractors. The system will keep track of Vendors, Project Managers, Exception Memo's, Invoices, Accruals, Contracts, and Bank Units. The system will perform the following checks:

1. Verify that the work performed and billed on an invoice falls within the valid contract date range.
2. Verify the hourly rate billed on the invoice matches the hourly rate stipulated on the contract.
3. It must calculate whether there is enough funding left on the contract to pay the invoice.

Exception Memos will be automatically generated if any of these qualifications are not met.

The system will also generate reports for bank management and for accounting management.

The system is intended specifically for the management of independent programming contractors and the corresponding invoicing procedures mentioned above. Accounting functions and departments not listed above are beyond the scope of this project.

Scope

The new system will include information identified during the analysis of the current AS-IS system. During the analysis phase, we have identified support for the following information as requirements for the TO-BE system:

- A/P Vendor numbers
- Vendor information
- Programmer information
- Bank contact information for project managers
- Bank units and divisions
- Contracts for contract programmer services
- Invoices for contract programmer services

To implement the new system, we will approach the project in the following phases:

Design Phase:

During the design phase, we will design a blueprint for the system. The design phase includes the following steps:

- Create the "System Design specifications"

- Create normalized data model to BCNF standards
- Design internal and external controls
- Determine and document the system architecture
- Design the user interface.
- Design reporting document

Implementation Phase:

The Implementation Phase will deliver a completely functional system. The implementation stage includes the following steps:

- Create the system database
- Install the system
- Test the system
- Create documentation
- Train the users

Out of Scope

Bank of Xanadu IT department will be responsible for all maintenance and upkeep after the implementation phase has been completed. Any information or processes not listed above may be considered out of scope.

Objectives & Benefits of the new system

The proposed system will provide benefits to Bank of Xanadu. By automating the vendor invoice payment & verification process. The new system will free up many man-hours currently dedicated to the legacy system, allowing those man-hours to be applied more effectively. Some other benefits are listed below:

Tangible benefits:

- Increased productivity
- Increased billing accuracy
- Automated report generation decreases errors and increases efficiency
- Automated exception memo generation decreases errors and increases efficiency
- Reduction in clerical errors through automation
- Vendors receive their payments faster.
- Vendor Inquires can be resolved faster

Intangible:

- Improved management decision-making, through more accurate information.
- Higher vendor satisfaction.
- Improved employee morale through a decrease in workload.
- Reduced employee turnover through improved morale.

Section 4: Functional Requirements

Introduction

The functional requirement section will outline the new systems requirements for required data, exceptions, the behavior of the system, the role of employees, and ultimately what the system is “required to do”. The Use Case Scenarios and Data Flow Diagrams outline the functional requirements in greater detail

Analysis & Approach

Use Case Diagram

Use case diagrams (Appendix E) provide a simplistic representation of the external actors and their interaction with the processes within the system. This serves as a foundation for detailed using the use case scenarios.

Use Case Scenarios

The use case scenarios (Appendix E) allow us to break down each process of the system into smaller steps, effectively capturing the functional requirements of the system. We can easily view the required data, and how the user interacts with that data to achieve the desired result. Later in the System Development Life Cycle, the validation team can use the use case scenarios can be used to create testing scenarios, and determine the system’s functional requirements.

Requirements Catalog

The requirements catalog (Appendix F) is a detailed list of all the data and processes that are necessary to support the functional requirements established by the use case scenarios and use case diagrams. The requirements are structured in a series of “must” statements that define what must be done with the specified data.

Functional Requirements

UC001 Receive Contract
UC002 Contract Exception
UC003 Update Contract
UC004 Receive Invoice
UC005 Invoice Exception
UC006 Update Invoice
UC007 Pay Invoice
UC008 Vendor Inquiry
UC009 Invoice Accrual
UC010 Process Reports

Data Requirements

Data requirements are the individual data elements that will be included in the database structure. Detailed data requirements can be found in the Requirements catalog, Appendix F.

Section 5: Summary of Systems Analysis Phase

After careful analysis of the Bank of Xanadu's current contractual invoice payment system, we at Team Unicorn have concluded that the Bank of Xanadu will benefit greatly from the custom built system that we have proposed when compared to the Excel workbook procedures that they currently use.

The current system of validating and manually entering all of the data into Excel worksheets, while being easy, is very time consuming and is prone to human inputting errors. The proposed new system would require minimal human inputting and would automatically reference the contract that the invoice pertains to and ascertain whether the invoice meets all of the contractual specifications of said contract. The proposed system will generate all of the required management and accounting reports at the end of each month.

If the new system is approved and installed, it will not require any updates to the computer system that the Bank of Xanadu currently uses. The proposed system will use Access and Excel when generating monthly reports. The Bank of Xanadu currently has these software programs in use on their system.

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Section 6: Alternatives Analysis

Software alternatives

Software purchased

1. Contract Insight-Has three different versions: Express and Workgroups, Enterprise, and Desktop edition. Only the enterprise has an option for invoicing and desktop has very few features. Enterprise has the most features default and man optional features, which will cost extra.
2. Contract Eagle-Sends alerts for contract renewal, organizes contracts so they are easy to find. Ability to track all contractual activities. Automatically sends courtesy emails to customers and suppliers. Very affordable
3. Matrix Software-Standardize through a contract repository and legal library. Automate key business rules and compliance. Set alerts, monitor and track expirations. Improve efficiency and reduce cycle times. Mitigate risks through control of contract language. Achieve faster contract negotiations and approval. Manage multi-year obligations that influence contract renewals. Uses Microsoft Sharepoint and Office
4. MS Access-A database program put out by Microsoft. Access comes with most Microsoft Office Suites. Offers a variety of templates and the ability to use VB coding for the application development. It is user friendly and already installed on the network.

Customized software

1. Agiloft-Adaptive technology core allows them to be configured to exact needs. Allows smooth transition that eliminates the need for ongoing consulting costs. Hybrid Saas 3.0 solution enables movement from a hosted solution on Agiloft's infrastructure to an in house solution.

In house software

This would require a program to be coded completely and making a system that is completely proprietary. Training on the use of the new software. Ability to do a network implementation. Testing of the new software to check for bugs. Contains information from previous contracts and payments made to ensure accuracy in all transactions. Making the system easy to use and more efficient. With easy to understand controls on a GUI that is organized and easy to navigate.

Outsourcing

Outsourcing Management Services, LLC.-Responsible for developing and maintaining, outlining outsourcing contract deliverables and obligations by both the supplier and buyer, includes status updates. Will develop, implement and manage a contract change control process to track changes, new service requests, or document contractual events in a manner that will allow efficient access by client personnel, including auditors. Will ensure appropriate escalation processes are in place to notify client of activities, decisions or events that may have contractual consequence. Will also develop, or assist in developing all the appropriate contract management documentation, including authorization processes for contract modifications and new service requests, including assessment of any new fees.

Manual alternative

Current system is manual and very time consuming. Although some changes could be made to improve the time frame of the current system. Such as implementing the use of Templates that Excel offers. Training to use the more advanced features that Excel has to offer.

Section 7: Recommendations

Contract Insight

Pros

- Enterprise edition offers many options you can add reducing functions that are not necessary
- Two options for rapid deployment. SaaS or Client Deployment.
- Full contract lifecycle management.
- Unlimited task tracking and email alerts.
- Full Vendor/Customer management. Track contact data, rating/scoring, compliance.
- Linking of related contracts and vendors.
- Offers free trial
- Good Customer service
- Accredited by BBB

Cons

- Security could be at risk, using the hosted feature could cause vulnerability with security.
- If the program crashes or has an unexpected issue, would have to contact company for technical support
- Cost for Express is $800.00 a year Per user
- Enterprise cost for 5 users on their server is between $7000.00 and $8000.00 a year.

Contract Eagle

Pros

- Sends alert emails for contract renewal.
- Organizes contracts
- Tracks all contractual activities
- Offers free trial
- Affordable

Cons

- Initial start up of program can be confusing
- GUI appears cluttered to me
- Security risk allows for connecting to outside network which may leave program vulnerable to hackers

CLM Matrix Software

Pros

- Standardize through contract repository and legal library
- Automates key business rules and compliance
- Able to set alerts and track contract expirations
- Mitigates risks
- Reduces Cycle times
- Uses Microsoft Sharepoint and Office making it easier to learn
- Offers free trial

Cons

- No reviews of product available which leads me to believe it is a newer company
- Uses Microsoft SharePoint server 2010, which could end up no longer being used, which would entail an eventual upgrade.
- Technical support may take time if there is an issue with the software.

MS Access

Pros

- Already own this software
- User friendly
- Allows integration of different files from programs IE: excel, plain text, html, and sql server
- Ability to set look up values to tie repeat invoices or contracts together
- Updated yearly and new features are implemented that may be useful to the system.

Cons

- The software is updated yearly and old features could become obsolete
- In Access any mathematical data needed can only be don't in queries and ad hoc
- Requires more planning and set up time
- Is a database management system

Agiloft

Pros

- Allows you to customize the program to fit needs
- Accredited with BBB
- Able to smoothly transition and deploy software when all configured which cuts consultation costs.
- Can be changed to an In house system

Cons

- Limited customizations of charts and graphs
- Out dated interface
- Lack of documentation. Lots of trial and errors or consultations
- Outside server causes security risks

In House Software

Pros

- Saves on cost in the long run
- Technical support will be faster
- Able to choose what all the system is able to do and what is generated and automated cutting down on features that are not used
- Data already collected can be easily added to system and tracked
- Easier to use
- More secure
- Easier to update if needed

Cons

- Human error is still possible

Outsourcing Management Services

Pros

- Less time consuming for accountant
- Develops and maintains deliverables
- Updates status
- Ensure appropriate escalation processes are in place to notify client of activities and decisions that may have contractual consequences.

Cons

- Security is a higher risk if the company is hacked or goes out of business for what ever reason could lose all data and information
- Errors made may not be caught in time and in turn could cost more money
- Costs for the services could increase over time
- Main concern is keeping their revenue high

Manual Alternatives

Pros

- Cheaper cost overall
- Less training in use
- Secure

Cons

- Labor intensive
- Potential for errors through manual data entry
- Difficult to scale

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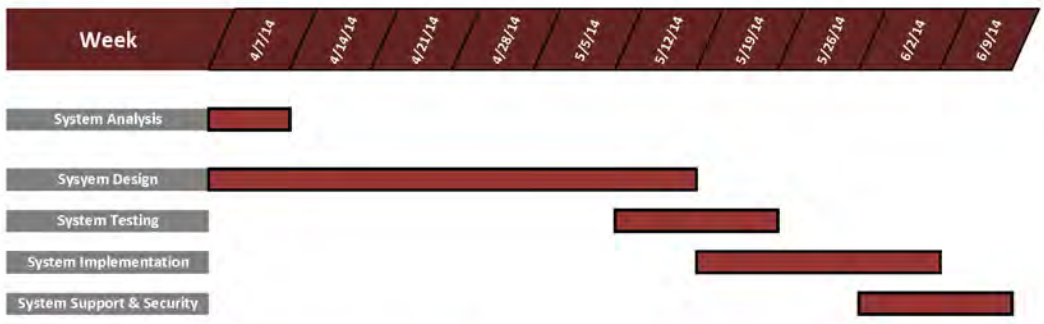
Section 8: Time Estimates
Estimated Schedule

Team Unicorn Time Estimates

We feel confident that the new system can be completed and fully operational within ten weeks from the start date of April 7, 2014. Week number one of our schedule will include the completion of the system analysis phase and the start of the actual system design phase of our project. The system design phase should be completed by end of week number six. The system testing portion of the project is scheduled for week numbers six and seven. The implementation of the new system will be started in week number seven and be completed by the end of week number nine. Weeks nine and ten are scheduled for the resolution of any support and security issues that may arise during the implementation of the new system.



Task	Start	Duration	End
System Analysis	4/7/14	5	4/11/14
Systen Design	4/7/14	30	5/16/14
System Testing	5/12/14	10	5/23/14
System Implementation	5/19/14	15	6/6/14
System Support & Security	6/2/14	10	6/13/14

Section 9: Conclusion:

We at Team Unicorn would like to conclude this report by thanking you for the opportunity to analyze your needs. With our extensive research on your day to processes we have discovered that you could benefit financially by automating a good portion of your vendor payment processing. The current layout and architecture is archaic, outdated, and far too labor intensive. Team Unicorn has researched and developed an automated Contractual Payment System that could far better serve your current and future needs as business expands.

The current configuration is working and has worked in the past, but we at Team Unicorn are concerned that with the current business climate, you will not be able to meet your customer and vendor's needs while staying competitive. We worry that in the case these issues are not addressed, Bank of Xanadu is poised to experience added costs, the need of additional manpower, and the overall stress of the organization, specifically the Accounting Management and the Accountants themselves. Team Unicorn is prepared to install an automated Contractual Payment System to help address the current problems of the manual Excel-based system in use at present. The return on investment and the projected savings are so high that it is Team Unicorn's opinion that it would be a disservice to not begin implementing this system immediately.

Appendices

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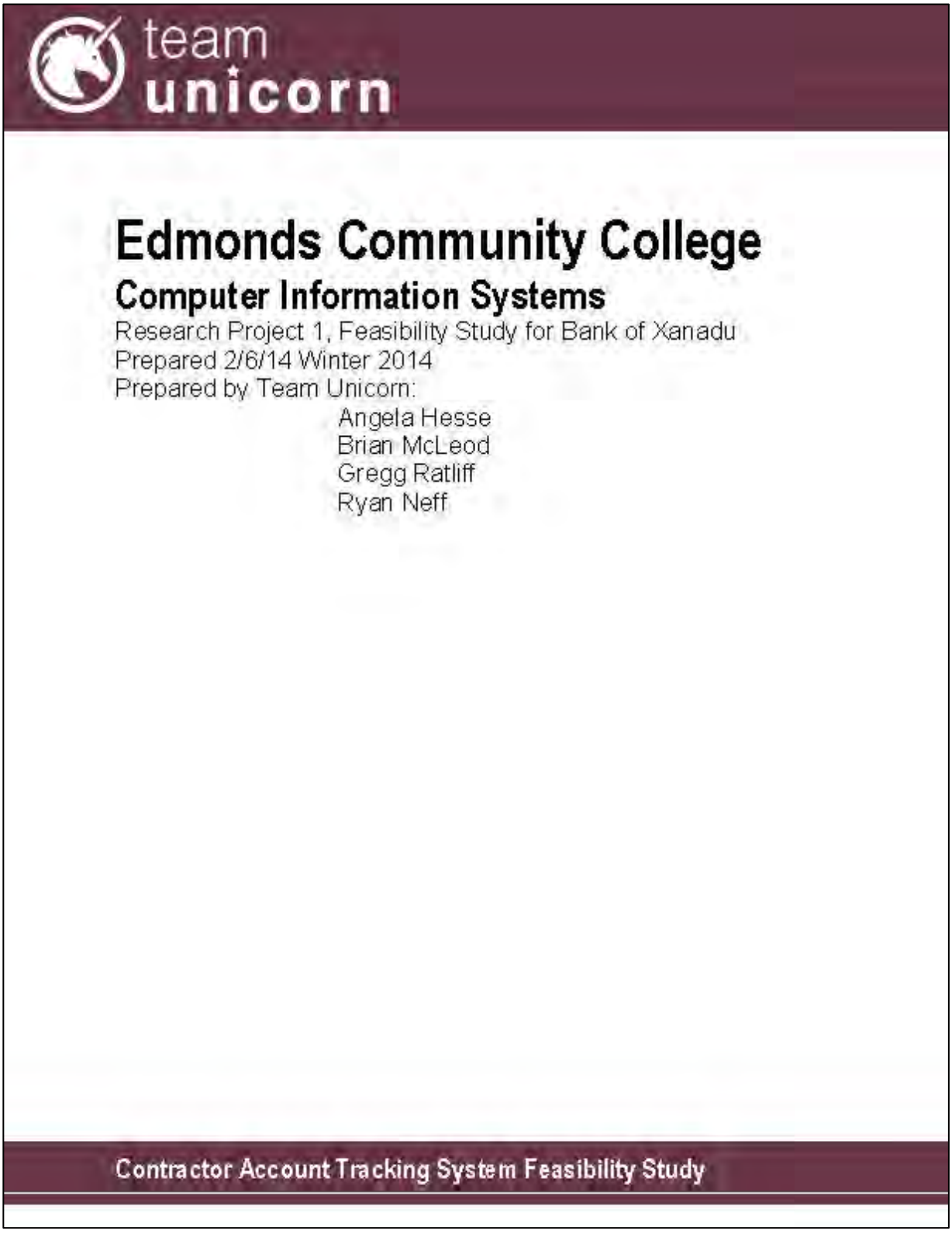
Appendix A: Contractor Account Tracking System Feasibility Study

CIS 233: *Evaluation Criteria:*
Preliminary Investigation Report/Feasibility Study
Team Members: Angela Hesse, Gregg Ratliff, Brian McLeod, Ryan Neff

Category	Evaluation Criteria	Points	Score	Comments
Content:	❑ Covers all the requested points. ❑ Includes all required components/parts. ❑ Addresses proper audience. ❑ Has appropriate level of detail. ❑ Follows guidelines in text. ❑ Body of report contains all sections specified in the assignment document. ❑ Demonstrates that critical thinking skills were used to determine the true nature of the problem and scope of the project.	60		
Format:	❑ Follows suggested format.	10		
Style:	❑ Uses a professional, easy to read, style with proper English grammar & NO spelling errors.	10		
Clarity:	❑ Makes all the points clearly from the reader's point of view.	10		
Layout & Neatness:	❑ Uses proper margins & spacing: one inch on left, right, top, & bottom. ❑ Uses consistent fonts with no less than a 12 point font minimum (headings may be larger size if desired) VERDANA OR ARIAL FONT ONLY PLEASE. ❑ Includes a header or footer with document title and page numbers. ❑ Uses bullets and white space to good effect.	10		
Total Points		100		
Overall Comments:				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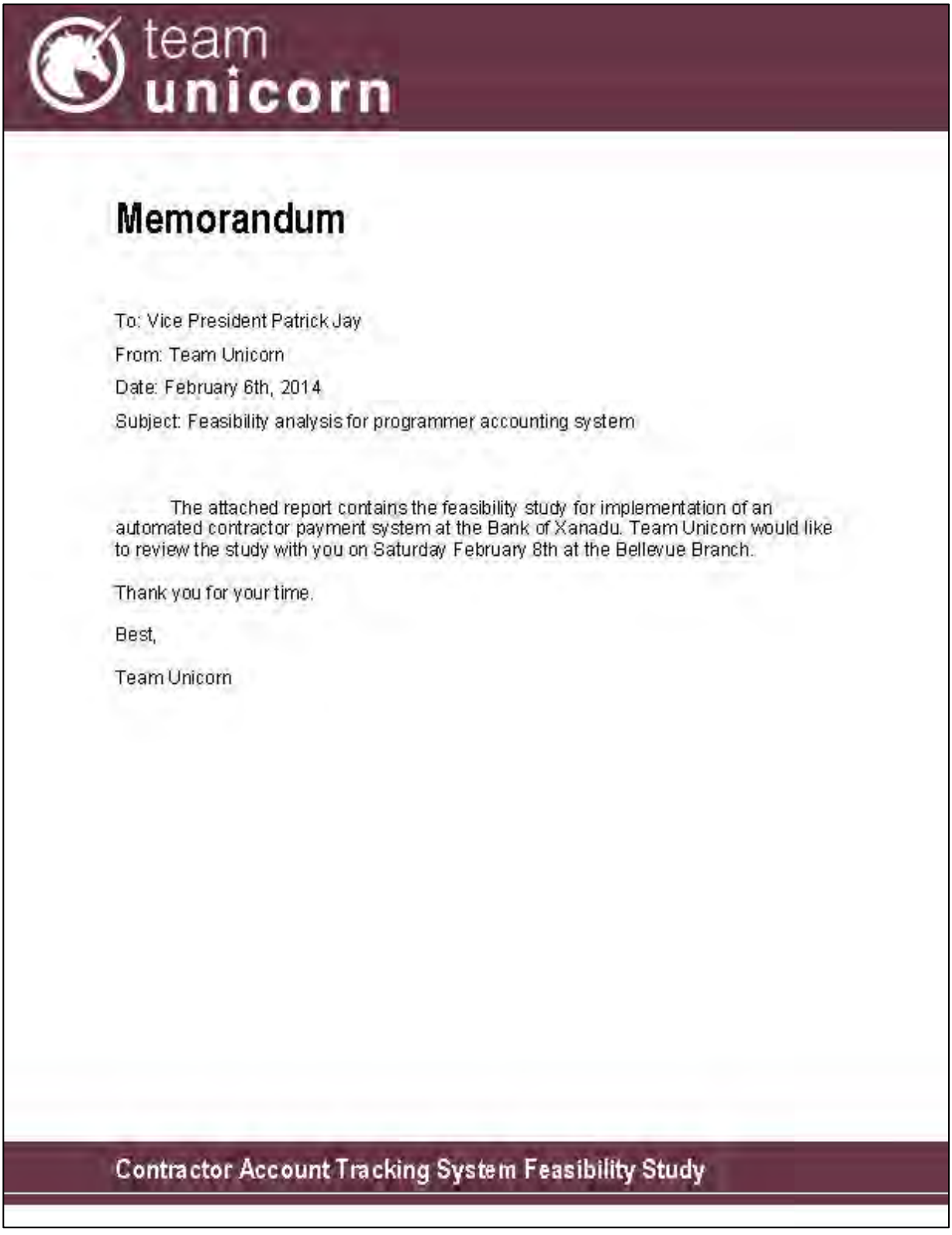

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Memorandum

To: Vice President Patrick Jay

From: Team Unicorn

Date: February 6th, 2014

Subject: Feasibility analysis for programmer accounting system

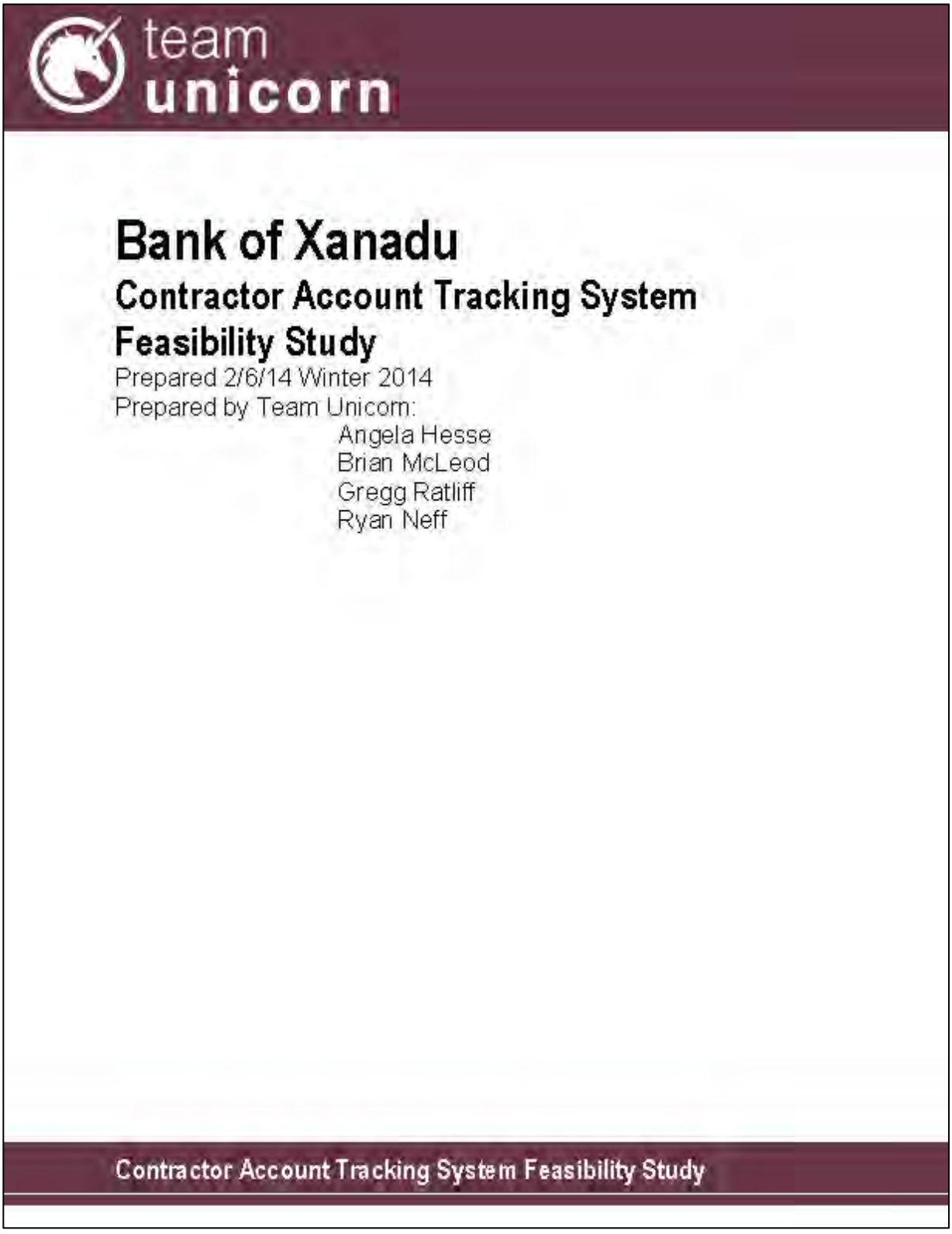
The attached report contains the feasibility study for implementation of an automated contractor payment system at the Bank of Xanadu. Team Unicorn would like to review the study with you on Saturday February 8th at the Bellevue Branch.

Thank you for your time.

Best,

Team Unicorn

Contractor Account Tracking System Feasibility Study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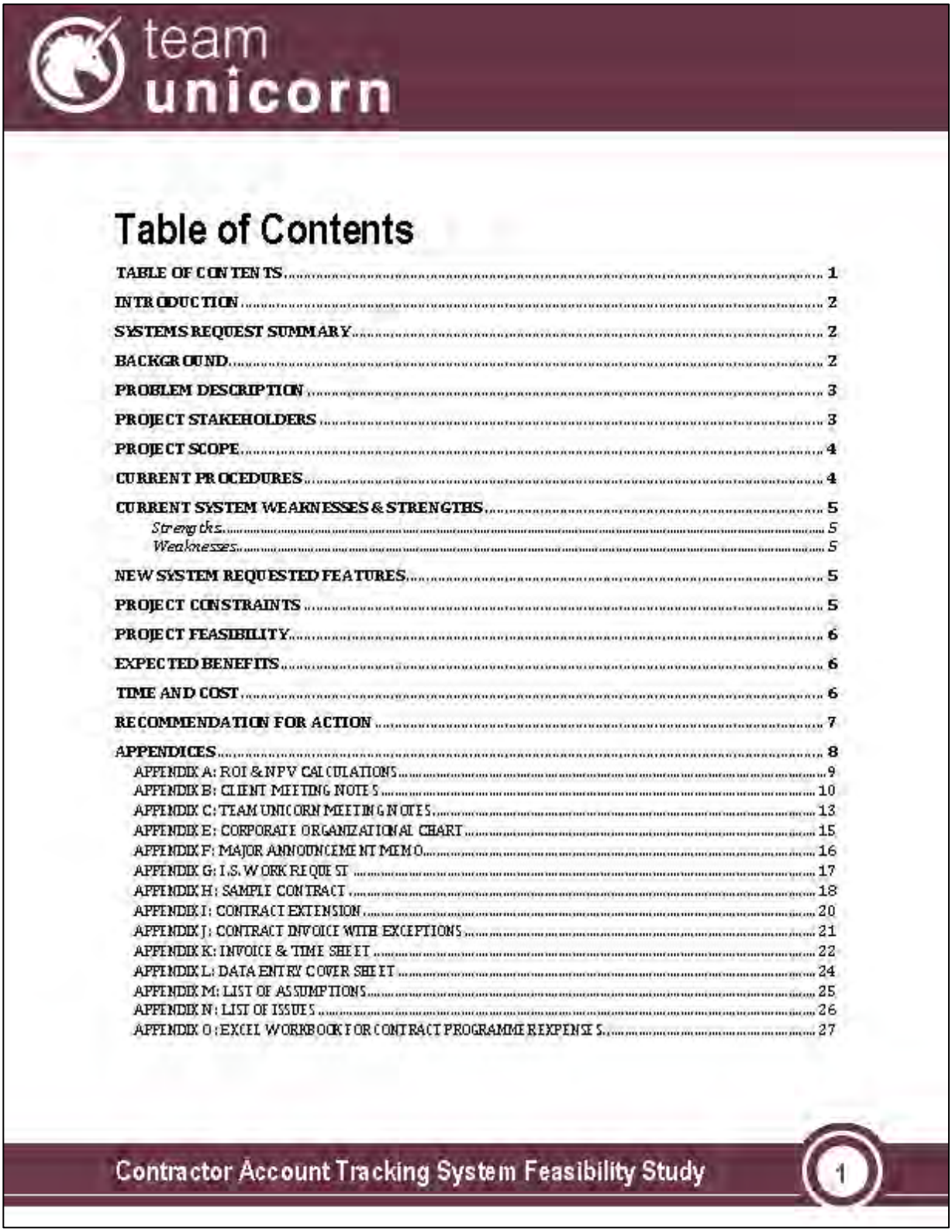

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Introduction

The purpose of this document is to explain the findings of Team Unicorn's research on the proposed system implementation at Bank of Xanadu's Bellevue office. The new system requested is for the purpose of automating payments to vendors or contractors from Buyers within the organization in an effort to reduce staff needs and manpower hours spent on manually processing all payments and manually logging changes in an Excel Workbook. This request was initiated by Vice President Patrick Jay who called on Team Unicorn to help streamline this process. Team Unicorn is comprised of team members Ryan Neff, Angela Hesse, Gregory Ratliff, and Brian McLeod.

Systems Request Summary

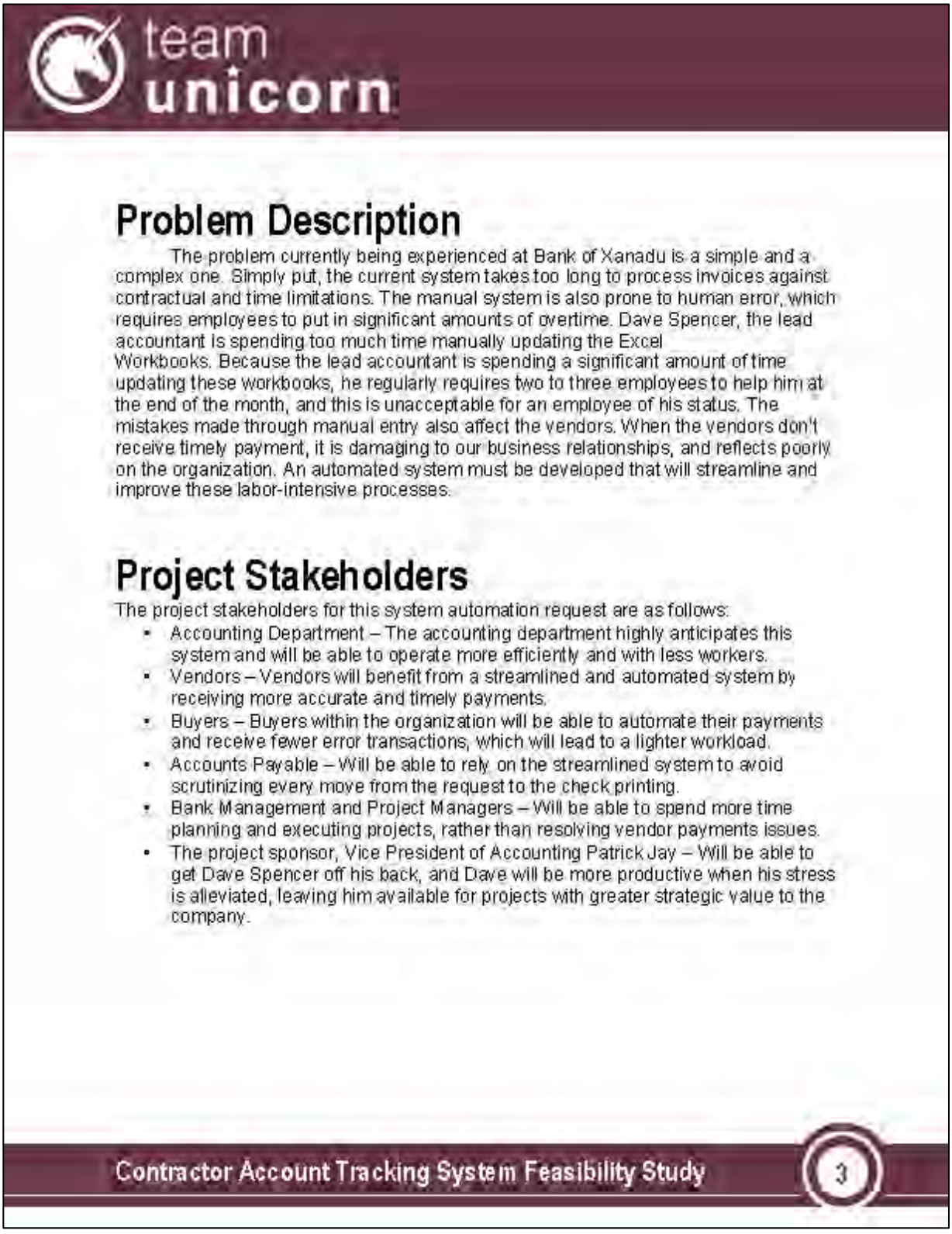
Bank of Xanadu has recently shifted their focus to core competencies, which entails outsourcing all functions outside the realm of core business processes.

Bank of Xanadu will be hiring contractors to fill these programming positions. Xanadu needs a quick and efficient way to track these contractual payments. The accounting department is currently using Excel workbooks to this end. While the Excel workbooks are easy to use, they are also time consuming.

Bank of Xanadu would like an automated process that is easy to use and efficient for the three primary checks required to ensure data is correct, and that timelines and stipulations are met. Xanadu would also like for monthly reports to be printed and memos generated when needed.

Background

Bank of Xanadu is a global banking enterprise, with more than 100,000 employees, and more than 2000 branch offices spanning 15 countries. Three young banking entrepreneurs in Bellevue Washington formed the business 35 years ago. Their core commitment to outstanding customer service allowed their business to grow rapidly. Expansion started along the western United States, and by 2000 their growth had warranted moving the corporate headquarters to the Caymen Islands. By 2007 they had grown into the global behemoth they are today. Xanadu branches are setup as a hub and spoke model, with regional spokes reporting to the regional hub. Each regional hub maintains its own accounting, administrative and HR functions, which they provide to their respective spoke branches. All the regional hubs report to corporate headquarters.



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Problem Description

The problem currently being experienced at Bank of Xanadu is a simple and a complex one. Simply put, the current system takes too long to process invoices against contractual and time limitations. The manual system is also prone to human error, which requires employees to put in significant amounts of overtime. Dave Spencer, the lead accountant is spending too much time manually updating the Excel Workbooks. Because the lead accountant is spending a significant amount of time updating these workbooks, he regularly requires two to three employees to help him at the end of the month, and this is unacceptable for an employee of his status. The mistakes made through manual entry also affect the vendors. When the vendors don't receive timely payment, it is damaging to our business relationships, and reflects poorly on the organization. An automated system must be developed that will streamline and improve these labor-intensive processes.

Project Stakeholders

The project stakeholders for this system automation request are as follows:

- Accounting Department – The accounting department highly anticipates this system and will be able to operate more efficiently and with less workers.
- Vendors – Vendors will benefit from a streamlined and automated system by receiving more accurate and timely payments.
- Buyers – Buyers within the organization will be able to automate their payments and receive fewer error transactions, which will lead to a lighter workload.
- Accounts Payable – Will be able to rely on the streamlined system to avoid scrutinizing every move from the request to the check printing.
- Bank Management and Project Managers – Will be able to spend more time planning and executing projects, rather than resolving vendor payments issues.
- The project sponsor, Vice President of Accounting Patrick Jay – Will be able to get Dave Spencer off his back, and Dave will be more productive when his stress is alleviated, leaving him available for projects with greater strategic value to the company.

Contractor Account Tracking System Feasibility Study 3

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Project Scope

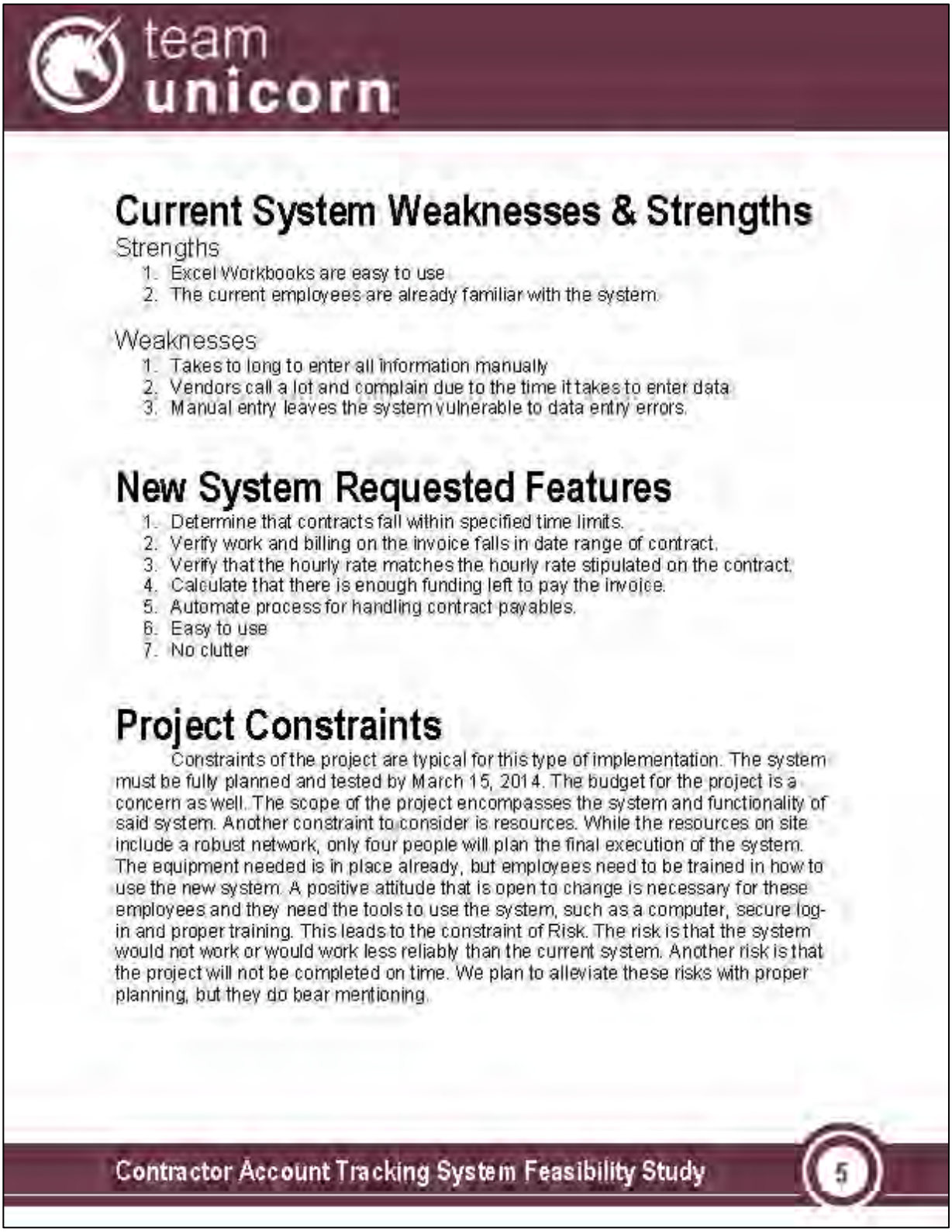
The purpose of this project is to develop and implement an *automated* system for the Bank of Xanadu accounting department that tracks billing for their independent contractor programmers. The Automated System MUST:

1. Verify that the work performed and billed on an invoice falls within the valid contract date range.
2. Verify the hourly rate billed on the invoice matches the hourly rate stipulated on the contract.
3. It must calculate whether there is enough funding left on the contract to pay the invoice.

Current Procedures

1. The buyer hand delivers the contract copy (See appendix H) to the accountant. (He puts a piece of paper in the accountants inbox on his desk)
2. The accountant verifies that all info needed is there.
3. If any info is missing from the contract, the contract is logged in and returned to the buyer to fix.
4. The accountant enters all contract info into excel and files the hardcopy for future reference
5. The Vendor submits an invoice by mail to the accountant.
6. The accountant verifies that all info required is present.
7. Accounting verifies that the invoice can be paid according to the contractual time & fee limitations.
8. If invoice is either missing info OR incorrect OR exceeds contractual limits, it is returned to the buyer for resolution, with an exception memo.
9. When an invoice problem is resolved, the invoice is returned to the accountant.
10. When the accountant has approved invoice payment, he/she creates a data entry sheet and sends invoice to accounts payable to have them cut a check and mail it to the vendor.
11. If vendor payment is late or missing, they call the accountant for resolution.
12. Accountant must then research the reason for non-payment and respond to the vendor.
13. If the invoice cannot be paid in the same period of the actual expense it has to be accrued.
14. At Months end, the accountant runs 5 reports, audits them for accuracy, and delivers two reports to accounting management, and 3 to bank management. (These are Contractual payment system reports)

Contractor Account Tracking System Feasibility Study 4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Current System Weaknesses & Strengths
Strengths
1. Excel Workbooks are easy to use
2. The current employees are already familiar with the system
Weaknesses
1. Takes to long to enter all information manually
2. Vendors call a lot and complain due to the time it takes to enter data
3. Manual entry leaves the system vulnerable to data entry errors.
New System Requested Features
1. Determine that contracts fall within specified time limits.
2. Verify work and billing on the invoice falls in date range of contract.
3. Verify that the hourly rate matches the hourly rate stipulated on the contract.
4. Calculate that there is enough funding left to pay the invoice.
5. Automate process for handling contract payables.
6. Easy to use
7. No clutter
Project Constraints
Constraints of the project are typical for this type of implementation. The system must be fully planned and tested by March 15, 2014. The budget for the project is a concern as well. The scope of the project encompasses the system and functionality of said system. Another constraint to consider is resources. While the resources on site include a robust network, only four people will plan the final execution of the system. The equipment needed is in place already, but employees need to be trained in how to use the new system. A positive attitude that is open to change is necessary for these employees and they need the tools to use the system, such as a computer, secure log-in and proper training. This leads to the constraint of Risk. The risk is that the system would not work or would work less reliably than the current system. Another risk is that the project will not be completed on time. We plan to alleviate these risks with proper planning, but they do bear mentioning.
Contractor Account Tracking System Feasibility Study
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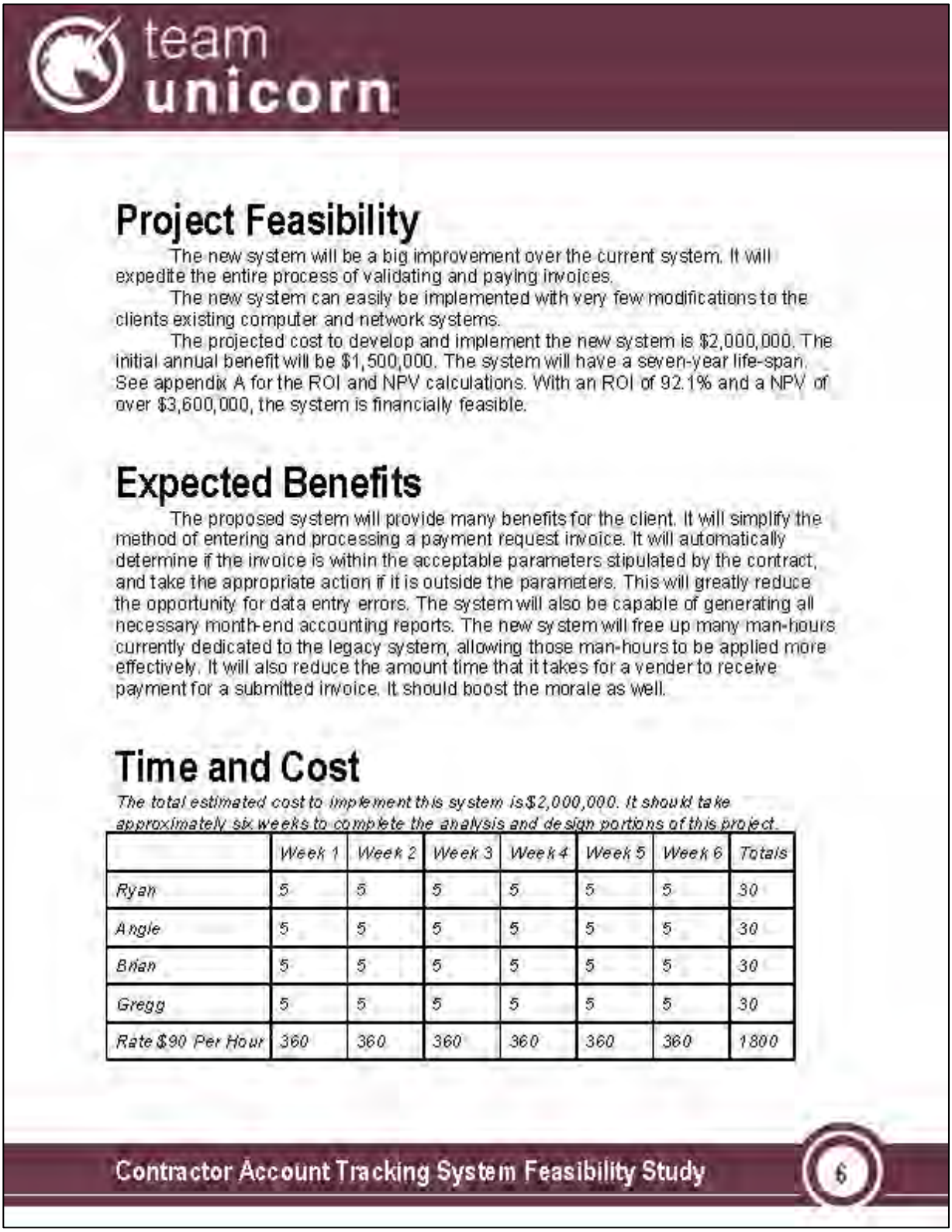

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Project Feasibility

The new system will be a big improvement over the current system. It will expedite the entire process of validating and paying invoices.

The new system can easily be implemented with very few modifications to the clients existing computer and network systems.

The projected cost to develop and implement the new system is $2,000,000. The initial annual benefit will be $1,500,000. The system will have a seven-year life-span. See appendix A for the ROI and NPV calculations. With an ROI of 92.1% and a NPV of over $3,600,000, the system is financially feasible.

Expected Benefits

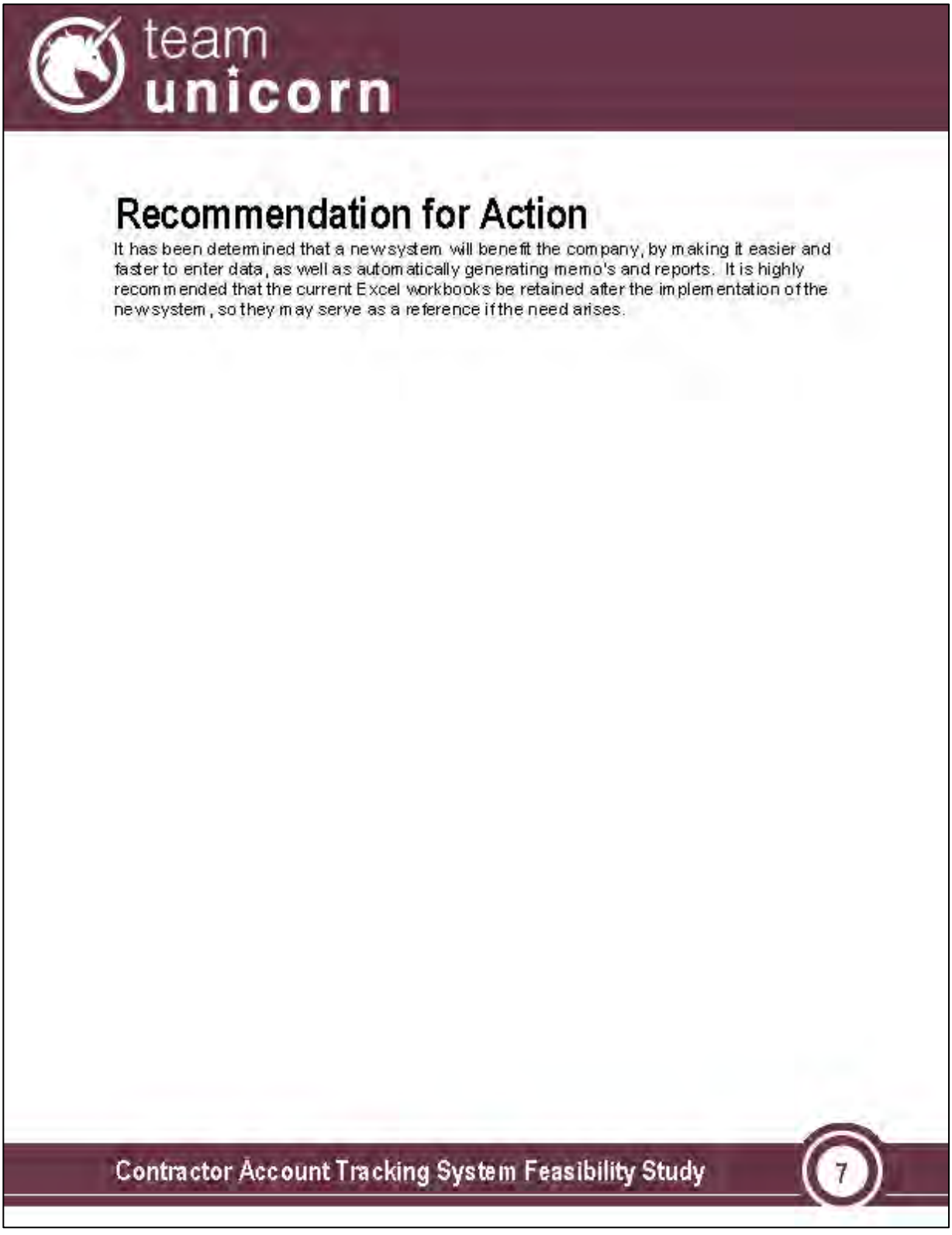
The proposed system will provide many benefits for the client. It will simplify the method of entering and processing a payment request invoice. It will automatically determine if the invoice is within the acceptable parameters stipulated by the contract, and take the appropriate action if it is outside the parameters. This will greatly reduce the opportunity for data entry errors. The system will also be capable of generating all necessary month-end accounting reports. The new system will free up many man-hours currently dedicated to the legacy system, allowing those man-hours to be applied more effectively. It will also reduce the amount time that it takes for a vender to receive payment for a submitted invoice. It should boost the morale as well.

Time and Cost

The total estimated cost to implement this system is $2,000,000. It should take approximately six weeks to complete the analysis and design portions of this project.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Totals
Ryan	5	5	5	5	5	5	30
Angie	5	5	5	5	5	5	30
Brian	5	5	5	5	5	5	30
Gregg	5	5	5	5	5	5	30
Rate $90 Per Hour	360	360	360	360	360	360	1800

Contractor Account Tracking System Feasibility Study 6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Recommendation for Action
It has been determined that a new system will benefit the company, by making it easier and faster to enter data, as well as automatically generating memo's and reports. It is highly recommended that the current Excel workbooks be retained after the implementation of the new system, so they may serve as a reference if the need arises.
Contractor Account Tracking System Feasibility Study
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Appendices
Contractor Account Tracking System Feasibility Study
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Appendix A: ROI & NPV Calculations

NPV

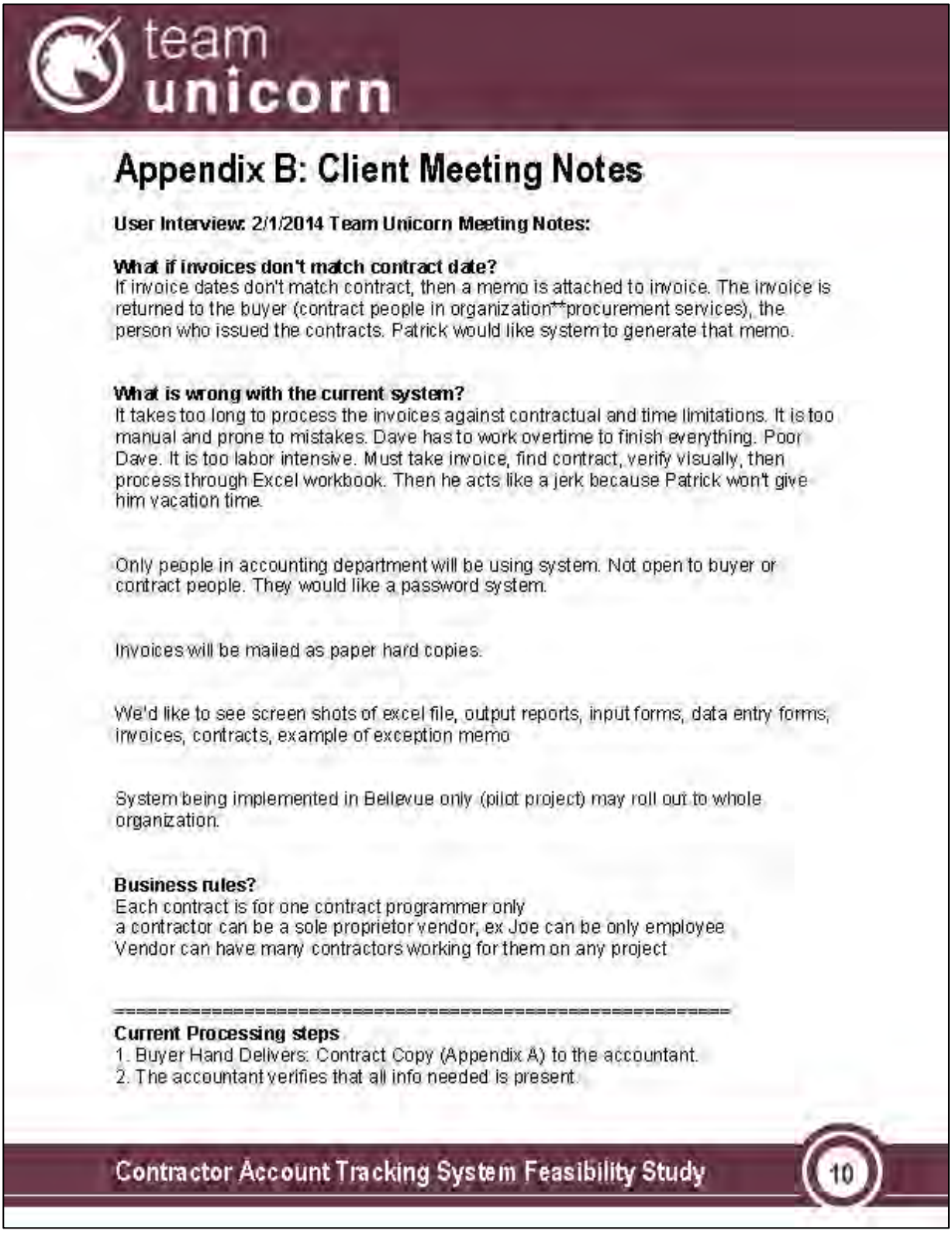
	Year 0	Year 1	Year 2	Year 3
Benefits	$1,500,000	$1,425,000	$1,353,750	$1,286,063
Factor	1.000	0.926	0.857	0.794
PV of Benefits	$1,500,000	$1,319,550	$1,160,164	$1,021,134
Costs	2,000,000	400,000	420,000	441,000
Factor	1.000	0.926	0.857	0.794
PV of Costs	$2,000,000	$370,400	$359,940	$350,154

	Year 4	Year 5	Year 6	Year 7	Total
Benefits	$1,221,759	$1,160,671	$1,102,638	$1,047,506	**$5,564,813**
Factor	0.735	0.681	0.630	0.583	
PV of Benefits	$897,993	$790,417	$694,662	$610,696	**$5,000,847**
Costs	463,050	486,203	510,513	536,038	**$3,261,000**
Factor	0.735	0.681	0.630	0.583	
PV of Costs	$340,342	$331,104	$321,623	$312,510	**$3,080,494**

Net Present Value:		$1,920,353

ROI

Year	Costs	Cumulative Costs	Benefits	Cumulative Benefits
0	$2,000,000	$2,000,000	$1,500,000	$1,500,000
1	$400,000	$2,400,000	$1,425,000	$2,925,000
2	$420,000	$2,820,000	$1,353,750	$4,278,750
3	$441,000	$3,261,000	$1,286,063	$5,564,813
4	$463,050	$3,724,050	$1,221,759	$6,786,572
5	$486,203	$4,210,253	$1,160,671	$7,947,243
6	$510,513	$4,720,765	$1,102,638	$9,049,881
7	$536,038	$5,256,803	$1,047,506	$10,097,387
	ROI:	92.1%		



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Appendix B: Client Meeting Notes

User Interview: 2/1/2014 Team Unicorn Meeting Notes:

What if invoices don't match contract date?
If invoice dates don't match contract, then a memo is attached to invoice. The invoice is returned to the buyer (contract people in organization**procurement services), the person who issued the contracts. Patrick would like system to generate that memo.

What is wrong with the current system?
It takes too long to process the invoices against contractual and time limitations. It is too manual and prone to mistakes. Dave has to work overtime to finish everything. Poor Dave. It is too labor intensive. Must take invoice, find contract, verify visually, then process through Excel workbook. Then he acts like a jerk because Patrick won't give him vacation time.

Only people in accounting department will be using system. Not open to buyer or contract people. They would like a password system.

Invoices will be mailed as paper hard copies.

We'd like to see screen shots of excel file, output reports, input forms, data entry forms, invoices, contracts, example of exception memo

System being implemented in Bellevue only (pilot project) may roll out to whole organization.

Business rules?
Each contract is for one contract programmer only
a contractor can be a sole proprietor vendor, ex Joe can be only employee
Vendor can have many contractors working for them on any project

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Current Processing steps
1. Buyer Hand Delivers: Contract Copy (Appendix A) to the accountant.
2. The accountant verifies that all info needed is present.

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3. If any information is missing from the contract, the contract is logged in and returned to the Buyer to fix.
4. The accountant enters all contract information into Excel and files hard copy for future reference.
5. The vendor submits an invoice by mail to the accountant.
6. Accountant verifies that all information required is present.
7. Accountant verifies that the invoice can be paid according to the contractual time and fee limitations.
8. If invoice is either missing information or incorrect, or exceeds contractual limits, it is returned to the Buyer with exception memo for resolution.
9. When invoice problem is resolved, invoice is returned to the accountant for processing.
10. When the accountant has approved the invoice for payment, they create a data entry sheet and sends invoice to accounts payable to have check cut and mail to vendor.
11. If vendor payment is late or missing, they call the accountant for resolution.
12. Accountant must then research reason for non payment and respond to the vendor.
13. If the invoice cannot be paid in the same period of the actual expense, it has to be approved. It has to be accrued (they are reversed later)
14. At month's end, the accountant runs 5 reports, audits the reports for accuracy, and delivers 2 reports to accounting management and 3 reports to bank management. (Contractual payment system reports)

What are the strengths of the current system?
The ease of using Excel workbooks. It's simple.

What are the weaknesses of the current system?
1. Takes way too long to process manually
2. Keeps Dave way too busy
3. Vendors complain a lot
4. Too many mistakes happen

What is the operational feasibility?
The accounting dept. wants this. Dave is pestering Patrick for an automated system. Dave is totally into this. This will make his job easier. It will get the checks to the vendors faster. We want to limit the risk with a pilot project, minimize risk. An IT dept. will handle support.

Are there new requested features?

Contractor Account Tracking System Feasibility Study 11

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Yes, it should automate this process. You can enter contracts and the system will do the 3 big checks. It will check to make sure the invoice total is correct based on hours and work billed. The invoice cannot be changed. It should be easy to use, no clutter.

What's the timetable?
Analysis phase needs to be completed by March 15. Figure out how much you want to make per hour. Figure out how much time you will spend each week and add 5 hours to it.

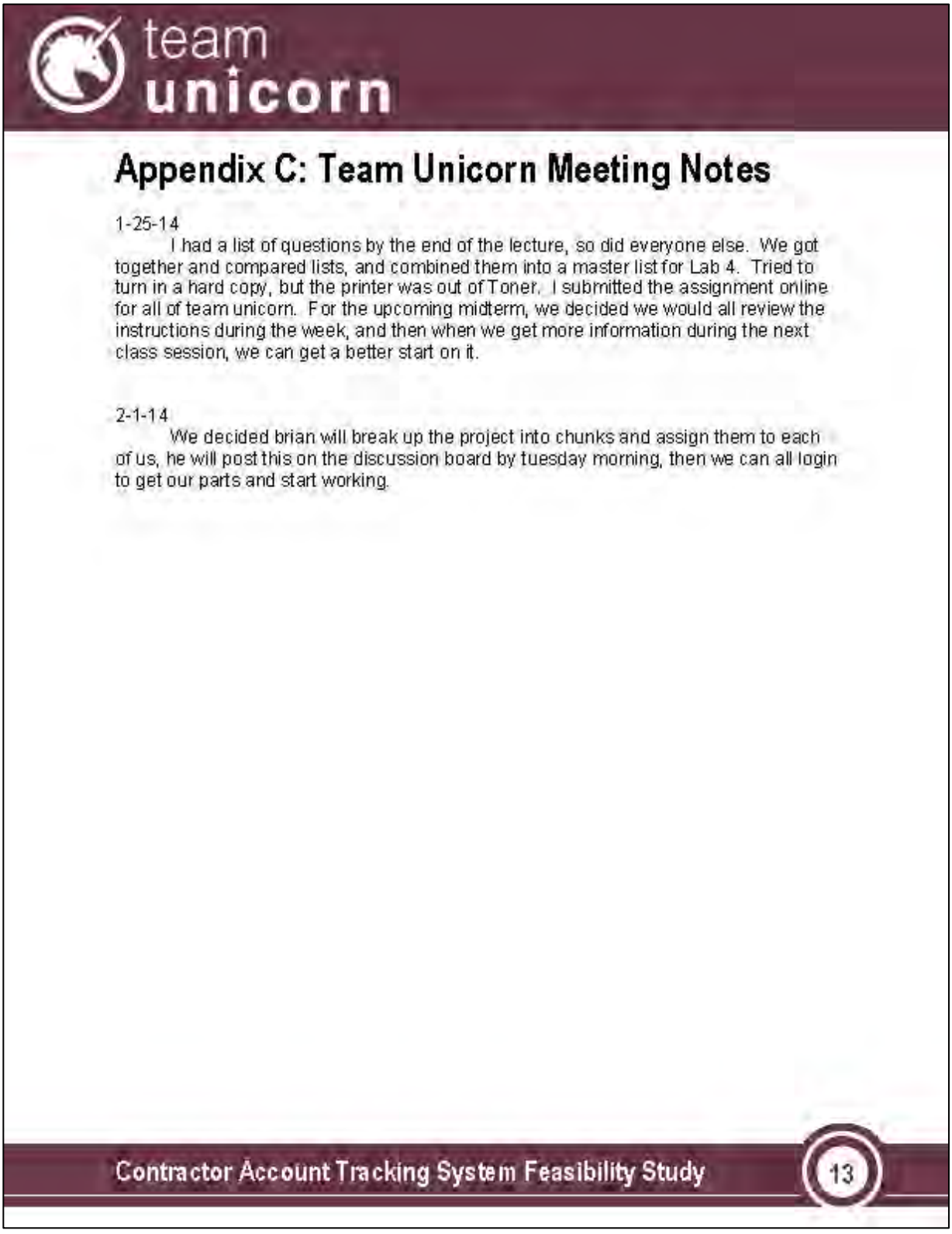
Benefits?
Dave is happier
Vendors are happier
Productivity increases
Job satisfaction, customer satisfaction - Intangible Benefits
Reduction in staff - saves money
Saving time with vendor inquiries

Who are the stakeholders?
Accountant, Vendors, Buyers, Accounts Payable, Bank Management (project managers), Accounting Management, Contract Programmers, Project Sponsor - Patrick Jay (use titles, not names)

SOURCE DOCUMENTS GATHERED FROM THE USER

LIST OF ASSUMPTIONS
made while analyzing the findings of the preliminary investigation and developing the above PIR report

LIST OF ISSUES
A list of issues or questions for the user(s) that you identified while completing this preliminary investigation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Appendix C: Team Unicorn Meeting Notes
1-25-14
I had a list of questions by the end of the lecture, so did everyone else. We got together and compared lists, and combined them into a master list for Lab 4. Tried to turn in a hard copy, but the printer was out of Toner. I submitted the assignment online for all of team unicorn. For the upcoming midterm, we decided we would all review the instructions during the week, and then when we get more information during the next class session, we can get a better start on it.
2-1-14
We decided brian will break up the project into chunks and assign them to each of us, he will post this on the discussion board by tuesday morning, then we can all login to get our parts and start working.
Contractor Account Tracking System Feasibility Study
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Appendix D: Correspondence to Date

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Memorandum

Date: 1-31-2014

To: Vice President Patrick Jay

From: Team Unicorn Vice President Ryan Neff

Subject: Feasibility analysis for programmer accounting system

Thank you for meeting with me at the office last Saturday to discuss the work request for an analysis of a new programming expense tracking system.

As we discussed, the accounting department needs a new automated system to track billing for the recently redeployed programmers. The three most important functions of the new system are:

- Determining whether each invoice falls within the appropriate date range
- Verifying the hourly rate billed matches the contract rate
- Calculating the funding left on the contract to ensure there are adequate funds to pay the invoice.

Team Unicorn and I will use the System Development Life Cycle to complete this project, in the following phases:

1. Planning: Feasibility study is conducted
2. Analysis: System proposal and requirements documents created
3. Design: The system design specifications are established
4. Implementation: A fully functional system is put into place
5. Operational Maintenance: Ongoing maintenance procedures are established.

If your schedule permits, I'd like to meet with you again on Saturday, February 1 st at 1 PM at the Bellevue branch, so I can clarify some details.

Thank you for your time,

Ryan Neff

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Appendix E: Corporate Organizational Chart

Bank of Xanadu

Corporate Headquarters: George Town, Cayman Islands
Major Banking Centers: Amsterdam • Aspen • Beijing • Bellevue • Berlin • Beverly Hills • Canberra • Cape Town • Dallas • Denver • Hong Kong • Kuala Lumpur • Las Vegas • London • Mumbai • Newport • New York • Nice • Ottawa • Palm Beach • Pine Valley • Santiago • Savannah • Sao Paulo • Scottsdale • Singapore • Tokyo • Wellington

CORPORATE HEADQUARTERS: *George Town, Grand Cayman*

Chief Executive Officer (CEO)
Patrick Dallaigne
Chief Financial Officer (CFO)
Sanjay Rupeedasl
Chief Information Officer (CIO)
Isabella Rearney
Chief Operations Officer (COO)
Hyacinth Randall

Executive Vice President (EVP)
Carmelita Pesskin
Senior Vice President (SVP)
Richard Roundstone
Vice President (VP)
Dieter Markstein
Assistant Vice President (AVP)
Keiko Yennaka

(Sample)
BRANCH OFFICES

Bellevue, WA
Sr. Vice President
Anne Casey
Executive Secretary:
Beth Rice

Contract Group
Manager: Scott Solenson
Rob Wall
Sam Esposito
Mark Martin
David Hall
Jagjeet Kaur
Anthony Lewis

Accounting Group
Vice President/Manager:
Patrick Jay
Dave Spencer
Kyle Watts
Tamisha Spencer
Misty Barbel

Payables Group
Manager: Lyle Newhart
Dawn Hill
Mark Martin
Ho Lee
Bill Lacs
Lane Conway
John Wallace

Pine Valley, NY
Sr. Vice President
Leonard Chau
Executive Secretary:
Jan Lawience

Contract Group
Manager: Cara DeSoto
Annie D'Ogie
Joyce Donahue
Ray Ortiz
John Ackerman
S. Nelson-Leong
Tuan Tran

Accounting Group
Manager: Ray Brown
Shelly Grant
Tom Leman
Pilita Basta
E Obe-Shearman

Payables Group
Manager: Robert Stacy
Amy Hawkins
Leslie Hall
Waylon White
Susan Cooper
Ed Bowpun
Teresa Skelly

Berlin, Germany
Sr. Vice President
Louisa Gartner
Executive Secretary:
Darth Weitmeier

Contract Group
Manager: Joachim Mart
Karl Meister
Steffi Freund
Paula Glassman
Gerhard Arnall
Tobias Stein
D Voigtsberger

Accounting Group
Manager: Franz Neuman
Karin Klatz
Stephan Nebu
Dieter Janssen
Astrid Gutenlag

Payables Group
Manager: Astrid Dorfler
Gunther Meickel
Hans Meistersahn
Rudi Schertz
Walter Lehmann
Martin Edelmann
Gert Fromme

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Appendix F: Major Announcement Memo

Bank of Xanadu

Corporate Headquarters: George Town, Cayman Islands

Major Banking Centers: Amsterdam • Aspen • Beijing • Bellevue • Berlin • Beverly Hills • Canberra • Cape Town • Dallas • Denver • Hong Kong • Kuala Lumpur • Las Vegas • London • Mumbai • Newport • New York • Nice • Ottawa • Palm Beach • Pine Valley • Santiago • Savannah • Sao Paulo • Scottsdale • Singapore • Tokyo • Wellington

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Date: Friday, 11/30/12
To: Bank of Xanadu Bellevue Employees
From: Anne Casey, Sr. Vice President
Subject: MAJOR ANNOUNCEMENT

This will give you advance notice of a story that will be reported in tomorrow's newspapers. At a press conference today, the Bank of Xanadu board of directors announced that the company would immediately acquire Utopia National Bank, including their corporate headquarters and all 550 of their branch offices, for a sum of $15.1 billion dollars. This acquisition will greatly increase our global influence in Europe, Africa, and the Asian marketplace. This opportunity will expand our operations into eight new international cities, including Paris, Zurich, Rome, Cairo, Bangkok, Taipei, Manila, and Seoul, and add over 400 domestic branches – primarily in America's heartland. We are excited about this acquisition, and welcome Utopia into the Xanadu fold.

During our recent strategic planning meetings, we examined external opportunities and internal constraints of our business. We identified several fast-growing areas of banking that might represent new opportunities for Xanadu. We found that bringing Utopia into our business model would present the best opportunity for us to expand not only our global exposure, but also to expand our customer base and increase the available services that we can offer our customers. While Utopia will provide us a wider array of banking opportunities, we will need to streamline both business process models into one seamless operation in order to maintain economic profitability.

As a result, we decided to consolidate operating and networking systems into one global system. We are also in the process of recovering from the sub-prime mortgage fiasco that resulted in damaging losses for Xanadu, and particularly disastrous losses for Utopia. With losses of several billion dollars, Utopia was in no position to continue to operate as a financially profitable organization. This allowed Xanadu to execute a quick-and-dirty hostile takeover of their organization. With this said, we must now focus on our core competencies in order to return to financial profitability. After much strategic planning, we have decided to outsource all system programming and consulting duties that we once held in-house to outside contractors. We project that this will result in substantial annual cost savings in employee administrative and benefit expenses.

To address this constraint, we have decided to temporarily reorganize our IT resources and assign higher priority to internal projects that will streamline our procedures. As Xanadu employees, you know that our company always has looked ahead to the challenges and opportunities of the future. Our long-term mission is to grow ourselves into the largest and most profitable banking organization in the world. Our corporate values and the high-quality services we provide are the cornerstone of our success. In a market where many banks and thrifts are close to failing, we have been able to stave off serious financial distress, and with the acquisition of Utopia, believe we have positioned ourselves to achieve a rapid recovery and continue to grow our product and services worldwide. Our financial analysts and advisors have much work to do to complete the acquisition of Utopia. Internal procedures and external market opportunities will be scrutinized. If all goes as planned, we expect to see increased profits within the next two to three operating quarters. Thank you all for your hard work and dedication.

[illegible]

Contractor Account Tracking System Feasibility Study

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Appendix G: I.S. Work Request

Bank of Xanadu
Corporate Headquarters: George Town, Cayman Islands
Major Banking Centers: Amsterdam • Aspen • Beijing • Bellevue • Berlin • Beverly Hills • Canberra • Cape Town • Dallas • Denver • Hong Kong • Kuala Lumpur • Las Vegas • London • Mumbai • Newport • New York • Nice • Ottawa • Palm Beach • Pine Valley • Santiago • Savannah • Sao Paulo • Scottsdale • Singapore • Tokyo • Wellington

Information Systems Work Request

Date	1/25/13	Department	Accounting
Contact	Patrick Jay	Location	Bellevue, WA
Title	Vice President, & Manager	Email	pjammer@bxx.bank

Project Description (in brief):

The strategic direction and growth of the bank has put new emphasis on streamlining our internal procedures. Xanadu Bank is in the business of banking, and to remain profitable and competitive, focus has shifted toward concentration on our core competencies, outsourcing any functions and processes that are not part of these core business operations. Since this process began late last year, all in-house programming positions have been redeployed, resulting in the need to use outside contractors to provide the necessary programming services. This move will save our company over one 1 million dollars annually in employee administrative and benefit costs.

The major problem we face now is finding a suitable way to track these new programming expenses to the scope of service stipulated in their official contracts. While the accounting department has hastily thrown together a stop-gap solution using an Excel workbook, it is taking an incredibly large amount of time to manually enter all the contractual information, receive and process the incoming programming invoices, prepare accurate accruals, respond to vendor inquiries, and generate accurate monthly financial reports.

The THREE most important functions the new system must perform are to determine whether each invoice falls within the contract time limitations (start & end dates), specifically if the work performed and billed on the invoice falls within the valid contract date range. It must also verify the hourly rate billed on the invoice matches the hourly rate stipulated on the contract. Finally, it must calculate whether there is enough funding left on the contract to pay the invoice.

In recent strategic planning sessions, the senior management has determined that there is a desperate need for a new, more automated process for managing contract payables. The objective of this project is to investigate and recommend a solution to control payments in accordance to contractual time and fee limitations throughout the company. Once approved, the chosen solution will need to be designed and implemented for use within the Bank's accounting departments.

Submitted by: ____________________ Date ____________

Approved by: ____________________ Date ____________

Contractor Account Tracking System Feasibility Study

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Appendix H: Sample Contract

APPENDIX A

AGREEMENT TO PROVIDE PERSONNEL BETWEEN
Bank of XANADU
and Savings Association (BANK)
and

DAN VAN RITZ, INC. (Contractor)

APPROVED
NAME
DATE

I. All work and/or services provided under this Appendix shall be performed in accordance with the provisions of this Appendix and Master Agreement.

Project/Services Number: 16358.000 Charge Unit #: 3620

Bank Project Manager/Phone: Peter Tripple 206/675-2696
XANET 785-2696
NEFAX /675-2459

II. Scope of Services:

A. Provide an overview of the project:

Support product development projects, as well as acquisition preparation for Demand Deposit Systems.

RITE0408

(See attached sheet for continuation of Scope of Services)

III. Fee Schedule: Total fee shall not exceed $ 26,000.

Name of Individual	Generic Job Level	Hourly Rate	Start Date	End Date
Dan Van Ritz	CSE	$65.00	2/16/08	4/15/08

A NEW APPENDIX A MUST BE EXECUTED TO AUTHORIZE PAYMENT BEYOND THE AMOUNT NOTED ABOVE IN III.: FEE SCHEDULE, OR TO AUTHORIZE WORK BEYOND THE COMPLETION DATE NOTED ABOVE.

Agreed and Accepted:

DAN VAN RITZ, INC.
(Contractor)

Signature:

Vendor Officer: Dan Van Ritz

Title: President

Date: 2/15/08

Invoices should be directed to:
Bank of XANADU
Retail Automation Serv. #3464
P.O. Box 37000
BELLEVUE, WA 98002
ATTN: Bryan Davis

Agreed and Accepted:

BANK OF XANADU
SAVINGS ASSOCIATION (BANK)

Signature:

Name: MaryLou Corrigan

Title: Vice President

Date: 2/14/08

Countersigned:

Name: Christos Skeadas

Title: Vice President

Date: 2/15/08

Bruce Fadem, Senior Vice President

Page 1 of 2

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AGREEMENT TO PROVIDE PERSONNEL BETWEEN
Bank of XANADU
and Savings Association (BANK)
and

DAN VAN RITZ, INC. (Contractor)

II. Scope of Services - Continued:

B. List the specific tasks to be performed:

Complete systems design specifications.
Analyze and code in COBOL.
Perform unit, system and integration testing.
Provide installation support.

C. List the deliverables expected to be produced:

Detailed design specifications.
Code.
Test specifications.
Unit testing, system testing.
Conversion specifications.
Installation specifications.

D. List the specific technical expertise required (hardware, operating systems, programming languages, etc.)

1. IBM 30XX, TSO/ISPF, OS JCL, VSAM.
2. Ability to analyze and code in COBOL.
3. Design, coding and testing skills.
4. Accounting systems background required, banking preferred. Deposit systems/prior acquisition experience a plus.
5. Prior BofA experience a plus.
6. Strong communications and documentation skills.
7. Team player with good interpersonal skills.

E. List the performance standards that will be used to determine quality of work (e.g., SDP, documentation standards, testing standards, etc.)

Adherence to project standards.
Code reviews.
SDP.
Test plans and test result reviews.

Page 2 of 2

Contractor Account Tracking System Feasibility Study 19

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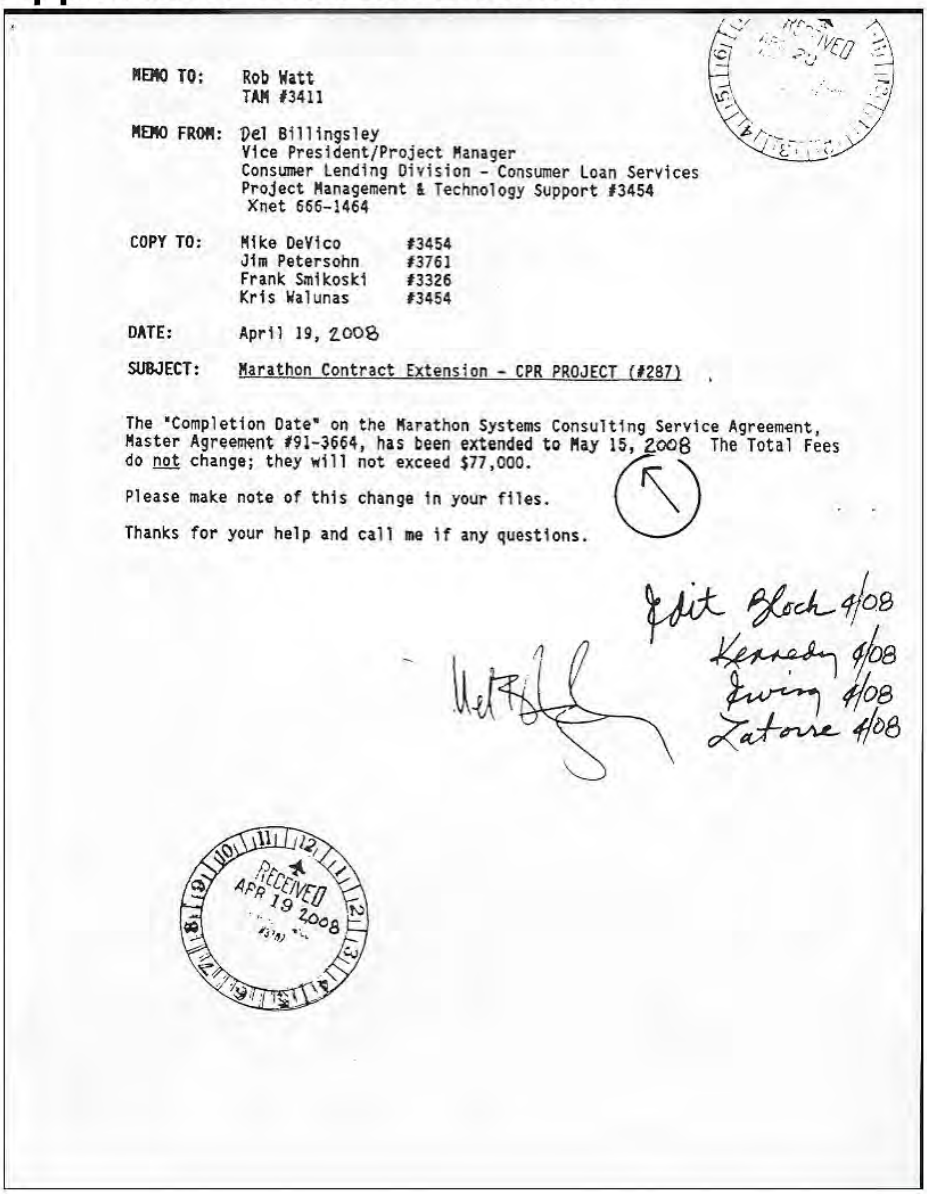
Appendix I: Contract Extension



MEMO TO: Rob Watt
TAM #3411

MEMO FROM: Del Billingsley
Vice President/Project Manager
Consumer Lending Division - Consumer Loan Services
Project Management & Technology Support #3454
Xnet 666-1464

COPY TO: Mike DeVico #3454
Jim Petersohn #3761
Frank Smikoski #3326
Kris Walunas #3454

DATE: April 19, 2008

SUBJECT: Marathon Contract Extension - CPR PROJECT (#287)

The "Completion Date" on the Marathon Systems Consulting Service Agreement, Master Agreement #91-3664, has been extended to May 15, 2008 The Total Fees do not change; they will not exceed $77,000.

Please make note of this change in your files.

Thanks for your help and call me if any questions.

Edit Bloch 4/08
Kennedy 4/08
Ewing 4/08
Latorre 4/08

RECEIVED APR 19 2008

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Appendix J: Contract Invoice with Exceptions

Bank of Xanadu

Date: February 11, 2008

From: Dave Spencer, Accountant
Financial Controller's Division
Corporate General Accounting #3707

To: Rob Watt, Buyer
Technology Acquisition Management #3411

Classification: Internal

Subject: CONTRACTOR INVOICE PROBLEMS

Vendor:

I am unable to process the attached invoice(s) for the following reason(s):

{ }	No Contract on File
{ }	Dollar Amount Exceeds Contract Fee by $
{ }	Invoice Period Outside of Contract Dates
{ }	No Time Sheet
{ }	No Invoice/Time Sheet Approval
{ }	Time Sheet & Invoice Discrepancy
{ }	Billed Rate Different from Contract Rate
{ }	Other:

Please provide the necessary information and return to me in unit #3707. Thank you for your assistance in resolving these problems. If you have any questions, please call me at XanaduNet 785-1223.

Attachment included.

DATE	ACTION

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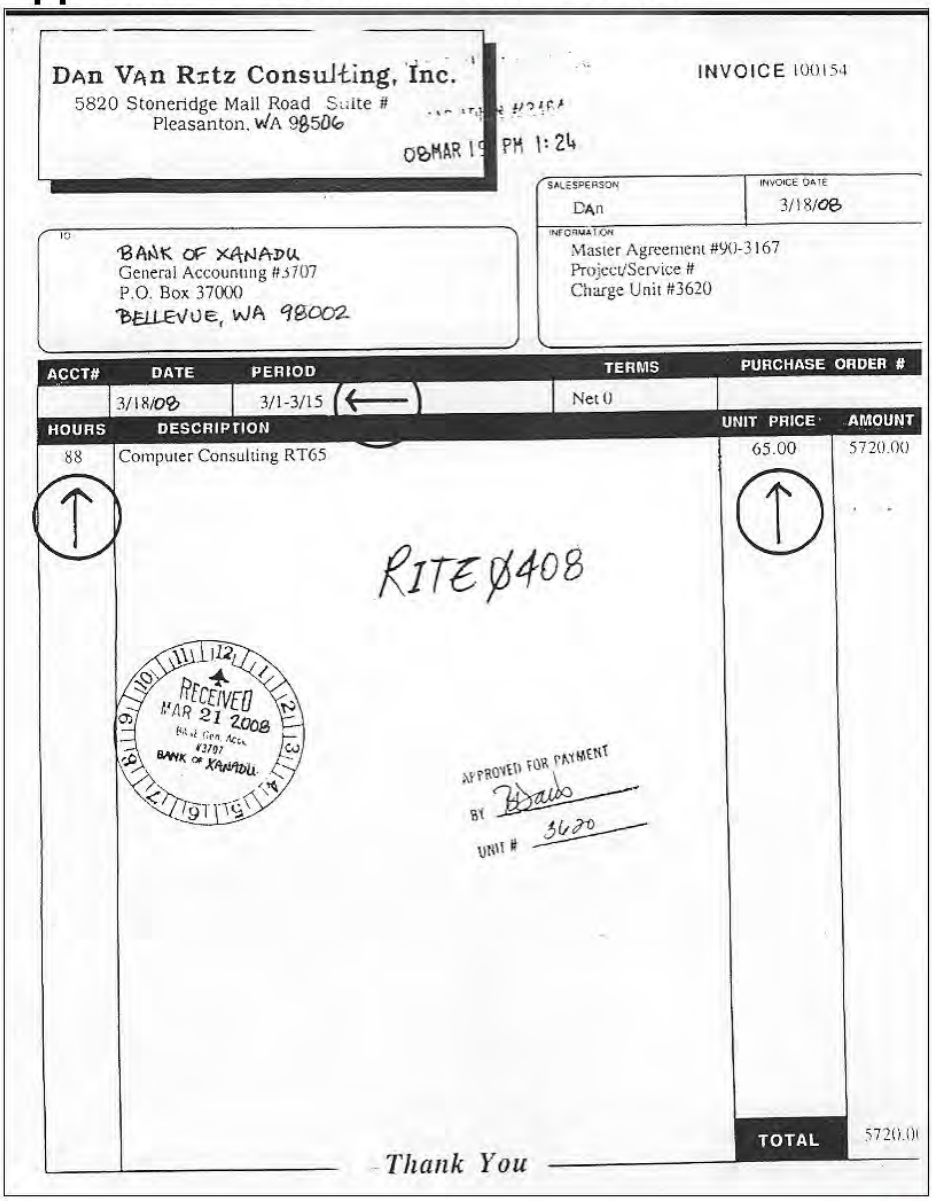
Appendix K: Invoice & Time Sheet



Dan Van Ritz Consulting, Inc.
5820 Stoneridge Mall Road Suite #
Pleasanton, WA 98506

INVOICE 100154

08MAR 19 PM 1:24

SALESPERSON	INVOICE DATE
DAn	3/18/08

TO
BANK OF XANADU
General Accounting #3707
P.O. Box 37000
BELLEVUE, WA 98002

INFORMATION
Master Agreement #90-3167
Project/Service #
Charge Unit #3620

ACCT#	DATE	PERIOD	TERMS	PURCHASE ORDER #
	3/18/08	3/1-3/15	Net 0	

HOURS	DESCRIPTION	UNIT PRICE	AMOUNT
88	Computer Consulting RT65	65.00	5720.00

RITE Ø408

RECEIVED
MAR 21 2008
Bkg Gen Acct
#3707
BANK OF XANADU

APPROVED FOR PAYMENT
BY
UNIT # 3620

TOTAL 5720.00

Thank You

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Dan Van Ritz Consulting, Inc.

Contractor Time Sheet

Contractor Name: Dan Van Ritz

Client Company: Bank of Xanadu

Period: From 3/1/08 To 3/15/08

Calender Days	Hours Worked	Calender Days	Hours Worked
1	8	16	
2		17	
3	8	18	
4	8	19	
5	8	20	
6	8	21	
7	8	22	
8		23	
9		24	
10	8	25	
11	8	26	
12	8	27	
13	8	28	
14	8	29	
15		30	
		31	

Total Hours: 88

Client Company Representative Acceptance: Ralph Jones (Signature) 3/19/08 (Date)

Mail To: Dan Van Ritz Consulting, Inc.

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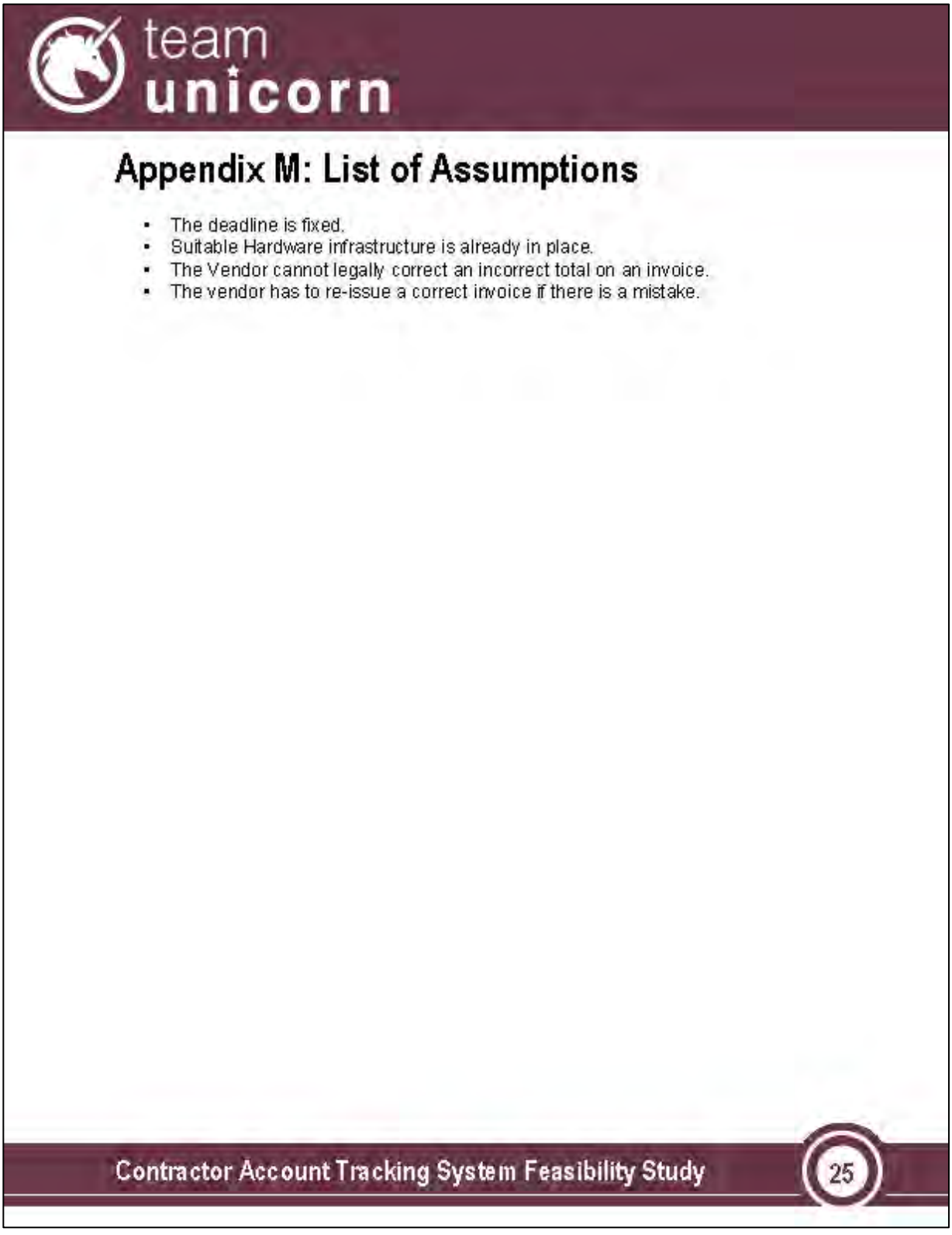
Appendix L: Data Entry Cover Sheet

DATA ENTRY SHEET

Vendor Name:	Donny Wicks Associates
Vendor Number:	ZZ0002
Invoice Number:	329
Description:	A. Peckham 12/16/07 to 12/31/07
Invoice Date:	01/02/08
Due Date:	01/17/08
Invoice Total:	3,600.00
G/L Account:	507613
P.O. Number:	A. Peckham
Charge Unit:	9408

Processed by Dave Spencer 1/11/08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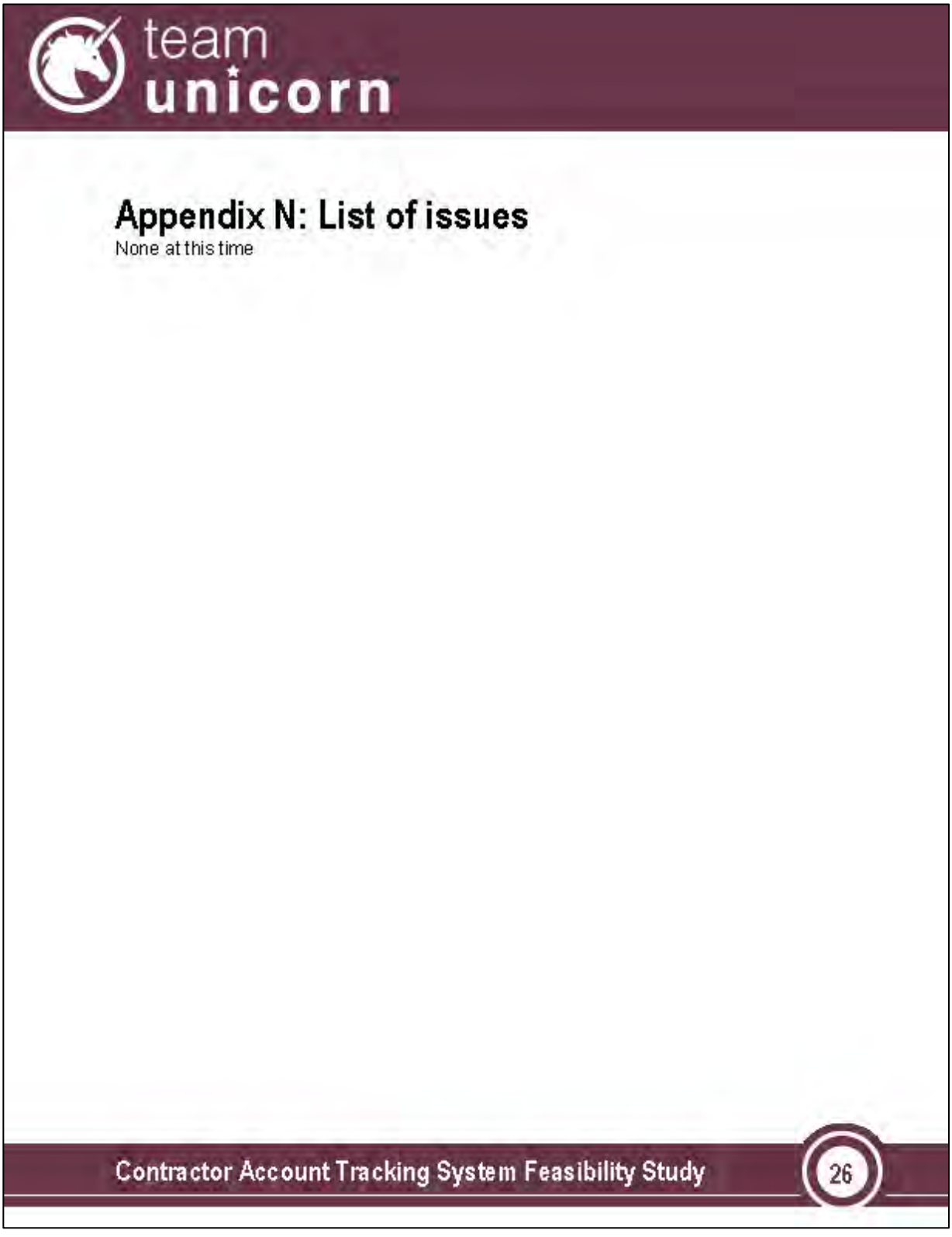
Appendix M: List of Assumptions
The deadline is fixed.
Suitable Hardware infrastructure is already in place.
The Vendor cannot legally correct an incorrect total on an invoice.
The vendor has to re-issue a correct invoice if there is a mistake.
Contractor Account Tracking System Feasibility Study
25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Appendix N: List of issues
None at this time
Contractor Account Tracking System Feasibility Study
26

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Appendix O: Excel Workbook for contract programmer expenses.

Vendor Worksheet

Monthly Contract Recap
As of December 31, 2007

Project Manager:	Clark, Rudy	**Unit:**	3072					
Programmer:	Brown, Lou		**Company:**	EDS Temps Inc		**Project:**	Tax System Assistance	
Start Date:	12/17/07	**End Date:**	06/17/08	**Rate/Hour:**	25.00	**Fee Max:**	29,000.00	**Charge To:** 3072

Invoice Number	Date Paid	Periods Paid			Hours	Dollar Total
509	01/11/08	12/17/07	to	12/31/07	70	1,750.00
		Total of Hours & Invoice Dollars:			70	$1,750.00

Total Charged to Contract:	$1,750.00
Percent Used:	6%
Remaining Contract Dollars:	$27,250.00

Contract Worksheet

Contact Information

Project Manager	Contact Unit	Phone	Division
Aporte, Manny	3426	785-2569	BAS
Beaverton, Andy	3686	785-2931	BAS
Bohner, Sheri	3738	785-4993	KXM
Chin, Lowell	3611	241-3099	MOM
Christian, John	7369	602-4680	PNW
Clark, Rudy	3479	622-2375	WDB
Crocker, Mark	5554	953-3316	NAB
DaLanda, Luis	5446	785-3133	BTR
Denbert, James	3627	785-5162	SST
Donaldson, Ryan	5852	785-3977	BTR
Gilbert, Steve	5054	785-2699	BAS
Hawkins, Dana	3594	624-3120	CBL
Jenkins, Ronald	3354	241-5050	MOM
Malaspina, George	3073	953-3860	NAB
Mondo, Gert	5863	785-5982	TPN
Omigawa, Joe	3498	622-9053	WDB
Peary, Alan	5852	485-4913	KXM
Putnam, Jed	3793	785-5129	TPN
Saunders, Rocky	5515	785-4351	KXM
Schaffer, John	3473	953-5912	NAB
Schrader, Kathy	3553	241-7645	MOM
Scott, Randy	3580	622-6047	WDB
Stromberg, Dieter	3858	785-2516	BAS
Tripple, Peter	3620	785-2696	BAS
Westmore, Alex	7365	602-4551	PNW

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Charge Worksheet

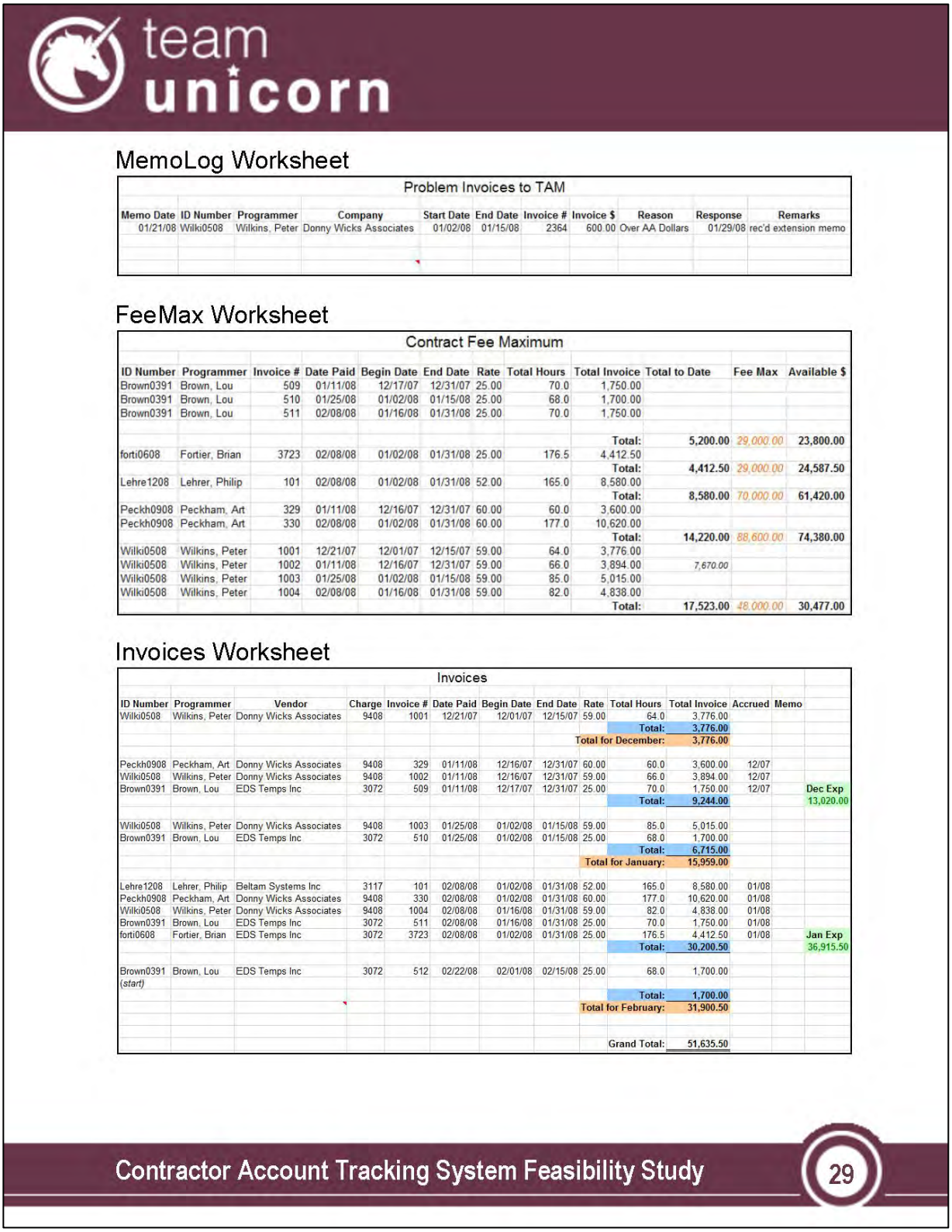
Charge Information

Charge Unit	Division			Division	Charge Unit
3072	NAB			AMB	3117
3073	NAB			BAS	3410
3117	AMB			BAS	3426
3354	MOM			BAS	3620
3410	BAS			BAS	3667
3426	BAS			BAS	3686
3473	NAB			BAS	3858
3479	WDB			BAS	5054
3498	WDB			BTR	5446
3553	MOM			BTR	5852
3580	WDB			CBL	3594
3594	CBL			CCR	9408
3611	MOM			KXM	3738
3620	BAS			KXM	5515
3627	SST			KXM	5852
3667	BAS			MOM	3354
3686	BAS			MOM	3553
3738	KXM			MOM	3611
3793	TPN			NAB	3072
3858	BAS			NAB	3073
4508	RBD			NAB	3473
5054	BAS			NAB	5543
5446	BTR			NAB	5554
5515	KXM			PNW	7365
5543	NAB			PNW	7369
5554	NAB			RBD	4508
5844	TPN			SST	3627
5845	TPN			TPN	3793
5852	BTR			TPN	5844
5852	KXM			TPN	5845
5863	TPN			TPN	5863
7365	PNW			WDB	3479
7369	PNW			WDB	3498
9408	CCR			WDB	3580

ConProg Worksheet

Contract & Programmer Information

Vendor	Begin Date	End Date	Charge	Division	$/Hour	Fee Max	Contact Person	Unit	Phone	Project Description
GE Consulting Consortium	02/08/08	10/31/08	5054	BAS	30.00	50,000.00	Gilbert, Steve	5054	785-2699	
Electric Enterprises Inc	03/01/08	03/08/08	3667	BAS	78.00	8,000.00	Denbert, James	3627	785-5162	
EDS Temps Inc	12/17/07	06/17/08	3072	NAB	25.00	29,000.00	Clark, Rudy	3479	622-2375	Tax System Assistance
Donny Wicks Associates	02/11/08	05/19/08	5554	NAB	50.00	24,000.00	Crocker, Mark	5554	953-3316	
Dan Van Ritz Consulting	01/16/08	04/15/08	3620	BAS	65.00	26,000.00	Tripple, Peter	3620	785-2696	Demand Deposit Systems
Dan Van Ritz Consulting	04/16/08	07/31/08	3620	BAS	65.00	50,700.00	Tripple, Peter	3621	785-2697	
Varjaraj Consulting	01/02/08	12/30/08	5844	TPN	57.00	120,000.00	Aporte, Manny	3426	785-2569	
Euro Systems International	02/08/08	10/31/08	3793	TPN	30.00	50,000.00	Putnam, Jed	3793	785-5129	
EDS Temps Inc	01/02/08	06/30/08	3072	NAB	25.00	29,000.00	Clark, Rudy	3479	622-2375	
EDS Temps Inc	03/02/08	09/30/08	3498	WDB	25.00	30,000.00	Omigawa, Joe	3498	622-9053	
EDS Temps Inc	01/15/08	06/15/08	3073	NAB	25.00	28,000.00	Clark, Rudy	3480	622-2376	
Beltam Systems Inc	01/02/08	12/31/08	3117	AMB	52.00	70,000.00	Schaffer, John	3473	953-5912	
Neo Computing	01/01/08	06/30/08	5543	NAB	90.00	125,000.00	Saunders, Rocky	5515	785-4351	
Fix-em Right Inc	01/31/08	06/28/08	3594	CBL	55.00	6,000.00	Hawkins, Dana	3594	624-3120	
Donny Wicks Associates	12/16/07	09/30/08	9408	CCR	60.00	88,600.00	Scott, Randy	3580	622-6047	
Electric Enterprises Inc	01/02/08	12/31/08	3738	KXM	65.00	135,720.00	Bohner, Sheri	3738	785-4993	
Western States Consulting	02/01/08	01/31/09	5845	TPN	63.00	134,912.00	Peary, Alan	5852	485-4913	
Donny Wicks Associates	12/01/07	05/30/08	9408	CCR	59.00	48,000.00	Scott, Randy	3580	622-6047	
Fix-em Right Inc	02/11/08	04/12/08	3410	BAS	55.00	21,300.00	Mondo, Gert	5863	785-5982	
Fix-em Right Inc	04/15/08	12/31/08	3411	BAS	55.00	21,300.00	Mondo, Gert	5864	785-5983	



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MemoLog Worksheet

Problem Invoices to TAM

Memo Date	ID Number	Programmer	Company	Start Date	End Date	Invoice #	Invoice $	Reason	Response	Remarks
01/21/08	Wilki0508	Wilkins, Peter	Donny Wicks Associates	01/02/08	01/15/08	2364	600.00	Over AA Dollars	01/29/08	rec'd extension memo

FeeMax Worksheet

Contract Fee Maximum

ID Number	Programmer	Invoice #	Date Paid	Begin Date	End Date	Rate	Total Hours	Total Invoice	Total to Date	Fee Max	Available $
Brown0391	Brown, Lou	509	01/11/08	12/17/07	12/31/07	25.00	70.0	1,750.00			
Brown0391	Brown, Lou	510	01/25/08	01/02/08	01/15/08	25.00	68.0	1,700.00			
Brown0391	Brown, Lou	511	02/08/08	01/16/08	01/31/08	25.00	70.0	1,750.00			
								Total:	5,200.00	29,000.00	23,800.00
forti0608	Fortier, Brian	3723	02/08/08	01/02/08	01/31/08	25.00	176.5	4,412.50			
								Total:	4,412.50	29,000.00	24,587.50
Lehre1208	Lehrer, Philip	101	02/08/08	01/02/08	01/31/08	52.00	165.0	8,580.00			
								Total:	8,580.00	70,000.00	61,420.00
Peckh0908	Peckham, Art	329	01/11/08	12/16/07	12/31/07	60.00	60.0	3,600.00			
Peckh0908	Peckham, Art	330	02/08/08	01/02/08	01/31/08	60.00	177.0	10,620.00			
								Total:	14,220.00	88,600.00	74,380.00
Wilki0508	Wilkins, Peter	1001	12/21/07	12/01/07	12/15/07	59.00	64.0	3,776.00			
Wilki0508	Wilkins, Peter	1002	01/11/08	12/16/07	12/31/07	59.00	66.0	3,894.00	7,670.00		
Wilki0508	Wilkins, Peter	1003	01/25/08	01/02/08	01/15/08	59.00	85.0	5,015.00			
Wilki0508	Wilkins, Peter	1004	02/08/08	01/16/08	01/31/08	59.00	82.0	4,838.00			
								Total:	17,523.00	48,000.00	30,477.00

Invoices Worksheet

Invoices

ID Number	Programmer	Vendor	Charge	Invoice #	Date Paid	Begin Date	End Date	Rate	Total Hours	Total Invoice	Accrued	Memo	
Wilki0508	Wilkins, Peter	Donny Wicks Associates	9408	1001	12/21/07	12/01/07	12/15/07	59.00	64.0	3,776.00			
									Total:	3,776.00			
									Total for December:	3,776.00			
Peckh0908	Peckham, Art	Donny Wicks Associates	9408	329	01/11/08	12/16/07	12/31/07	60.00	60.0	3,600.00	12/07		
Wilki0508	Wilkins, Peter	Donny Wicks Associates	9408	1002	01/11/08	12/16/07	12/31/07	59.00	66.0	3,894.00	12/07		
Brown0391	Brown, Lou	EDS Temps Inc	3072	509	01/11/08	12/17/07	12/31/07	25.00	70.0	1,750.00	12/07		Dec Exp
									Total:	9,244.00			13,020.00
Wilki0508	Wilkins, Peter	Donny Wicks Associates	9408	1003	01/25/08	01/02/08	01/15/08	59.00	85.0	5,015.00			
Brown0391	Brown, Lou	EDS Temps Inc	3072	510	01/25/08	01/02/08	01/15/08	25.00	68.0	1,700.00			
									Total:	6,715.00			
									Total for January:	15,959.00			
Lehre1208	Lehrer, Philip	Beltam Systems Inc	3117	101	02/08/08	01/02/08	01/31/08	52.00	165.0	8,580.00	01/08		
Peckh0908	Peckham, Art	Donny Wicks Associates	9408	330	02/08/08	01/02/08	01/31/08	60.00	177.0	10,620.00	01/08		
Wilki0508	Wilkins, Peter	Donny Wicks Associates	9408	1004	02/08/08	01/16/08	01/31/08	59.00	82.0	4,838.00	01/08		
Brown0391	Brown, Lou	EDS Temps Inc	3072	511	02/08/08	01/16/08	01/31/08	25.00	70.0	1,750.00	01/08		
forti0608	Fortier, Brian	EDS Temps Inc	3072	3723	02/08/08	01/02/08	01/31/08	25.00	176.5	4,412.50	01/08		Jan Exp
									Total:	30,200.50			36,915.50
Brown0391 (start)	Brown, Lou	EDS Temps Inc	3072	512	02/22/08	02/01/08	02/15/08	25.00	68.0	1,700.00			
									Total:	1,700.00			
									Total for February:	31,900.50			
									Grand Total:	51,635.50			

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Accruals Worksheet

Accruals						
Programmer	Vendor	Charge	Invoice #	Total Invoice	Accrued	Reversed
Brown, Lou	EDS Temps Inc	3072	509	1,750.00	12/07	
		3072	Total:	1,750.00		01/10/08
Peckham, Art	Donny Wicks Associates	9408	329	3,600.00	12/07	
Wilkins, Peter	Donny Wicks Associates	9408	1002	3,894.00	12/07	
		9408	Total:	7,494.00		01/10/08
			December 2007	9,244.00		
Brown, Lou	EDS Temps Inc	3072	511	1,750.00	01/08	
Fortier, Brian	EDS Temps Inc	3072	3723	4,412.50	01/08	
		3072	Total:	6,162.50		02/10/08
Lehrer, Philip	Beltam Systems Inc	3117	101	8,580.00	01/08	
		3117	Total:	8,580.00		02/10/08
Peckham, Art	Donny Wicks Associates	9408	330	10,620.00	01/08	
Wilkins, Peter	Donny Wicks Associates	9408	1004	4,838.00	01/08	
		9408	Total:	15,458.00		02/10/08
			January 2008	30,200.50		
			February 2008			
			Grand Total:	39,444.50		

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ExpRec Worksheet

Contract Programmers Monthly Expense Recap Report
By Division and Unit
January 2008

Programmer	Vendor	Division	Charge	Invoice #	Begin Date	End Date	Total Hours	Total Invoice	Accrued
	Division:	AMB				Total for Division:		8,580.00	
Lehrer, Philip	Beltam Systems Inc	AMB	3117	101	01/02/08	01/31/08	165.0	8,580.00	01/08
			3117			Total for Charge Unit:		8,580.00	
	Division:	CCR				Total for Division:		20,473.00	
Peckham, Art	Donny Wicks Associates	CCR	9408	330	01/02/08	01/31/08	177.0	10,620.00	01/08
Wilkins, Peter	Donny Wicks Associates	CCR	9408	1003	01/02/08	01/15/08	85.0	5,015.00	
Wilkins, Peter	Donny Wicks Associates	CCR	9408	1004	01/16/08	01/31/08	82.0	4,838.00	01/08
			9408			Total for Charge Unit:		20,473.00	
	Division:	NAB				Total for Division:		7,862.50	
Brown, Lou	EDS Temps Inc	NAB	3072	510	01/02/08	01/15/08	68.0	1,700.00	
Brown, Lou	EDS Temps Inc	NAB	3072	511	01/16/08	01/31/08	70.0	1,750.00	01/08
Fortier, Brian	EDS Temps Inc	NAB	3072	3723	01/02/08	01/31/08	176.5	4,412.50	01/08
			3072			Total for Charge Unit:		7,862.50	
						Grand Total for January:		36,915.50	

Contract Programmers Monthly Expense Recap Report
By Division and Unit
February 2008

RptFeeVSAct Worksheet

Contract Programmer Report
Fee Maximum vs. Acutals
December 2007

Programmer	Begin Date	End Date	$/Hour	Contact Person	Phone	Appendix A Fee Max	Total Charged to Appendix A	Percent Used	Date Unit Last Charged	Under/Over Appendix A Max
DIVISION:	NAB									
	Unit Number:	3072								
Brown, Lou	12/17/07	06/17/08	25.00	Clark, Rudy	622-2375	29,000.00	1,750.00	6%	01/11/08	27,250.00
DIVISION:	CCR									
	Unit Number:	9408								
Wilkins, Peter	12/01/07	05/30/08	59.00	Scott, Randy	622-6047	48,000.00	7,670.00	16%	01/11/08	40,330.00
Peckham, Art	12/16/07	09/30/08	60.00	Scott, Randy	622-6047	88,600.00	3,600.00	4%	01/11/08	85,000.00

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ConRecap Worksheet

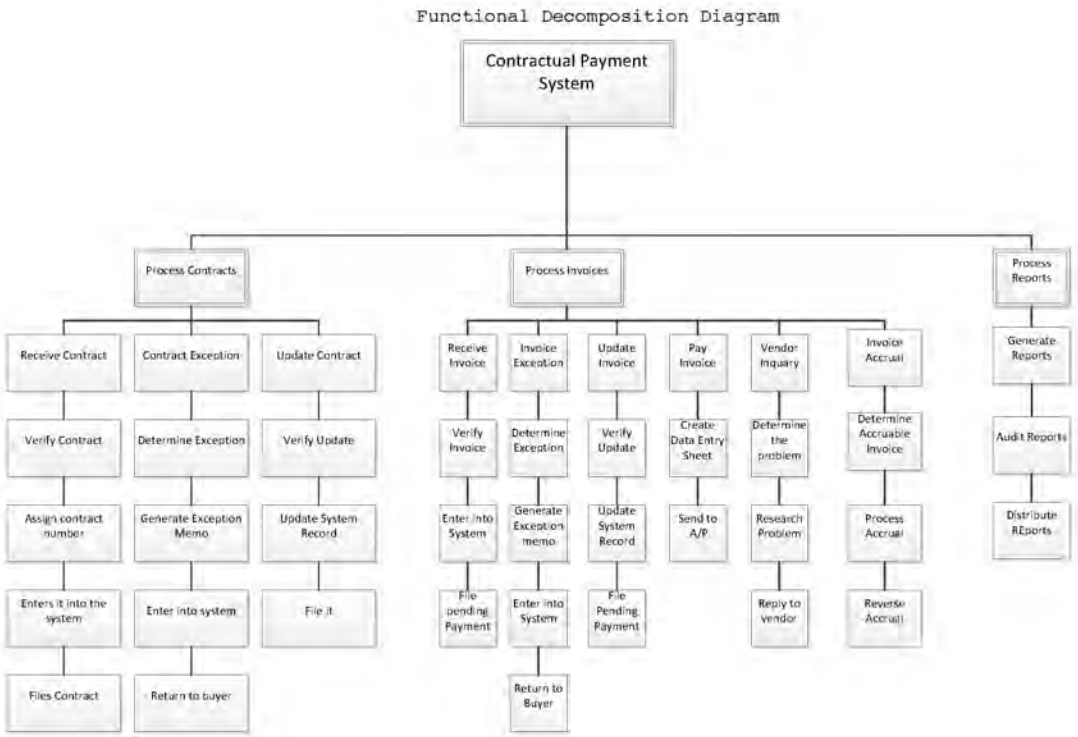
Monthly Contract Recap
As of December 31, 2007

Project Manager:	Clark, Rudy	**Unit:**	3072					
Programmer:	Brown, Lou		**Company:**	EDS Temps Inc		**Project:**	Tax System Assistance	
Start Date:	12/17/07	**End Date:**	06/17/08	**Rate/Hour:**	25.00	**Fee Max:**	29,000.00	**Charge To:** 3072

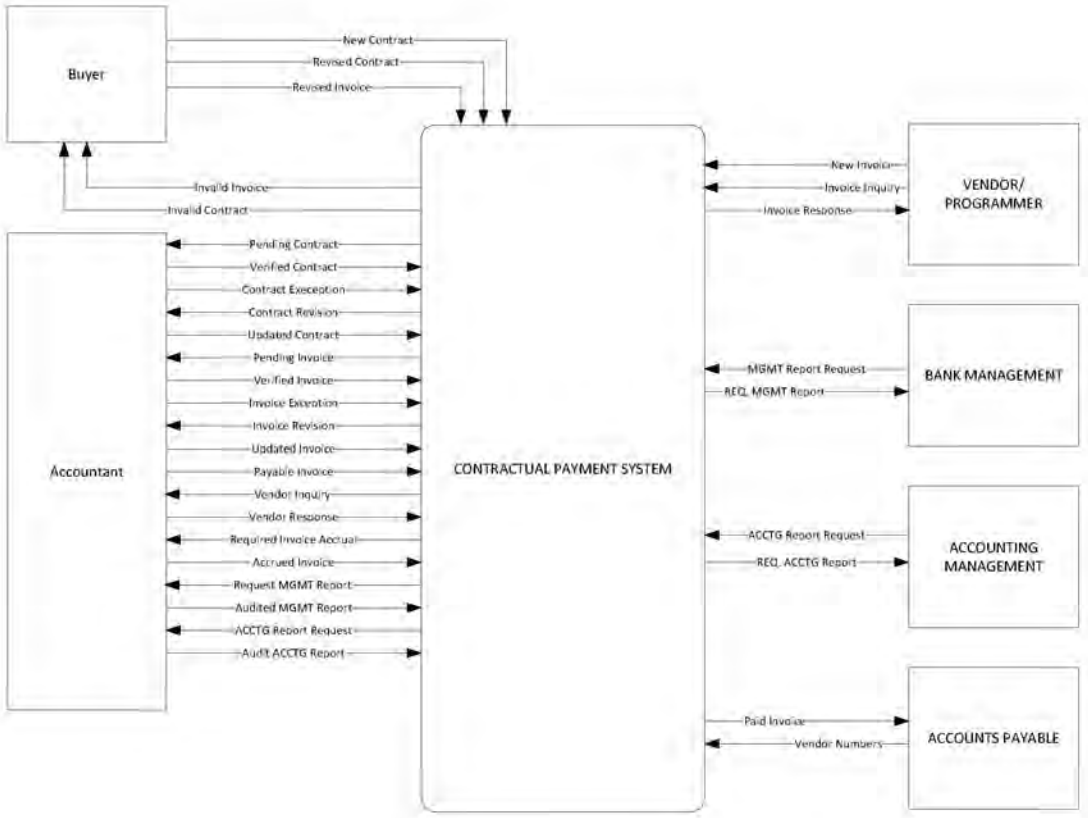
Invoice Number	Date Paid	Periods Paid			Hours	Dollar Total
509	01/11/08	12/17/07	to	12/31/07	70	1,750.00
		Total of Hours & Invoice Dollars:			70	$1,750.00

Total Charged to Contract:	$1,750.00
Percent Used:	6%
Remaining Contract Dollars:	$27,250.00

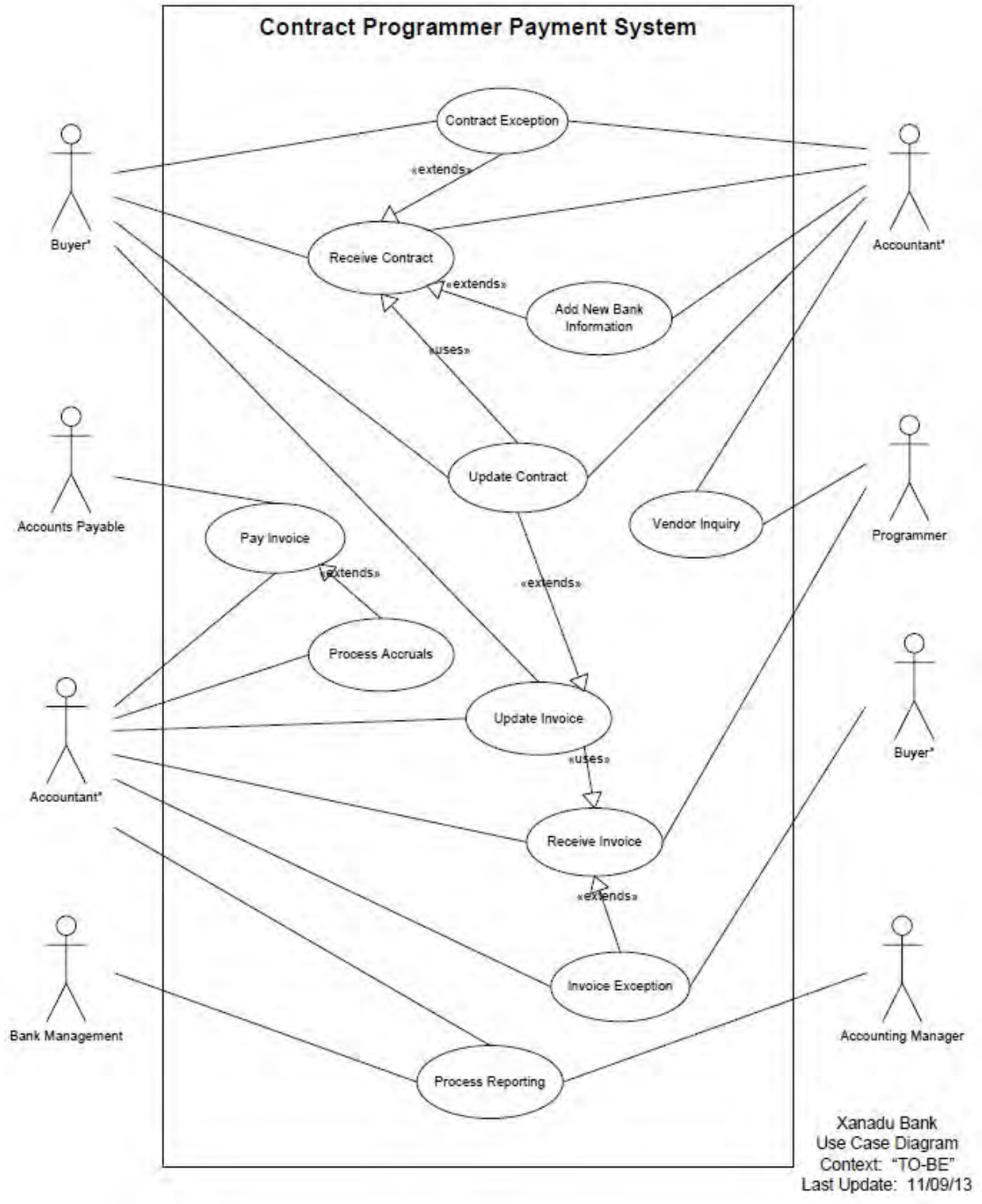
Appendix B: Functional Decomposition Diagram



Appendix C: Data Flow Diagram



Appendix D: Use Case Diagram



Appendix E: Use Case Scenarios

USE CASE NAME:	RECEIVE CONTRACT	ID: UC001
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for the receive contract use case, from the time the buyer delivers the contract appendix A until the contract has been entered into the system and the original copy has been filed for reference.	
Trigger:	A new contract appendix A has been delivered to the accountant.	
Related Use Cases:	Contract Exception (extends), Update Contract (uses)	
Normal Flow of Events:	This use case begins when the accountant receives a new contract appendix A from the buyer: 1. The accountant reviews the contract for completeness & accuracy. 2. The accountant logons onto the system and navigates to the contract entry screen. 3. The accountant then selects the correct vendor, project manager, and bank charge unit & division. 4. Next, the accountant enters all remaining contract information, including the programmer name, project start & end dates, hourly pay rate, fee maximum, and project description. 5. The accountant then saves the new contract record into the system. 6. Finally, the accountant files the original hard-copy contract for reference. This use case ends when a new contract has successfully been entered into the system.	
Exceptions:	1. If any information is missing, the accountant flags the contract appendix A for an exception. 3. If any of the required bank related information (vendor, PM, unit, or division) does not exist in the system, the accountant must create new record to represent the missing information. 6. If an exception has been determined, the contract is returned to the buyer for correction.	
Pre-condition(s):	A new contract appendix A has been created and is ready to be processed by the accountant.	
Post-condition(s):	A new contract appendix A record has been successfully created and saved into the system, and is ready to have invoices processed against it.	
Information Requirements:	Vendor name/number Programmer name Contract start date	

	Contract end date Charge unit (Bank division – tied to charge unit) Fee maximum Hourly rate Project manager (contact) Project description Contract number (alpha-numeric)
Assumptions:	That the buyer will deliver an accurate and complete contract appendix A to the accounting department.
Business Rules:	• Each contract must be for only one programmer. • A valid contract must be created before the programmer starts work. • The contract number must be created by the accountant based on the last 5 digits of the programmer name and the end month/year of the contract. • If any information required by the accounting department is missing from the appendix A, the contract is logged by the accounting department and returned to the buyer for correction. • Hard copies of the contract appendix A need to be filed with the accounting department for future reference (auditing requirement).

USE CASE NAME:	**CONTRACT EXCEPTION**	**ID: UC002**
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for the contract exception use case, from the time the account is aware of a contract appendix A exception until the contract exception memo has been generated into the contract has been forwarded to the buyer for correction.	
Trigger:	The accountant has become aware of an exception in the contract appendix A.	
Related Use Cases:	Receive Contract (uses), Update Contract (uses)	
Normal Flow of Events:	This use case begins when the accountant becomes aware of an exception in the contract appendix A. 1. The accountant reviews the contract to determine the nature of the exception. 2. The accountant logons onto the system and navigates to the contract entry screen. 3. The accountant then enters the project number into the system, and any information currently available, such as selecting the correct vendor, project manager, and bank charge unit & division.	

	4. Next, the accountant navigates to the exception memo screen, and enters the Vendor number, the reason the contract is unable to be processed. 5. The accountant then saves the new contract record and exception memo into the system. 6. Finally, the accountant forwards the original hard-copy contract along with the exception memo to the buyer for correction. This use case ends when a new contract has partially been entered into the system, and an exception memo has been generated and forwarded to the buyer.
Exceptions:	1. If the project vendor is missing, the accountant must create a vendor number, and note it in the exception memo.
Pre-condition(s):	A new contract appendix A has been received by the accountant, and an exception has been determined.
Post-condition(s):	A new contract appendix A record has been created and an exception memo has been generated and forwarded to the buyer.
Information Requirements:	Vendor name/number The reason for the exception
Assumptions:	That the accountant will identify a contract missing vital information, and will proceed to generate exception.
Business Rules:	• Each contract must be for only one programmer. • A valid contract must be created before the programmer starts work. • The contract number must be created by the accountant based on the last 5 digits of the programmer name and the end month/year of the contract.

USE CASE NAME:	**UPDATE CONTRACT**	**ID: UC003**
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for the update contract use case, from the time the vendor delivers the updated contract appendix A until the updated contract has been entered into the system and the original copy has been filed for reference.	
Trigger:	A new updated contract appendix A has been delivered to the accountant.	
Related Use Cases:	Contract Exception (extends), Update Contract (uses)	
Normal Flow of Events:	This use case begins when the accountant receives a new updated contract Appendix A from the vendor:	

	1. The accountant reviews the updated contract for completeness & accuracy. 2. The accountant logons onto the system and navigates to the contract update entry screen. 3. The accountant then selects the correct vendor. 4. Next, the accountant enters all the contract information to be updated. The accountant then saves the new updated contract record into the system. 6. Finally, the accountant files the original hard-copy updated contract for reference. This use case ends when a new updated contract has successfully been entered into the system.
Exceptions:	1. If any information is missing, the accountant flags the updated contract appendix A for an exception. 3. If any of the required bank related information (vendor, PM, unit, or division) does not exist in the system, the accountant must create new record to represent the missing information. 6. If an exception has been determined, the contract is returned to the buyer for correction.
Pre-condition(s):	An updated contract appendix A has been created and is ready to be processed by the accountant.
Post-condition(s):	A new contract appendix A record has been successfully created and saved into the system, and is ready to have invoices processed against it.
Information Requirements:	Vendor name/number Programmer name Contract start date Contract end date Charge unit (Bank division – tied to charge unit) Fee maximum Hourly rate Project manager (contact) Project description Contract number (alpha-numeric)
Assumptions:	That the buyer will deliver an accurate and complete updated contract appendix A to the accounting department.
Business Rules:	• Each contract must be for only one programmer. • A valid contract must be created before the programmer starts work. • The contract number must be created by the accountant based on the last 5 digits of the programmer name and the end month/year of the contract. • If any information required by the accounting department is

	missing from the appendix A, the contract is logged by the accounting department and returned to the buyer for correction. • Hard copies of the contract appendix A need to be filed with the accounting department for future reference (auditing requirement).

USE CASE NAME:	**Receive Invoice**	**ID: UC004**
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for the receive invoice use case, from the time the vendor delivers the invoice Appendix A until the invoice has been entered into the system, the original copy has been filed for reference, and the invoice sent to accounts payable.	
Trigger:	A new invoice Appendix A has been delivered to the accountant.	
Related Use Cases:	Invoice Exception (extends), Update Invoice (uses), Pay Invoice (uses), Vendor Inquiry (uses), Invoice Accrual (uses)	
Normal Flow of Events:	This use case begins when the accountant receives an invoice Appendix A from the vendor: 1. The accountant reviews the invoice for completeness & accuracy. 2. The accountant logons onto the system and navigates to the invoice entry screen. 3. The accountant then selects the correct vendor from the existing contracts. 4. Next, the accountant enters all remaining invoice information, including the invoice number, the period that was billed, hourly pay rate, total hours billed, and the name of the person who received the invoice. 5. The accountant then saves the invoice record into the system. 6. The accountant files the original hard-copy invoice for reference. 7. Finally, the accountant sends the approved invoice to the Accounts Payable department. This use case ends when an invoice has successfully been sent to the accounts payable department.	
Exceptions:	1. If any information is missing, the accountant flags the invoice Appendix A for an exception. 3. If the vendor does not exist in the system, the accountant flags the invoice Appendix A for an exception. 4. If the dates billed fall outside the acceptable start and end range, are outside of the valid contract date range, or if there is	

	not enough funding on the contract to pay the invoice, it is flagged for an exception. 7. If an exception has been determined, the invoice is sent to the buyer with an exception memo.
Pre-condition(s):	A new invoice Appendix A has been received and is ready to be processed by the accountant.
Post-condition(s):	A new invoice Appendix A record has been successfully entered and saved into the system, and is ready to be sent to accounts payable.
Information Requirements:	Vendor name/number Programmer name Billing period start date Billing period end date Hourly rate Total Number of hours billed. Invoice Number Name of the person who received the invoice
Assumptions:	That the vendor will deliver an accurate and complete invoice Appendix A to the accounting department. The dates billed on the invoice fall within a valid contract date range. The hourly rate billed matches the hourly rate stipulated on the contract. There must be enough funding left on the contract to pay the invoice.
Business Rules:	• Each Vendor has only 1 contract • A valid contract must exist in the system before the programmer starts work. • Each contract must have a valid contract number. • If any information required by the accounting department is missing from the Appendix A, an exception memo is generated by the accountant and sent to the buyer for correction. • Hard copies of the invoice Appendix A need to be filed with the accounting department for future reference (auditing requirement).

USE CASE NAME:	**INVOICE EXCEPTION**	**ID: UC005**
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for the invoice exception use case, from the time the account is aware of an invoice Appendix A exception until the invoice exception memo has been generated and the contract has been forwarded to the buyer for correction.	
Trigger:	The accountant has become aware of an exception in the invoice	

	Appendix A.
Related Use Cases:	Invoice Exception (uses), Update Invoice (uses), Pay Invoice (uses), Vendor Inquiry (uses), Invoice Accrual (uses)
Normal Flow of Events:	This use case begins when the accountant becomes aware of an exception in the invoice Appendix A. 1. The accountant reviews the invoice to determine the nature of the exception. 2. The accountant logons onto the system and navigates to the invoice entry screen. 3. The accountant then enters the invoice number into the system. 4 Next, the accountant navigates to the exception memo screen, and enters the Vendor number, the reason the invoice is unable to be processed. 5. The accountant then saves the new invoice record and exception memo into the system. 6. Finally, the accountant forwards the original hard-copy invoice along with the exception memo to the buyer for correction. This use case ends when a new invoice has partially been entered into the system, and an exception memo has been generated and forwarded to the buyer.
Exceptions:	1. If the vendor name is missing, the accountant must locate the vendor name using the project number, and note it in the exception memo.
Pre-condition(s):	A new invoice Appendix A has been received by the accountant, and an exception has been determined.
Post-condition(s):	A new invoice Appendix A record has been created and an exception memo has been generated and forwarded to the buyer.
Information Requirements:	Vendor name/number Reason for invoice exception
Assumptions:	That the accountant will identify an invoice that is missing vital information, and will proceed to generate exception. The contract for the invoice already exists in the system.
Business Rules:	• Each invoice must be for only one programmer. • A valid contract must be created before the programmer starts work.

USE CASE NAME:	**UPDATE INVOICE**	**ID: UC006**
Primary Actor:	Accountant	

Brief Description:	This use case describes the steps for the update invoice use case, from the time the vendor delivers a revised invoice Appendix A until the invoice has been updated in the system and the updated invoice has been filed for reference.
Trigger:	An updated invoice Appendix A has been delivered to the accountant.
Related Use Cases:	Invoice Exception (extends), Update Invoice (uses), Pay Invoice (uses), Vendor Inquiry (uses), Invoice Accrual (uses)
Normal Flow of Events:	This use case begins when the accountant receives an updated invoice Appendix A from the vendor: 1. The accountant reviews the updated invoice for completeness & accuracy. 2. The accountant logons onto the system and navigates to the invoice update entry screen. 3. The accountant then selects the correct vendor from the existing invoices. 4. Next, the accountant enters all the invoice information to be updated. The accountant then saves the new updated invoice record into the system. 6. The accountant files the original hard-copy updated invoice for reference. 7. Finally, the accountant proceeds to the Receive Invoice use case This use case ends when an updated invoice has been entered into the system, filed for future reference, and is ready to be received.
Exceptions:	1. If any information is missing, the accountant flags the updated invoice Appendix A for an exception.. 6. If an exception has been determined, the invoice update is returned to the buyer for correction.
Pre-condition(s):	An invoice Appendix A record has been successfully created and saved into the system, and was sent to the buyer for revision.
Post-condition(s):	An updated contract Appendix A has been updated and is ready to be processed by the accountant.
Information Requirements:	Vendor name Contract Number Information to be revised
Assumptions:	That the vendor will deliver an accurate and complete revised invoice Appendix A to the accounting department. The dates billed on the invoice fall within a valid contract date range. The hourly rate billed matches the hourly rate stipulated on the contract.

	There must be enough funding left on the contract to pay the invoice.
Business Rules:	• Each Vendor has only 1 contract • A valid contract must exist in the system before the programmer starts work. • Each contract must have a valid contract number. • If any information required by the accounting department is missing from the invoice Appendix A, an exception memo is generated by the accountant and sent to the buyer for correction. • Hard copies of the revised invoice Appendix A need to be filed with the accounting department for future reference (auditing requirement).

USE CASE NAME:	**PAY INVOICE**	**ID: UC007**
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for pay invoice use case, from the time the accountant approves the invoice and sends it to accounts payable.	
Trigger:	An invoice has been approved for payment by the accountant.	
Related Use Cases:	Receive Invoice (uses) Update Invoice (uses), Vendor Inquiry (uses), Invoice Accrual(uses),	
Normal Flow of Events:	This use case begins when the accountant approves an invoice for payment. 1. The accountant logs onto the system and navigates to the data entry sheet screen. 2. The accountant then creates a new data entry sheet, and enters the Vendor Name, Vendor Number, Invoice Number, Description, Invoice Date, Due Date, Invoice Total, G/L Account, P.O. Number, Charge Unit, the Accountants name, and the Date the data entry sheet was created. 3. The accountant then saves the new data entry sheet record into the system. 6. Finally, the accountant sends the data entry sheet along with the accompanying invoice to Accounts payable for payment. This use case ends when a new data entry sheet has successfully been entered into the system, and sent to A/P with the accompanying invoice.	
Exceptions:		
Pre-condition(s):	A new invoice Appendix A has been created and has been approved by the accountant.	

Post-condition(s):	A new data entry sheet has been successfully created and saved into the system, and is ready to be sent to accounts payable along with the invoice.
Information Requirements:	Vendor Name Vendor Number Invoice Number Description Invoice Date Due Date Invoice Total G/L Account P.O. Number Charge Unit
Assumptions:	The invoice that has been approved has all the required information. The dates billed on the invoice fall within a valid contract date range. The hourly rate billed matches the hourly rate stipulated on the contract. There must be enough funding left on the contract to pay the invoice.
Business Rules:	• Each contract must be for only one programmer. • A valid contract must be created before the programmer starts work. • The contract number must be created by the accountant based on the last 5 digits of the programmer name and the end month/year of the contract. • Hard copies of the data entry sheet need to be filed with the accounting department for future reference (auditing requirement).

USE CASE NAME:	**VENDOR INQUIRY**	**ID: UC008**
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for the vendor inquiry use case, from the time the vendor contacts the accountant with an inquiry until the accountant responds to the vendor, and an official record of the inquiry has been created.	
Trigger:	A vendor contacts the accountant with an inquiry.	
Related Use Cases:	Contract Exception (extends), Update Contract (uses)	
Normal Flow of Events:	This use case begins when the vendor with an inquiry has contacted the accountant. 1. The accountant receives an inquiry from a vendor. 2. The accountant logons onto the system and navigates to the vendor inquiry screen.	

	3. The accountant then selects the correct vendor,. 4. Next, the accountant creates a new vendor enquiry log, and enters time and date of contact, and additional notes. 5. The accountant then saves the new vendor inquiry record into the system. 6. The accountant researches the vendor inquiry until the appropriate response to inquiry is found. 7. The accountant contacts the vendor with the appropriate response, and records the response in the vendor enquiry log. This use case ends when the accountant has responded to a vendor inquiry, and recorded the response in the vendor inquiry log.
Exceptions:	1. If an appropriate response to the inquiry cannot be found, the accountant will contact the vendor and update them as appropriate. 3. If any of the required bank related information (vendor, PM, unit, or division) does not exist in the system, the accountant must create new record to represent the missing information. 6. If an exception has been determined, the contract is returned to the buyer for correction.
Pre-condition(s):	A vendor has contacted the accountant with an inquiry
Post-condition(s):	The accountant has responded to a vendor inquiry, and recorded the response in the vendor inquiry log.
Information Requirements:	Vendor name/number Date of Inquiry Time of Inquiry Notes regarding the inquiry
Assumptions:	A vendor contract exists in the system. The vendor inquiry is related to invoice payment.
Business Rules:	• Each contract must be for only one programmer. • A valid contract must be created before the programmer starts work. • All vendor inquiries must be recorded in the vendor inquiry log.

USE CASE NAME:	**INVOICE ACCRUAL**	**ID: UC009**
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for the invoice accrual use case, from the time the accountant receives the invoice appendix A until the accrual for that invoice has been reversed.	
Trigger:	A new invoice appendix A has been approved for payment by the accountant.	
Related Use Cases:	Receive Invoice (uses), Update Invoice (uses), Vendor Inquiry (uses)	

Normal Flow of Events:	This use case begins when the accountant approves a new invoice appendix for payment: 1. The accountant logons onto the system and navigates to the invoice accrual screen. 2. The accountant then selects the correct invoice number. 3. The accountant then enters the amount to be accrued. 4. The accountant then saves the new accrual record into the system. This use case ends when a new invoice accrual has successfully been entered into the system.
Exceptions:	
Pre-condition(s):	A new invoice appendix A has been approved for payment and is ready to be processed by the accountant.
Post-condition(s):	A new invoice accrual appendix A record has been successfully created and saved into the system.
Information Requirements:	Vendor name/number Programmer name Charge unit Invoice Number Invoice Total Accrual Date
Assumptions:	That accountant will approve only accurate and complete invoices for accrual.
Business Rules:	• Each contract must be for only one programmer. • A valid contract must be created before the programmer starts work. • The contract number must be created by the accountant based on the last 5 digits of the programmer name and the end month/year of the contract.

USE CASE NAME:	**PROCESS REPORTS**	**ID: UC010**
Primary Actor:	Accountant	
Brief Description:	This use case describes the steps for the process reports use case, from the time the accountant generates the reports until the reports have been delivered.	
Trigger:	System automatically generates reports at the months end.	
Related Use Cases:	Contract Exception (extends), Update Contract (uses)	
Normal Flow of Events:	The use case begins on the end of the month, when the system automatically generates the monthly reports. 1. The system notifies the accountant that the reports have been	

	automatically generated. 2. The accountant verifies that the information contained within the reports is accurate. 3. The accountant changes the report status to verified. 4. The accountant delivers two reports to accounting management, and 3 reports to bank management. This use case ends when the reports have been sent to accounting management and bank management.
Exceptions:	The system is down due to power failure Accountant is not able to verify report The automatic report generation is not triggered properly The accountant overlooks the report generation notification
Pre-condition(s):	All systems must preform correctly All invoice and contract information has been entered into the system
Post-condition(s):	The report status has been changed to verified The bank management has received 3 reports The accounting management has received 2 reports
Information Requirements:	NOT SPECIFIED
Assumptions:	The system will perform as anticipated, and the accountant will verify the reports as necessary.
Business Rules:	• The system will provide an overview of project status and expenses.

Appendix F: Requirements Catalog

Functional Requirements

UC001 The system must allow the creation of new contracts
- UC001.1 The system must accept the input of the new contract information
- UC001.2 The system must provide a way to store contract information

UC002 The system must generate contract exception memos
- UC002.1 The system must display existing contract information
- UC002.2 The system must accept the input of the new exception memo
- UC002.3 The system must be able to associate contracts with exception memos
- UC002.4 The system must provide a way to store exception memo information

UC003 The system must allow contracts to be updated
- UC003.1 The system must display existing contract information
- UC003.2 The system must accept revised information for an existing contract
- UC003.3 The system must provide a way to store revised contract information

UC004 The system must allow the input of invoices
- UC004.1 The system must accept the input of the new invoice information
- UC004.2 The system must be able to associate invoices with existing contracts
- UC004.3 The system must provide a way to store invoice information

UC005 The system must generate invoice exception memos
- UC005.1 The system must display existing invoice information
- UC005.2 The system must accept the input of the new exception memo
- UC005.3 The system must be able to associate invoices with exception memos
- UC005.4 The system must provide a way to store exception memo information

UC006 The system must allow invoices to be updated
- UC006.1 The system must display existing invoice information
- UC006.2 The system must accept revised information for an existing invoice
- UC006.3 The system must provide a way to store revised invoice information

UC007 The system must allow invoices to be paid
- UC007.1 The system must accept the input of the new data entry sheet information
- UC007.2 The system must be able to associate invoices with data entry sheets
- UC007.3 The system must provide a way to store data entry sheet information

UC008 The system must allow vendor inquiries to be created
- UC008.1 The system must accept the input of the new vendor inquiry information
- UC008.2 The system must be able to associate invoices with vendor inquires
- UC008.3 The system must be able to retrieve vendor inquires

UC008.4 The system must be able to update vendor inquires
UC008.5 The system must provide a way to store data entry sheet information

UC009 The system must allow invoice accruals to be generated
UC007.1 The system must accept the input of the new invoice accrual
UC007.2 The system must be able to associate invoices with accruals
UC007.3 The system must provide a way to store invoice accrual information

UC010 The system must generate monthly reports
UC010.1 The system must automatically generate Monthly Reports on the first of the month
UC010.2 The system must notify the accountant that a monthly report has been generated
UC010.3 The system must record when the monthly reports have been audited by the accountant
UC010.4 The system must be able to send a copy of the audited reports to designated recipients

Data Requirements

Vendor
- Company Name
- Vendor Number

Project Manager Contact
- Project Manager Name
- Contact Unit
- Phone Number
- Division Number

Charge Unit
- Charge Unit Number
- Division

Contractor/Programmer
- Vendor name
- Begin Date
- End Date
- Charge Unit Number
- Divison
- Hourly Rate
- Fee Maximum
- Contact Person Name
- Unit Number
- Phone Number

- Project description

Exception Memos
- Memo Date
- ID Number
- Programmer
- Company
- Start Date
- End Date
- Invoice Number
- Invoice Amount
- Reason for Exception
- Response Date
- Remarks

Invoice
- Vendor ID Number
- Programmer Name
- Vendor Name
- Charge Unit Number
- Date Paid
- Date Work Began
- Date Work Ended
- Hourly Rate
- Total Hours
- Total Amount due
- Accrual Date
- Memo