

ILLINOIS INSTITUTE
OF TECHNOLOGY



IPRO 349 – 3.2

Project Plan



Instructor: David Pistrui

June 2007, Krakow

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I. Executive Summary

Just like clothing manufacturers and sellers have to keep up with the latest trends in fashion, Comarch, a world-class IT company, has to offer its customers products that meet the newest standards of quality, efficiency and productivity. Comarch's OSS software (Operations Support Systems) is not an exception.

Nowadays, telecommunications operators are asking IT companies to provide OSS solutions that comply with the following newest trends:

- ITIL (Information Technologies Infrastructure Library) standards: this is a set of guidelines that comprise the experience from experts in the field of optimizing operations in telecommunications.
- ESB (Enterprise Service Bus) procedures: a relatively new architecture construct that allows intercommunication from different sources of information with full compatibility, no matter what platform or language it is coming from.
- SOX (Sarbanes-Oxley Act) compliance: new US legislation that establishes new requirements for all U.S. public company boards, management, and public accounting firms (Comarch has to meet this requirement if it wants to expand in the US).

The IPRO 349-3.2 project has as the primary objective to map four processes following the ITIL standards. While this is being done, the team will develop a series of recommendations to Comarch on how to analyze a client's processes and design a solution for that client that complies with the ITIL guidelines. The project's secondary objective is to do a research and case study about how other IT companies offer OSS suites that comply with the ESB methods and ensure that their customers comply with the SOX regulations.

The team is composed of four persons, two students from AGH and two from IIT. The research will be explorative and qualitative, with a slight tendency to quantitative comparison between Comarch and other companies, as the aim of the project is to point a direction to which Comarch's new OSS version should start to move. The sources of information will be secondary, unless primary research is needed to find additional data. The team is supervised by Mr. Jakub Zaluski, OSS Product Manager. The work will be split among the members of the team ensuring the participation of everyone.

The project started on June 18th and its final results will be presented on July 27th. After this project is finished, Comarch will be able to move toward complying with ITIL standards, ESB methods, and ensuring its customers that Comarch's OSS will help them comply with the SOX regulation, opening many more doors in the telecommunications market to Comarch's OSS Solution.

II. Mission

The mission of this project is to provide Comarch, a global IT firm based in Krakow, Poland, with well-informed recommendations on the improvement of their software suite for telecommunications companies. We will be researching and recommending strategies in the following areas:

- Developing tools to “map” existing business processes in the telecommunications industry to the ITIL Service Standards for verification of ITIL compliance
- Integrating Comarch’s Process Manager software with telecommunications companies’ Enterprise Service Bus for better functionality and flexibility of software
- Complying with the United States’ Sarbanes-Oxley Act of 2002 (Public Company Accounting Reform and Investor Protection Act)

III. Background

12 Students from Illinois Institute of Technology in Chicago and 12 students from AGH University in Krakow, Poland are working on several projects as interns at Comarch, a global Information Technology (IT) firm based in Krakow, Poland. Comarch develops enterprise-class software for medium to large organizations in many industries, including telecommunications, banking, and the public sector. The 24 students have been split into 6 teams and work on separate projects. The Summer 2007 IPRO 349 project is a first in many ways: it is the first IPRO to be held entirely outside the United States; the first IPRO run in conjunction with a corporate internship; and the first IPRO where IIT students are working directly with students from another university.

History

IPRO 349 is the result of a long effort by IIT’s Coleman Chair in Entrepreneurship, Prof. David Pistrui. He has worked with Tom Jacobius at IIT’s IPRO Program, Julie Maddox and others at IIT’s International Center, AGH University professors in Krakow, the CEO/Founder of Comarch, Prof. Janusz Filipiak, and many others in the creation of this unique IPRO project.

Our IPRO team (IPRO 349-3.2) is composed of 4 students – 2 from IIT and 2 from AGH – as determined by Comarch. The official title of IPRO 349-3.2 is “Project and Implementation of OSS Process Manager for OSSv4.” This is a forward-looking project with several divisions of tasks, all aimed at helping Comarch plan its future software development which will support telcos as they progress toward new industry-standard business processes.

Globally, the telecommunications industry is a \$1.2 trillion business¹. As one might expect, this incredibly large industry is also incredibly complicated, with a vast array of technologies – from fiber to satellite to cable and phone – strung together to form an apparently seamless network of communications magic. This is, however, a network that is owned by hundreds of telcos, which must all work together to make the world’s communication possible. Telco partnerships and sales of network service time are standard practice: one mobile telephone call may pass back

¹ “The 2006 Telecommunications Industry Review: An Anthology of Market Facts and Forecasts.” The Insight Research Corporation. Accessed 26 June 2007. <http://www.insight-corp.com/reports/review06.asp>

and forth through several operator networks before eventually reaching its destination, involving intricate B2B sales that would be impossible without the assistance of computer technology.

This technology that enables the telecommunications industry to manage networks and services is called an Operations Support System, or OSS. This is typically a software package prepared by third-party IT firms, but since all networks have very different networks and business operations, this software must be extensively customized. Further complicating the situation, operators almost always use a medley of in-house and several different third-party software solutions. The result is a jumble of software that must be meticulously “fitted” to the network operator.

In recent years, industry-wide business process standards have been developed to help IT firms and telcos make use of best practice techniques to improve quality of service and efficiency. Two standards in particular, the Information Technology Infrastructure Library (ITIL) and Extended Telecommunications Operations Map (eTOM), have in the past few years become popular among telecommunications firms hoping to adopt more efficient business practices.

Complying with the law is important for any company, including large telcos. In late 2001, the energy giant Enron Corporation fell suddenly due to willful accounting fraud, followed by other major US corporations with similar situations. As a result, the US passed a federal law which imposed greater oversight of auditing at public companies. The Sarbanes-Oxley Act of 2002, also known as SOX, established the Public Company Accounting Oversight Board to oversee, regulate, and discipline auditors of public companies, and also to mandate greater financial disclosure and internal control.

Problems

There are many problems currently affecting the ultimate effectiveness and efficiency of telcos using OSS suites. The easiest to understand is the increasing complexity of network infrastructure. Many different technologies, such as fiber, phone, and wireless, operate in a single network, and many of these networks - owned and operated by separate entities - must function together so that the user perceives a direct connection with their destination. Management of this network infrastructure, its performance, and its service is critical to telcos.

Telcos currently use OSS software to manage these networks, but often the OSS solutions are not used to their full capabilities. For example, although telcos can use an OSS to maintain a complete and accurate database of all the network infrastructure, it is a manual operation to enter network information, and many times changes to the network are not properly recorded in the OSS. This lack of accuracy in network changes leads to greater network problems, decreased uptime, longer servicing time, increased costs, and decreased customer satisfaction.

Additionally, with the gaining popularity of business process standards such as ITIL and eTOM that hold the promise of higher quality service and efficient, IT firms must provide telcos with software that meets their changing needs. Currently, there is no verification that Comarch software and some telcos’ business processes meet ITIL/eTOM standards. This puts Comarch at a competitive disadvantage with other IT firms.

Finally, for companies operating in the United States, compliance with the Sarbanes-Oxley Act (SOX) is necessary to obey the law. For IT firms like Comarch, issues surrounding internal

control assessment are likely the most critical. Comarch currently does not have the capability to ensure that customers using its OSS suite comply with SOX, and this is an issue that negatively affects marketing and sales to companies in the US. Although Comarch's software may, in fact, support the client's compliance with SOX, they will need verification of this fact.

Technology/Proposed Solutions

We will work on providing solutions to help meet Comarch's needs to improve their OSS suite. Comarch has laid out a project that largely involves gaining knowledge and experience to recommend strategies. We do not yet have any proposed solutions or strategies, as these will come after gaining knowledge about the subjects. Our recommendations, however, will be three-fold:

- Tools to assist Comarch in mapping business processes to ITIL to verify compliance (plus example mappings)
- Recommendations on how best to integrate Comarch's Process Manager with Telecommunication Companies' Enterprise Service Bus (ESB)
- How to verify Comarch's OSS Suite compliance with the Sarbanes-Oxley Act and recommend steps that need to be taken (if any) to ensure compliance

Path Ahead

In the short term, heavy research will be necessary to understand all the issues in this project. This is reflected in the project schedule. As we gain more knowledge about ITIL, business process mapping, Process Manager, ESB, and SOX, we will be able to analyze and recommend the strategies that will make Comarch a more competitive IT firm in the telecommunications field.

IV. Project Objectives

Our main objective is to help Comarch Company direct future development of their OSS v4 software. Our group has been tasked to analyze four business processes from a Comarch client and verify that they can meet ITIL standards by "mapping" them to ITIL. We should also develop a method or even design a tool to aid this mapping process so that it can be done much faster and easier than is currently possible.

Primary objectives:

- Map four existing telecommunications business processes to the ITIL standards (or more, depending on available time)
- Develop a method or design a tool which will help Comarch in mapping processes in the future

Secondary objectives:

- ITIL Process Research
 - Find information about four ITIL processes: Incident Management, Problem Management, Configuration Management and Change Management.
 - Describe these four processes
 - Find or create example process flows for each one of them
 - Make a report for Comarch supervisor

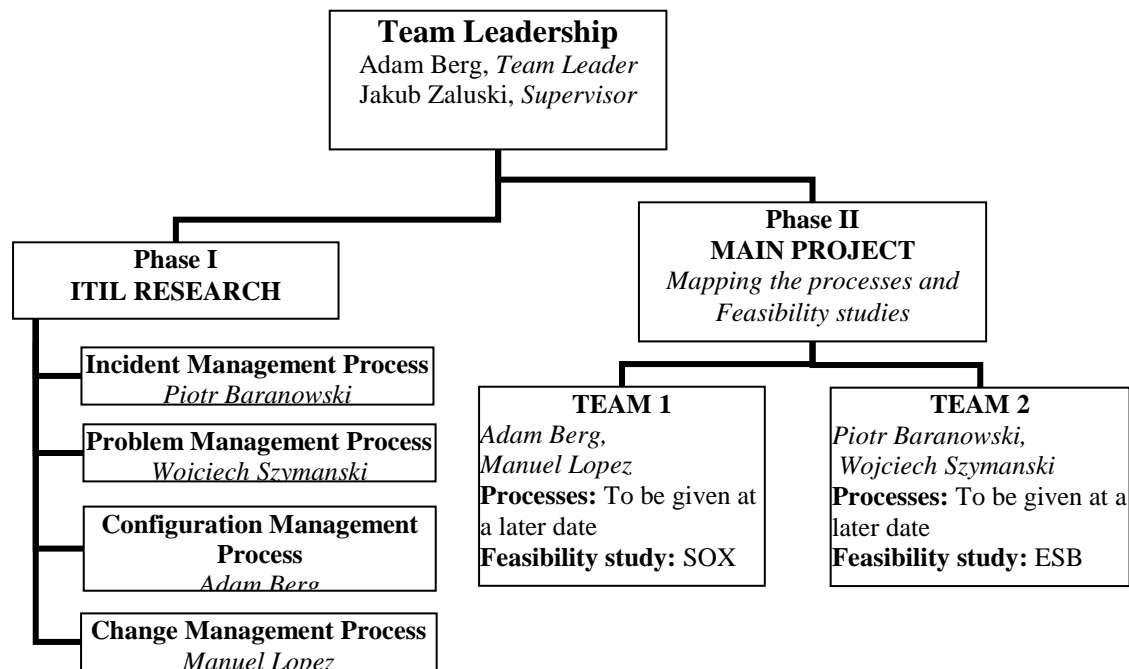
- Feasibility Study: Enterprise Service Bus (ESB) integration with Comarch Process Manager
 - Find information about ESB. What is it? What processes are involved?
 - Analyze possibilities of integrating ESB with Process Manager
 - Research case studies of how other companies managed similar projects
 - Design and recommend the best way of integration for Comarch
- Feasibility Study: Sarbanes-Oxley Act (SOX) ,
 - Research SOX and determine specific areas we need to be concerned about
 - Research case studies of companies implementing SOX-compliant business processes and IT systems
 - Analyze and recommend implementation of SOX into Comarch OSS

V. Methodology

Team structure

There are three main categories of tasks our team will be working on: the first is doing research on four specific processes within the ITIL standard. The second, the main task of the IPRO project, is to map four (or more) business processes from a Comarch client to the ITIL standard. Finally, we will complete feasibility studies on the integration of Process Manager with ESB, and on compliance with SOX.

The first task, ITIL Research, has been assigned by our supervisor with a due date early in the project, so we split the work up equally amongst ourselves to make the best use of time. Since the main tasks are mapping the four business processes to ITIL and giving Comarch recommendations, we divided our team into two-member groups that specialize in mapping two processes each and in performing one feasibility study. This way, we can all provide ideas to help Comarch map future business processes. The teams are divided as follows:



Research methodology

Members of each two teams in Main Project and members of each four teams in ITIL Research will work closely with each other because of the connections that are between those four processes. In the ITIL Research group, each member will prepare a summary of the process with which he is working, containing a short description and some examples of flows (diagrams). These summaries will be combined into one report. Almost the same will be in sub-teams of Main Project Group. Each team will work on their specific tasks and in the end we will combine our results into one big report.

Above all the sub-teams we have our Team Leader, Adam Berg, and our supervisor, Jakub Zaluski, who can answer all the questions we have connected with the project and who will check our progress to know if we are going to a good direction.

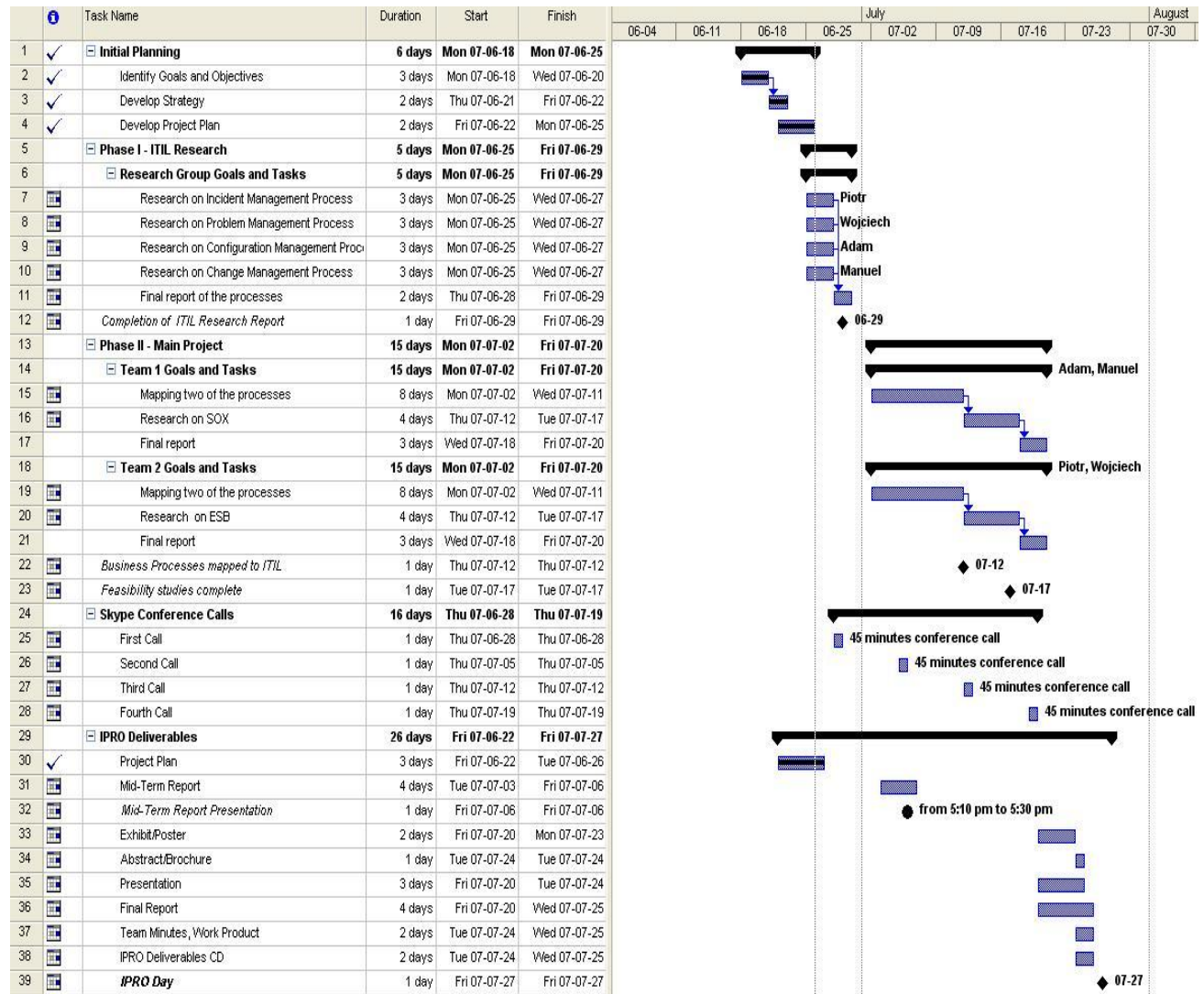
Some additional notes

- **iGroups:** All research sources will be posted in iGroups for future reference. Adam is in charge of organizing iGroups.
- **Meeting Minutes:** As this is a very small team and we work in the same room for 8 hours every day, we do not anticipate holding formal meetings each day. However, we do have weekly scheduled meetings with Dr. Pistrucci (shown in Project Schedule), where we will keep minutes.
- **Timesheets:** Daily work will be tracked using Google Docs, and each member will update the document with their work plan and progress. Manuel is in charge of this.
- **Project Budget:** We do not anticipate spending any money on this project.

VI. Schedule of Tasks and Milestone Events

Schedule

A schedule of tasks is shown below.



Milestones

Milestones represent major progress toward the completion of our tasks and of our expected results. We can identify several milestones and their expected dates of completion:

- June 25: Begin research on processes
- June 29: Completion of ITIL Research Report
- July 6: Mid-Term report
- July 12: Business Processes mapped to ITIL
- July 17: Feasibility studies complete
- July 27: IPRO Day

VII. Expected Results

Objective: Report on examples of flows of the Incident management, Problem management, Configuration management and Change management ITIL processes in the Resource and Service layers.

Results:

- Familiarization with the ITIL processes
- Gain a perspective on how to map processes with ITIL standards

Objective: Feasibility study on how Comarch's process manager can be made compatible with the Enterprise Service Bus (ESB)

Results:

- Comarch will understand on what other companies are doing to make their process manager compatible with ESB
- Comarch will be educated on what approach to take to make its process manager compatible with ESB

Objective: Feasibility study on how Comarch's OSS solutions can be in full compliance with SOX

Results:

- Know which regulations of the SOX Comarch has to pay more attention to
- Know which characteristics of Comarch's OSS have to be changed or left untouched so the solutions comply with SOX

Objective: Report on the integration of four processes from one of Comarch's customers into ITIL standards

Results:

- Comarch will have mapping following ITIL standards of four assigned processes
- Be able to create a series of tools and suggestions that Comarch can use to analyze customers' processes and quickly adapt them to ITIL guidelines
- Be able to give Comarch suggestions by which its new OSS version can approach compliance with ITIL

VIII. Team Members and Assignments

Bios, sub team

Name: Piotr Baranowski

University: AGH

Year: 4th

Major: Electronics and Telecommunication, (minor in Marketing and Management)

Experience, Skills, Strengths: Good communication skills, hard working and highly self-motivated. Fast adaptation to new technologies and environments, problem solving skills. Telecommunication and network knowledge. Languages: C, SQL, PHP.

Roles: Doing research on Incident Management process, Mapping of two processes, doing researches about ESB, Timesheet Organizer

Name: Wojciech Szymanski

University: AGH

Year: 4th

Major: Automatics and Robotics, (minors in Computer Science in Control and Management)

Experience, Skills, Strengths: This is the first time I am working on IPRO project. I have good communication and interpersonal skills. I like working in a team. I have automatics and controlling knowledge. I can learn fast and adapt to new technologies. Languages: C, C++, and VHDL.

Roles: Doing research on Problem Management process, mapping of two processes, doing researches about ESB, responsible for Project Management

Name: Adam Berg

University: IIT

Year: 4th

Major: Electrical Engineering, (minors in Entrepreneurship and Business Management)

Experience, Skills, Strengths: Previous IPRO experience (EnPRO 350, Fall 2006 and Spring 2007 semesters), IPRO leadership and project management experience (including MS Project); technical background, comfortable with new technologies and processes; good understanding of business processes with experience in business planning and start-ups; presentation skills from IPRO and national business plan competitions. Languages: Java, Flash, PHP, MySQL.

Roles: Team spokesperson, iGroups File Organizer, Research (ITIL Process Configuration Management Process, Sarbanes-Oxley Compliance), mapping of 2 business processes

Name: Manuel R. López

University: IIT

Year: 2nd

Major: Aerospace Engineering

Experience, Skills, Strengths: International Mathematical Olympiads participant, vice-president in the Model United Nations and Honor National Society in High School, vice-president of the Camras Student Advisory Board in IIT. I have experience organizing events with groups of all ages and managing group class-projects. I also enjoy researching, writing and presenting. I am fluent in English, have expertise in Spanish, and know some French.

Roles: Taking minutes, in charge of mapping two processes, and researching about the Change Management Process in ITIL and SOX.

Additional tasks (minutes, iGroups organizer, etc.)

- iGroups Organizer: Adam
- Meeting Minutes: Manuel
- Timesheet Organizer: Piotr
- Project Management: Wojciech (and peer pressure from everyone else)