

ILLINOIS INSTITUTE
OF TECHNOLOGY



IPRO 349 – 3.2

Mid-Term Report



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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 (Operations Support Systems) is not an exception.

The IPRO 349-3.2 project is helping Comarch update its current OSS solutions to meet recent and ongoing Telco demands. Our objectives are mapping four of Comarch's current client's processes following eTOM standards (the newest best-practice guidelines available), making a feasibility study on how Comarch could modify its current OSS to allow its customers to comply with SOX (the Sarbanes-Oxley Acts, the latest US regulation on companies' accounting), and making a feasibility study on how the current Comarch's OSS could be supported by ESB (a system that offers universal compatibility of services and applications).

We have made considerable progress since the beginning of our project in the following aspects:

- Understanding the ITIL and eTOM frameworks
- Developing a report on four ITIL Processes, as asked for by our mentor
- Gaining a general perspective on mapping the four client's processes

We have encountered the following problems and have solved them in these ways:

- Lack of official ITIL documentation: Together with our mentor, we decided to focus on mapping the given processes to eTOM instead on ITIL.
- Difficulties in meeting with our Comarch supervisor: we try to communicate through e-mails and, when necessary, we organize a face-to-face meeting.
- We do not have a very clear understanding of the concept of ESB: we will continue to research, discuss in the team about what we learn, and consult our mentor.

Finally, the next steps will be getting a greater understanding on ESB and SOX, organize a team meeting to discuss possible approaches to the mapping process, and start mapping the processes into eTOM.

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. This will open many more doors in the telecommunications market to Comarch's OSS Solution.

II. 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.

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 sub-tasks, all aimed at helping Comarch plan future software which will support telcos as they adopt more complex networks.

History

Growing Complexity in the Telecommunications Industry:

Globally, telecommunications is a \$1.2 trillion industry¹. 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. Telco partnerships and sales of network service time are standard practice: a single telephone call may pass back 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.

The 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 partially by third-party IT firms such as Comarch, and currently this software must be extensively customized for each telco. Telcos almost always use a medley of in-house and several different third-party software solutions to manage their network and services. The result is a jumble of software that must be meticulously “fitted” together. This is a tedious and expensive process.

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 recently become popular among telecommunications firms who hope to adopt more efficient business practices.

Compliance with the Sarbanes-Oxley Act

Complying with the law is important for any company, including large telcos. In late 2001, the

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>

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 (PCAOB) to oversee, regulate, and discipline auditors of public companies, and also to mandate greater financial disclosure and internal control in public companies.

Problems

Comarch is currently at a competitive disadvantage with other OSS developers. With the gaining popularity and promise of standards such as ITIL and eTOM, and the need to comply with SOX in the US, IT firms must provide telcos with software that meets these changing needs. Currently, Comarch does not know if its software is able to meet these standards, or what steps to take in order to meet them.

Technology/Proposed Solutions

We will determine areas in which Comarch's OSS software needs to be improved, and recommend development strategies that will be implemented in the next release.

Comarch has laid out a project that largely involves gaining knowledge and experience to recommend strategies. We do not have any proposed solutions or strategies yet, because these will come after gaining extensive knowledge about the subjects. Our final recommendations, however, will be three-fold:

1. eTOM/ITIL Mapping: Tools to assist Comarch in "mapping" future business processes to eTOM and ITIL to verify compliance (plus example mappings)
2. ESB Integration Study: Recommendations on how best to integrate Comarch's Process Manager software with telecommunication companies' Enterprise Service Bus (ESB)
3. SOX Compliance Study: Ensuring that Comarch's OSS Suite helps customers comply with SOX, and recommendations on steps that need to be taken (if any) to improve compliance



III. Revised Project Objectives

The objectives of IPRO 349-3.2 have not changed a lot from what was initially established. We acquired one new objective, another one is already completed and our primary objective has been updated.

Updated list of our objectives:

Primary objectives:

Objective:	Map four processes to eTOM
Description:	Map existing telecommunications business processes on eTOM. The processes we need to map are: <ul style="list-style-type: none"> ➤ ESS service implementation ➤ WAN site implementation ➤ Assign IP resources ➤ WAN service implementation While doing these mappings we should try to develop method, or even design a tool to do it easier.
Differences from previous objective version:	Previously our task was to map these processes on ITIL second difference is that earlier we did not know name and descriptions of processes we have to map.

Secondary objectives:

Objective:	ITIL service support management research
Description:	Find information about four ITIL processes: Incident Management, Problem Management, Configuration Management and Change Management. <ul style="list-style-type: none"> ➤ Describe these four processes ➤ Find or create example process flows for each one of them ➤ Make a report for Comarch supervisor
Differences from previous objective version:	The objective is complete.

Objective:	Research and understand the OSS industry and Comarch's telco clients
Description:	Our task is to find answers to questions such as the ones listed below: <ul style="list-style-type: none"> ➤ Which companies are Comarch best clients? ➤ What are Comarch's clients' (or potential clients') biggest OSS needs?

	<ul style="list-style-type: none"> ➤ Who else could be interested in buying OSS software from Comarch? ➤ Who are Comarch's main competitors in Europe? ➤ Which companies will be Comarch main competitors in USA/worldwide?
Differences from previous objective version:	This is new objective.

Objective:	Enterprise Service Bus integration with Comarch process manager- feasibility study
Description:	<ul style="list-style-type: none"> ➤ 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
Differences from previous objective version:	The objective did not change.

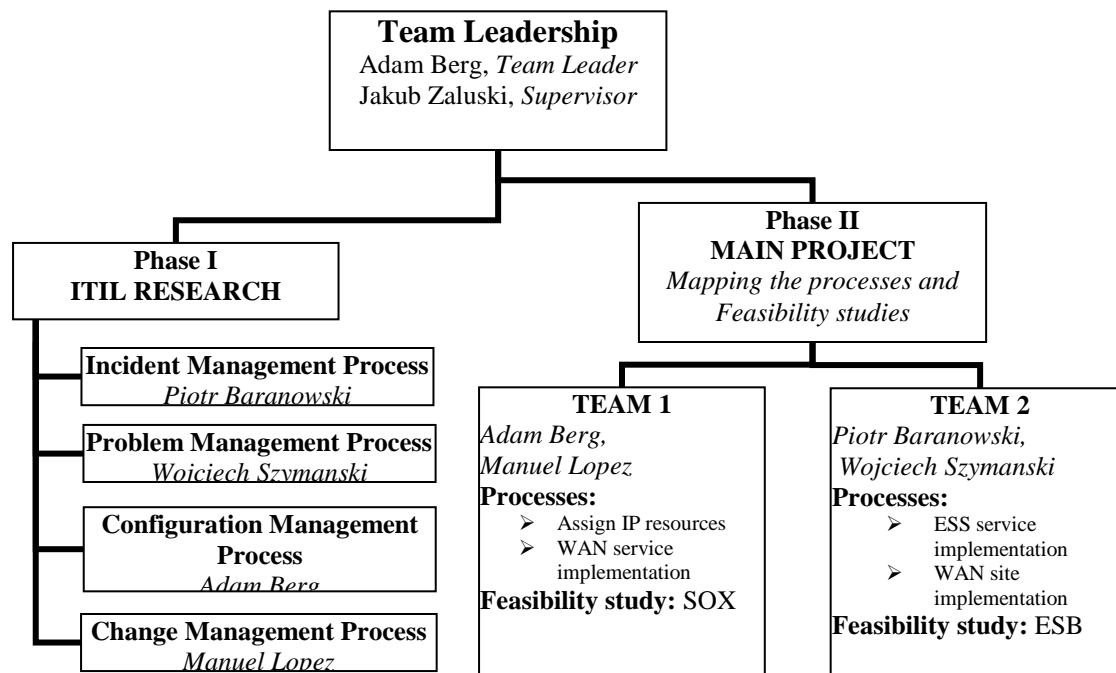
Objective:	Feasibility Study: Sarbanes-Oxley Act (SOX)
Description:	<ul style="list-style-type: none"> ➤ Research SOX and determine specific areas we need to be concerned about ➤ Research case studies of companies implementing SOX-compliant business processes and IT systems ➤ Analyze and recommend implementation of SOX into Comarch OSS
Differences from previous objective version:	The objective did not change.

IV. Revised Roles and Accountability

Team structure

Our team structure has not changed, as we have not had problems with the organization and do not anticipate any during our project. Each team exactly knows what to do and can focus on their

part of the project, but they can learn from each other because of the similarity of some tasks (the process). So the structure of teams looks as follows:



Research methodology

Research methodology changed a little. We added a kind of new technique in our daily work on the project: regular progress reports. Each person of the project group regularly makes a report which includes specific information concerning their parts of the project. Then each of us presents the report to rest of the group. We have found this technique to be very useful in better understanding all aspects of the project, better communication, and more consistent and higher-quality work. The rest of the methodology has not changed.

Some additional notes

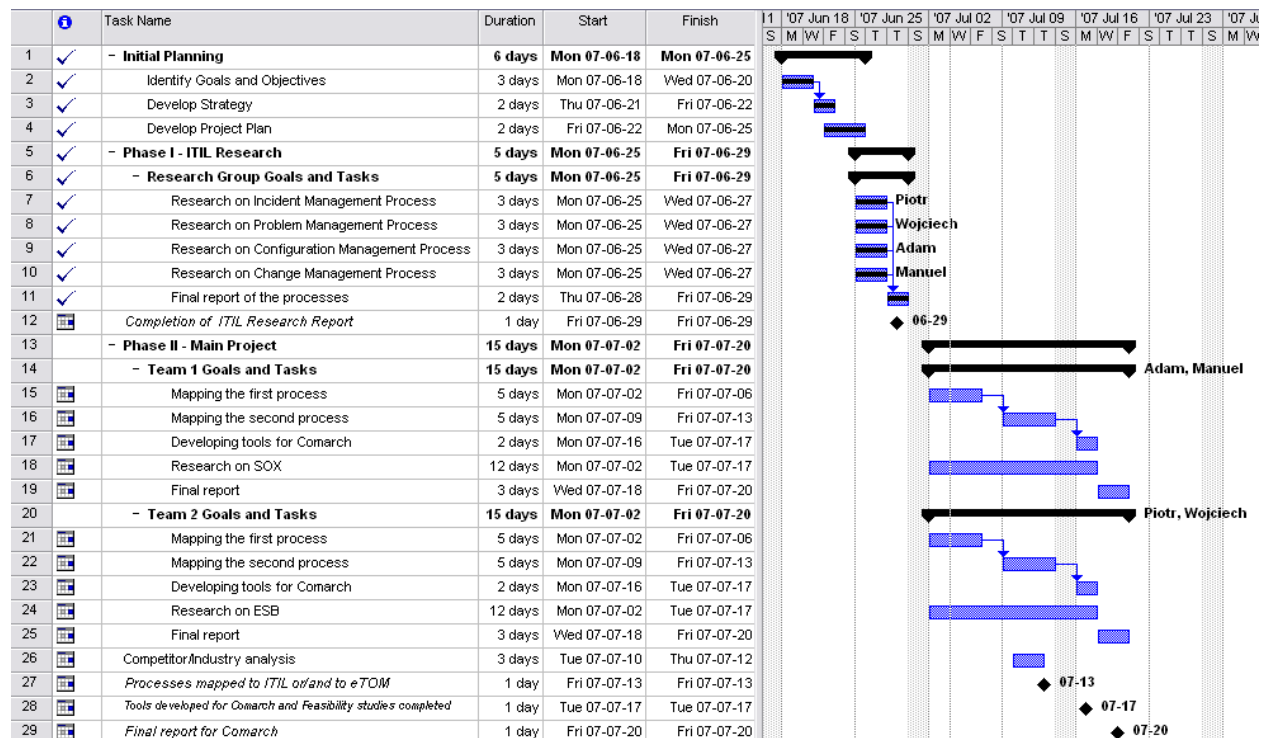
- **iGroups:** Each member of the project group posts all useful files on iGroups. Adam is in charge of organizing the files and he does a good job. Everything is well organized and files are easy to find.
- **Meeting Minutes:** As this is a very small team and we work in the same room for 8 hours every day, we do not anticipate holding formal meetings each day. We organize this kind of meetings only when we want to meet with our supervisor or professor. We have had two conference calls with our professor, Dr. Pistru, and we have not identified any major problems. These calls and meetings with our supervisor seem to be very useful for the final success in the project.
- **Timesheets:** Piotr is responsible for organizing timesheets. We all know what we do every day, we take notes about it and that's why it will be easy to prepare a final timesheet.

- **Project Budget:** We do not anticipate spending any money on this project.

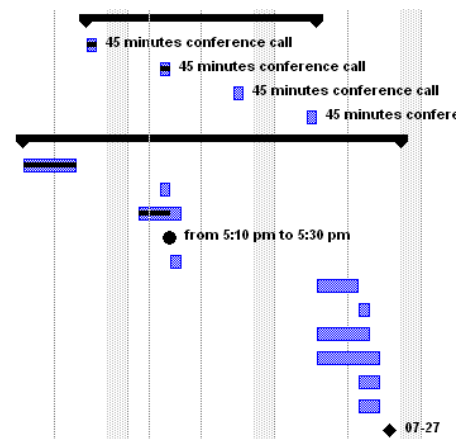
V. Revised Schedule of Tasks and Milestone Events

Schedule

We have made minor changes to our project plan schedule. The biggest change was made in Phase II- Main Project. Because we have some other new tasks to do in the project we decided to reorganize the mapping of the business processes (task numbers 15/16 and 21/22, below). Processes will be mapped one at a time, and in the end we will develop tools to aid Comarch in mapping future processes. Our research of ESB and SOX (tasks 18 and 24) will occur at the same time as the mapping tasks – we have decided to split mapping and ESB/SOX research daily by working on one task in the morning and the other in the afternoon. A changed schedule of tasks is shown below.



30		- Skype Conference Calls	16 days	Thu 07-06-28	Thu 07-07-19
31	✓	First Call	1 day	Thu 07-06-28	Thu 07-06-28
32	✓	Second Call	1 day	Thu 07-07-05	Thu 07-07-05
33	☒	Third Call	1 day	Thu 07-07-12	Thu 07-07-12
34	☒	Fourth Call	1 day	Thu 07-07-19	Thu 07-07-19
35		- IPRO Deliverables	26 days	Fri 07-06-22	Fri 07-07-27
36	✓	Project Plan	3 days	Fri 07-06-22	Tue 07-06-26
37	☒	Mid-Term Presentation	1 day	Thu 07-07-05	Thu 07-07-05
38	☒	Mid-Term Report	4 days	Tue 07-07-03	Fri 07-07-06
39	☒	Mid-Term Report Presentation	1 day	Fri 07-07-06	Fri 07-07-06
40	☒	Code of Ethics	1 day	Fri 07-07-06	Fri 07-07-06
41	☒	Exhibit/Poster	2 days	Fri 07-07-20	Mon 07-07-23
42	☒	Abstract/Brochure	1 day	Tue 07-07-24	Tue 07-07-24
43	☒	Presentation	3 days	Fri 07-07-20	Tue 07-07-24
44	☒	Final Report	4 days	Fri 07-07-20	Wed 07-07-25
45	☒	Team Minutes, Work Product	2 days	Tue 07-07-24	Wed 07-07-25
46	☒	IPRO Deliverables CD	2 days	Tue 07-07-24	Wed 07-07-25
47		IPRO Day	1 day	Fri 07-07-27	Fri 07-07-27



Milestones

According to the changes we made in the schedule we can identify several milestones and their expected dates of completion. Completed milestones are crossed out.

- ~~June 25: Begin research on processes~~
- ~~June 29: Completion of ITIL Research Report~~
- ~~July 6: Mid-Term report~~
- July 13: Business Processes mapped to eTOM and linked to ITIL
- July 17: Tools developed for Comarch and Feasibility studies completed
- July 20: Final report for Comarch complete
- July 27: IPRO Day

VI. Results to Date

Our work by team

We have accomplished individual and sub-team milestones on schedule, as according to our project plan. The following is a brief overview of our accomplishments.

Date	Task/Milestone	Documentation and Results
June 25-29	Research and completion of ITIL Process Report	Doc: "ITIL Processes Report" to Comarch supervisor
		Results: Familiarity with ITIL processes, ideas on how to map processes
July 2-4	Research and group presentations on SOX and ESB	Doc: Individual reports uploaded to iGroups on July 4

		Results: Greater familiarity with SOX and ESB, development of clear expectations for the final report, discovery of holes in our research, and creating new questions to answer
July 3	Begin looking at the 4 ITIL mapping processes	Doc: Notes regarding key terms used in business processes
		Results: Better understanding of process mapping in general

Deviations

- Project plan scheduling change (simultaneous work on mapping and SOX/ESB reports)

After researching more about ITIL/eTOM, SOX, and ESB, the team has decided to work on mapping the client's processes and making the feasibility studies on SOX and ESB every day during twelve days, working on the mappings in the morning and on the studies in the afternoon. In previous plans, the team had planned to map the processes in eight days and then do the feasibility studies in four. Besides this change in the schedule, no changes in plans of action, tasks, or roles have occurred.

We are aware that in the future, when we finish researching and start mapping and doing the studies, the schedule most likely will change. We have a good idea about the time needed to do the feasibility studies, as we have already written the ITIL Processes Report together, but we have not much certainty about the time required to map process, as this task is new to all of us.

Reasons for any deviations

- Preferable work schedule
- Synergy of multiple ongoing tasks

We decided to work twelve days on both the studies and the mappings for two reasons. First, we all have noticed that we get tired quicker in the day if we work on only one topic. By working on different subjects, we expect to be able to perform better than as we would with the previous plan. Second, as the mapping of the processes has a subtle relationship with SOX compliance and ESB methods, by mapping and researching in each of the twelve days we expect to be able to detect similarities between ITIL/eTOM compliance, SOX regulations, and ESB methods, improving the quality of both the mapping and the feasibility studies.

What corrective actions are being taken?

- The project plan has been updated to show our new task scheduling

VII. Project Status and Path Ahead

Project Status

Our project is going well. We are trying to keep to the plan we have created. Every problem we have met was discussed by whole group and we always managed to find a proper solution. Each task so far, given to us by our Comarch supervisor, had been completed on time and our supervisor has not made any critical remarks.

Barriers and obstacles

Barrier:	Lack of official ITIL documentation
Description:	ITIL has official documentation which would help us with our project. We asked our supervisor about this, but he answered that Comarch does not own this and that the only way is to get it is to purchase it. Comarch is not willing to purchase the ITIL documentation.
Solution:	Together with our Comarch supervisor, we decided to map given processes to eTOM and focus less on ITIL. It does not matter for Comarch clients, but does for us, because detailed information about eTOM is easy to obtain.

Barrier:	Difficulties in meeting with our Comarch supervisor
Description:	Sometimes it is hard to meet and consult some doubts with our supervisor, because he is very busy and does not always have enough time for us.
Solution:	We try to communicate more with e-mails, and when it is necessary we try to organize a face-to-face meeting. When he knows that the problem is urgent he has found time for us.

Barrier:	Understanding the concept of ESB (Enterprise Service Bus)
Description:	Our group has had difficulties with fully understanding our gathered information about Enterprise Service Bus. Almost everyone in group has his own opinion about what exactly is ESB and these opinions are different.
Solution:	We will try to find even more information about ESB and when this will not solve our problem we shall ask our Comarch supervisor and consult controversial issues.

Path Ahead

After preparing a Mid-Term Report and the presentation, we need to focus on looking for more information about ESB and SOX and start mapping four processes on eTOM. Our next meeting after the midterm presentation we will discuss ways to approach mapping process.