

# **Implementing Project Portfolio Management in a Telecom Company**

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## **Abstract**

As one of the most dynamic industrial area, the telecommunication industry requires huge investments to align the market needs with the technology, especially in the newly accessed European countries. The paper presents the first implementation of Success Driven Project Management Methodology at the portfolio level in a Romanian telecom company.

## **Introduction**

In the fast developing IT&C market implementing the latest technologies is the fundamental need that directly influences performance and competition. Innovation and modernization have been the leading directions of Romtelecom development over the past years, the company invested in new and reliable technologies to be able to provide the clients with top quality services.

The increasing market needs of integrated telecommunication services and highly competitive environment required an intensive network development for Romtelecom, one of the leading Romanian telecommunication operators. Romtelecom declared strategic goal is to become the main provider of telecommunication services in Romania, as ranked by consumers and in terms of profitability. Following the strategic goal, a major three years investment program with an initial budget of 500 million Euro for network development and new technologies integration was implemented starting 2005.

Romtelecom intent to grow on the Internet, data and video services market entailed the necessity of the infrastructure development. By commencing a large development program, Next Generation Network, Romtelecom facilitated improvement of current service delivery and service assurance, and development of new services.

Concerning the passive access network area, the New Generation Network program included civil works for cable installations, procurement and installation of street cabinets, taking-over the subscribers from the old to the new system. Due to the needs of these tremendous efforts made at the country level in 7 regions, and with an estimate of around 1200 projects, Romtelecom decided to implement a portfolio management system.

Due to the pressure of financial performance of the company, during 2007 the program objectives were revised, some of the projects were delayed and the program budget was decreased to 280 million Euro.

However, even though the initial program consisted of 1,200 projects, at the end it included more than 1,600 projects, and the program model contained up to 170,000 activities. With specific procedures in place, and with a tight control, the program management team was able to run and to manage the program successfully.



**Figure 1** The distribution of projects and programs at the country level

The paper presents the program approach to portfolio scheduling, budgeting, risk analysis, and performance management, achieved results, the challenges and the lessons learned based on this successful experience. We will discuss the application of Success Driven Project Management (SDPM) and risk management technologies for program and portfolio management.

## Description

The implementation was started taking into account the organizational and market constraints:

- The projects are running with tight cross-organizational dependencies, involving different departments: Construction, Procurement, Contracts, Financial, with different needs for the information, and different inputs.
- The distribution of the projects around the country, with a large number of project team members.
- The communication market is highly volatile requiring reducing the project life cycle, and the time to market for products and services.
- The increased shareholders demands were a constant pressure for delivering projects results on time and within the budget.

As a project-oriented organization performing a large number of different projects and programs in the same time, Romtelecom decided to implement a portfolio management system, in order to link the strategic goals with the projects objectives, and to fulfill the business needs by delivering the projects successfully.

The tasks that were considered as top-priority included following:

- Select, prioritize, assess, and manage the projects basing on their alignment and contribution to the Romtelecom strategies and goals
- Prepare realistic plans in accordance with the Romtelecom standards
- Efficiently coordinate project teams, equipment, and service suppliers within the projects
- Coordinate and manage the limited resources within the company taking into account the external constraints
- Analyze and control project costs and schedules
- Monitor and control quantities of works executed
- Establish project performance measurement mechanisms

- Implement regular reporting on the project progress
- Consolidate projects in the company portfolio
- Organize and manage project archives

Project Management System implementation requires creating corporate methodologies, databases, norms and standards. Implementation of PMS was started with identification and documenting of product life cycles and process flows, relationships between involved departments, instructions on planning, scheduling and monitoring project execution. In order to integrate scope, time, cost and risk management, the methodology *Success Driven Project Management* has been chosen. As tool, Romtelecom selected Spider Project Professional which has proved is best fitted to organizational needs for projects, programs and portfolio management. We created WBS templates for different project types, identified 380 types of project activities, 10 types of multi-resources (stable resource crews), 650 types of materials grouped in 9 material centres, 32 cost components grouped in 13 cost centres. 45 user fields were added to the standards set of data that are used for planning and scheduling.

The organizational structure was a pyramidal: each of 7 regions has to perform an annual investment program consisted of several different project types. The regional teams have the responsibility to manage, control, and report the status of each project and program; at the HQ level, all programs were consolidated into the portfolio, in order to take into account portfolio constraints including limited resources and financial limitations, to establish the projects prioritization, and to be able to prepare summary reports.



**Figure 2** The Pyramidal Organization Structure

Taking into account the complexity of the portfolio, several Portfolio Breakdown Structures were developed:

- Based on the Geographical Regions;
- Based on the type of Programs;
- Based on Contractors

These Portfolio Breakdown Structures are used to analyze the relationships with Romtelecom contractors, the effects of the projects/programs prioritization on contract targets, for managing the contract schedules, volumes of work, deliverables, material consumption and financial aspects.

Telecom is the risky business. Uncertainties are high, technologies are changing rapidly, and besides Romania is developing country with fast changing environment. So we were most serious about risk management. The risks were identified and estimated basing on their impact and probabilities, the information on uncertainties were collected. Project Management Methodology developed for Romtelecom included the rules for creating optimistic, most probable, and pessimistic project scenarios.

A lot of attention was paid to developing coding system for each project object that can be used for its identification, sorting and filtering by object codes.

Working procedures were developed for project, program, and portfolio management.

## Risk Management

The project management team shall develop realistic plans that include project schedules and budgets, coordinate project resources and service suppliers within the program, control project work quantities and costs. Program and Portfolio management teams shall prioritize the projects within the strategic objectives, establish a sound project performance measurement system, and manage program and portfolio risks and uncertainties. Main constraints included cross organizational program interdependences, market conditions, stakeholder demands, financial and technological factors.

In each region, the projects were included in several multi-projects managed by different project managers. These multi-projects belonged to the regional programs. In the Headquarters all regional programs were consolidated in project portfolio which allows the portfolio management team to analyze, develop reports and take the best decisions at the portfolio level.

The project computer model included 3 project scenarios. The first one was optimistic. It was based on optimistic estimates of activity durations and costs and included those prioritized risk events that had at least 90% probability to occur. Second most probable scenario was based on most probable estimations of project parameters and included risk events with more than 50% probability to occur.

Third pessimistic scenario was based on pessimistic estimates and included all risk events that were estimated as serious enough to be considered. This models were included in corresponding multi-project and program models that also had optimistic, most probable and pessimistic scenarios. To the risks of separate projects some risks were added at the multi-project, program, and portfolio levels.

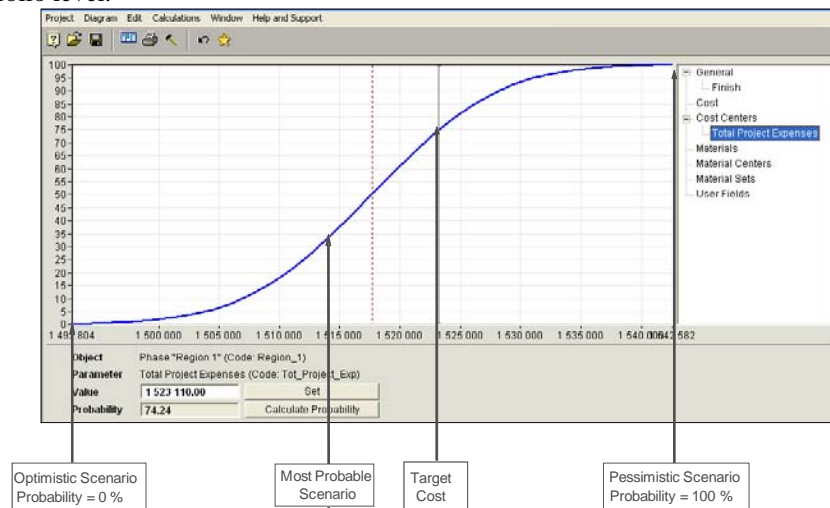


Figure 3 Probability Curve

Taking into account the results of portfolio scheduling and budgeting in each of these scenarios portfolio planner obtains three estimates of all program and project parameters like finish dates, costs and material requirements. Basing on these estimates Spider Project restored probability curves for portfolio, program, and project durations and costs. Defining the necessary probability of meeting project targets portfolio planner calculated the dates and costs that can be met with the required probabilities. And reverse – the software calculated the probabilities to meet the defined target dates and costs.

At the planning stage portfolio management team suggested and negotiated the reasonable targets. After some adjustments the targets for each program were set. The target dates and costs for each project were defined on the program level. These targets had reasonable probabilities to be achieved. Since that moment each program team monitored what happens with the probabilities to meet the set targets and analyzed and reported success probability trends.

## Project Databases

The portfolio included many activities that may be considered as typical. Such activities shall be estimated the same way in different projects. The same is true about resource productivities, material requirements and other parameters used in project, program and portfolio planning. That is why Project Databases (or Reference-books) were created for typical activities, resources, materials, resource assignments, cost components, etc. These Reference-books include the norms for resource productivities on typical assignments, material requirements per activity volume unit, unit costs, etc. Activity volume is defined as the quantity of work to be done and is usually measured in physical units – meters, square meters, tons, etc. Activity duration, material consumption, costs are proportional to activity volume. So it is natural to define resource assignment productivity as volume per hour, material consumption and costs per volume unit and use these norms in every project of the organization.

These norms were created for optimistic, most probable and pessimistic performance and were used in optimistic, most probable and pessimistic versions accordingly.

Besides norms Romtelecom portfolio management team created a Library of typical project fragments. Typical fragment is a small project computer model that describes typical process that is performed in different or the same project not once. It is useful to describe the process once and then to use the created typical fragment models including them in the project and program models if the simulated processes are met.

The Library of typical fragments was created in the Portfolio Management Office and was mandatory for usage in all projects that belong to the Romtelecom Portfolio.

## **Portfolio Management Office Functions**

The functions of Portfolio Management Office created in Romtelecom included:

- 1) Development and implementation of the corporate project management methodology,
- 2) Assessment and consulting on the corporate methodology usage,
- 3) Training project management teams,
- 4) Creation and maintenance of the corporate Reference-books,
- 5) Creation and maintenance of the Library of typical project fragments,
- 6) Creation and maintenance of the WBS templates,
- 7) Maintenance of the project archives,
- 8) Consolidation of the project and program models in the portfolio model,
- 9) Portfolio Scheduling and Budgeting,
- 10) Portfolio Risk Analysis and Management,
- 11) Defining project, program and portfolio targets,
- 12) Project, program and portfolio performance analysis,
- 13) Change requests evaluation and corrective actions development,
- 14) Supplying portfolio stakeholders with the information that is necessary for project, program and portfolio management and performance analysis.

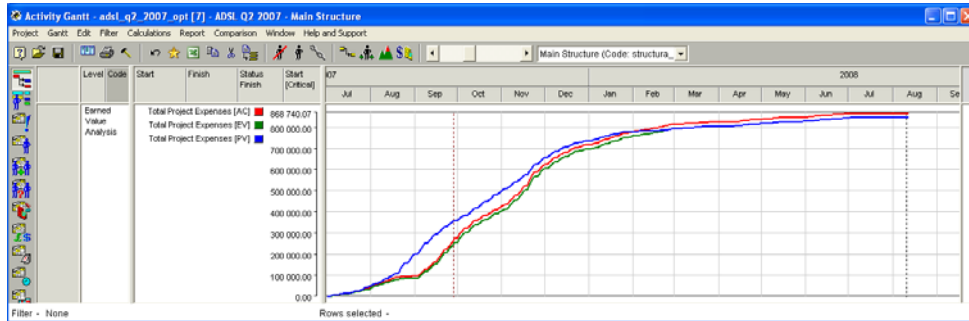
Project Management Office staff participated in the implementation of project management methodology in all regional Program Management Offices.

## **Performance Management**

Romtelecom accepted project management methodology that pays most attention not to the projects, programs, and portfolio status but to trends of project parameters.

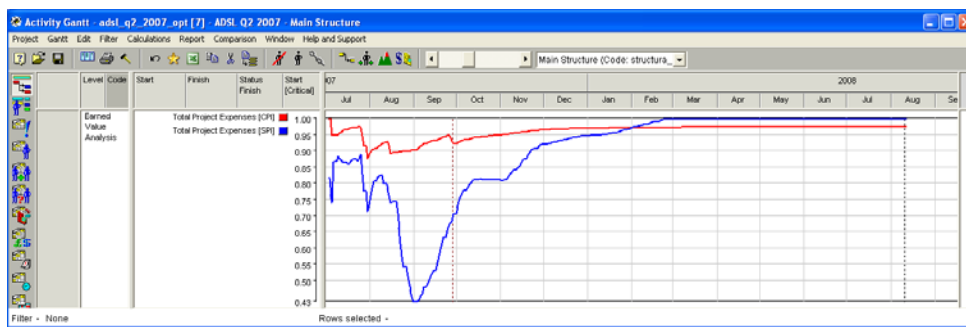
If the project is 20 days ahead of the baseline schedule it does not mean that everything is fine. If one week ago the project was 23 days ahead of the baseline, one month earlier 35 days ahead of the baseline it means that there are serious problems that require close attention. If the project is behind the schedule but the difference became lower last weeks then the performance is improving and project management team knows what to do.

So performance reports that were analyzed included trends of main project parameters and colour indicators if these parameters are improving or not. The same approach was used for analyzing Earned Value data.



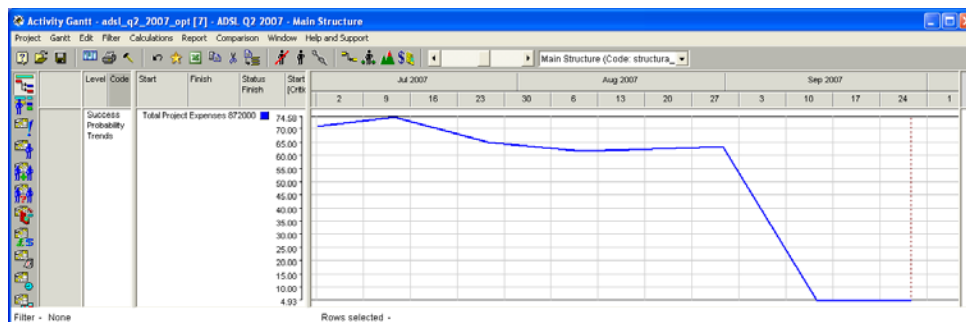
**Figure 4 Trends of Earned Value Parameters**

If CPI and SPI have positive trends then project trend status is green and it does not need close attention of top management.



**Figure 5 Trends of CPI and SPI**

The higher attention was paid to success probability trends. These trends were considered as the most valuable performance indicator. Negative success probability trend means that project buffer created for the considered parameter is consumed faster than expected and if no measures will be taken then achieving project goals will be endangered.



**Figure 6 Success Probability Trend**

Trends of success probabilities depend not only on project performance but also on project environment. If risk analysis team of the Portfolio Management Office or project management team discover new risks and included them in the pessimistic scenario it changes the shape of probability curves. In this case the probability to meet project targets become lower and success probability trend will show the problem even if the performance was good enough.

The success probability trends measure and show not only project performance but also project health taking into consideration both internal and external factors.

## Conclusions

The implementation of project portfolio management in the telecommunication company Romtelecom lead us to the following conclusions:

1. For implementing a portfolio management system, main processes should be identified, analyzed and documented.
2. PM processes should be performed in addition to the specific network development processes.
3. From the very beginning it is necessary to standardize the resources, data gathering, portfolio templates and Report templates. Later changes in processes or in standardized items means increased work.
4. We recommend paying most attention to trends of the project and program performance parameters as the main indicators if corrective actions are needed.
5. Risk simulation and analysis of success probability trends is the most reliable tool that integrates performance measurement with environmental factors and provides portfolio managers with the necessary estimates of project and program health.
6. Romtelecom is using successfully the approaches, methods, and the tools described above for several years.
7. Our experience shows that these approaches to the portfolio management are practical and produce satisfactory results.

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For additional information on the Spider Project software package visit these Web sites:

English/Romanian: <http://www.spiderproject.ro>

English/Russian: <http://www.spiderproject.ru>