SRYAHWA PUBLICATIONS

Journal of Banking and Finance Management
ISSN: 2642-9144 | Volume 6, Issue 1, 2025
https://doi.org/10.22259/2642-9144.0601002

RESEARCH ARTICLE

Project Management in Telecommunication Projects Following the PM² Methodology

Vassilis Orfanos[1], Michalis Evripiotis[2]

Hellenic Open University, Greece.

Received: 7 January 2025 Accepted: 21 January 2025 Published: 28 January 2025
Corresponding Author: Vassilis Orfanos, Hellenic Open University, Greece.

Abstract

The article deals with project management methodologies in the telecommunications sector, focusing on global and Greek developments, as well as market trends, challenges and opportunities, following the European Commission's PM² methodology.

The main technical construction project undertaken by Greek telecommunications companies in recent years is the improvement of urban connectivity through the replacement of traditional copper technologies with modern fiber optic connections. The projects are managed using the PM² methodology of the European Commission which provides for the analysis and monitoring of the project in the following four phases: the start, the design, the implementation and the closure delivery of the project.

One such project by the largest telecommunications operator in Greece in an area of Athens is summarized in the cited case study.

1. Understanding the Philosophy and Basic Principles of PM² Methodology

An understanding of the philosophy and basic principles of the PM² methodology is fundamental for the efficient management of projects within the EuropeanCommission and more generally in organizations that want to implement a common management framework. PM² methodology was designed to provide a simplified but structured model that facilitates collaboration, communication and alignment with strategic objectives.

1.1 Key Elements of the Philosophy of PM²

The philosophy of the PM² methodology is based on some fundamental principles, which aim to guide the way in which a project is organized and executed:

1.1.1 Simplicity and Adaptability

PM² provides a simplified approach to project management that can be tailored to the needs and complexity of each project. The goal is easy application and flexibility.

1.1.2 Focus on the Project Life Cycle

PM² is structured around a complete project life cycle (start, design, execution, monitoring/control, close), with emphasis on completion and delivery of results.

1.1.3 Enhancing Cooperation and Participation

PM² places great emphasis on cooperation between project team members and stakeholders, promoting communication and participation of all stakeholders.

1.1.4 Effective Role and Responsibility Management

PM² clearly identifies the roles and responsibilities of the project team and stakeholders to ensure accountability and awareness of expectations.

1.1.5 Risk and Uncertainty Management

With embedded risk management tools, PM² encourages active risk prediction and management from the initial phase to the projectcompletion.

1.2 Basic Principles of the PM² Methodology

PM² includes principles that help project managers to reach organized and methodically every phase of the project:

Citation: Vassilis Orfanos, Michalis Evripiotis. Project Management in telecommunication projects following the PM² methodology. Journal of Banking and Finance Management 2025;6(1): 7-13.

1.2.1 Focus on Results

The methodology encourages clarity about the goals and expected results, ensuring that the actions of the team lead to measurable results.

1.2.2 Stage-Based Management (Stage Gate Process)

PM² includes clear phases and milestones that help manage project progress and make decisions based on progress and requirements.

1.2.3 Transparency and Progress Report

Transparency regarding the procedures and the progress of the project is ensured through regular reporting and meetings so that all stakeholders are informed.

1.2.4 Continuous Feedback and Improvement

PM² encourages continuous evaluation and improvement, enabling the project team to adjust its strategy when necessary.

By adopting these principles, the PM² methodology facilitates project management in a coordinated and effective manner, allowing compliance with strategic objectives and delivery of quality results.

1.3 Familiarization with the Main Stages and Processes Involved in Project Management with PM² (Start, Design, Execution, Monitoring and Closure).

Familiarity with the main stages and processes involved in project management with the PM² methodology is key to successful project completion as it provides a structured framework. The PM² methodology distinguishes the management of a project into five main stages, with each stage involving specific procedures and practices.

1.3.1 Initiating Phase

This is the first stage of project management, where the basic direction is formed and the overall objectives and objectives of the project are defined. The main processes and actions at this stage include:

Defining the Purpose and Objectives

Formulating the objectives and the object of the project.

Assignment of Roles and Responsibilities

Definition of key roles (e.g., Project Manager, Primary User) and responsibilities.

Stakeholder Assessment

Identification and analysis of stakeholders and their expectations.

Project Initiation Document

Create a basic document that includes the initial elements and agreements of the project.

1.3.2 Planning Phase

At this stage, the full project plan is being prepared, with an analysis of the resources, schedule and strategy to be followed to achieve the objectives. The main procedures are:

Project Plan Construction (Project Plan)

Create a detailed project plan that includes schedule, required resources and budget.

Risk Management Planning

Identifying potential risks and creating strategies to prevent or manage them.

Communication Plan

Design the communication so that all stakeholders are informed about the progress and important decisions.

Finalizing Resources

Allocating the required resources and ensuring their availability.

1.3.3 Execution Phase

The implementation phase focuses on the implementation of the project according to the plan drawn up. The basic procedures include:

Project Team Management

Coordinate the team and ensure that all participants know their goals and responsibilities.

Quality Management

Monitoring the quality of the produced results to ensure compliance with the project criteria.

Communication with Stakeholders

Regular communication and information of stakeholders on the progress of the project.

1.3.4 Monitoring and Controlling Phase

This stage runs parallel to the execution and focuses on assessing progress and managing deviations from the original plan. Main procedures include:

Performance Monitoring

Evaluation of the progress of the project in relation to the objectives and the timetable.

Risk Management

Continuously monitor risks and implement response strategies.

Change Management

Review and approve any changes to the plan, such as requirements or resources.

Progress Reports

Provide reports and updates to the project team and stakeholders.

1.3.5 Closing Phase

The closure phase marks the completion of the project and includes evaluating performance and ensuring that final deliverables meet expectations. The procedures include:

Project Evaluation

Evaluation of the overall project performance, review of achievements and challenges.

Deliverables Delivery

Delivery of the final results to end users or managers.

Course Review

Record and evaluate the lessons learned from the project to be used in future projects.

Standard Close

Official completion of the project with the appropriate documentation. This structure of the stages and procedures allows project managers to organize and manage their projects effectively, reducing the risk of delays or malfunctions and ensuring high quality in the end result.

1.4 Developing Skills in Using Pm² Tools and Techniques, Such as PM² Templates and Pm² Project Handbook

The development of skills in the use of the tools and techniques of the PM² methodology is crucial for the effective management of projects. These tools help managers to organize processes, ensure quality and compliance with objectives, and facilitate communication. Two of the most basic tools of the PM² methodology are thePM² templates and the PM² Project Handbook.

1.4.1 PM² Templates

PM² templates are standard documents and forms that assist in the organized documentation and monitoring of project details. Templates make it easy to maintain consistency and transparency, as all project team members and stakeholders have access to uniform information. Some of the main templates used are:

Project Charter

Lists the initial project elements, such as objectives, requirements and main stakeholders, giving the overall project picture.

Project Plan

Includes the detailed schedule, resources, budget, and project milestones. It is used to analyze and determine the course of the project.

Risk Log

Risk recording and monitoring tool. It includes possible risks, the likelihood of their occurrence and the plans for dealing with them.

Issue Log

A brochure to monitor problems that occur during the implementation of the project and to record the actions taken to solve them.

Stakeholder Register

Form for the registration and analysis of stakeholders, so that their requirements and expectations are clear.

Lessons Learned Register

Used at project completion, recording the lessons learned and suggestions for improvement, which will be useful in future projects. Using these templates enhances efficiency, transparency and consistency in project management, making it easier for the team to manage all aspects of the project systematically and methodically.

1.4.2 PM² Project Handbook

The PM² Project Handbook is a comprehensive manual containing instructions, techniques and suggestions for each phase of the PM² methodology. It serves as a guide for the implementation of the methodology and supports project managers and their teams on issues related to project management, ensuring the quality and success of the project.

PM² Project Handbook includes:

Role and Responsibility Management Guidelines

Provides clear guidelines on the roles and responsibilities of the project team and stakeholders, ensuring effective cooperation.

Risk Management Guidelines

Describes the process of identifying, analyzing and dealing with risks, with emphasis on creating a strategic prevention and response plan.

Implementation and Monitoring Guidelines

Guidelines for the implementation of project activities, monitoring of progress and managing changes.

Communication Strategies

Suggestions for the development of a communication plan, so that interested parties are constantly informed and actively participate in the decisions.

Training Material and Optimization Guidelines

Provides information on the improvement of project management procedures and practices, based on good practices.

1.4.3 Skills Development

The familiarity and ability to use these tools helps project managers develop skills such as:

Organizational Ability

Develop organizational skills so they can handle all project information and data.

Effective Communication

Strengthen the capacity for clear communication with the team and stakeholders.

Risk and Unforeseen Challenges Management

Development of risk prevention and management strategies using the tools provided by the PM² methodology.

Quality Assurance

Apply quality standards at every stage of the project and ensure that deliverables meet expectations.

The practical use of PM² templates and PM² Project Handbook enhances the project team's skills, offering a common frame of reference and coordination, and encouraging systematic project management.

1.5 Capacity to Integrate Best Practices in Project Management, Focusing on Cooperation, Communication and Resource Efficiency

The ability to integrate best practices in project management, with an emphasis on cooperation, communication and resource efficiency, is key to the success and sustainability of projects. PM² methodology supports these principles by providing a framework that integrates strategies and practices that can improve the operation and performance of the project team.

1.5.1 Cooperation

Cooperation is a central pillar for the achievement of the project objectives, as it ensures that all stakeholders operate in a coordinated manner and with a mutual understanding of the objectives. Best practices to enhance cooperation include:

Role and Responsibility Management

A clear definition of roles and responsibilities helps to avoid overlaps and conflicts by enhancing collaboration between team members.

Stakeholder involvement

PM² encourages the active participation of all stakeholders in decision making and project formulation, so that there is coherence and consensus.

Collaborative Meetings and Workshops

Regular meetings and workshops empower the groups as they encourage the exchange of ideas and the joint resolution of problems.

1.5.2 Communication

Effective communication is essential to ensure transparency and proper project direction. Best communication practices proposed by PM² include:

Communication Plan

A clear communication plan that determines what, when, and how information is exchanged. It includes defined channels and frequency of communication, ensuring that everyone is updated regularly.

Progress Report

Frequent progress reports help monitor the status of the project and provide stakeholders with the necessary information to achieve the goals.

Feedback Loops

Encourage feedback from all members and stakeholders to identify problems and correct them in a timely manner.

1.5.3 Resource Efficiency

Efficient resource management is critical to avoid budget and schedule overruns. PM² methodology offers tools and practices to help manage human and financial resources. Best practices include:

Careful Allocation of Resources

The analysis and strategic allocation of resources based

on the needs of the project and the specialization of the team members, in order to maximize performance.

Cost and Resource Monitoring

Continuous monitoring of cost and resource consumption prevents exceedances and helps optimize their use.

Need Analysis for Educational Resources

The continuous assessment of the team's skills and the provision of training when needed, in order to ensure appropriatespecialization in terms of project requirements.

1.5.4 Synthesis of Best Practices

Incorporating these practices facilitates workflow and enhances consistency among team members, reducing the chances of delays and inefficiencies. The use of tools and techniques proposed by PM² encourages systematic monitoring of work, flexibility in dealing with challenges and achieving a common, efficient framework of cooperation.

2. Basic Developments in Telecommunications

The basic developments in the telecommunication sector during the recent years both globally as well as in Greece especially are the following

Global Trend

o Increasing digitization and networking through 5G, IoT and cloud computing.

o Enhance personalized and mobile-first experiences for consumers.

Greece

o High level of penetration of telecommunication services.

o Evolution of infrastructure and development of 5G.

3. Project Management Methodologies

3.1 Traditional Approach (Waterfall)

Ideal for projects with clear requirements and low chances of change.

Shortages: Inflexibility and slow delivery time.

3.2 Agile

Flexible and adaptive methodology for projects with frequent changes.

Shortages: Requires a dynamic group and may make it difficult to manage complex projects.

3.3 Hybrid Approach:

It combines the predictability of Waterfall with the flexibility of Agile.

3.4 DevOps

Integration of development and operation for continuous delivery and faster innovation.

3.5 Challenges and Opportunities

- Challenges: Infrastructure costs, competition from OTT providers, changing consumer behavior.
- Opportunities: Digital economy development, IoT, and new technologies such as AI and blockchain.

3.6 Success Factors

- Resource Management: Proper utilization of human and financial resources.
- Risk Management: Assessment, mitigation and risk management plans.
- Stakeholder engagement: Active participation and constant communication with stakeholders.
- Quality Assurance: Systematic control and continuous improvement.

This analysis focuses on how appropriate methodologies and strategies can improve the success of projects in the demanding telecommunications sector.

4. Case Study Summary:FTTH Project in Athens

The FTTH (Fiber To The Home) project is a strategic initiative for the development of a fast and reliable Internet through fiber optics, aiming to improve urban connectivity. The project covers the construction of a network of 15 kilometers and the connection of 2,000 buildings (12,000 apartments) within the financial year 2024-2025. The main purpose is to replace traditional copper technologies with modern optical fiber infrastructure.

4.1 Project Management

4.1.1 Definition of Objectives and Scope

TheFTTHprojectincludesthefollowingmainactivities:
1. Excavations 15 km long.

2. Construction of 2 active and 10 passive cabins.

3. Connecting fiber infrastructure to 2,000 buildings.

These objectives are strictly defined, with clear timetables and shared responsibilities.

4.1.2 Organizational Structure

The project is based on an integrated organizational structure that includes:

• *Internal Groups*

o Project Management Team (PMO).

o Design Team.

o Field Team.

o Finance Team.

• *External Partners*

o Contractors and subcontractors for the execution of works.

o Municipal authorities for licensing.

o Equipment and power supply companies.

4.1.3 Roles and Responsibilities

Design Team

Creates initial designs and updates the final design based on contractor data.

Contractor

Performs field research, receives permits, and performs projects.

Field Team

Supervises work on site and ensures that safety protocols are followed.

Finance Team

Manages payments and secures funding.

4.2 Project Management Method

The choice of management methodology was based on the characteristics of the project:

Linear Structure

The project clearly includes some steps that need to be completed in order.

Waterfall Methodology

Selected for the strict sequential approach that aligns with the construction nature of the project.

Waterfall Supports

a. Strict adherence to schedules.

b. The documentation for each phase of the project.

c. Risk management through predefined procedures.

Despite its weaknesses (e.g. limited flexibility), Waterfall was deemed appropriate due to the environmental stability and the bureaucratic culture of the organization.

4.2.1 Timing and Milestones

The project is divided into five main phases:

a. Design (8/1/2024 - 21/5/2024):

o Start with the design from the internal group.

o Information based on field survey data from the contractor.

b. Authorizations (21/5/2024 - 6/9/2024):

o Applications to municipal authorities.

o Issuing of licenses and processing of financial obligations.

c. Construction Work (11/9/2024 - 11/12/2024):

o Excavation and cabin installation.

o Starting cabling.

d. Equipment Installation (10/2/2025 - 17/2/2025):

o Installation of equipment in active cabins.

e. Area Readiness (17/10/2024 - 17/2/2025):

o Preparation and testing for commercial availability.

4.2.2 Dealing with Risks and Challenges

The project presents several challenges:

• *Critical delays*

o Long-term authorizations.

o Lack of contractor availability.

Non-critical delays

o Bad weather.

o Lack of materials.

Risk management

• Proactive monitoring of progress.

• Create a buffer for unexpected situations.

4.2.3 Budget

The total cost amounts to €614,900, with main cost categories:

• Contractor Services: €400.000.

• Materials: €100.000.

• Municipal fees: €20.000.

• Staff: €35,000.

A reserve of 10% (€55,900) is foreseen to deal with unforeseen situations.

5. Conclusion

The FTTH project is an important step towards improving the digital infrastructure. The choice of the Waterfall methodology offers clarity and control, while the adoption of a hybrid approach could improve flexibility. Despite the challenges, well-defined procedures, adequate funding and sound risk management make it possible to successfully complete the project.

The PM² methodology is a new and complete tool that helps in the proper design and implementation of projects and is addressed clearly and transparently to all stakeholders.

6. References

1. Aaltonen, K., Eloranta, E. R., & Rajalahti, R. (2018). Identifying success factors in ICT projects: A systematic review. International Journal of Project Management, 36(7), 1220- 1240.
2. Alves,E.(2016).Effectivestakeholdermanagement forprojectsuccess:Areviewofrecent literature. International Journal of Project Management, 34(3), 593-600.
3. Bose, M. (2019). Project management for telecommunications: Strategies, tools, and techniques. McGraw-Hill Education.
4. Dyba, T., & Dingsoyr, T. (2011). From plan-driven to agile: A comparative analysis of softwaredevelopmentmethodologies.Informationand SoftwareTechnology,53(1),61-76.
5. International Telecommunication Union [ITU]. (2022). ITU regulatory handbook: A handbook for regulatory authorities. Geneva, Switzerland: ITU.
6. International Telecommunication Union(ITU). (2023). The future of telecommunications: ICT Trends and Challenges. Geneva, Switzerland: ITU.
7. OECD(OrganisationforEconomicCo-operationandDevelopment).(2016).TheEconomic Impact of the Internet of Things. Paris: Author.
8. OECD (2019a). The digital transformation of the Greek economy: Challenges and opportunities. Retrievedfromhttps://www.oecd.org/gov/digital-transformation-projects-in-greece-s-public-sector-33792fae-en.htm
9. OECD (2019b). Broadband: The key to a more inclusive digital economy. Retrieved from https://www.oecd.org/sti/broadband/enhancing-access-digital-transformation.pdf
10. OECD (Organisation for Economic Co-operation and Development). (2021). Digital Economy Outlook 2021. Paris: Author.
11. Project Management Institute. (2021). A Guide to the Project Management Body of Knowledge (PMBOK® Guide) (Seventh Edition). Project Management Institute.
12. Project Management Institute (PMI). (2022). A Guide to the Project Management Body of Knowledge (PMBOK® Guide) Sixth Edition. Newtown Square, PA: Project Management Institute.
13. Zwikael,O.,&Globerson,S.(2004).Agilitythroughproj ectmanagement:Aprocess-driven approach. Springer Science & Business Media.
14. Ftth Council Europe (2024), Why fibre to the home?. Retrieved from https://www.ftthcouncil.eu/about-us/vision-mission/why-fibre-to-the-home.