

The Application of Some Areas of Management and the Evaluation of the Performance of the Company Consider Travaux Public Case Study: The New Single Track Railway Line Boughezoul / Msila 151 Km

Dr. BERNOU Randa¹, Bouharrati Khayr Eddine²(manager)

¹AVMF: research laboratory, Department of project management, Faculty of architecture and urbanism, University of Constantine3, Salah Boubnider, Algeria.

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Abstract

The project of the realization of the Boughezoul-M'Sila railway line is an investment project whose main objectives are the networking and densification of the railway network, the rapprochement and the opening up of the cities, the contribution to the emancipation of the regional economies and the realization of a better offer of transport. The project experienced difficulties during the start-up phase but in the realization phase the company was performing well, in this study and from a set of tools and techniques of project management we specified the real causes of the extension of the deadline and the increase in the amount, these analyses led us to ask ourselves some questions such as: which management system applied by the company? and is the management applied to the standards? we also carried out an analysis on the performance of the management system applied within the company COSIDER TP. Finally we found that the company applies an effective management and to the standards.

Key words: Project - project management - railway line - faulty study - COSIDER TP M'Sila - Boughezoul.

INTRODUCTION

Transport plays an important role, not only in facilitating exchanges between economic agents, but also in improving the movement of people and goods, ideas and services, as well as in strengthening the bonds of friendship and brotherhood between peoples¹. Among the transport systems that play a decisive role in the economic development of societies, we can mention rail transport, a guided system that consists of a specialized infrastructure. Railway transport in Algeria has a particularity that of evolving in a competitive environment like any economic activity, but which at the same time requires decisions and interventions by the public authorities. The Boughezoul / M'Sila line is an integral part of this rail link (highlands rail bypass), the realization of this mega project requires highly qualified companies, with special materials and techniques, and they must apply project management not only to carry out the project but also to carry it out within the contractual deadlines while respecting the allocated budget. The quality of the work and the satisfaction of the client is the main interest of each company, because it guarantees the durability of the company by creating a good reputation. The realization of large projects (such as railway projects) requires rigorous management, the aim of which should be to build quality infrastructure, within budget and on time. If some errors in the estimation of work quantities occur during the study phase and thus directly influence the estimated time of completion, the company must apply management to achieve high profits, good quality of work, as well as satisfy the client.

In order to find solutions to these problems, questions are asked about their origins and the causes that feed them:

- What management system does the company use?

- Is the management system applied by the company up to standard?

1. OULMAKKI Ouail, Impact of transport infrastructures on economic growth: the case of Morocco. Thesis for the degree of Doctor, Specialty: Economic Sciences, under the direction of Professor Thierry Blayac and the co-direction of Professor Mohammed Abdouh, 2015

METHODOLOGY AND TOOLS

Our research work is structured as follows: It will be followed by a conceptual and theoretical approach, where we will introduce the general notions of our research; then the case study, which is a presentation of the project of realization of the new railway line BoughezoulM'Sila, an urban analysis, an architectural analysis and a technical analysis remain essential for the interpretations of the results as well as the taking of photographs during the outings on site. In the second part, we will deal with the problematic of our study for that we used tools and techniques of project management such as: data analysis, interviews with the persons in charge and finally we made an evaluation of the performance of the company COSIDER TP.

The Company and Management

“The company is an autonomous economic unit with human and material resources that it combines to produce goods and services for sale². According to F. PERROUX, “the enterprise is an organization of production in which the prices of the various factors of production are combined by agents distinct from the owner of the company with a view to selling a good or services on the market in order to obtain the greatest possible monetary gain by the difference between two prices (cost price and selling price)”.

According to H. TRUCHY, an enterprise is “any organization whose purpose is to be able to produce, exchange or circulate goods or services... It is the economic unit in which the human The enterprise is very beneficial not only for the contractors but also for the economy of the countries, because this form, characterized by the union of means, ideas, competences, materials, allows for a quality execution, within the foreseen time.

Studies show that, for various reasons, many projects do not achieve their objectives³. However, following simple rules of good sense, drawing on the tools of project or program management, can increase the chances of success⁴ A project is a specific, new action, which methodically and progressively structures a future reality, for which there is no equivalent yet”. “The project is a set of actions to be carried out in order to satisfy a defined objective, within the framework of a precise mission, and for the realization of which not only a beginning, but also an end has been identified.”

A project is a temporary initiative undertaken with the aim of creating a unique product, service or outcome.⁵

“A single process, consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective in accordance with specific requirements such as time, cost and resource constraints.⁶ Project Triangle⁷ also known as the Triple Constraint Triangle, also known as the Performance Triangle, is often used to illustrate the interdependence of the variables in a project. This is because in a project, changes to one variable will irrevocably affect the others or, in other words, favoring one constraint is usually at the expense of the others. For example, if a decision is made to reduce the development time for a given project, in order to maintain the agreed level of quality it will be necessary to increase the budget by, for example, allocating more resources or, alternatively, agreeing to lower quality expectations. Alternatively, if it is decided to reduce the project budget, then in order to maintain the agreed level of quality, it will be necessary to increase the development time allocated or, alternatively, to accept a reduction in quality expectations.

Finally, if it is decided to reduce the quality requirements of the project, it will obviously be possible either to reduce the costs, or to reduce the development time, or to spread the savings over both costs and development time.

The Project Manager⁸ is at the service of a project and at the head of a team: he or she is responsible for and guarantees the achievement of the objectives and compliance with the cost, quality and time constraints of the project entrusted to him or her.

The definition of management that seems the most complete is that given by the world standardization organization

2. G.BRESSY and C.KONKUYT ,2000

3. www.examenpm.com

4. AFNOR

5. PMBOK 6th edition

6. [ISO10006, 1997]

7. Gilles Boulet. Element of project management. May 2006, Revision 2009.

8. AMF, IDRRIM, THE MAYOR AND ENGINEERING Memento for elected officials to help them carry out projects (development, roads, public spaces, etc.), November 2011

according to the ISO 10006 standard (version 2003) and taken up by AFNOR under the FD X50-117 standard (AFNOR, 2003_b): “a specific approach that enables a future reality to be structured methodically and progressively... a project is defined and implemented in order to develop the response to the need of the user, a client or a customer and it implies an objective and actions to be undertaken with given resources”. Project management is therefore the application of knowledge, skills, tools and methods to the activities of a project in order to meet its needs.

An integrated management system (IMS) is a system that enables the management of several management areas (Quality, Safety and Environment) within the same organisation. This type of system combines the requirements of different standards that are compatible with each other so that the organisation becomes more efficient. The most widely applied management standards (or normative texts) at international level are

- ISO 9001 for Quality Management
- ISO 14001 for environmental management
- OHSAS 18001 or BS 8000 for safety

The evolution of these standards has led to the harmonization of management concepts, thus facilitating the steering of integration processes. Thus, an integrated management system (IMS) brings together the common principles of the various systems, without altering the specific features of each of them⁹.

Through this section we have been able to gather basic information on the elementary notions of project management, which is a very important aspect of the project development process and which must be present from the moment the project need is expressed until the project is completed, while applying a managerial approach

Presentation of the Project Case study

The Boughezoul / M’sila line is an integral part of the railway link known as the “high plateau railway bypass”, which is the result of political decisions for the development of this region.

. Project Data Sheet

- Project name: Construction of the new single-track railway line Boughezoul / Msila 151 kms
- Operation number: NK 5 733 5 262 143 13 02
- Project owner: ANESRIF
- Design and Construction Company: GRBM (Groupement Rail BoughezoulM’sila) o **COSIDER - TP** (lead contractor)
 - o COSIDER-OA
 - o INFRARAIL
 - o SEROR
 - o ESTEL-RAIL
- The monitoring consultancy: PBM
 - o SETI-RAIL (lead contractor)
 - o SETOR
 - o SIDEM
- Procurement method: Simple over-the-counter
- Deadline: 41 months
- Notification of the ODS: 11/06/2011
- Project location: the wilaya of Msila, the wilaya of Médéa and the wilaya of Djelfa

9. KAOUTAR JADID (Master’s thesis Quality and performance in the organisation, Quebec University 2015)

Physical Scope of Works

- Length of the single track line: 151 km Cumulative length of tracks (main and service tracks): 187m
- Five (05) PCGs.
- Four (04) new passenger stations: Birine, BoutiSayah, Ain El Hadjel, Boughezoul · With related passenger services:
 - o Parking
 - o Bus station
 - o Taxi station, passage for people with reduced mobility (PMR) etc. · Rehabilitation of the M'Sila Goods Station beam: 4 km · General earthworks (cuttings, embankments, borrowing): 17,182,705 m³ · Total length of rail bridges: 937.81 ml
- Total length of road bridges: 908.80 ml
- Construction of new stations: 3 400 m²
- Rail: 22 439 T
- Ballast:441,381 m³
- Sleepers: 314 620U
- Turnouts (all types): 101 U
- Maximum slope:16‰
- Minimum radius :1000 m
- Speed: 160 Km/h
- Mode of traction : DIESEL

List of Subcontractors of the Grbm Group Companies

Table 1. Subcontractors, Source: Monthly company report

Subcontractors	Status	Nature of the Work
COSIDER AGRICO	EPE	Slope protection (seeding)
AGRAL/AM	EPE	Slope protection (seeding)
EPE ERGR ZACCAR	EPE	Slope protection (seeding)
INFRATELE/SPA	EPE	Fibre opticworks
ENCC PROMECH ANNABA	EPE	Installation and assembly of steel structures
RAL EI MANDHER EL DJAMIL	Privat	TEarthworks
BEN DIB Mohamed Lamine	Privat	Work on the kerbstones
ETP BOUNAB Yacine	Privat	Civil works PCG (STE)
ETP AUACHRIA Abdullah	Privat	Civil works PCG (STE)
SARL ATTIA WASSIM	Privat	Civil works of the cable tray
SARL NOVATEL	Privat	Work of the BTS (STE)
BETA FER/NET FER (Groupement)	Privat	Work of the BTS (STE)
SARL BETA FER	Privat	Fibre opticworks
DJEDI DJOUDI ETB/TCE	Privat	Fibre opticworks
EUURL GROUPE SALAH	Privat	Civil engineering works (STE)

Urban Analysis

Overview of the Railway Line

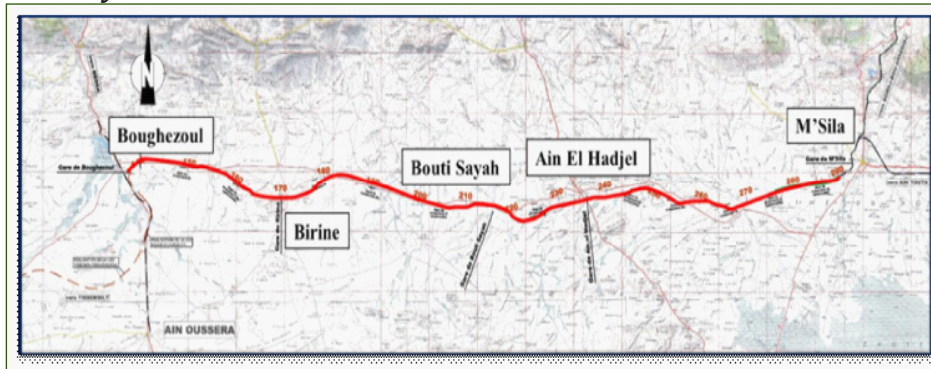


Figure 1. General view of the Boughezoul - M'Sila railway line, Source : Author's treatment with official documents of the company

The line starts in Boughezoul and ends in M'Sila, the towns affected by the line are Birine, Bouti Sayah and Ain El Hadjel.

Diagram of the Location of the Stations

From M'Sila to Boughezoul there are 4 new passenger stations at the following towns:

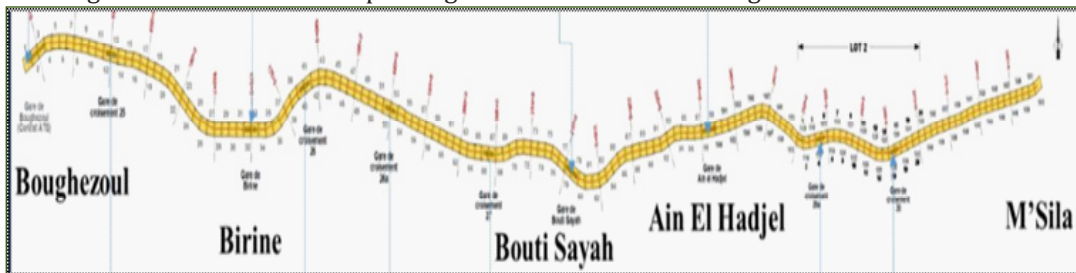


Figure 2. Overall view of the Boughezoul - M'Sila railway line, Source: Author's treatment with official company documents

Architectural Analysis

Boughezoul station

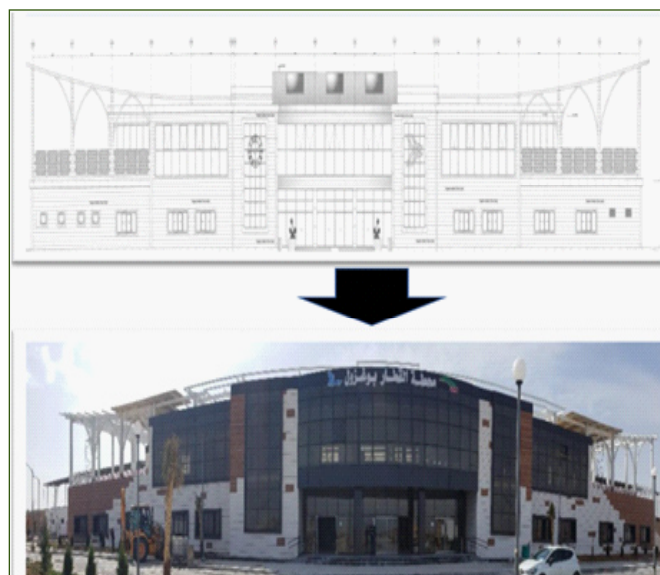


Figure 3. Plan and photo of the main façade, Source: official documents, photos taken by the author



Figure 4. plan and photo of the station, Source: official documents, photos taken by the author

Surface Composition

- BV area (R+1)1900 M2
- PCC block area (R+2) 400 M2
- Surface area of the exterior 34,000 M2
- Taxi stand 16 seats
- Bus station 09 places
- Public car park 214 spaces
- Staff car park 47 spaces
- Parking for future extension 3382 M2
- Pedestrian circulation space 5145 M2
- Number of platforms: (length 350 ml)4U
- Dock shelters: (length 131 ml)4U
- Subway: 4U
- Access to the subway
- By stairs 4U
- By lift 4U

Technical Analysis

- Constraints to project implementation

All constraints to the implementation of the project are addressed and presented as follows

Table 1. Constraints hindering the realisation of the project

	Expropriations	Buildings	Networks
WILAYAS	Number of cases identified	Number of cases identified	Number of cases identified
MEDEA	0	0	3
DJELFA	3	0	10
MSILA	209	48	39
total	212	48	52

Sources: author's

Interpretation of Results

1/Management of Integration : Processing

Table 2. Comparison between case study and reference framework (Integration Management),

PMBOK 6th Edition Project Knowledge Management Process		
Input Data	Tools and Techniques	Output Data
1. Develop the project management plan All components 2. Project documents Feedback register Project team member assignments Resource flowchart Source selection criteria Stakeholder register 3. Deliverables 4. Environmental factors of the organisation Actifs	1. Expert judgement 2. Knowledge management 3. Information management 4. Interpersonal and team skills - Active listening - Facilitation - Leadership - Networking - Political awareness	1. Feedback register 2. Project management plan updates management plan - Any component 3. Updates to organisational assets

Sources: author's processing using the PMBOK 6th edition reference

Synthesis

The company places a high value on feedback to support continuous improvement, by applying knowledge management tools and techniques to reference documents and information sources the risk of knowledge loss will be reduced and prevented.

Scope management

Case study/framework comparison

Table 3. Comparison between case study and reference framework (Scope Management),

PMBOK 6th Edition Process of Creating the WBS		
Input Data	Tools And Techniques	Output Data
1. Develop the project management plan 2. Perimeter management plan 3. Project documents - Statement of the project scope - Documentation of requirements 4. Environmental factors of the -factors of the organization 5. Organizational assets	1. Expert judgement 2. Décomposition	1. Base reference of the perimeter Updates of the project documents 2. Assumptions Log Requirements Documentation

Sources: author's processing using PMBOK 6th edition reference

Synthesis

The scope is defined in the execution file, after applying management tools such as decomposition and expert judgement the technical director creates the WBS which is an essential planning step and will be a basic reference for the elaboration of the schedule and several other processes.

Schedule Management

Comparison of case study/framework

Table 4. Comparison of case study/framework (Schedule Management),

PMBOK 6th Edition the Timeline Development Process		
Input Data	Tools and Techniques	Output Data
1. Project management plan - Schedule management plan - Basic scope reference 2. Project documents - Activity attributes - Activity List - Assumptions Log - Basis for Estimates • Time estimates - Recording of feedback - List of milestones - Project network diagrams - Assignment of project team members - Resource schedule - Resource requirements - Risk register 3. Agreements 4. Environmental factors in the organisation 5. The organisation's assets	1. analysis of the network diagram 2. Critical path method 3. Resource optimisation 4. Data analysis - Scenario analysis - Simulation 5. Advances and delays 6. Schedule compression 7. Project Management Information System (PMIS) 8. Agile release planning	1. Basic reference of the timetable 2. Project timeline 3. Schedule data 4. Project timetable 5. Change requests 6. Project management plan updates - Schedule management plan - Cost baseline 7. Project document updates - Activity attributes - Assumptions log Time estimates Feedback log - Resource requirements - Riskregister

Sources: author's processing using PMBOK 6th edition reference

Synthesis

Developing an acceptable project schedule is an iterative process.

The schedule model is used to determine, based on the best available information, the expected start and end dates of project activities, as well as milestones. The development of the schedule may require the review and updating of time and resource estimates, but also schedule reserves so as to develop an approved project schedule that can be used as a baseline for monitoring the progress of the project.

Cost management

Comparison of case study/baseline author's processing using PMBOK 6th edition reference

Table 5. Comparison between case study and reference framework (Cost Management),

PMBOK 6th Edition Process: Determining the Budget		
Input Data	Tools and Techniques	Output Data
1 Project Management Plan - Cost management plan - Resource management plan - Scope Baseline 2 Project Documents - Basis of estimates - Cost estimates - Project schedule - Risk register 3 Business documents - Business case - Benefits Management Plan 4 Agreements 5 Organisationnelenvironnementalfactor 6 Organisationalassets	1 Jugement d'expert 2 Consolidation des coûts 3 Analyse des données - Analyse des réserves 4 Examen des données historiques 5 Rapprochement des limites de financement 6 Financement	1 Basic cost reference 2 Project funding requirement 3 Updates to project documents - Cost estimates - Project timetable - Riskregister

Sources: author's processing using PMBOK 6th edition reference

Synthesis

The company focuses on financial planning to a high degré, which has made it experienced and successful

Quality management

With this plan the company manages the quality of project effectively and to the standards, if there are any nonconformities during the implementation phase the company has set up a process of controlling the nonconforming product and a procedure of corrective actions and opportunities for improvement.

Communication management

An effective communication plan that recognises the different information needs of stakeholders is developed at the beginning of the project life cycle and will be reviewed annually and modified as necessary when the stakeholder community changes or at the beginning of each new phase of the project.

Risk management

Comparison of case study/baseline framework

Table 6. Comparison between case study and reference of Risk

PMBOK 6th edition Risk identification process		
Input data	Tools and techniques	Output data
1. Develop the project management plan Requirements management plan Schedule management plan Cost management plan Quality management plan Resource management plan Risk management plan Basic scope reference Basic reference of the schedule Basic cost reference Project documents Assumptions log Cost estimates Duration estimates Issues log Feedback log Requirements documentation Resource requirements Stakeholder register Agreements Procurement documents Organisational environmental factors Organisational assets	Expert judgement Data collection Brainstorming Checklists Interviews Data analysis Root cause analysis Assumptions and constraints analysis SWOT analysis Document analysis Interpersonal and Interpersonal and team skills Facilitation Quick lists Meetings	Risk register Risk report Project document updates Assumptions log Action items log Feedback log

Sources: author's processing using PMBOK 6th edition reference

Synthesis

Identifying risks is an iterative process as new individual risks may emerge during the project life cycle and the overall risk level of the project will also change. The frequency of iteration and participation in each risk identification cycle varies according to the situation and the state of progress of the project.

CONCLUSION

As we have seen the integrated management system and the management applied by the company Cosider TP touches the ten areas of knowledge and plu, because according to the reference PMBOK the construction can solicit a financial management or a management of health and safety, and as we see the company had procedures out of the ten areas as:

- HSE awareness procedure
- Procedure for managing incidents related to health and safety of work - Rules of procedure of the health and safety committee etc..

All this makes the company worthy of qualification 09

The requirements of the ISO standard certifications make a successful management system.

REFERENCES

1. PMBOK 6th edition, 2017, PMI
2. OULMAKKI Ouail, Impact des infrastructures de transport sur la croissance économique: the case of Morocco.

Thesis to obtain the degree of doctorate, Speciality: Economic Sciences under the supervision of Professor Thierry Blayac and the co-direction of Professor Mohammed Abdouh, 2015.

3. G.BRESSY and C.KONKUYT ,2000
4. AFITEP, Dictionary of project management [1996].
5. ISO10006, 1997]
6. Gilles Boulet. Element of project management. May 2006, Revision 2009
7. AMF, IDRRIM, THE MAYOR AND ENGINEERING A handbook for elected officials to help them carry out projects (development, roads, public spaces, etc.), November 2011
8. KAOUTAR JADID (Master thesis Quality and performance in the organisation, University of Quebec 2015)
9. <https://agicap.com/fr> Accessed on January 12 at 2021 10 : 12
10. <https://maison-entrepreneuriat.univ-setif.dz/l-etudiant-entrepreneur/creation-d-entreprises/les-differentes-formes-juridiques> consulted on April 13, 2021 at 20 : 34
11. <https://cmesa-consulting.com/cra-ation-d-039-entreprise-en-alga-rie-les-formes-juridiques>
12. consulted on 30 January 2021 at 14 :12
13. www.examenpm.com consulted on 23 May 2021 12 :45
14. Order n° 2015-899 of 23 July 2015, J.O.R.F n° 169 of 24 July 2015
15. Presidential Decree No. 15-247 of 26 September 2015, on the regulation of public contracts and public service delegations, J.O.R.A.D.P n° 50 of 20 September 2015.
16. Art 81 paragraph 4 of Presidential Decree 15-247.
17. Art 51 paragraph 3 of the French public procurement code.

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