
Report on the PPDF Advanced Project Management Course

1. INTRODUCTION

This report provides an overview of the Advanced Project Management Course offered by the Pan African Capacity Building Programme (PACBP) of the Development Bank of Southern Africa (DBSA). The five-day course was delivered through a training company called Commerce Edge. This report is drawn from the overview of the course as shared by Commerce Edge, and as experienced by the delegates (see attached attendance register) 17 – 21 September 2018.

2. COURSE OVERVIEW

Large capital projects typically require substantial and often risky investments in the acquisition, operation and maintenance of new organizational assets. To safeguard the organization's investment and to protect it from potential financial and operational risks, it is vital to engage in a systematic and comprehensive project appraisal process prior to the investment, and to develop a detailed cash-flow analysis to determine the expected returns to the organization under varying conditions of uncertainty over the expected productive life of the project.

Accordingly, much time, effort and resources, are spent within organizations to ensure the economic feasibility and technical viability of new capital and maintenance projects. These investments provide the means to achieve the long-term strategic objectives of organisations. Therefore, it is imperative to pay careful attention to potential financial, economic and technical risks during the initial conceptual design and feasibility studies.

Additionally, project managers continue to face mounting challenges in the successful delivery of projects. Limited resources and budgets place even stricter demands on project delivery time, cost and quality. Knowledgeable project managers recognize that a major ingredient of project success is the development of a well-designed and dynamic project plan based on solid estimates of resource requirements and work durations, along with the ability to monitor and control the project effectively and to produce timely reports on progress and costs against the baseline to senior management.

3. COURSE OBJECTIVES AND STRATEGY

This advanced project management course was designed to incorporate all critical elements of strategic project management in an *integrated package*. It aligns the following:

(1) *Corporate strategy and corporate objectives*

(2) *Project feasibility analysis and financial projections*

(3) *Project planning and development techniques*

(4) *Project progress and cost control mechanisms*

(5) *Contracting strategies, and*

(6) *Applied risk analysis and scenario planning processes.*

The primary aim with this integrated process is to protect the organization from investing in projects that are not properly aligned with corporate strategy or are not technically or commercially viable. Many such projects have to be discarded partway through the process due to a lack of proper strategic and project planning and due to the failure to implement systematic and reliable progress and cost control systems.

4. COURSE LEARNING OBJECTIVES

This comprehensive 5-day seminar on *Advanced Project Management* provided delegates with an integrated set of skills, systems, methods, processes, tools and techniques to develop a systematic and dynamic project plan as the basis for progressive monitoring and reporting of project progress. It also provided delegates with the necessary economic and financial skills to perform vitally important feasibility assessments prior to starting any projects. These skills will enable delegates to:

- Understand the strategic goals and objectives of the organization and to align project objectives with corporate strategy
- Integrate scope, time, resources and cost management into a manageable project plan
- Develop project network diagrams to identify schedule and cost risks
- Forecast and control project performance by employing earned value techniques
- Use qualitative and quantitative methods to assess the exposure of the project to particular technical and economic risks in measurable terms
- Understand/apply the basic tools used to perform economic appraisals of capital projects
- Apply discounted cash flow methods to project evaluations
- Calculate the Internal Rate of Return (IRR) to determine overall risk exposure
- Integrate risk analysis with feasibility studies and cash flow forecasts to predict scenarios.

5. COURSE TARGET AUDIENCE

This course was designed for:

- Senior project and portfolio managers, project leaders and project coordinators
- Project planning and cost engineers
- Financial staff involved in project feasibility calculations
- Scheduling staff and project team members
- Other business services professionals who have the responsibility of planning and controlling project schedules and costs.

6. TRAINING METHODOLOGY

Delegates developed a strong grounding in practical project management performance and control skills and knowledge through formal and interactive learning methods. The program included team projects, applicable case studies, group discussions and critical analyses of video material based on actual large construction projects.

The seminar did not assume prior knowledge of the topics covered in the course. New concepts and tools were introduced gradually to enable delegates to progress from the fundamentals to the more advanced concepts of project management. The material was designed to enable delegates to apply all new knowledge with immediate effect after the course.

7. COURSE CONTENT

Part One – Project Strategy, Planning & Analysis

Session One – Aligning Corporate Strategy and Organizational Projects

Description: *Session One dealt with the relationship between corporate strategy and project strategy with a special focus on the corporate business environment. This session introduced the fundamental elements of the Project Life Cycle and explained the development of a Work Breakdown Structure.*

Key Topics:

Corporate Strategy and Organizational Projects

- Setting the Stage for Project Alignment with Strategy
- The Strategic Management Process
- Environmental Analysis and Portfolio Development
- The Aggregate Strategic Project Plan
- Objective Directed PM Process

Project Scope, Definition and Classification

- Characteristics of a Project
- Project Development Life Cycle
- Project Conception, Formulation, Definition, Development, Execution, Transition and Disposal
- Scope Definition
- Work Breakdown Structure

Case Study: Extreme Engineering Project - *The Hong Kong Airport*

Session Two – Earned Value: Project Progress Management, Control and Reporting

Description: *Session Two examined the methods used to accurately estimate project costs based on identified activities and allocated resources. This provided the basis for systematic progress and cost control measured against the contractual baseline, which is used to analyze deviations and make accurate projections of final cost and completion dates.*

Key Topics:

- **Bid Documents Development**
 - Project Resource Table & Budget
 - Project Cost Baseline Management
 - Project Management Reporting
- **Earned Value Control Process**
 - Progress Control Charts – Trend Analysis
 - Schedule and Cost Variance Forecasting
 - Schedule Variance (SV)
 - Cost Variance (CV)
 - Schedule Performance Index (SPI)
 - Cost Performance Index (CPI)
 - Estimated Cost at Completion
 - Estimated Duration at Completion
 - Progress Tracking and Monitoring

Session Three – Project Network Diagramming and Analysis (CPM)

Description: *Session Three discussed the development of a Network Diagram (Critical Path Method – CPM) as the basis for analyzing schedule durations and schedule risks. It provided skills in the topics of task duration estimating, resource allocation, risk analysis and float utilization.*

Key Topics:

- Precedence Network Diagramming
- Critical Path Analysis
 - Early and Late Start & Finish
 - Dependencies & Constraints
 - Project Float Analysis
 - Leads and Lags
- Job Logic Relationship Chart
 - Activity Duration Estimation
- Forward & Backward Passes
- Determining Total & Free Float

Application: Estimating Project Duration

Session Four – Project Risk Analysis and Mitigation Strategies

Description: *Session Four examined the fundamental techniques of qualitative and quantitative risk analysis as a basis for project risk management and mitigation strategies. This session introduced the notions of Expected Monetary Value (EMV) and Risk Scenario Analysis.*

Key Topics:

- Risk Management Process and Model
 - Identifying Potential Risk Events
- Risk Scenario Description
 - Identifying Triggers, Indicators and Receptors
- Qualitative and Semi-Quantitative Risk Analysis Techniques
 - Risk Matrices and Risk Ranking
 - Progressive Risk Management Plan Development
- Detailed Risk Quantification and Prioritisation
- Expected Monetary Value Concepts
 - Risk Quantification and Expected Monetary Value
- Risk Strategy Development

Case Study: Extreme Engineering Project - ***The Channel Tunnel Project***

Session Five – Contract Types and Compensation

Description: *Session Five examined the range of typical contracting arrangements to select the most appropriate contracting arrangement for the work to be done. This session integrated the contract with the work to be performed (WBS) so as to align contractor objectives with the objectives of the organization to achieve mutually beneficial outcomes.*

Key Topics:

- Fixed Price contracts
 - Firm fixed price
 - Fixed price with economic price adjustment
- Cost-Plus contracts
 - Cost sharing
 - Cost plus percentage of cost
- Incentive contracts
 - Fixed Price Incentive
- Aligning the Contract with Earned Value

PART TWO – Project Feasibility and Appraisal

Session Six – Fundamental Principles of Economic Appraisal

Description: *Session Six dealt with the fundamentals of project finance (managerial finance) and examined the impact of the time value of money on project feasibility studies.*

Key Topics:

- Principles of the time value of money and the discount rate
 - Compound Interest
 - The Time Value of Money
 - Future and Present Value of Money
- Fundamental Criteria for Appraisal
 - Mixed Stream Cash Flow
 - Expanded Mixed Stream Cash Flow
- Discounted Cash Flow Projection
- The Timing of Cash Flows

Session Seven – Internal Rate of Return (IRR) and Cost of Capital (WACC)

Description: *Session Seven considered the Internal Rate of Return (IRR) as an indicator of the level of financial risk that can be tolerated by the project and examined the Cost of Capital for projects, which serves as the discount rate to determine the NPV of the project.*

Key Topics:

- Determining the Internal Rate of Return (IRR)
- Using IRR to Determine the most viable Project Investment
- Estimating the Cost of Capital for a Project
 - The Cost of Debt and Equity Capital
 - Weighted Average Cost of Capital (WACC)
 - Financial Gearing (Structuring)

Session Eight – Scenario Planning Application

Description: *Session Eight applied the processes of Risk analysis to project cash flows and used Expected Monetary Value (EMV) as a means to quantify project risk in measurable financial terms, and included an advanced application of Risk Scenario Planning in combination with project feasibility studies and project cash flows using three-point scenario analyses and risk impact projections.*

Case Study: Extreme Engineering Project - *The Mont Blanc Tunnel Fire*

Key Topics:

- Cash flow projections – Tunnel Case Study
 - Base Case Scenario
 - Best Case Scenario

- Worst Case Scenario
- Risk Profile EMV Calculation before Mitigation
- Identification of Risk Triggers & Probability
 - Plotting the Event Probability
- Identification of Risk Receptors & Impact
 - Plotting the Financial Impact
- Combined EMV Risk Profile before Mitigation
- Developing Probability Mitigation Strategies
- Developing Impact Mitigation Strategies
- Examining the J-Curve to Derive the Most Economic Mitigation Point

NEXT SESSIONS: *The Next PPDF Capacity Building Training Sessions will be in Enterprise Risk Management and Project Finance. All SADC regional parties will be informed of this through the Nomination Form process to commence in November. The dates for the sessions will be during February and March 2019.*