



Preliminary Study

- Reveal all the positives and negatives issues
- All of possibility for another project.



ISSUED BY: Germania City Development & Construction

REPRESENTATIVE

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About Germania City Development & Construction

Backed freshly from the founder, [Cevi Herdian](#) and his networking in Germany, the company will bring innovation to your construction projects. Our works powered by **Data-Driven** and **Agile Project Management**. We take a holistic view of construction.



Our principles:

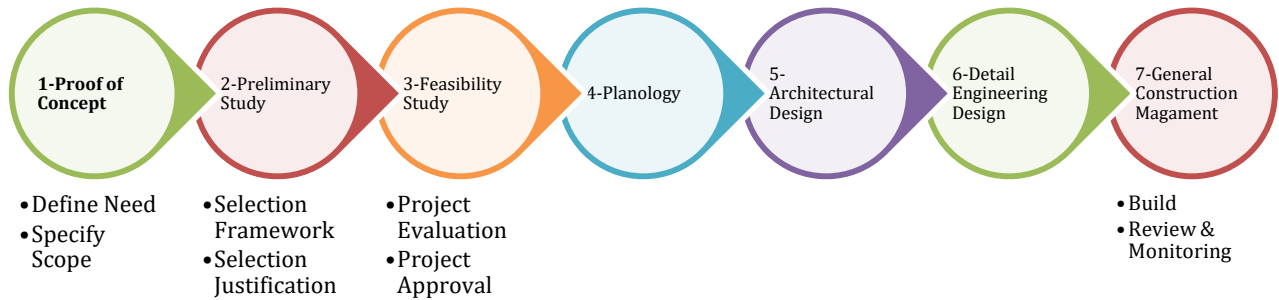
We are team works, to take a start-to-finish view of construction. Competence, quality, innovation, and sustainability – these are the keys to our success for the realization projects.



Index

About GCD	Page 1
Index	Page 1
Construction Process	Page 2
Preliminary Study Overview	Page 3
Preliminary vs Feasibility	Page 3
Data Mining Method	Page 4-5
Draft	Page 6-12
Process	Page 12
Client	Page 13

Construction Process



1-Step: Focus to test whether the project idea is viable and to explore the idea's potential to be developed or built.

2-Step: Reveal all the positives and negatives issues and also all of possibility for another project.

3-Step: Feasibility study is the initial design stage of any project, which brings together the elements of knowledge that indicate if a project is possible or not.

4-Step: Town and Country Planning. "A place for everything and everything in its place".

5-Step: Architectural design focuses on the aesthetic and function of the structure.

6-Step: It contains diagrams and drawings for construction.

7-Step: Planning, design, and construction of a project, from its beginning to its end.

Preliminary Study

Overview

1. Preliminary study is a pre-feasibility study undertaken to determine, analyze, and select the best business scenarios.
2. Preliminary study is an initial exploration of issues related to a proposed quality review or evaluation.
3. With the Preliminary Study the project is analyzed to reveal all the positives and negatives issues and also all of possibility for another project.
4. It will be hard and takes time if we explore each scenario deeply. Therefore, shortcut method will be acceptable in this early stage and can be used to determine minor components of investment and production cost.
5. If the selected scenario is considered feasible, it is recommended to continue the study to feasibility to get deeper analysis of the selected project scenario.

Preliminary vs Feasibility

Study

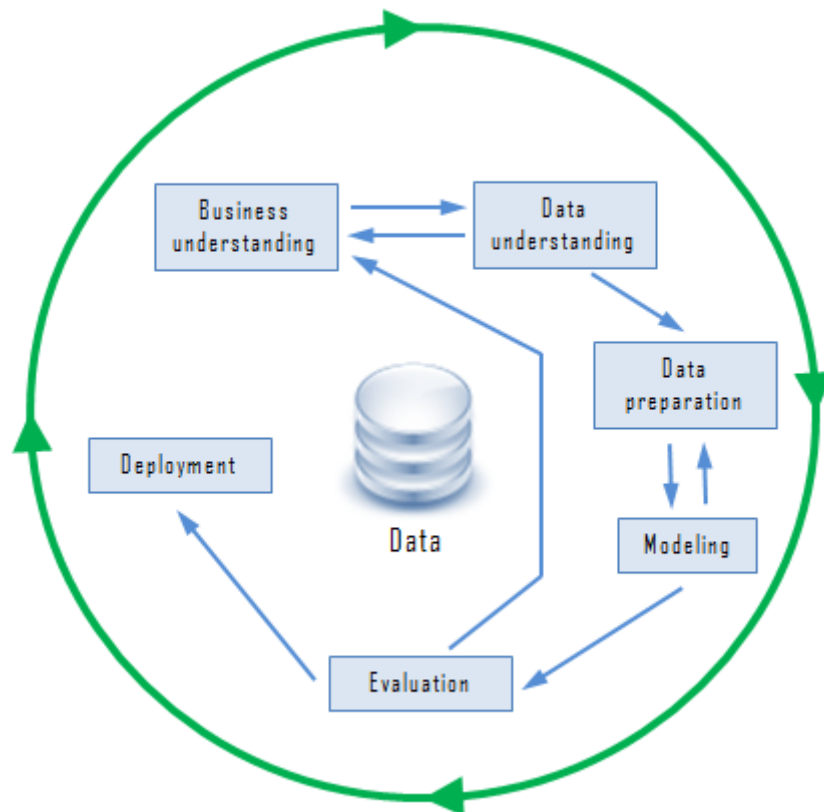
Preliminary Study:

- Proof more than one business scenarios
- Select the best idea among several ideas.
- How to get financial resource

Feasibility Study:

Proof one business scenario
Go / no-go decision point
Be ready for financial resources

Data Mining Method



STAGE ONE – DETERMINE BUSINESS OBJECTIVES

The first stage of the CRISP-DM process is to understand what you want to accomplish from a business perspective. Your organization may have competing objectives and constraints that must be properly balanced. The goal of this stage of the process is to uncover important factors that could influence the outcome of the project. Neglecting this step can mean that a great deal of effort is put into producing the right answers to the wrong questions.

- ➔ What are the desired outputs of the project?
- ➔ Assess the current situation
- ➔ Determine data mining goals
- ➔ Produce project plan

STAGE TWO – DATA UNDERSTANDING

The second stage of the CRISP-DM process requires you to acquire the data listed in the project resources. This initial collection includes data loading, if this is necessary for data understanding. For example, if you use a specific tool for data understanding, it makes perfect sense to load your data into this tool. If you acquire multiple data sources then you need to consider how and when you're going to integrate these.

- ➔ Describe data
- ➔ Explore data
- ➔ Verify data quality
- ➔ Data quality report (Exploratory Data Analysis)

STAGE THREE – DATA PREPARATION

- ➔ Select your data
- ➔ Clean your data
- ➔ Construct required data
- ➔ Integrate data

STAGE FOUR – MODELLING

- ➔ Select modeling technique
- ➔ Generate test design
- ➔ Build model
- ➔ Assess model

STAGE FIVE – EVALUATION

- ➔ Evaluate your results
- ➔ Review process
- ➔ Determine next steps

STAGE SIX – DEPLOYMENT

- ➔ Plan deployment
- ➔ Plan monitoring and maintenance
- ➔ Produce final report
- ➔ Review project



Draft

1-Project Overview

- Background
- Goal (purposed)
- Objectives
- Scope of projects
- Expected Effects (Possibility)
- Ripple Effects of Project
 - Projects by the central government often have ripple effects that spread to varying degrees throughout different regions, not only in a specific region.
 - Projects by local government organizations tend to have ripple effects that do not spread much beyond their jurisdictions.
- Project Selection Process
- Implementation Agency (Gov. or private company or both)
- Contents (What's include)

2-Local Conditions

- Demography: Socioeconomic characteristics of a population expressed statistically. The study of human populations.
 - Age
 - Sex
 - Education level
 - Income level
 - Marital status
 - Occupation
 - Religion
 - Birth rate
 - Death rate
 - Fertility, Families, and Households
 - Ageing and Intergenerational Relations
 - Internal Migration and Urbanization

- Mortality and Longevity
- Economics, Human Capital, and Labor Markets
- Development and Environment
- Integration processes of migrant populations
- Health conditions
- Health inequalities at older ages
- Population and the welfare state
- Population projections of small areas and special groups
- Religion and demographic behavior
- Geography: Geography is the study of places and the relationships between people and their environments.
 - Topography: Relief and Contours
 - Location: X axes, Y axes, North, South, West, East
 - Resources: Natural sources, Human sources, and NGO (non-governmental organization)
 - Stability: Disasters and Crime
 - Bodies of Water
 - Climate
 - Vegetation: Vegetation to be cleared or preserved including kinds, sizes, and density of growth.
- Sociological research
- Economics research
- Anthropology research
- Environmental restrictions: Information relating to access for possible site visit by the design team, access for foundation exploration and construction, and access limitations.
- Operation and Maintenance (O&M) forces
- Permits or permit requirements
- Name and description of similar construction in the area or region
- Logistics infrastructure: the approximate distance from the nearest railroad shipping terminal to the structure site; load restrictions and physical inadequacies of existing roads and structures and an estimate of remedial improvements to accommodate construction hauling; estimate of access road length and major structures required for new construction; and possible alternative means for delivering construction materials and equipment to the structure site.
- Availability or accessibility of public facilities or utilities: water supply, sewage disposal, telephone utility, fire protection services, and electric power for construction (give location, power supplier, voltage, number of phases, and capacity of existing transmission lines; power rate schedules; probability of interruption of supply; and requirements for additional

transmission line, if needed). Names, telephone numbers, email addresses, and Web sites of local utilities and contacts within those organizations.

- Climatic conditions that will affect design, construction, and O&M (Operation and Maintenance): amount, rate, and distribution of rain, snow, and hail; ice conditions; heating and air-conditioning design temperatures; summer and winter temperatures with extremes; maximum wind velocities and their directions; probability of excessive dust or sand. For concrete storage dams, daily readings of maximum, minimum, and mean temperatures of air and river water. Until a weather station is established, temperatures should be obtained whenever possible. Date, time of day, and corresponding air and water temperatures should be recorded.
- Local frost depths
- Ground water presence and depths
- Road detour requirements
- Bridges and roads: A brief description of the surrounding area, the size of the nearest population centers, the condition of bridges and other structures and roads. This description shall include the following if available:
 - (a) Location (structure name; structure number; State, county, or route number; distance to nearest city or town, etc).
 - (b) For bridges crossing rivers or streams, describe waterway condition that may affect design, construction, and O&M procedures.
 - (c) Detour requirements and how construction may be staged.
- Case Analysis of Similar Facilities (Benchmarking)
- Secondary data: data on the social and economic environment includes demographics, each industry's employment structure, gross regional domestic product (GRDP), land use, and so on.
- Analysis of the Natural and Living Environments: It is also important to look into living environment conditions like water and/or soil pollution, sanitation, and construction noise that have direct impact on daily life.
- Analysis of the Social and Economic Environments:
 - Already pointed out was the need to check the population demographics and industrial structure, GRDP (Gross Regional Domestic Product), use of land, transportation conditions, etc., namely the socio-economic environment of the target region. The most basic data is that on demographics, industrial structure, and GRDP (Gross Regional Domestic Product).
 - Provincial and metropolitan city government organizations can easily acquire basic data on demographics, industrial structure and GRDP, but this is difficult for lower-level local government organizations such as those of cities, counties.

- In the case of transport projects like those for roads and railroads, the most important part of basic investigations for preliminary feasibility studies is to know the transportation conditions of the target region. For example, the number of roads of different types, their lengths, traffic volume, etc. in the target region are to be presented. Detailed description of transportation facilities closely related to the concerned project can shed light on its importance and/or necessity for the region.
- Identification of Issues
 - The most important issue in any preliminary feasibility study is the review of alternatives. Looking into alternatives is as important as estimating the costs and benefits of a suggested project plan.
 - The opportunity costs should be considered in all cases to determine a project's feasibility, and doing nothing may be found to be in fact the best alternative.
 - Moreover, preliminary feasibility studies can identify other issues like technical feasibility, possibility of financing, inter-regional conflicts, national defense consideration, and possibility of attracting private investment.

3-Economics Analysis

- Demand Estimation
- Benefit Estimation
- Cost Calculation
- Cost-Benefit-Analysis:
 - BCR (Benefit-Cost-Ratio)
 - NPV (Net Present Value)
 - IRR (Internal Rate of Return)
 - SDR (Social Discount Rate)
 - Tax and Transfer Cost
 - Discounted Cost Time
 - Salvage Value / Endurance
- Risk Management (Sensitivity Analysis)
- Financial Analysis vs Economy Analysis
- Review of Ways to Attract Private Investment (Financial Aspects)

4-Financial Analysis

- Economic Feasibility Analysis vs Financial Feasibility Analysis
- Basic Assumptions
- Investment Methods of Projects
- Analysis Methods:
 - FNPV (Financial Net Present Value)
 - FIRR (Financial Internal Rate of Return)
 - PI (Profitability Index)
- Cost, Income Estimation, and Feasibility Analysis
 - Definition of Cash Flows
 - General Principles for Cash Flow Estimation
 - Guidelines for Income and Cost Estimation
 - Income (Incoming Cash Flow): Operating Revenue and Other Revenues
 - Cost (Outgoing Cash Flow): Total Project Costs, Operating Costs, Additional Costs Related to Supplementary Projects
 - Order of Project Costs Being Spent and Debt Repayment Schedule
- Financial Discount Rate Calculation
 - Weighted Average Cost of Capital (r_0)
 - Assumption of the Capital Cost of Debt
 - Assumption of the Risk-Free Rate
 - Assumption of a Default Risk Premium
 - Assumption of the Capital Cost of Equity
 - Assumption of a Market Risk Premium
 - Assumption of Systemic Risk
 - Assumption of the Weighted Average Cost of Capital
 - Calculation of a Real Discount Rate
 -
- Calculation of a Minimum Rate of Government Financial Support

5-Policy Analysis

- Policy Analysis System
- Analysis by Evaluation Item
 - Level of Regional Development
 - Calculation of the Regional Development Index under Current Preliminary Feasibility Studies
 - Current Indices for Determining Less Developed Regions and their change
 - Ripple Effects on the Regional Economy- MRIO (Multi-Regional Input-Output) Model
- Consistency with Relevant Policy and Willingness to Pursue Project
 - Consistency with Relevant Plans and Policy Directions
 - Willingness to Pursue and Preference for Projects
 - Level of Preparedness of Projects
 - Alignment with Relevant Plans and Policy Directions
 - Willingness to Pursue Project and Preference for Project
- Risk in Pursuing Project
 - Possibility of Financing
 - Environmental Impact Analysis
- Special Evaluation Items Related to Project

6-Balanced Regional Development Analysis

- Regional Backwardness
- Analysis by Evaluation Item
 - Level of Regional Development
 - Calculation of the Regional Development Index under Current Preliminary Feasibility Studies
 - Current Indices for Determining Less Developed Regions and Their Change
 - Ripple Effects on the Regional Economy- MRIO (Multi-Regional Input-Output) Model

7-Comprehensive Evaluation: Multi-Criteria Analysis (AHP)

- Multi-Criteria Analysis and AHP
 - Need for Multi-Criteria Analysis
 - Outline of the AHP Method
 - Evaluator Selection

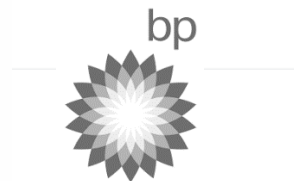
- AHP Analysis Process
 - 1. Conceptualizing
 - 2. Structuring
 - 3. Weighting
 - 4. Scoring
 - 5. Synthesizing
 - 6. Feedback
 - 7. Concluding
- Matrix Tables Summarizing Preliminary Feasibility Study Results



Process

1. Focus Group Discussion 1
2. Data Mining & Preliminary Survey
3. Focus Group Discussion 2
4. Use Case & Case Study
5. Focus Group Discussion 3
6. Insight Presentation
7. Focus Group Discussion 4
8. Decisions Making / Summary
9. Full Report

Client



Germania City Development & Construction