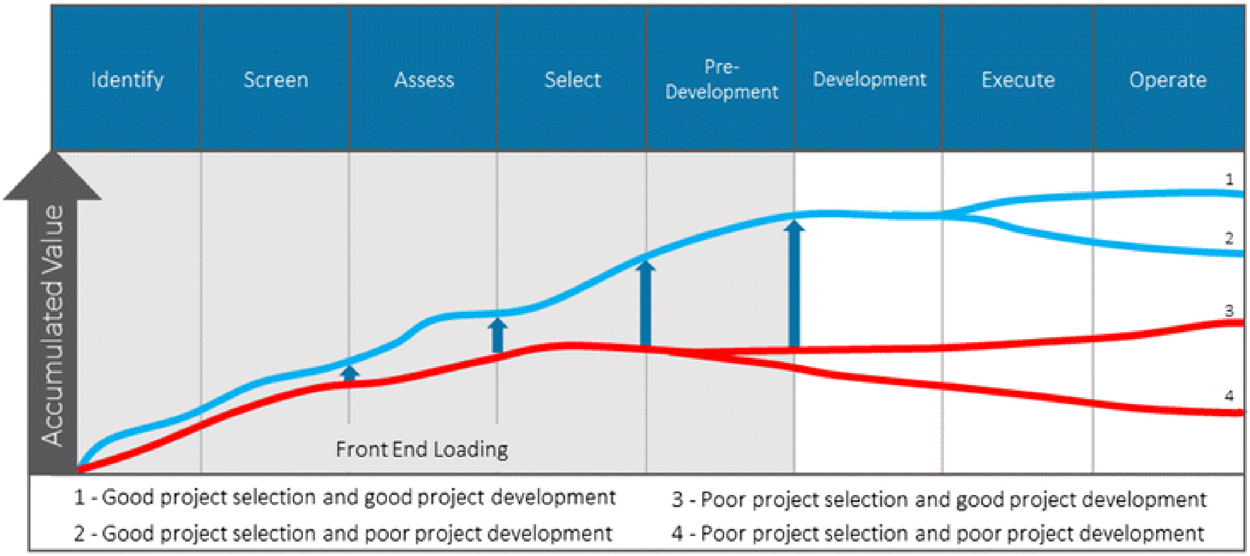
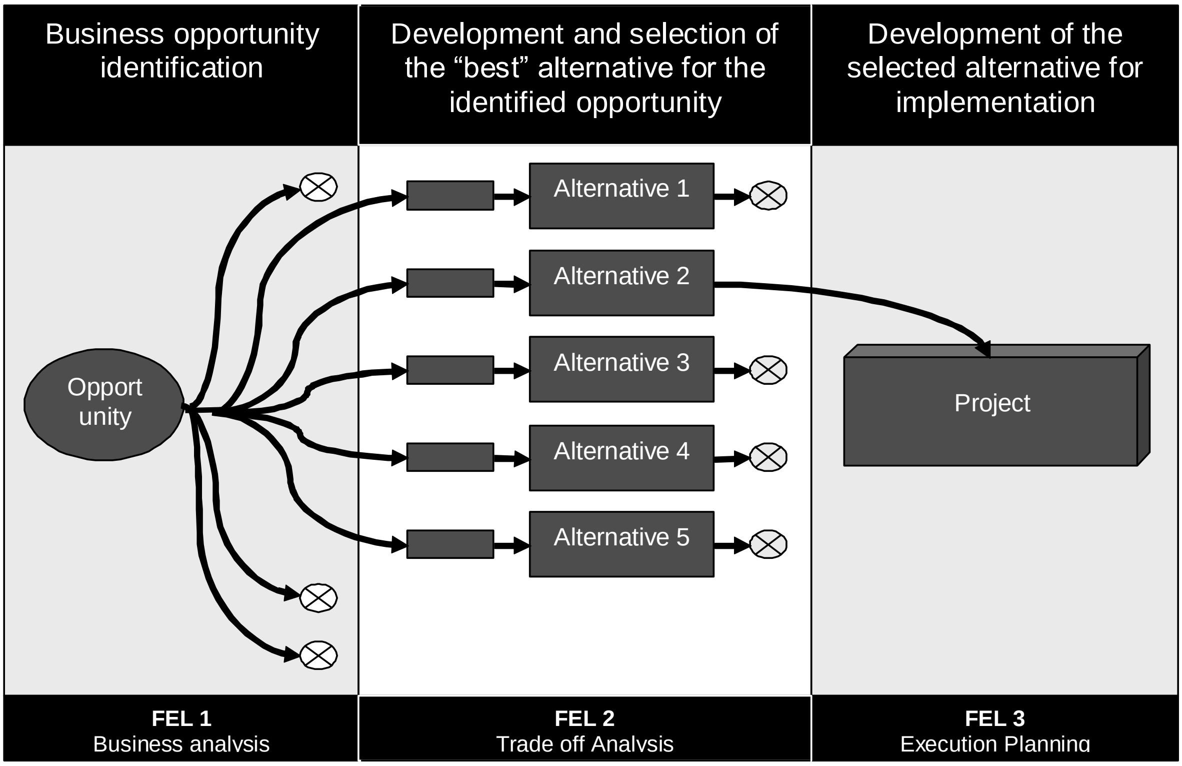
FRONT-END LOADING (FEL)



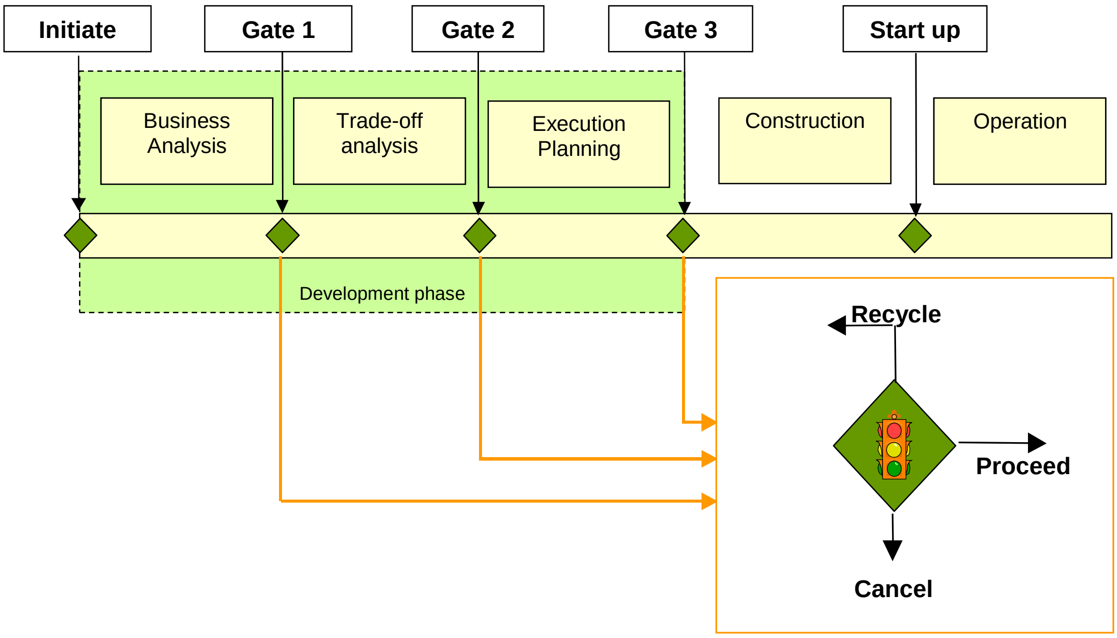
The main purpose of the use of **FEL (front-front-end-loading)** is to determine whether a development opportunity makes good business sense, not just whether it is technically possible.

The FEL process must therefore demonstrate that not only have the technical issues been satisfactorily addressed, but also that the broader commercial, economic and social issues have been considered in the development of a comprehensive business plan, which includes an assessment of the risk-reward profile of the proposed development.

FEL is the process by which the company achieves a detailed definition of a given project during the planning phase, with the purpose of minimizing the risks and maximizing the investor's return. It is an efficient instrument for executive decision driving predictability, accountability, transparency and competitiveness.

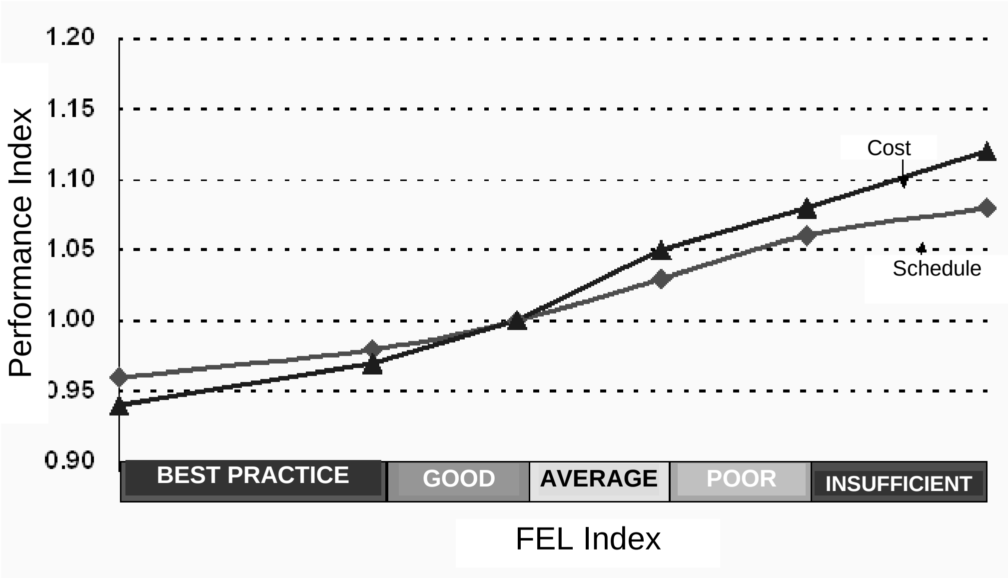


FEL methodology divides the development phase into three different phases: FEL1 – Business Analysis, FEL2 - Trade off Analysis and FEL3 - Project Implementation Plan and introduces stage gates in three stages (Gate 01, Gate 02 and Gate 03). The gates work as clear transition points in which the project, after evaluated, may go to the next phase, return for better definition or canceled. according to Picture 1



Picture 1 – Project life cycle with gates

Project results and FEL index have a straight relation. The projects that achieve higher levels of definition before approval are associated with better execution schedule, lower costs and better predictability both for costs and schedule, according to Picture 2



Picture 2 – Influence of FEL definition level in project cost and schedule compared to industry average (1.0)

Unfortunately, part of capital projects fail to achieve the proposed value promised at authorization. Future cash flows (or benefits) are often less than expected, capital costs are higher, and schedules are longer.

Based on learnings from governance research, an ineffective or undermined governance process often have some (if not all) of the following symptoms:

1. The project sponsor (the person accountable for the economic [or otherwise] benefits of the project) is the 'gatekeeper'

2. Project process is bypassed, or a considerable portion of the project's execute funding is 'pre-approved' (considered authorized)

3. Scope is dropped (or added) after Gate 2.

4. Deliverables and answers required to make a decision on the feasibility of an opportunity progressing are waived till the next phase

5. Deliverables are used isolated only to complete checklist. This brings a false maturity level of the project and issues ahead.

6. New scenarios, premises and restrictions are not reconsidered again.

A clear statistical indicator of capital effectiveness, and one of the final aspects of effective project governance is project definition.

Organizations with weak governance will systematically approve projects with sub-optimal project definition, and in turn, pay more capital for the same scope than their peers.

This effectively means that fewer opportunities can be delivered for the same budget.

The proposed methodology is an efficient instrument for Capital Projects, in several ways:

- Provide understanding and mitigation of the risks involved;
- Gives consonance between products of the several disciplines involved in each phase;
- Allows corporate planning;
- Preserves the company’s interests;
- Brings up optimum conditions to support to the decision making process.