

Capital Rationing

Project Data (Common to All Caselets)

The management of the company is evaluating **ten independent investment projects (A-J)**. Each project involves an initial capital outlay and generates a corresponding Net Present Value (NPV).

The capital budget available is ₹50,00,000, which is **insufficient to undertake all projects simultaneously**.

Hence, the company must apply **capital rationing techniques** to select an optimal project portfolio.

Project-wise Cost and NPV

Project	Cost (₹)	NPV (₹)
A	8,00,000	2,40,000
B	6,50,000	1,80,000
C	7,50,000	2,10,000
D	9,00,000	2,70,000
E	5,50,000	1,20,000
F	6,00,000	1,95,000
G	4,50,000	1,10,000
H	3,50,000	90,000
I	5,00,000	1,35,000
J	4,00,000	1,05,000

Note: In all the following caselets, **project-wise cost and NPV should be referred from the above table**.

The objective in each caselet is to **maximize total NPV subject to capital rationing constraints**.

Caselet 1: Capital Allocation Decision at Optimus Solutions

Optimus Solutions is planning its capital allocation for the upcoming financial year. Although several projects offer positive NPVs, the company faces a **capital budget constraint of ₹50,00,000**, which necessitates careful project selection.

Due to operational overlaps, some projects compete for the same resources, while certain initiatives depend on complementary investments for successful implementation. Additionally, senior management has mandated that one strategically important project must be undertaken regardless of other considerations.

Constraints

- The **total investment cost must not exceed ₹50,00,000**.
- Projects **A** and **B** are mutually exclusive and cannot be undertaken together.
- Project **D** can be undertaken only if Project **E** is also selected.
- Project **F** must be included in the final portfolio.

Task

Using capital rationing techniques and referring to the **project cost and NPV data given in the table above**, determine the optimal set of projects that maximizes total NPV.

Caselet 2: Portfolio Selection at NovaTech Inc.

NovaTech Inc. aims to maintain a diversified yet manageable investment portfolio. While the firm has multiple value-creating opportunities, capital scarcity restricts total investment to **₹50,00,000**.

Management believes that selecting too few projects may limit diversification benefits, while selecting too many may stretch operational capacity. In addition, certain projects are operationally linked and must be undertaken together.

Constraints

- The **total investment cost must not exceed ₹50,00,000**.
- At least **five projects must be selected** to ensure diversification.
- No more than **seven projects may be selected** to maintain operational focus.
- If **Project G is selected, Project H must also be selected**.

Task

Referring to the **project cost and NPV data given in the table above**, identify the project portfolio that maximizes total NPV subject to the stated constraints.

Caselet 3: Capital Budgeting Decision at InnovateCorp

InnovateCorp is focusing on high-impact projects while operating under a strict capital rationing environment. The company has observed that low-value projects often dilute overall portfolio performance.

To address this concern, management has decided to impose quality thresholds on project selection while ensuring representation from core business segments.

Constraints

- The **total investment cost must not exceed ₹50,00,000**.
- Projects with **NPV below ₹1,00,000 cannot be selected**.
- Projects with **NPV greater than ₹1,00,000 should be prioritized**.
- At least **one project from the group A, B, or C must be selected**.

Task

Using the **project cost and NPV data provided in the table above**, determine the optimal project portfolio that maximizes total NPV.

Caselet 4: Investment Planning at FutureVision Ltd.

FutureVision Ltd. is balancing strategic coherence and financial discipline in its investment planning process. While the company has sufficient opportunities, management is concerned about excessive concentration of capital in a few areas.

To maintain balance, conditional and group-level restrictions have been imposed alongside the capital budget constraint.

Constraints

- The **total investment cost must not exceed ₹50,00,000**.
- No individual project may have a cost exceeding **₹15,00,000**.
- If **Project A is selected, Project C must also be selected**.
- The **combined investment in Projects A, B, and C must not exceed ₹25,00,000**.

Task

Referring to the **project cost and NPV data given in the table above**, identify the project combination that maximizes total NPV.

Caselet 5: Portfolio Optimization at VisionNext Ltd.

VisionNext Ltd. places strong emphasis on value creation and cost structure while selecting investment projects. Management wishes to focus on economically significant projects and ensure exposure to larger strategic investments.

At the same time, certain projects compete for the same internal resources and cannot be undertaken simultaneously.

Constraints

- The **total investment cost must not exceed ₹50,00,000**.
- Only projects with **NPV of at least ₹1,20,000 may be selected**.
- At least **two projects with investment cost exceeding ₹7,00,000 must be included**.
- **Projects E and F are mutually exclusive**.

Task

Using the **project cost and NPV data given in the table above**, determine the optimal project portfolio that maximizes total NPV.

Caselet 6: Strategic Capital Allocation at GlobalTech Ltd.

GlobalTech Ltd. follows a strategy-driven approach to capital allocation, balancing growth opportunities with risk management. The firm operates under capital rationing and seeks to align investment decisions with long-term strategic priorities.

Management has imposed additional constraints to control risk exposure and ensure efficient use of capital.

Constraints

- The **total investment cost must not exceed ₹50,00,000**.
- At least **50% of total investment must be allocated to Projects A, C, and F**.
- Investment in **Projects D, E, and G must not exceed 30% of the total budget**.
- The selected portfolio must achieve an **NPV-to-cost ratio of at least 0.25**.

Task

Referring to the **project cost and NPV data provided in the table above**, identify the project combination that maximizes shareholder wealth.