# Capital Budgeting and Investment Appraisal

## Introduction

This report presents a comprehensive financial appraisal of two high-risk investment projects under consideration by Green Future Ventures: Project A (3D-Printed Modular Housing Units) and Project B (Carbon-Negative Concrete). The aim is to guide the Investment Committee’s decision-making using Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period, and Net Return Value (NRV) metrics, alongside strategic and risk-based considerations.

## Financial Calculations and Comparisons

### 1. Net Present Value (NPV)

• Project A NPV: $13,040.16  
• Project B NPV: $142,671.04

### 2. Internal Rate of Return (IRR)

• Project A IRR: 12.68%  
• Project B IRR: 19.29%

### 3. Payback Period

• Project A Payback Period: 3.61 years  
• Project B Payback Period: 3.17 years

### 4. Net Return Value (NRV)

• Project A NRV: $320,000.00  
• Project B NRV: $500,000.00

## Strategic Analysis

### Investment Committee Questions

1. Based on NPV and IRR, which project is more financially attractive?  
   Project B is more financially attractive, with a significantly higher NPV ($142,671.04) and IRR (19.29%) compared to Project A.
2. If the firm is risk-averse, which project is safer based on cash flow patterns?  
   Project A is safer for risk-averse investors, given its more consistent cash flows and lower volatility.
3. If short-term liquidity is a concern, which project is better based on Payback Period?  
   Project B is preferable with a shorter Payback Period (3.17 years vs. 3.61 years for Project A).
4. What are the risks associated with investing in these markets?  
   Early-stage markets are highly uncertain due to immature demand, regulatory instability, and limited historical data.
5. How might non-financial considerations (market leadership, innovation reputation, ESG goals) affect the decision?  
   Non-financial aspects such as ESG alignment, brand reputation, and market leadership potential may favor Project B, which offers carbon-negative innovation.
6. Should the firm invest in both projects, one, or neither? Why?  
   The firm should prioritize Project B due to its stronger financial metrics and ESG benefits. However, co-investing in both may diversify risk if resources allow.

## Conclusion

After evaluating all financial and strategic metrics, Project B clearly outperforms Project A across most indicators, including NPV, IRR, Payback Period, and NRV. Furthermore, it aligns with sustainable investment goals. It is recommended that Green Future Ventures invest in Project B to maximize returns and strategic positioning.

## References

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