INTRODUCTION TO SPREADSHEETS & MODELS

Don Huesman

Module 2: From spreadsheet to model

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Module organization

- organization and layout of model elements
- types of objective functions and their use
- discrete vs. continuous time
- what if analysis and scenarios
- sensitivity analysis
- classic models

Module 2 Learning objectives

- Recognize assumptions and decision variables in business models, and the best ways to reference them in spreadsheet formulas
- Identify different types of metrics for evaluating outcomes of the business processes being modeled
- Design a spreadsheet with distinct locations for assumptions, decision variables, objectives and objective functions implemented through formulas
- Express logic in formulas using range names
- Create a basic cashflow model
- Conduct what-if analysis using spreadsheet tools
- Identify key variables using sensitivity analysis

Resources

- Software used in this Specialization
  - Excel
  - Google sheets
  - Data analysis toolpak for Excel
  - XLMiner Analysis Toolpak for Sheets

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Lecture 1 Using assumptions and decision variables in spreadsheet models

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Module 2 Lecture 1 Learning objectives

- Recognize assumptions and decision variables in business models, and the best ways to reference them in spreadsheet formulas
- Identify different types of metrics for evaluating outcomes of business processes being modeled
- Incorporate spreadsheet functions within models to identify and highlight outcome variables

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Lecture 2 Structuring a spreadsheet to model variables, objectives and objective functions

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Module 2 Lecture 2 Learning objectives

- Design a spreadsheet with distinct locations for assumptions, decision variables, objectives and objective functions implemented through formulas
- Express logic in formulas using range names

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Lecture 3 Constructing a simple cashflow model

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Module 2 Lecture 3 Learning objectives

- Create a basic cashflow model
- Use a cashflow model to evaluate a small business venture opportunity and think through some critical decisions

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Lecture 4 What-if analysis & sensitivity analysis

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Module 2 Lecture 4 Learning objectives

- Conduct what-if analysis using spreadsheet tools
- Identify key variables using sensitivity analysis

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Lecture 5 Limits to simple, deterministic models

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Module 2 Lecture 5 Learning objectives

- Understand the characteristics and limitations of linear programming models
- Understand the characteristics and limitations of deterministic models

Module 2 Summary

- Recognize assumptions, decision variables and outcomes in business models, and the best ways to reference them in spreadsheet formulas
- Design a spreadsheet with distinct locations for assumptions, decision variables, objectives and objective functions implemented through formulas
- Express logic in formulas using range names
- Create a basic cashflow model
- Use a cashflow model to evaluate a small business venture opportunity and think through some critical decisions
- Conduct what-if analysis using spreadsheet tools
- Identify key variables using sensitivity analysis
- Understand the characteristics and limitations of linear programming models & deterministic models