

# MASTER OF ENGINEERING TECHNICAL MANAGEMENT

Technology management  
decision-making

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# The course aims at enhancing leaders' capabilities to

1

Make informed, value-adding decisions aligned with business strategy

2

Use data analytics tools to enable systematic decision-making processes

3

Manage intuitive judgment under uncertain situations

# Common mistakes of business decisions

- Unclear business guidance
- Distracted by past decisions and sunk cost
- Drown by data: unclear purpose
- Lack of autonomy: too many cooks
- Fail to EXECUTE
- Too slow to adapt
- Difficult to be decisive and deliberative
- ...



# Systematic decision-making approach



1.Align business strategy and data integration

Business strategy, value chain and data-driven culture

2. Identify and evaluate options and risks

Decision tree, Simulation, Forecasting methods, and Optimization

3. Make intuitive judgment

Risking taking and intuitive judgment

Module #	Module Title
1	Roles of data analytics and human in decision-making
2	Intuitive Judgment in decision making
3	Intuitive Judgment in competitive environments
4	Data-driven decision-making: decision tree method
5	Align decision with business strategy
	Mid-term project
6	Predictive analytics - forecasting
7	Analytical decisions - business optimization
8	Uncertain analytics - simulation
9	Integrate data analytics into business
	Final exam

# TCMT 612: Course outline

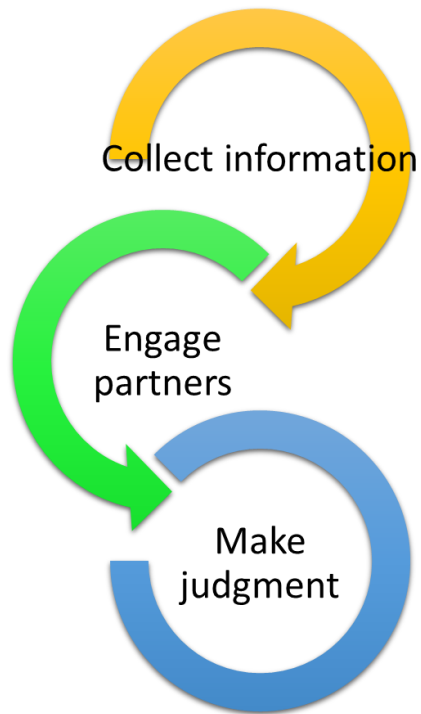


## Decision-making process

1. Roles of data analytics, artificial intelligence and intuitive judgement in decision-making
2. Your risk-taking profile and leadership style

# Intuitive judgment

## Win-Win Negotiation Process

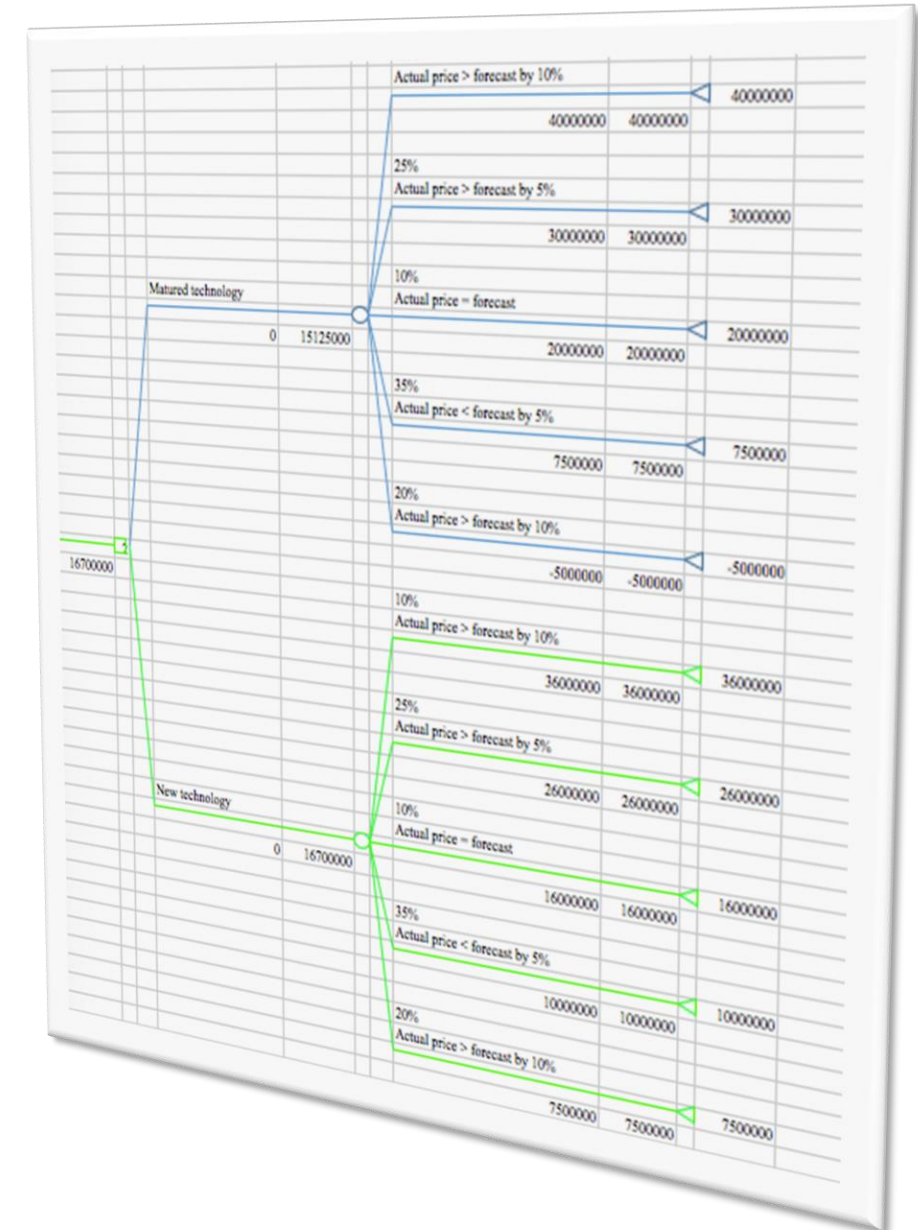


1. How to manage intuitive judgment biases
2. How to use a systematic approach to negotiation



# Decision tree tool for decisions under uncertainty

1. How to develop decision tree models to evaluate and visualize different technology solutions under uncertain situations
2. How to estimate the value of a new technology solution
3. How to incorporate risk tolerance into decision analysis





## Align decision with strategy

Leaders will learn:

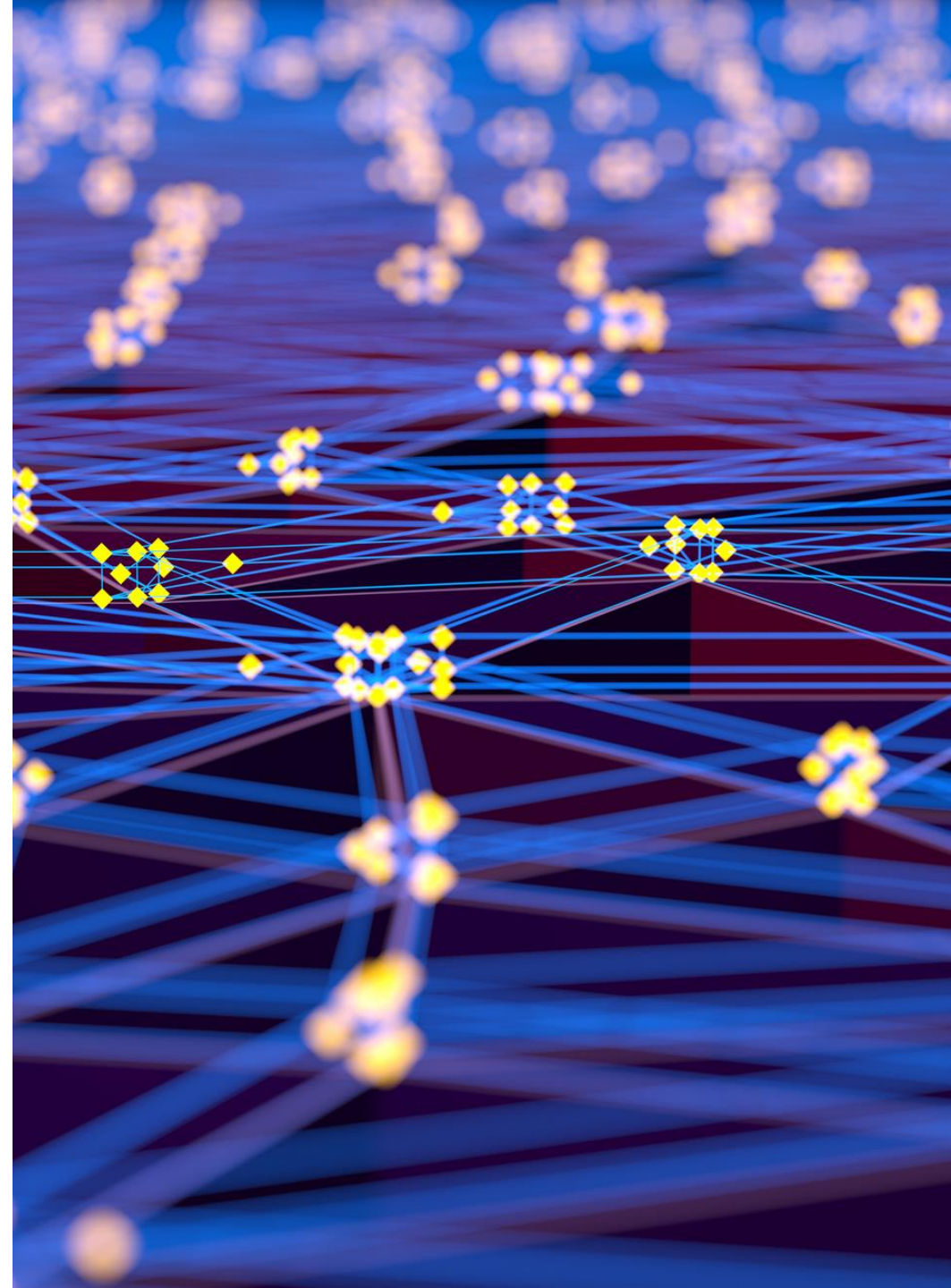
1. Driving forces of an industry's profitability
2. Your company's competitive advantage
3. How to set strategic direction, objectives and performance criteria for your product/service portfolio

# Data analytics for decision-making

**Forecasting in predictive analytics:** Predict short-term and long-term performance of a business, as well as draw insights from predictive analysis.

**Optimization models for decision-making:** Develop linear optimization models for business and create optimum solutions.

**Simulating uncertain scenarios and decision options:** Build simulation models and interpret results for informed decision-making, as well as understand automated simulation-optimization decision making process.





# Integrate data analytics into business

1. Assess the challenges of integrating data analytics into business decision making
2. Understand a business-driven computer-human collaboration model for Integrating

# Expectation

Systematic Decision-making process

Business strategy



Data analytics



Intuitive judgment



- WORK HARD
- HAVE FUN