

Decision amid doubt

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Enrico Manlapig
Elayne Ko

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MOTIVATION

Decisions are a part of our human existence

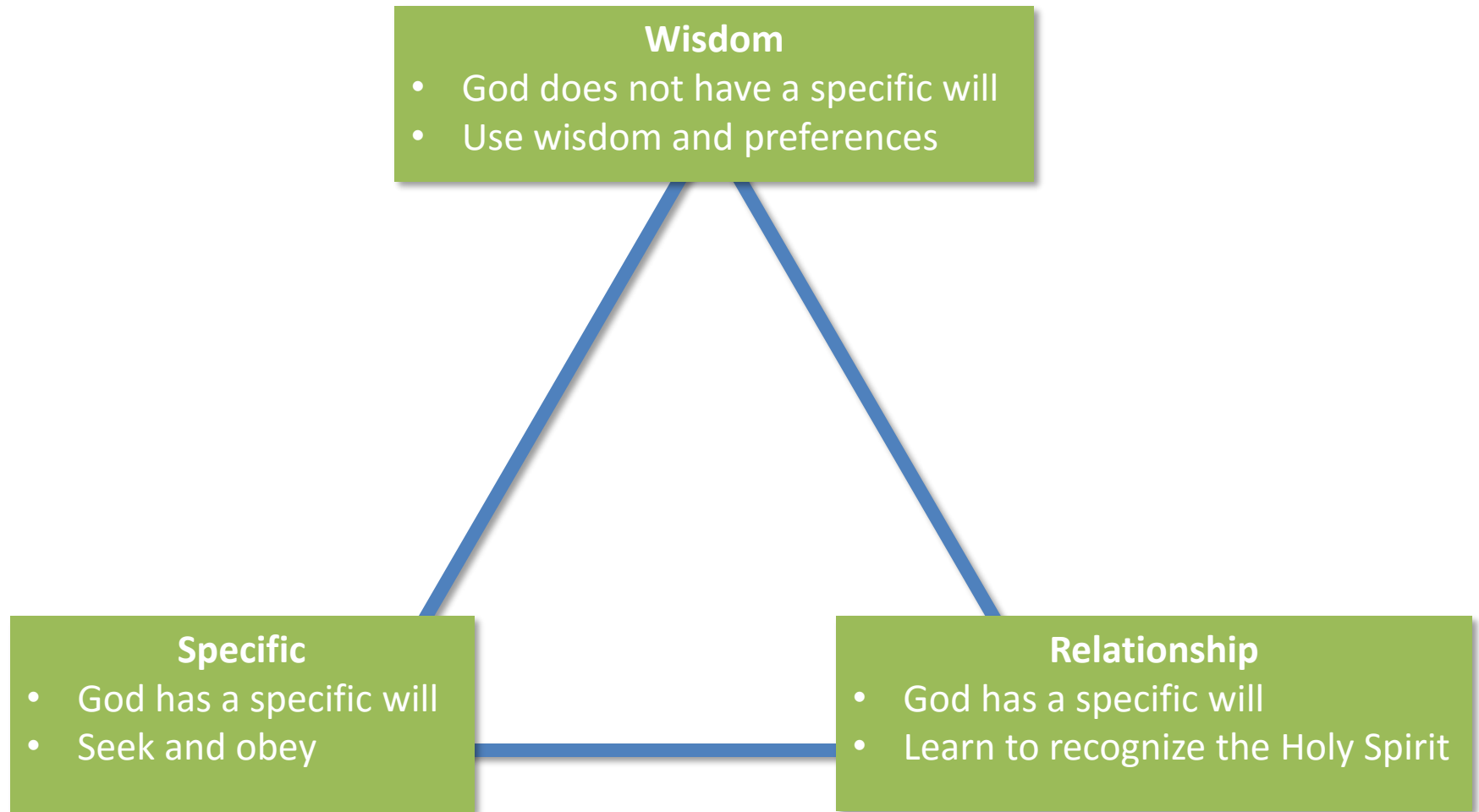
Personal decisions

- Which **undergraduate program** should I study: economics or operations research?
- What **career** should I pursue: corporate, management consulting or ministry?
- Should I **buy or rent** my primary residence?

Business decisions

- Should the company lobby for and invest in the **extraction of crude oil** at Alaska Arctic National Wildlife Refuge?
- Should the company continue to **pursue drug development** in Alzheimer's Disease?
- Should the company **launch new products** in emerging markets also?

Characterizing Christian discernment



How do I integrate my faith and work?

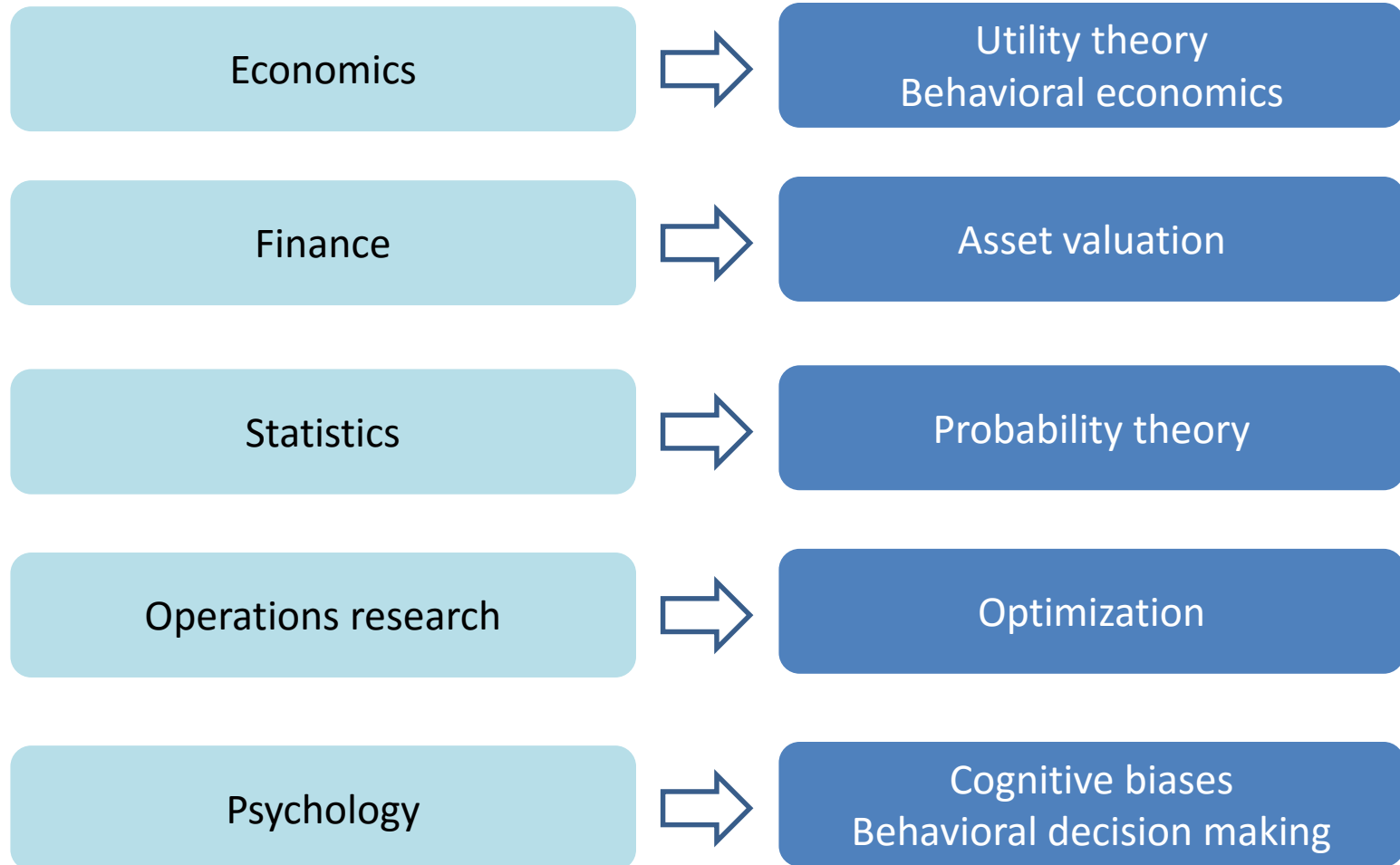
- Does God care about decisions I make on behalf of my company?
- Where does my allegiance lie when business practice and faith disagree?
- What will my boss and team think of me when I focus on non-financial concerns?
- What does it mean for my career if my recommendation differs from the team and management?

DECISION ANALYSIS

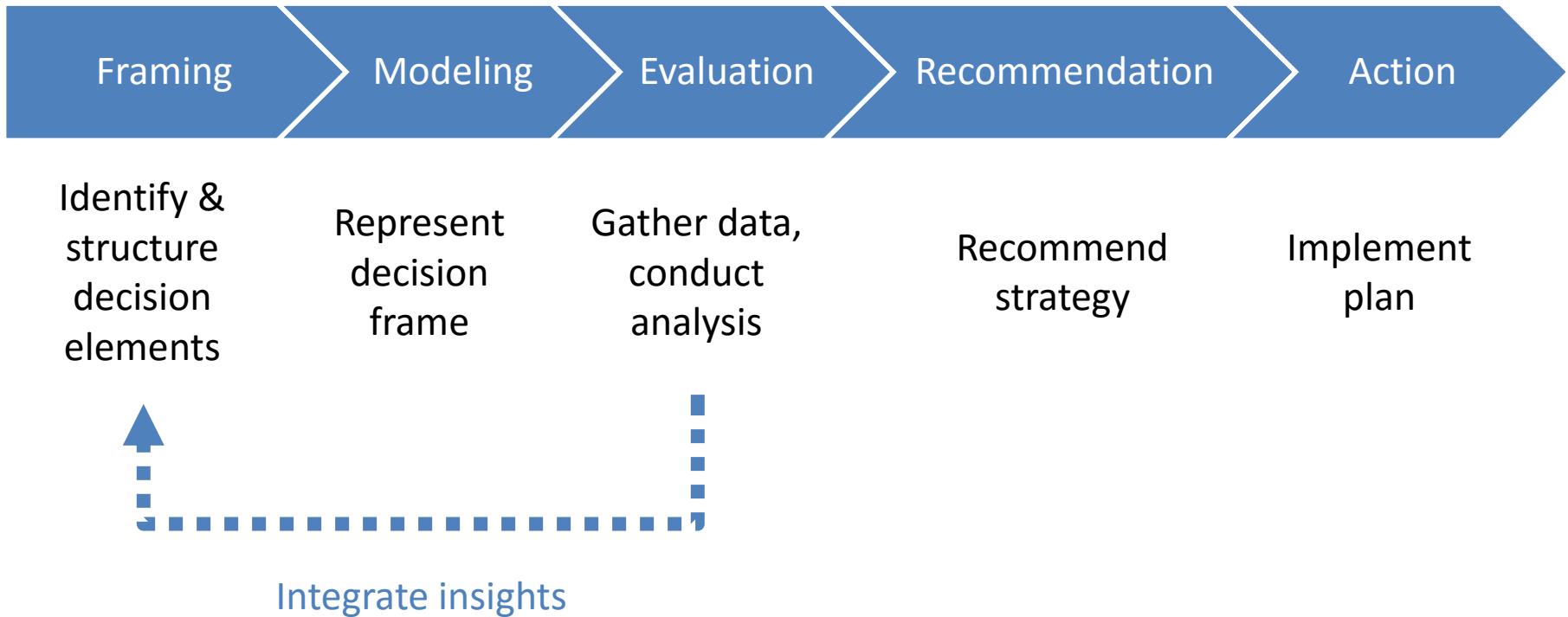
What is a good decision?

“A good decision is **an action** we take that is **logically consistent** with the **alternatives we perceive**, the **information we have**, and the **preferences we feel**”

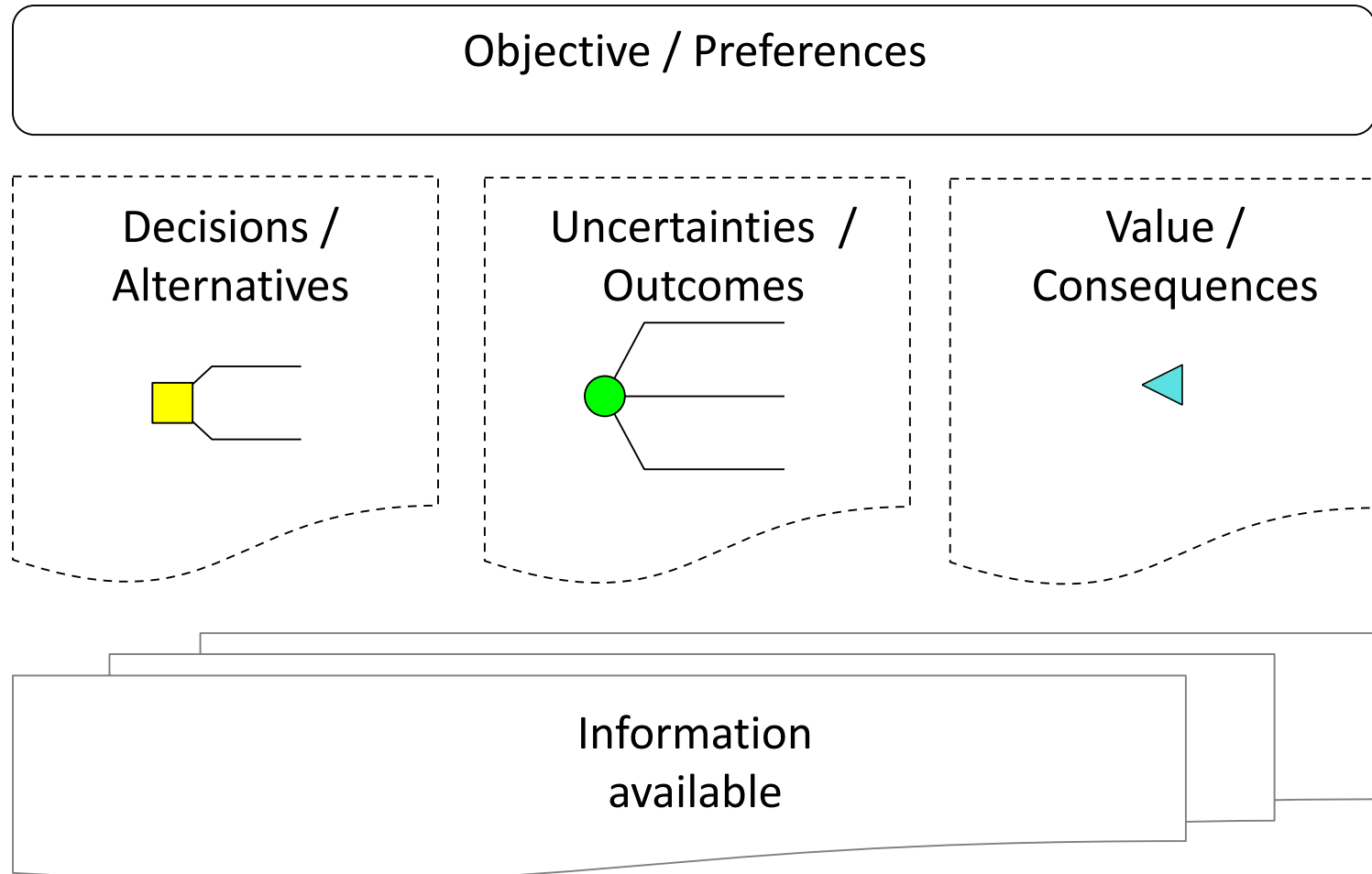
Decision Analysis (DA) is an inter-disciplinary approach



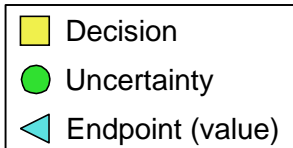
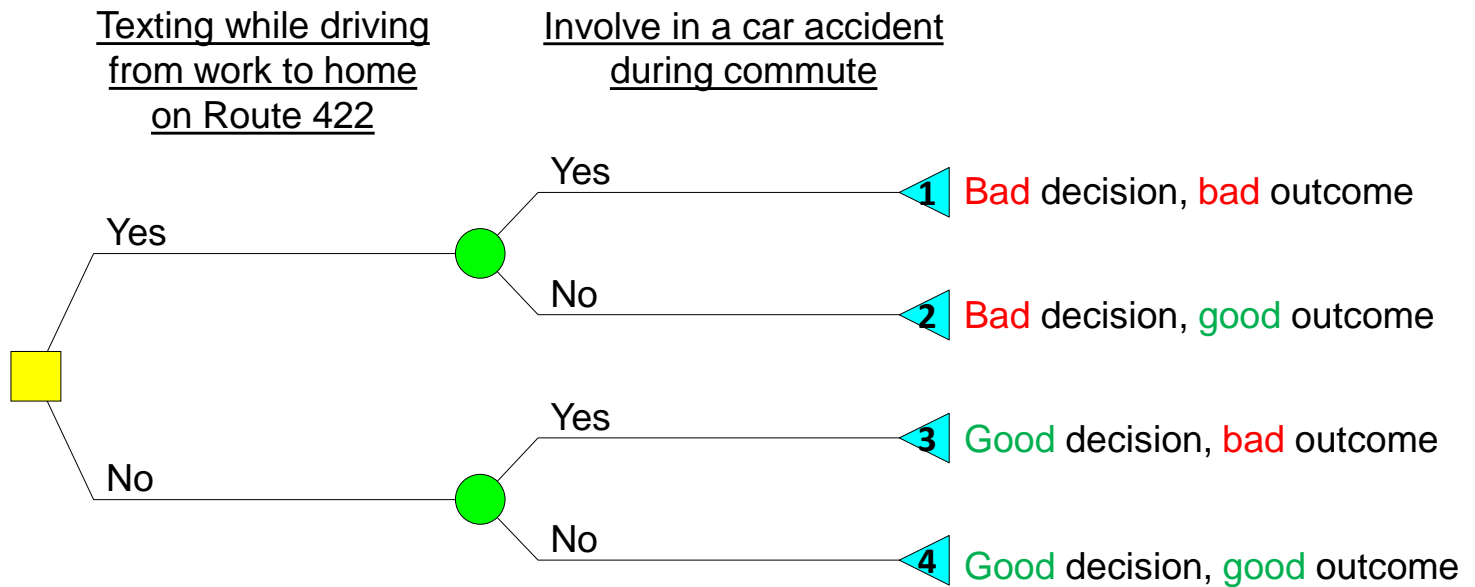
DA process



DA structures decision elements into manageable parts



Important distinction: good decisions \neq good outcomes



DA applications in business

Industries

- Pharmaceutical
- Oil & gas
- Mining
- Agriculture
- Technology

Project characteristics

- Significant upfront investment
- Uncertainty of outcomes
- Long development timelines
- Forecasting future revenue challenging

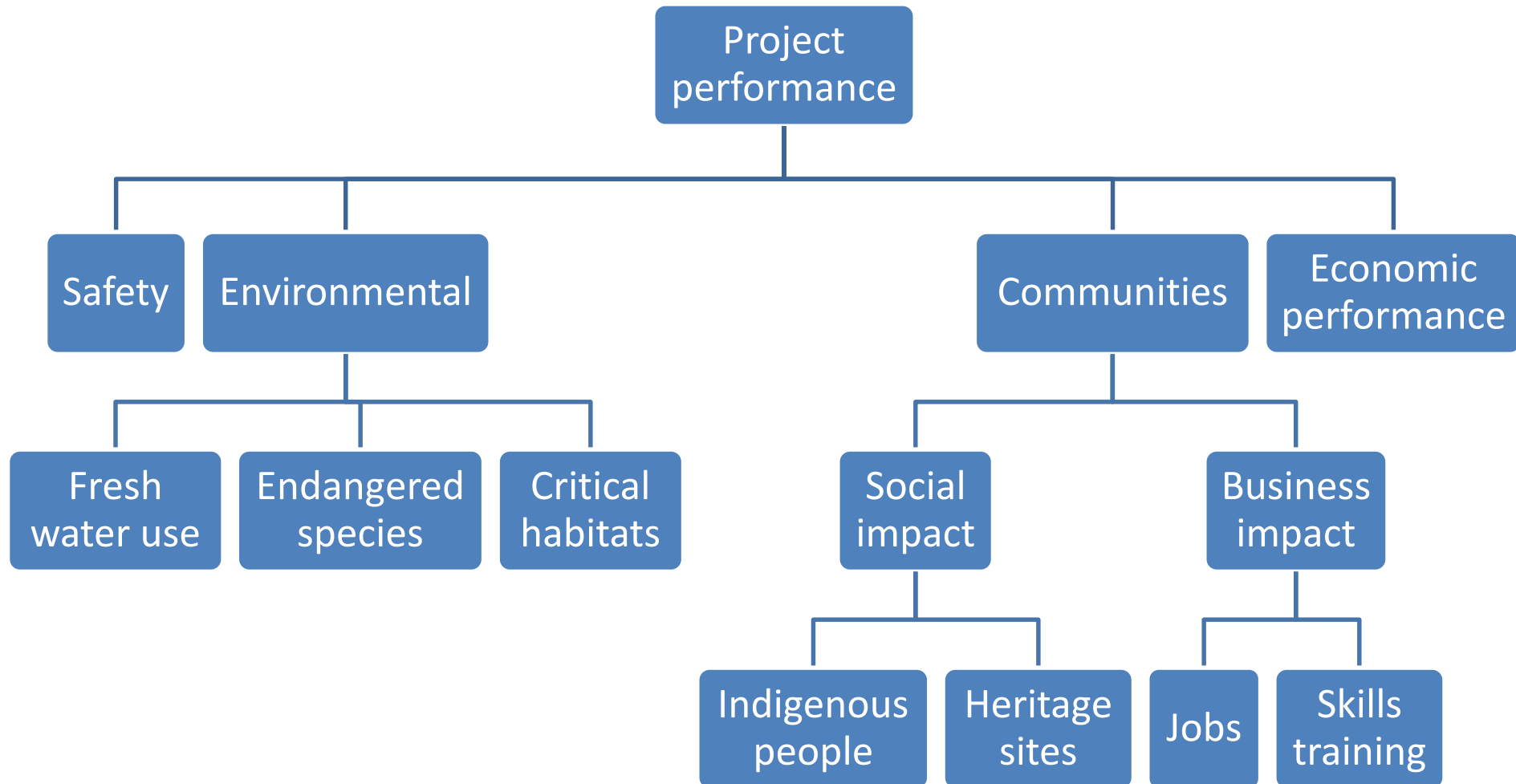
Illustrative example

- Oil and gas company evaluating drilling opportunity at Alaska Arctic National Wildlife Refuge (ANWR)
- Technically recoverable oil within the surveyed ANWR area is estimated to be between 4.3 and 11.8 billion barrels (95- and 5-percent probability range), with a mean value of 7.7 billion barrels*
- Oil prices have fallen over the past year, and future prices are uncertain; yet US oil demand is projected to rise^

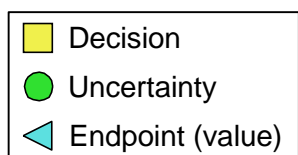
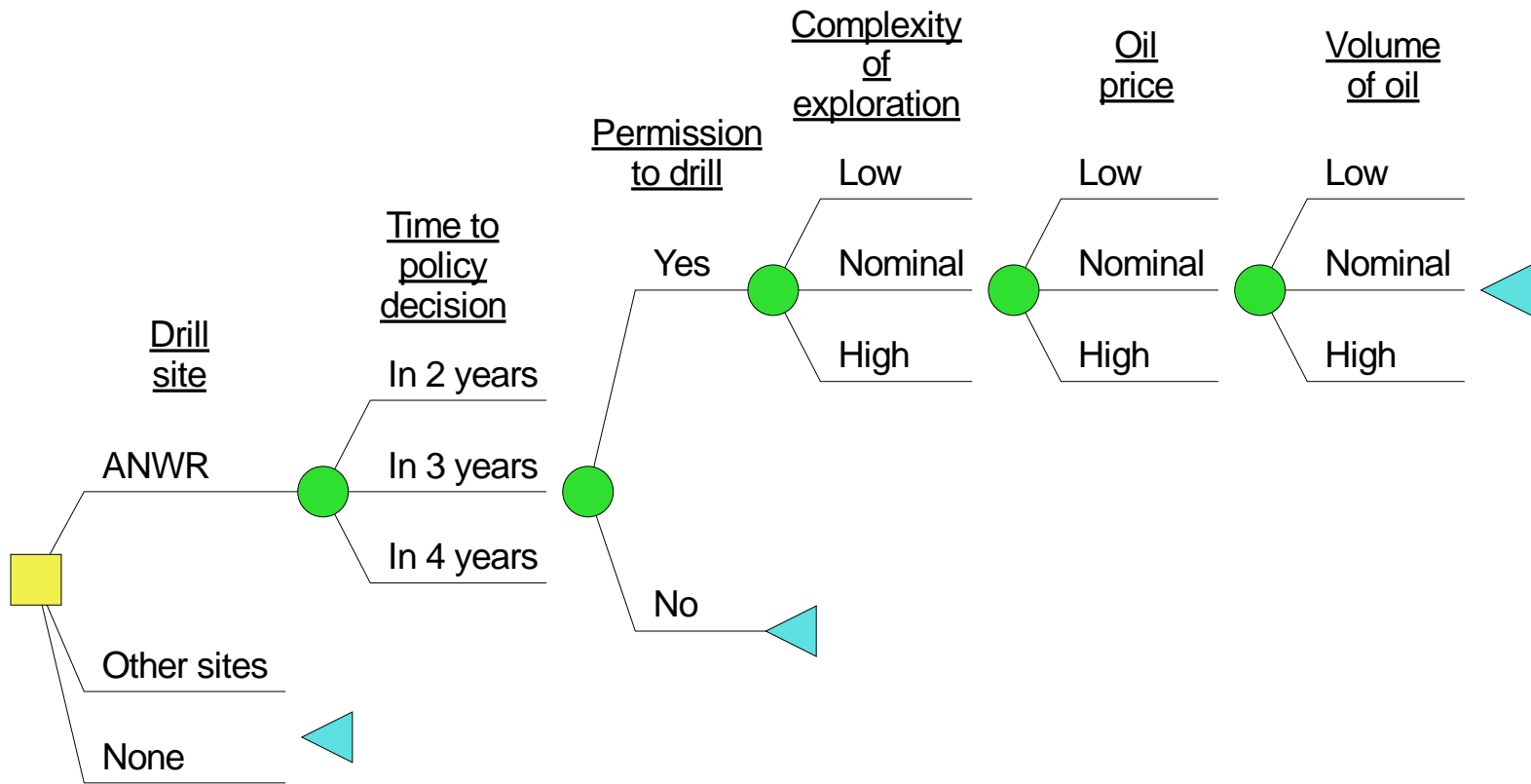
* US Department of Interior, US Geological Survey. Fact Sheet 0028-01

^ OPEC Monthly Oil Market Report, 10 August 2016

Structuring the objectives



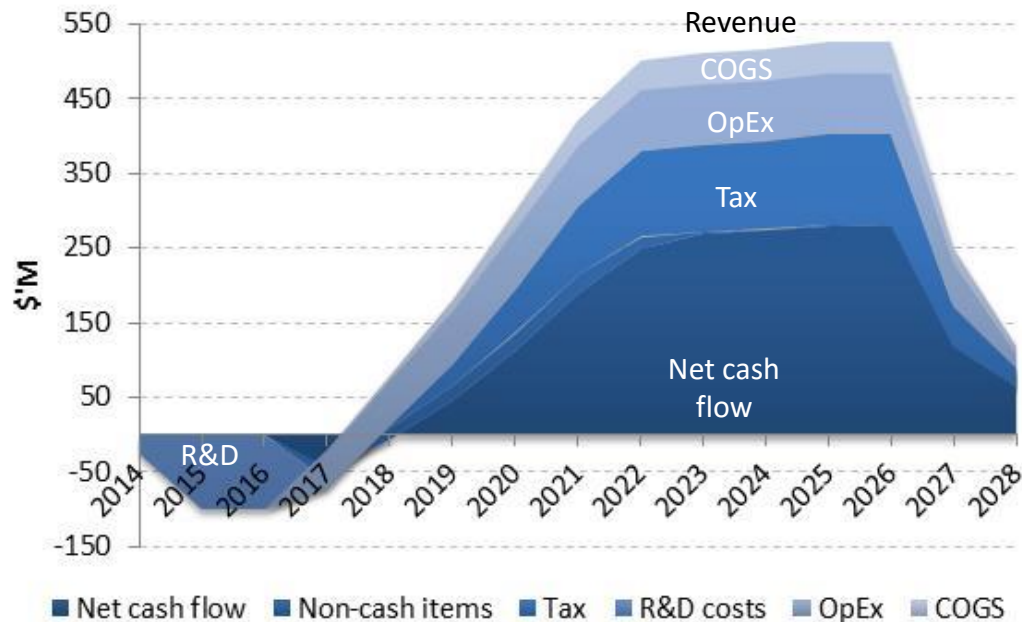
Describing the decision problem



Economic performance

Financial evaluation of net present value (NPV)

Revenue	Costs	Risks (probabilities)	Timing
<ul style="list-style-type: none"> • Volume: Oil production • Price: Futures oil price 	<ul style="list-style-type: none"> • CapEx: exploration, development • OpEx: drilling operation, distribution • Others: lobbying, permits, partnership 	<ul style="list-style-type: none"> • Time to policy decision • Permission to drill at ANWR • Complexity of exploration • Oil price • Volume of oil 	<ul style="list-style-type: none"> • Discovery, development, operations • Longevity of oil production



Decisions reflect values

Key stakeholders	Primary Objectives
Company	Maximize value
Customers	Deliver quality product
Shareholders	Achieve forecasted return

Pursue ANWR opportunity

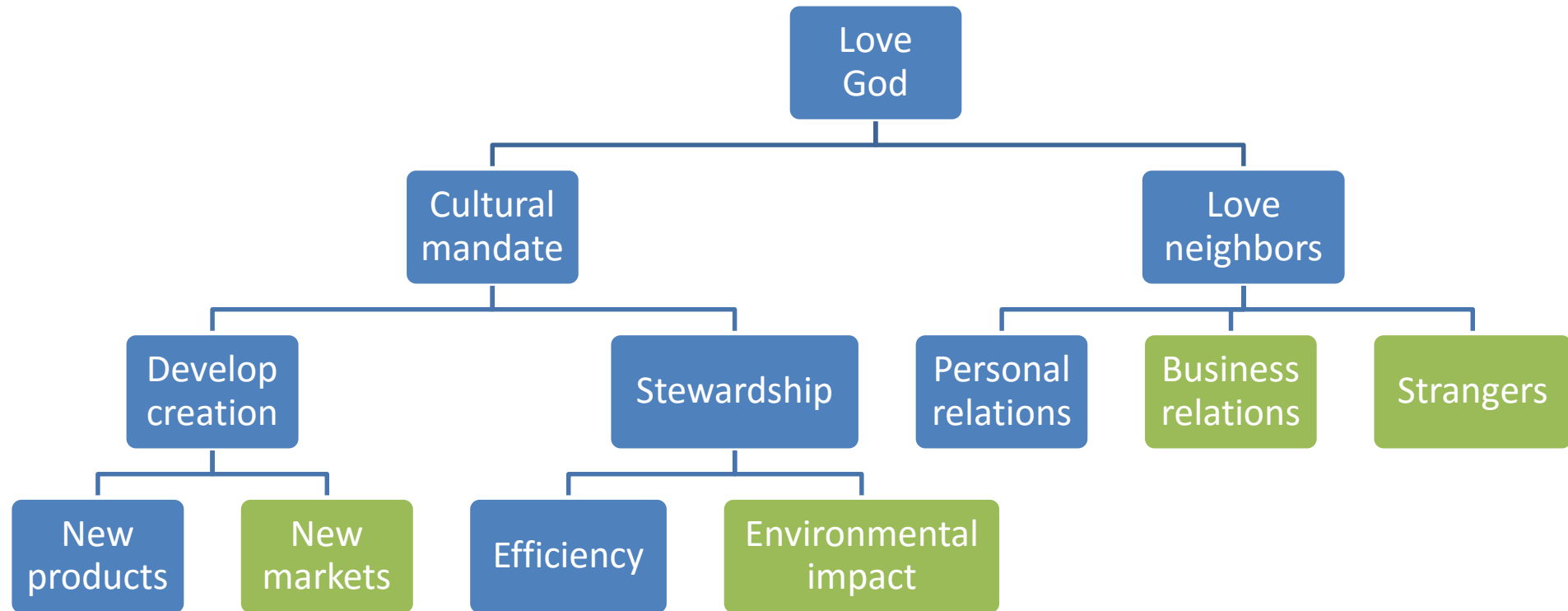
Affected parties	Potential implications
Company	Financial success
Employees	Job security
Indigenous people	Resettlement
Wildlife: caribou, polar bears	Endangerment

Do not pursue ANWR opportunity

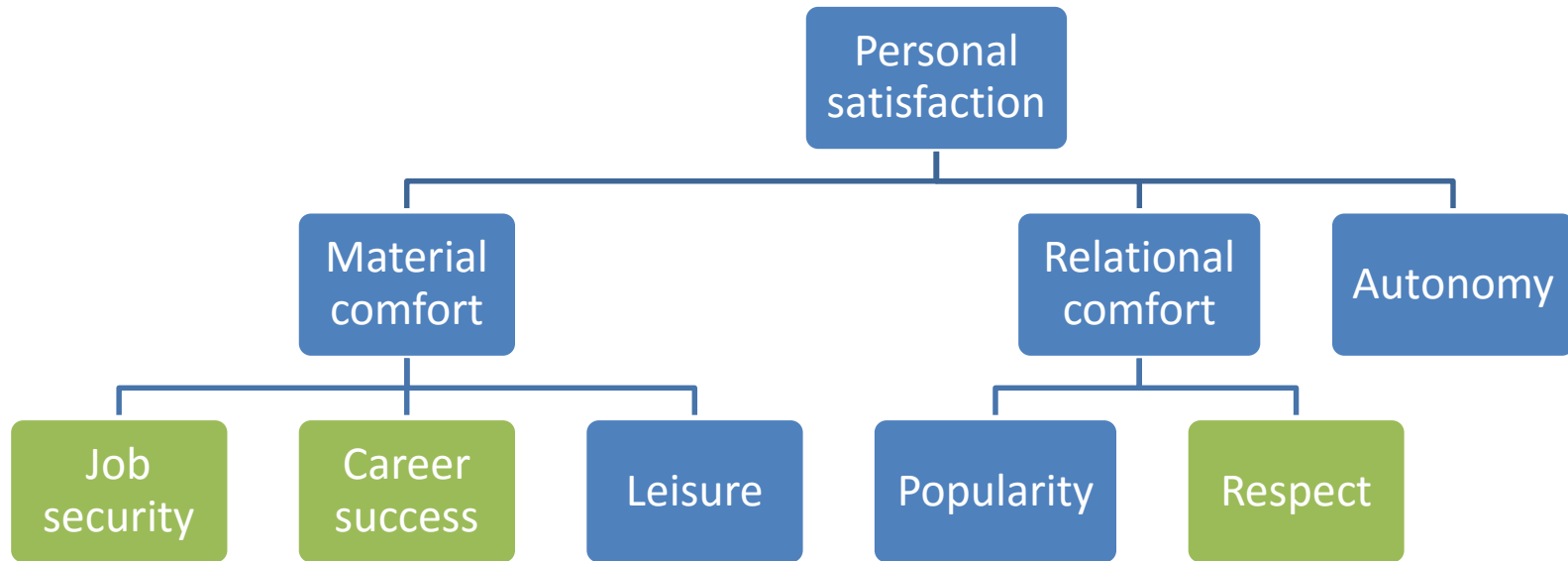
Affected parties	Potential implications
Company	Financial loss
Employees	Job loss
Indigenous people	N/A
Wildlife: caribou, polar bears	N/A

CHRISTIAN PERSPECTIVE

DA as tool for self-reflection

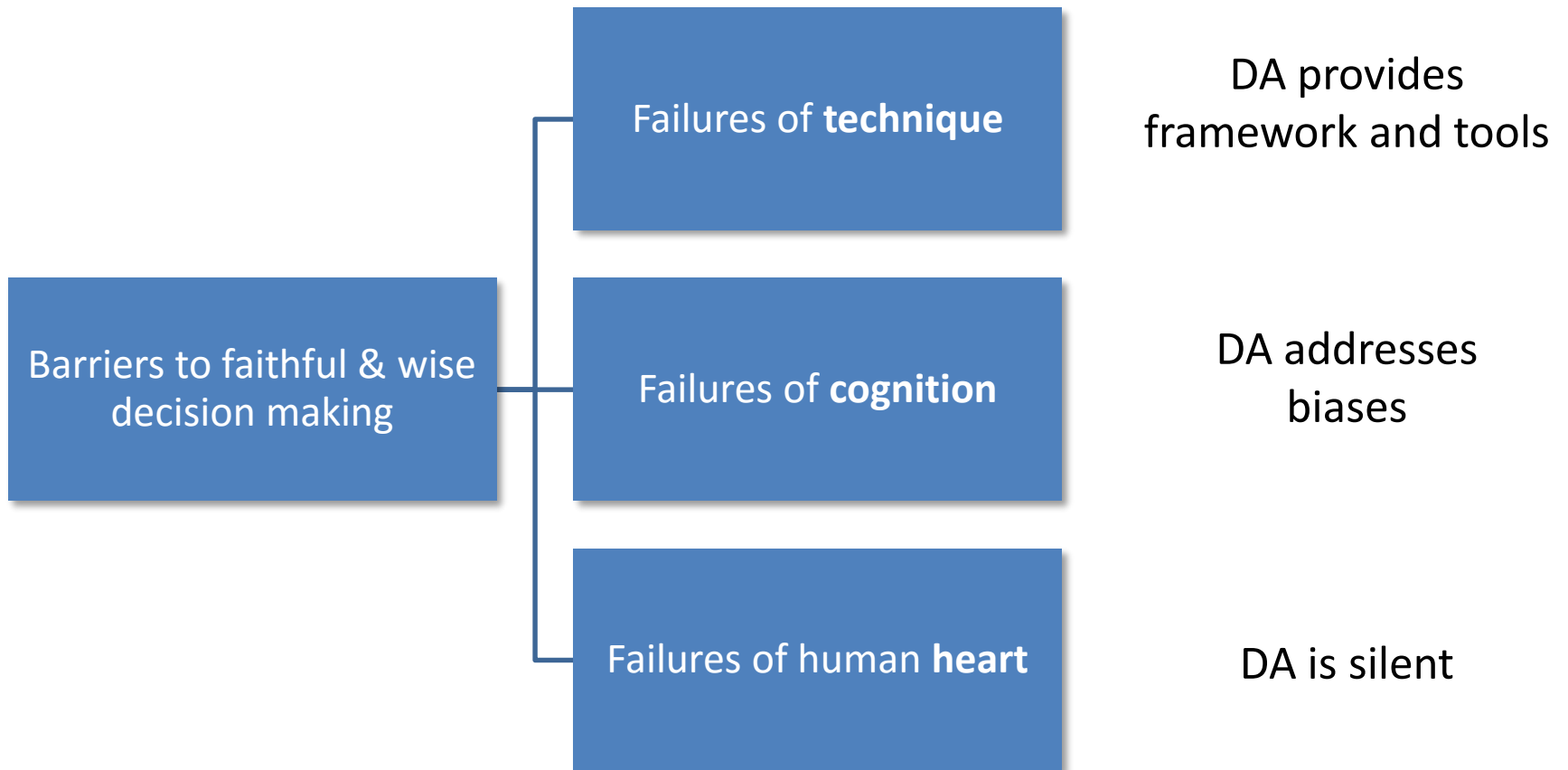


The human heart undergirds all decisions

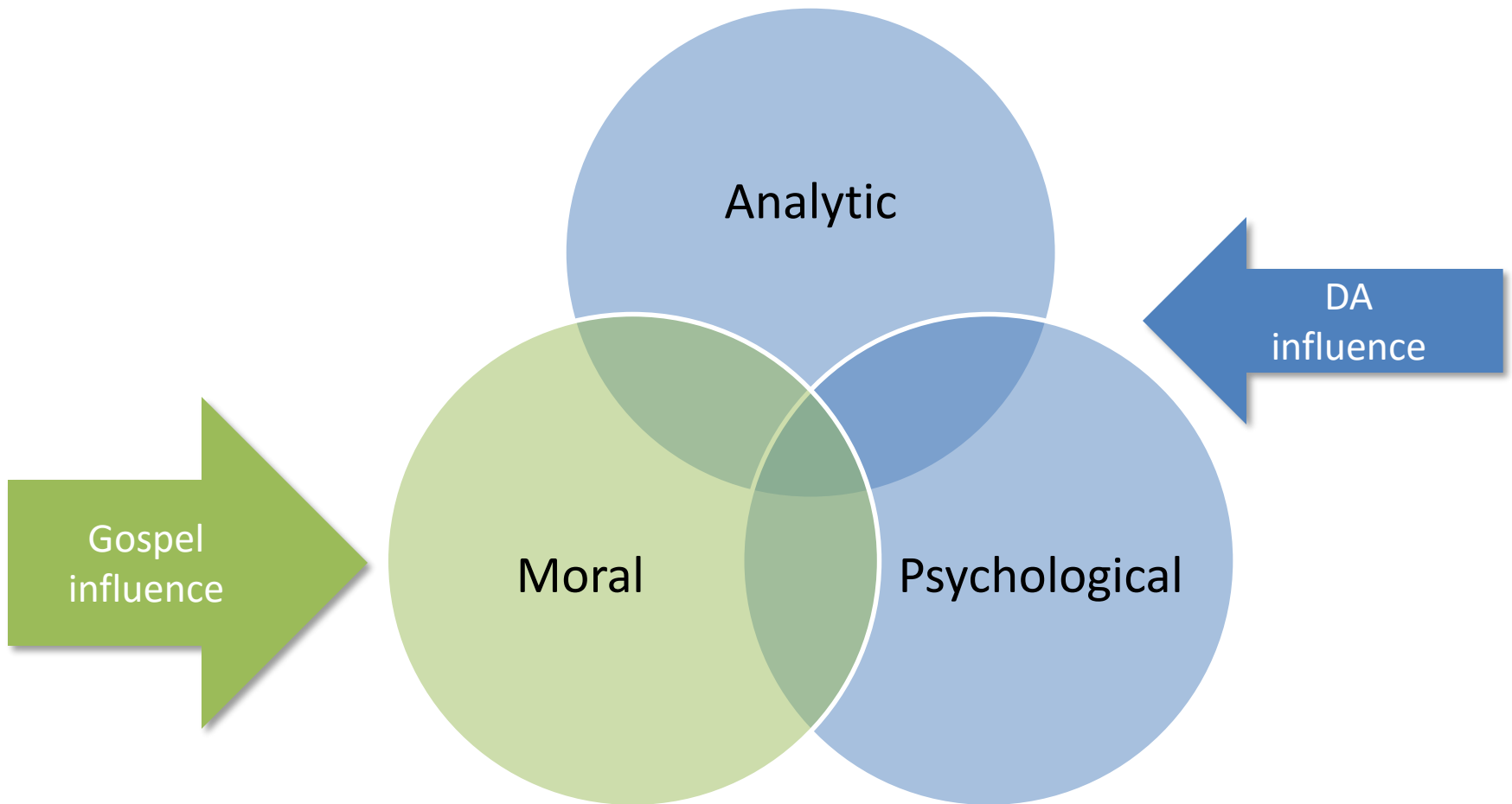


Sinful men in a fallen world

DA cannot address failures of the human heart



There is a need for moral perspective in DA and Management Science



Integrating DA and Discernment

- Identify God's will
- Identify personal and corporate objectives
- Identify alternatives and risks

Framing

Modeling

Evaluation

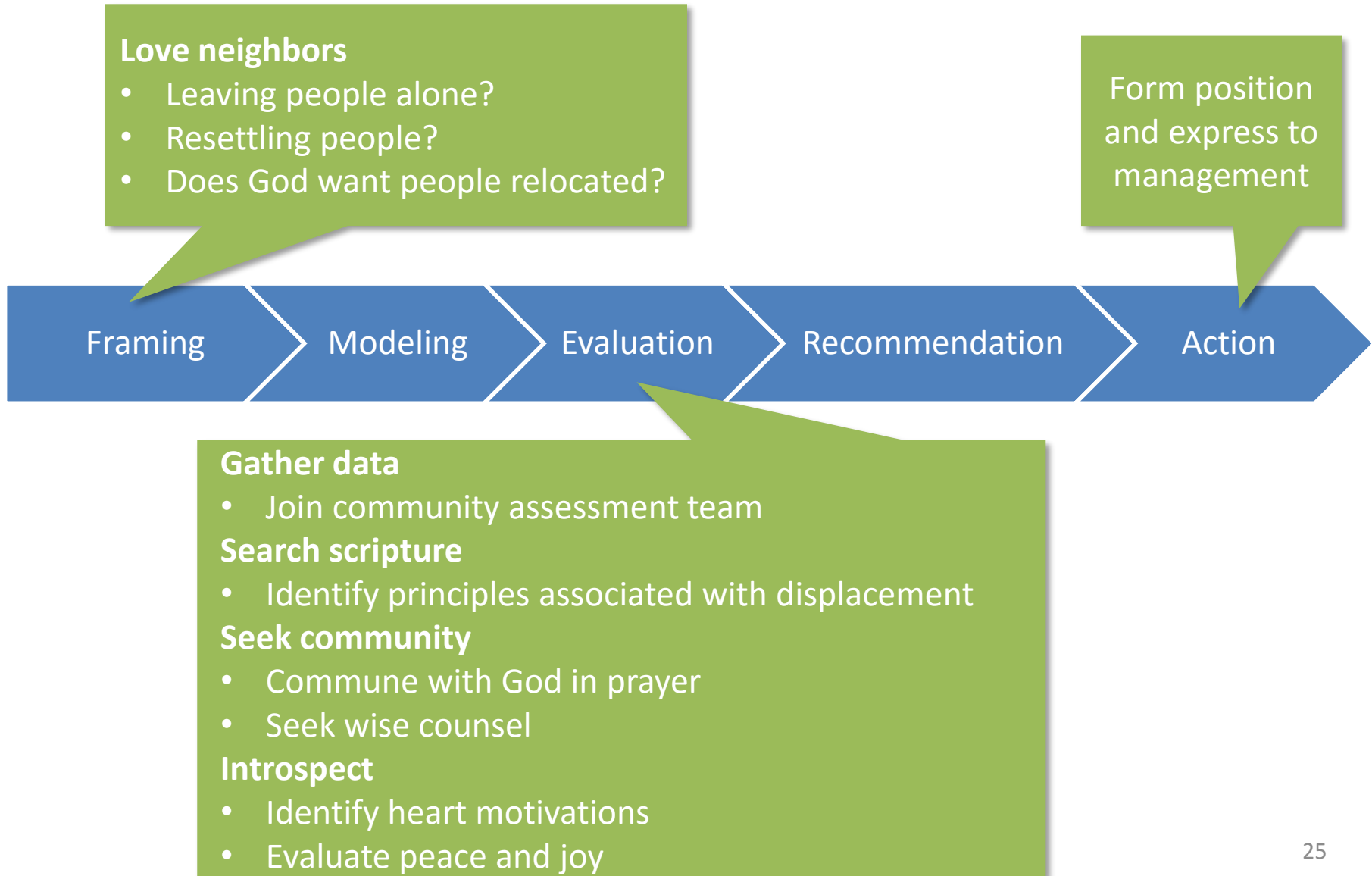
Recommendation

Action

Integrate insights

- Seek direct scriptural guidance
- Seek God's will in prayer
- Evaluate spiritual and emotional state
- Seek wise counsel
- Meditate on scripture
- Inner witness
- Open and closed doors

Example: Focusing on indigenous people



Q&A