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Business Forecasting

Exploratory Methods

Judgmental Methods

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Two major categories:

Subjective assessment methods (Short to medium term)

1. **Sales Force Composite Forecasting**
2. **Jury of Executive Opinion**
3. **Subjective Probability assessments**

Exploratory methods (more medium to longer term)

1. **Scenario Analysis**
2. **Delphi Method**

Exploratory Methods

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Exploratory methods are less rigorous and less formal approaches to forecasting

Typically used for **medium to longer term forecasts** or when there is an **absence of other information (particularly quantitative)**

They typically consider **multiple potential outcomes and future branching**

Consider **multiple outcomes for environmental or impact variables**.

May consider information from a **wide variety of sources**

Exploratory Methods

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These methods seek to explore the **multiple potential outcomes** using **multiple potential environments** in a **quasi systematic way**

Scenario Analysis can be useful in identifying **plausible ranges of forecast outcomes**

It can help identify different possible futures and the consequences of those different futures

Delphi is more useful in identifying **consensus** about likely future outcomes. Focus is then on the outcomes the consensus identifies as more likely

Delphi

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The Delphi approach is a commonly used **qualitative forecasting method**

Originally developed at the Rand Corporation in USA it is essentially a method for obtaining a **consensus from a group**

Systematic in use of individual assessments and feedback for group consensus; can be for **forecasts of specific variables** or for an **estimate of general future environments**

Delphi Objective

The objective of the Delphi approach is to obtain a **reliable census of opinion from a group of experts** while at the same time minimising the **undesirable aspects of group interaction**

Delphi also provides a more **systematic approach than a jury of executive opinion** or other group consensus techniques

The technique **eliminates committee activity** altogether thus further reducing the influence of **psychological factors** such as:

1. **Specious persuasion**
2. **The unwillingness to abandon publicly expressed opinions**
3. **The band-wagon effect of majority opinion**

Delphi Technique

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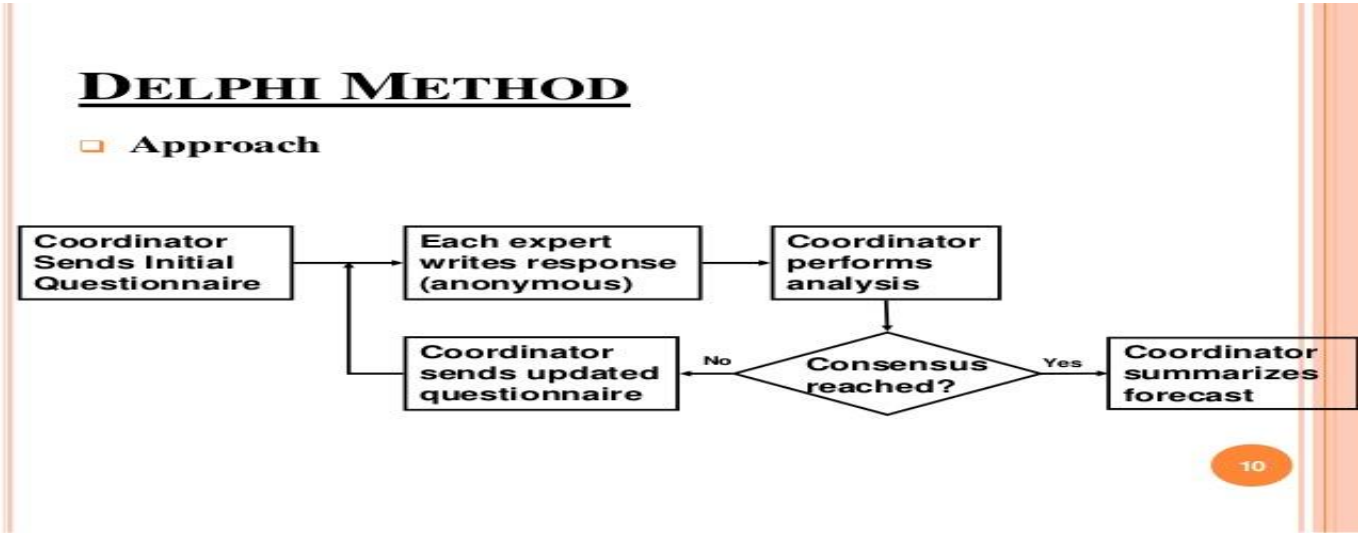
There is a **designed program** of **sequential individual interrogations**, interspersed with **information, opinion and feedback from consensus** of earlier interrogations

Respondents may be required to provide **"reasons"** for previously expressed opinions

A collection of reasons is presented to each respondent in the group, with an **invitation to reconsider and possibly revise his/her earlier estimates.**

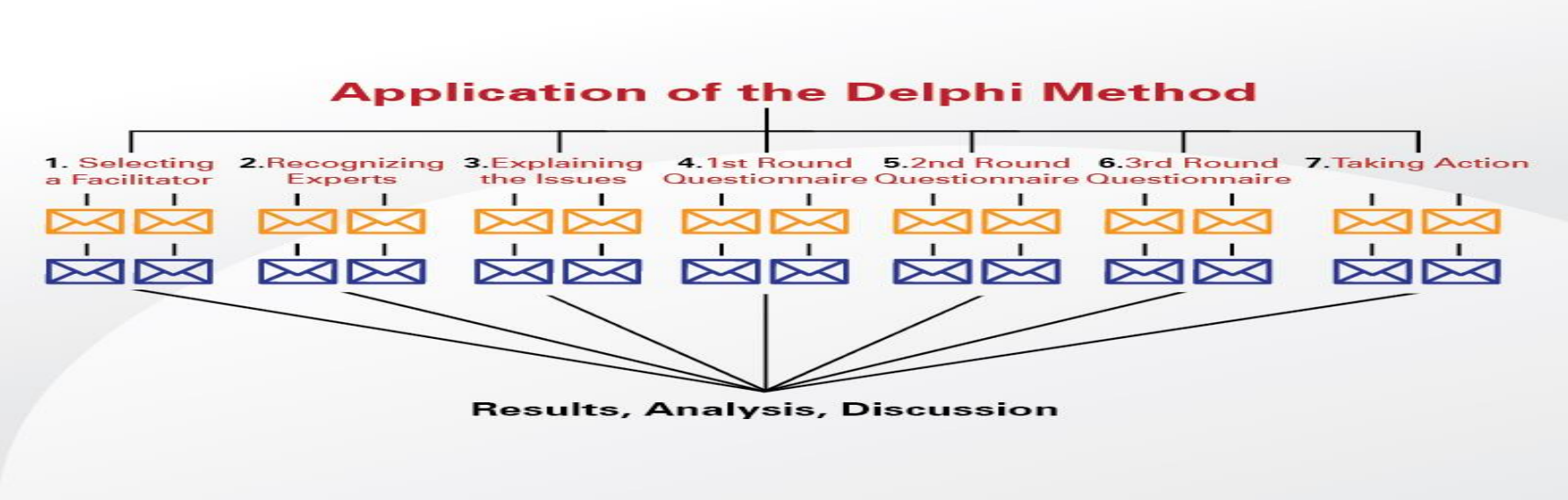


Application of Delphi

Requires a **group of experts** who are willing to answer specific questions relating to the issue under investigation

eg **specific forecasts** or **future technological processes**

Experts **do not meet** but are kept apart from one another so that their judgment will not be influenced by **social pressure or other aspects of small-group behaviour**



Delphi – Relative Merits

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ADVANTAGES

Anonymity - reduce the effects of the 'socially dominant individuals

Controlled feedback reduces redundant or irrelevant noise

Conformity to a majority opinion is avoided through **presentation of statistical group response of feedback**

Permits spread of opinion so **uncertainties** surrounding situations can be reflected

DISADVANTAGES

Low level of reliability

Oversensitivity of results to questionnaire ambiguity

Moderator effect

Length of time to complete Delphi phases

Panel dropouts

Panel Issues – Expert panels taken from same people and panel dropouts

Delphi Example

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Phase 1.

Experts asked in a letter to name future inventions and scientific breakthroughs. Responses sent to coordinator. List compiled.

Phase 2.

Experts sent the entire list of items for categorisation based on a probability distribution of 50-50. Responses sent to coordinator. No contact between experts.

Phase 3.

Experts receive letters detailing items on which there was a general consensus. Asked to state reasons for any widely divergent estimates they had made. Some reassessment invited. Responses sent to moderator.

Phase 4.

To narrow range of estimates further, phase 3 repeated. Results assessed. A number of the original items on the list grouped together as likely breakthroughs

Selection Of Delphi Panel

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In a corporate setting, the experts in the group generally come from **both within and outside the company** depending on what is being forecast

An important aspect of such a group is that **each expert need not be well qualified in exactly the same part of the area of interest.**

In this way **information can be processed about the entire problem area**

Delphi panel:

68 experts recruited

(12 Policy, 15 Scientific, 24 Market, 17 Public)

Belgium • 8 recruited • (2 Policy, 3 Market, 1 Scientific, 2 Public)	Latvia • 5 recruited • (1 Policy, 2 Market, 1 Scientific, 1 Public)	Serbia • 6 recruited • (1 Policy, 3 Market, 2 Scientific)
Denmark • 15 invited • None recruited yet.	Netherlands • 10 recruited • (1 Policy, 3 Market, 2 Scientific, 4 Public)	Spain • 10 recruited • (3 Policy, 2 Market, 2 Scientific, 3 Public)
France • 8 recruited • (1 Policy, 2 Market, 2 Scientific, 3 Public)	Peru • 2 recruited • (1 Public, 1 Market)	Switzerland • 4 recruited • (1 Policy, 2 Market, 1 Scientific)
Italy • 7 recruited • (2 Policy, 3 Market, 2 Public)	Senegal • 1 recruited • (Scientific)	UK • 7 recruited • (3 Market, 3 Scientific, 1 Public)

Scenarios - What are Scenarios?

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Term ‘scenario’ is from theatre and film, and refers to a **brief synopsis of the plot of a play or a movie.** In a planning context, scenarios can be described as “stories of possible futures that the organisation might encounter”

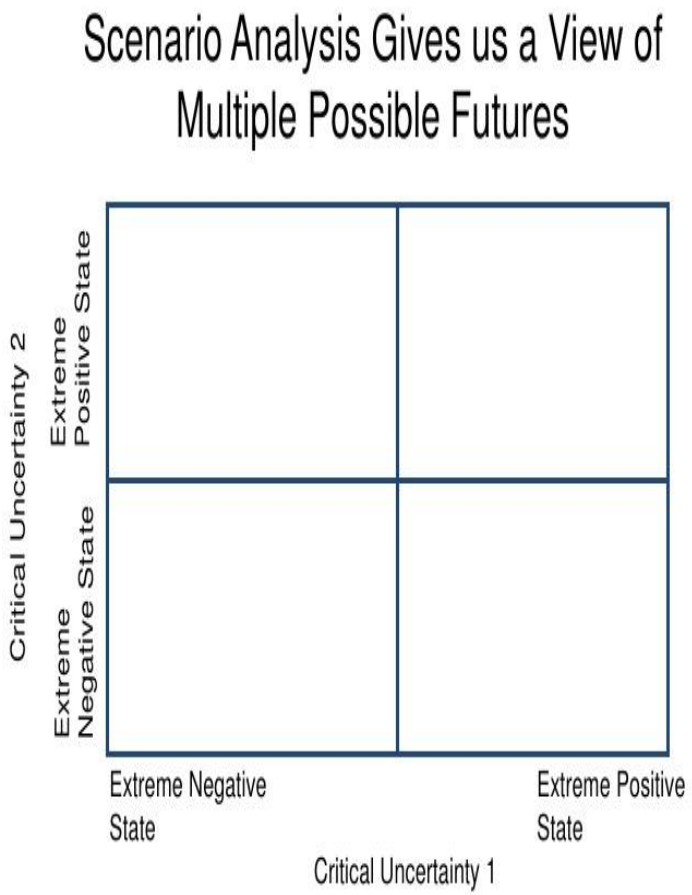
They are **graphic and dynamic** revealing the **flow of an evolving future**

They are **holistic**, combining **social, technological, economic, environmental and political trends, events and other data**

They focus on the **‘branching points’** of the future, the **potential contingencies and discontinuities**

Scenarios allow us to **better prepare for uncertainty**

Why are Scenarios Needed?



For **decisions about the future of an organisation**, we must first know the kind of **future environment the organisation will be operating**

Scenarios steer us on a middle course between a **misguided reliance on prediction only** and a **despairing belief that we cannot envision the future**

They can also help us develop **flexible and adaptable strategies** to deal with **multiple potential future outcomes**

How do You Develop Scenarios?

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Use an approach that is a **structured blending of rationality and intuition.** Decision-makers **develop their own scenarios** and reason the **consequences of each scenario on relevant outcomes**

Additionally, assessment of the likely **probability of each scenario** is useful

There are **seven recommended steps** in building scenarios;

A Scenario Planning Process

Step 1. State the focal issue or decision facing the enterprise.

Step 2. List the key factors that influence this decision.

Step 3. List the driving forces that influence these key factors.

Step 4. Rank the key factors and driving forces by importance and uncertainty.

Step 5. Compose plots for alternative futures that could impact the decision.

Step 6. Evaluate the decision in each of the postulated scenarios.

Step 7. Select indicators and signposts for each scenario.

Seven Steps to Scenarios - Step #1

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Step 1: Focal Issue

Clarify the **strategic decisions (the decision focus)** scenarios should help address.

Must be ground in the **organisation's specific planning needs.**

Scenarios not an end in themselves: they are a **means of making better strategic decisions**

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Seven Steps to Scenarios - Step #2

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Step 2: Key Factors

Identify the **key decision factors**

What are the **main things** that we would like to know about the future in order to help make our strategic decision?

For a business these factors could be Sales, Market Share, Costs or other Key Performance Indicators

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Seven Steps to Scenarios - Step #3

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Step 3: Driving Forces

Identify and assess **key forces** which shape the future of the 'key decision factors'

Narrow-based trends impact most **directly and specifically** such as changes to the labour skill requirements, consumer preferences, competitive environment etc.

Broad-based trends such as shifting **demographic patterns, economic, legal, political, technological factors**

Work out **potential outcomes** for these trends

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Driving Forces – Health Example

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Technical issues	Social issues	Technology management requirements
• Role of technologies for e-health provision. • Electronic Health Records (EHRs) allowing data and information to be more accessible. • Ease of use of healthcare IT systems in addition to levels of standardisation across the industry. • Personalised medicine approaches for disease control and wellness. • Requirements for 'Big Data', e.g. from genomic sequencing.	• Patient motivations to adopt technologies. • The need for lifestyle changes for patients, arising from greater levels of information provision and informed judgement. • Availability of technology according to socio-economic position and geographical location. • Need for health advocacy by primary care practitioners.	• Management of 'Big Data' and 'Big Analytics', including integration of different data streams to provide practical benefits for healthcare. • Development of business models to support new forms of technology adoption – answering the question, who pays for the technology? • Addressing the social implications of the increasing use of technology within healthcare. • Continuing need for technology standards, e.g. to support adoption of electronic health records. • Need for inter-operability and integration between different IT systems adopted across healthcare.

Seven Steps to Scenarios - Step #4

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Step 4: Rank Factors

Develop a **high-medium-low scoring system** and construct a **matrix** of **impact and occurrence likelihood for the trend outcomes**

High impact/low uncertainty forces- certainties in our future for which or planning must prepare

High impact /high uncertainty forces –potential shapers of **different futures (scenarios)** for which our planning should prepare

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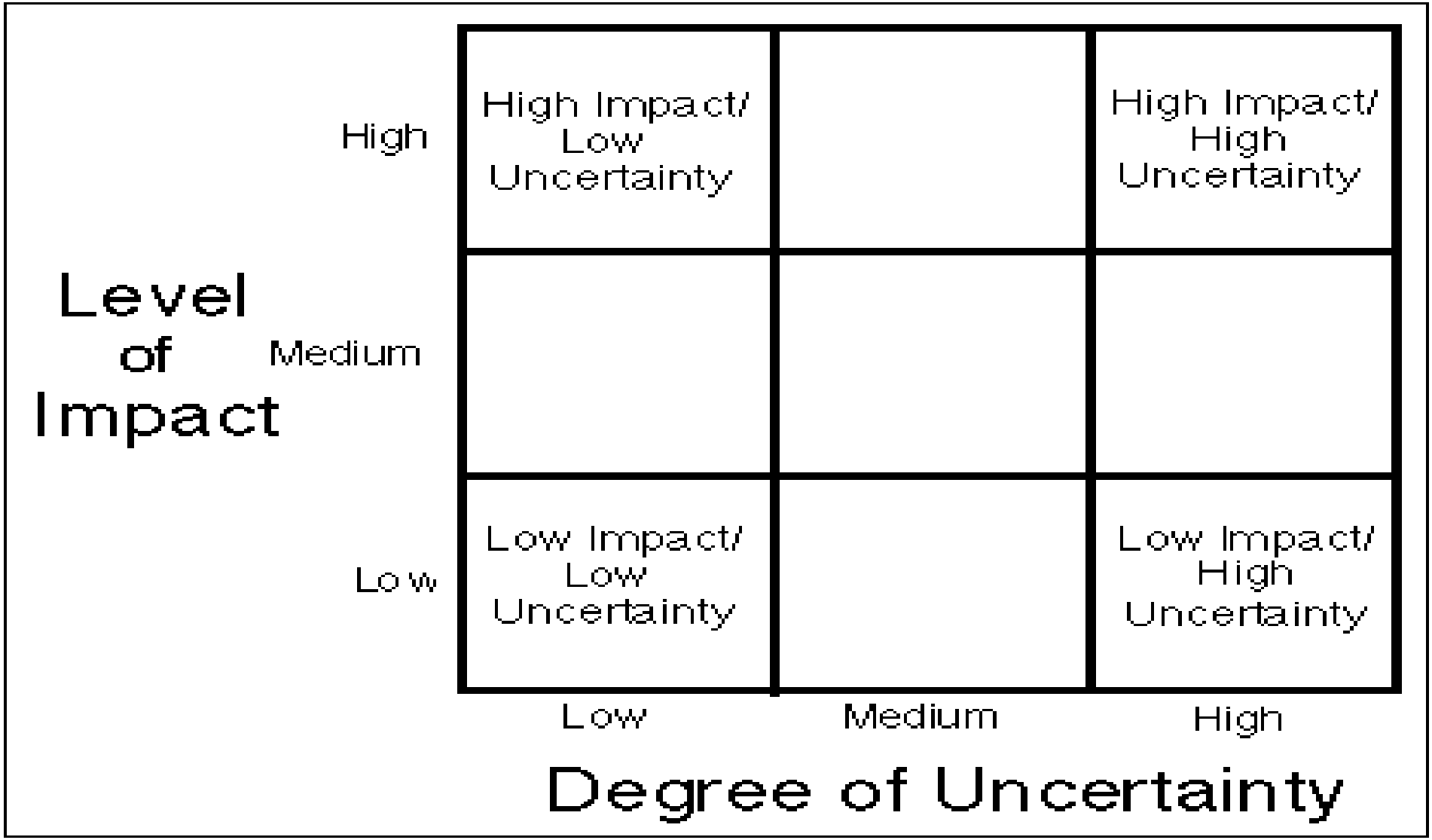
Impact/Uncertainty Matrix



Seven Steps to Scenarios - Step #5

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Step 5: Compose Plots (Build Scenarios

This step is the heart of the process and establishes the **basic structure of the various scenarios**

'High impact/high uncertainty' forces can mainly be grouped among two or three **'axes of uncertainty'**

Each of these axes presents two opposite **'logics'** – different views/theories of **'the way the world might work'** in the future

A Scenario Planning Process

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Seven Steps to Scenarios - Step #5 - Example

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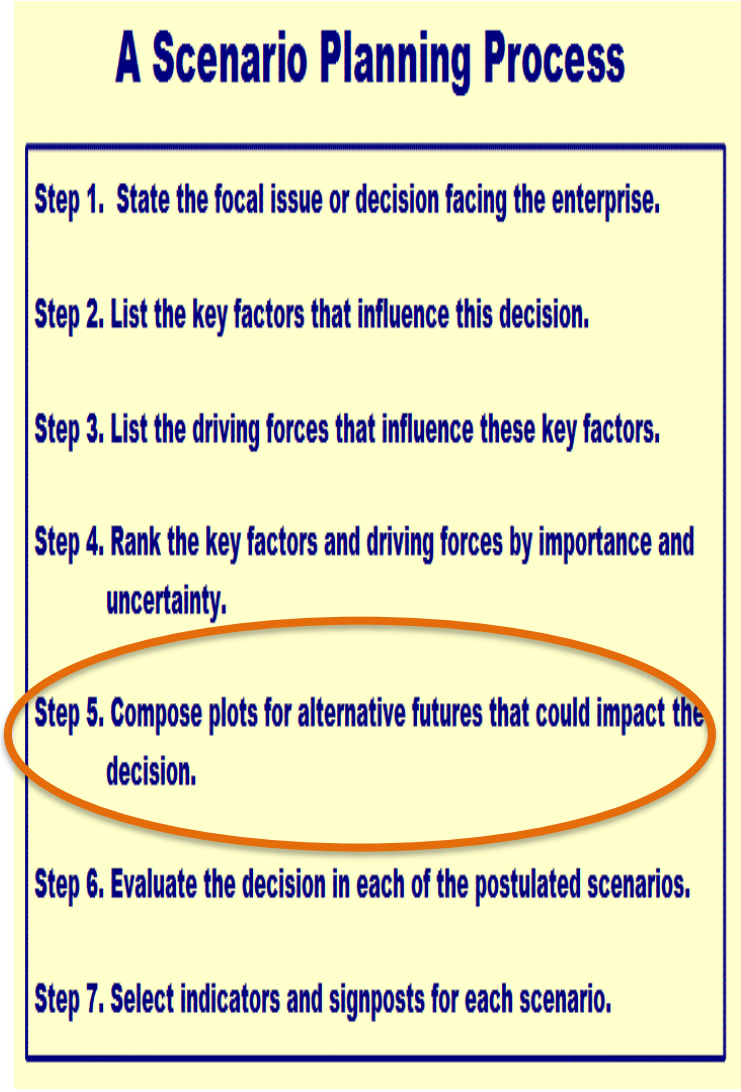
Step 5: Compose Plots (Build Scenarios) Example : **Higher Education**

One axis might pose alternative views, that higher education will continue to be **primarily a public sector responsibility** or become a **private good**

Another axis may suggest **extremes** of **international demand** for places or even **relevant technology developments**

The **interplay** of these axes and their alternative logics presents the basis for selecting **three or four scenarios** that we believe are the **'envelope of uncertainty'**



Higher Education Scenario Example

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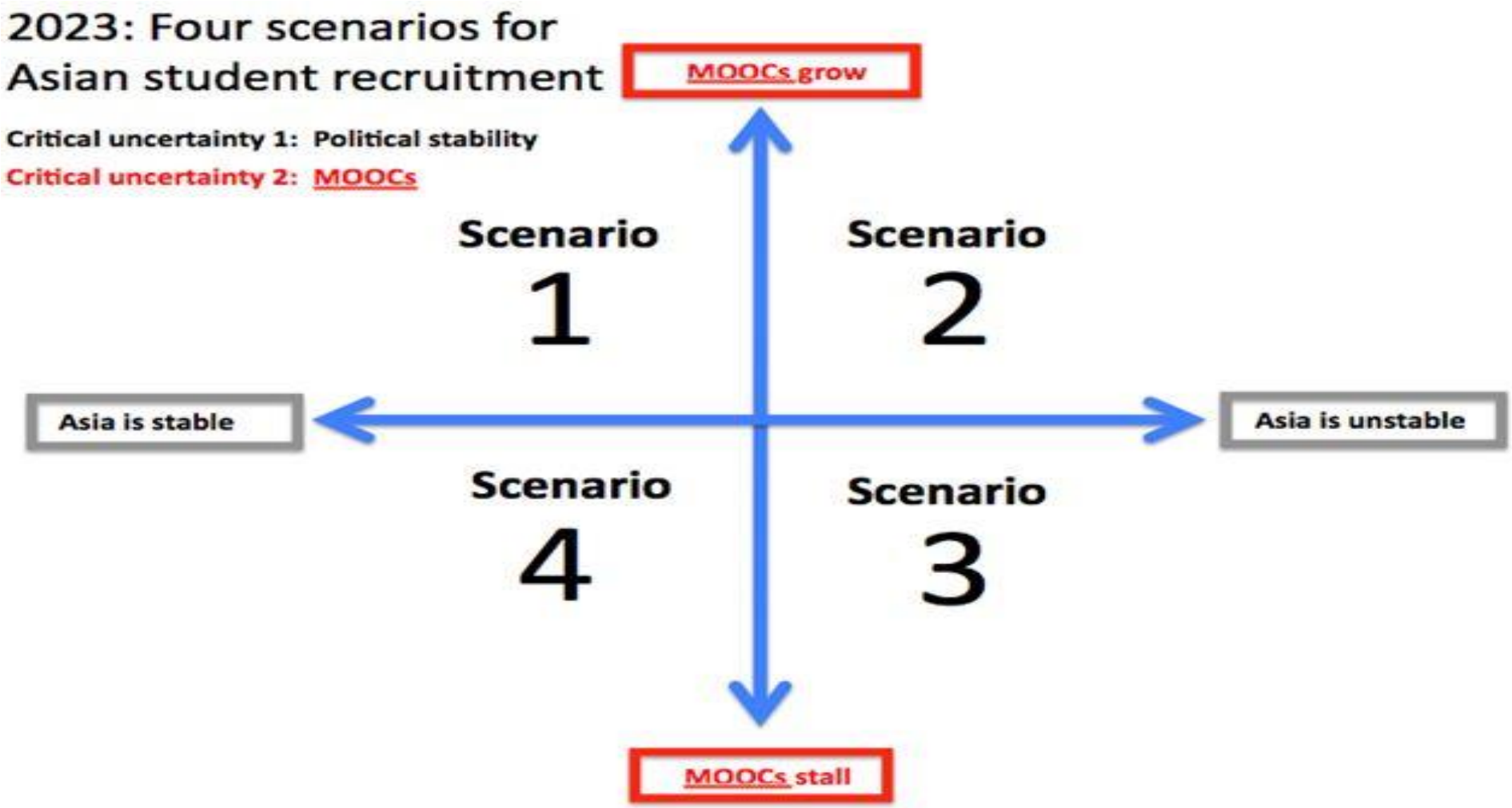

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Seven Steps to Scenarios - Step #5 – (Cont)

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Step 5 : Compose Plots (Build Scenarios)

Two relevant features:

1. Highly descriptive titles

Memorable titles conveying the **essence** of what is happening in each of the different scanrios

2. Table of comparative descriptions

How the scenarios differ along given **dimensions, factors and likelihood of occurrence**

A Scenario Planning Process

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Scenario Comparison Table

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Scenario Blueprint				
Uncertainty	**Scenario One Business as Usual**	**Scenario Two Financial Issues**	**Scenario Three New Markets**	**Scenario Four Change, Change, Change**
Regulatory Environment	**Unchanged**	**Burdensome**	**Unchanged**	**Burdensome**
Economic Shift	**Incremental**	**Incremental**	**Significant**	**Significant**
Globalization	Highly globalized and integrated	Some pockets of protection	Highly globalized and integrated	Return of protectionism
Type and Degree of Competition	Limited new entrants	Non-traditional, but selective in attractive niches	Competition from emerging market institutions	Non-traditional and widespread
Financial Crises	No financial crises	Massive with widespread impact	Low and constrained impact	Massive with impact on developed world
Lender of Last Resort	In place	In place	None in place	None in place
Debt Situation	Manageable	Manageable	Moderate collapse	Significant collapse
Securitization Market	Recovered	Constrained	Somewhat constrained	Somewhat recovered
Retirement Environment	Stretched, but manageable	Stretched, but manageable	System collapse in developed world	System collapse in developed world

Seven Steps to Scenarios - Step #6

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Step 6 : Evaluate the Decision (Strategic Implications)

Link back to the **strategic decision(s)** in **Step 1**

Simplest approach is to answer two questions:

1. **What are the main opportunities and threats that each scenario poses?**

2. **How well prepared is the organisation to seize these opportunities and counter or minimise the threats?**

A Scenario Planning Process

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Seven Steps to Scenarios - Step #7

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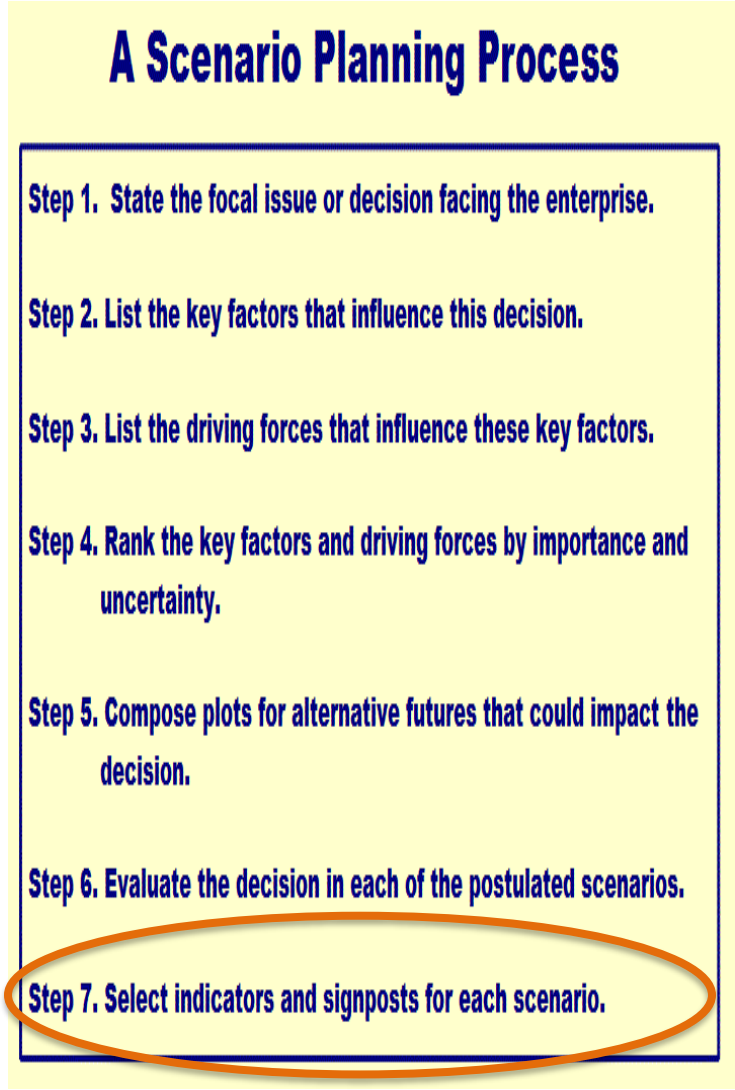
Step 7 : Indicators and Signposts

Provide Compelling Scenario 'Story Lines'

Scenarios are **not end-points** but are narratives of **how events might unfold** from now to the future point

Should be **dramatic, compelling, logical and plausible**

Provide **markers and likely key branching points** on the dynamic path



Climate Change Scenario Example

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Scenario Examples - Business

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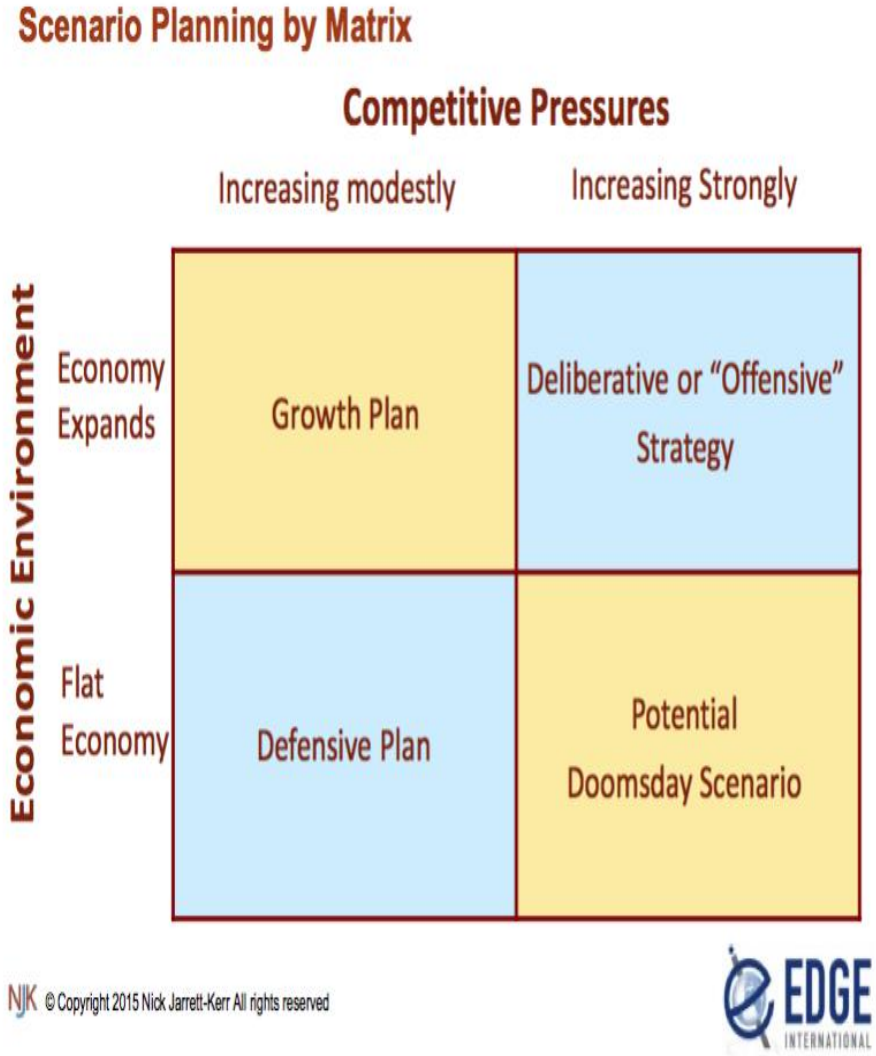

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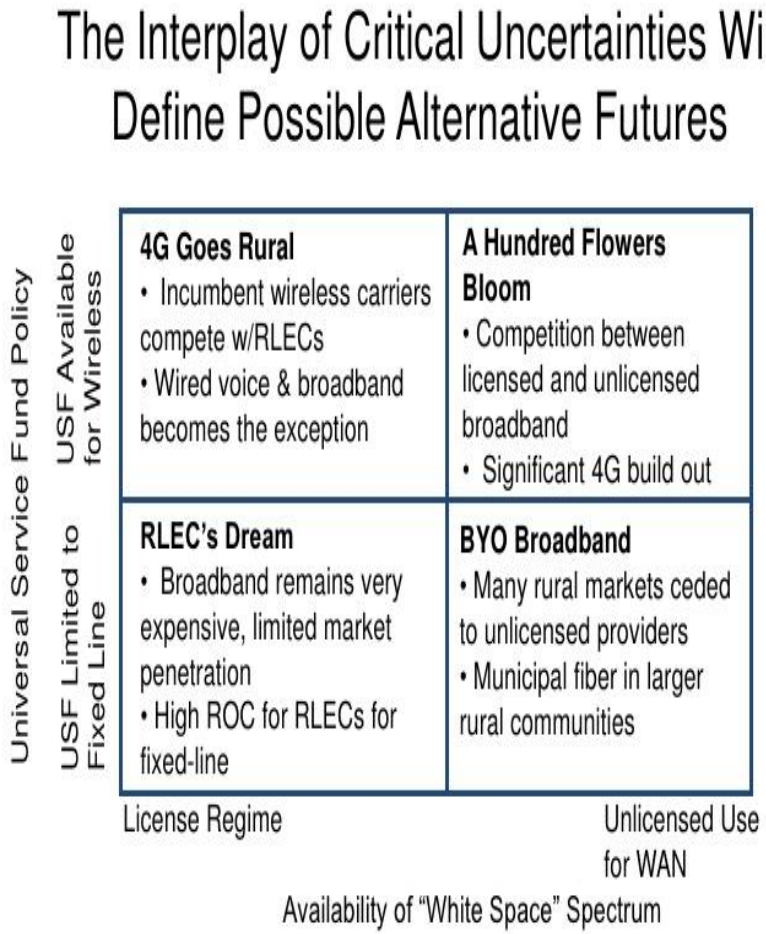

How can you use Scenarios?

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1. **Employ scenarios as 'test beds' for the organisation's current strategy**

Judgemental assessment by planning committee as to how well (or badly) the organisation's strategy 'plays out' in each scenario.

The assessment is done by evaluating each scenario and identifying **Opportunities /Threats**

The following questions are relevant:

Are we satisfied with the resilience of our current strategy, its flexibility to deal with different possible conditions?

Are there contingency plans we should put in place to help move in a different direction, should that be necessary?

Uses of Scenarios (2)

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2. Scenarios stimulate us to explore new strategy options

Scenarios portray **different futures** and these different futures would obviously require **different strategies**

The difficulty is **not knowing which future will evolve**

Judgemental assessment by planning committee as to how well different organisational strategies 'play out' in each scenario

Flexible strategy may be determined allowing for **quick adaptation to new circumstances** and different threats and opportunities as they appear on the horizon

Arguments for Scenario Planning

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In an age of incremental change, it is safe to say that incremental changes in our strategies will suffice.

However, an age of **discontinuities and massive uncertainties** requires **discontinuous strategies, sometimes radical changes from past practices**

The powerful feature of scenarios is that they **stretch the envelope of our thinking** both about the future and about our strategies

They provide managers with a powerful forecasting tool to evaluate strategies while considering uncertain future outcomes

Scenarios – Final Advice

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