

ANALYTICAL TOOLS FOR STRATEGIC DECISION MAKING

INTRODUCTION

INTRODUCTION (CONT)

- ❑ Every now and then, individuals, groups, communities, nations and groups of nations have to take decisions to pursue their interests.
- ❑ Cognitive process of selecting a belief or course of action from among several possible alternative options.
- ❑ DM is “the process of examining possibilities, options, comparing them and choosing a course of action”.
- ❑ Become most basic and fundamental of organisational functions from: planning, staffing, communicating, budgeting, forecasting, organising, controlling to leading.
- ❑ Different layers of employees engage in DM at different levels.

DIFFERENT LEVELS OF DECISION MAKING

Ser	Levels of DM	Action	Term	Complexity	Impact
(a)	(b)	(c)	(d)	(e)	(f)
1.	Strategic	Snr Mgt	Long	Complex	Huge
2.	Operational	Middle level Mgt	Medium	Less complex	Big
3.	Tactical	Jnr Mgt	Short	Routine	Small

INTRODUCTION (CONT)

- ❑ As we climb the ladder of organisations in various sectors (and nations),
- ❑ Decisions become more deliberate, long term, complex and hugely impactful.
- ❑ DM at strat level must be deliberate, orderly, systematic and qualitative.

GENERAL FACTOR AFFECTING DECISION MAKING

- Perceptions.
- Values.
- Aspirations.
- Goals.
- Priorities.
- Style.
- Resources.
- Risks.
- Acceptability.
- Judgement.

SOME FACTOR AFFECTING STRATEGIC DECISION MAKING

- ❑ Advancements in human cognition.
- ❑ Information revolution, big data and analytics.
- ❑ Complexity of business and security environments.
- ❑ Elevated public scrutiny.
- ❑ Great public expectations.

JUSTIFICATION AND ASSUMPTION

Justification

- ❑ The processes require some form of aid or tool
- ❑ Rationale for data analytics and decision making techniques
- ❑ As middle level officers climbing the strategic ladder, need to understand dynamics of data analysis and analytical tools for decision making.

Assumption

- ❑ Requisite cognition and experience to understand the merits of data analysis and analytical techniques for strategic decision making.

LIMITATIONS

- ❑ Traditional data analysis rooted in statistics.
- ❑ Statistical methods the goto aid for data analysis.
- ❑ Descriptive Statistics.
- ❑ Inferential Statistics.
- ❑ Digital tools such as Statistical Package for Social Sciences (SPSS), Minitab Statistical Software, POSIT, STATA, and OriginPro.
- ❑ Presentation is not on Data Analysis.
- ❑ Rather on analytical tools for strategic decision making.

AIM

To discuss some analytical tools for strategic decision-making.

SCOPE

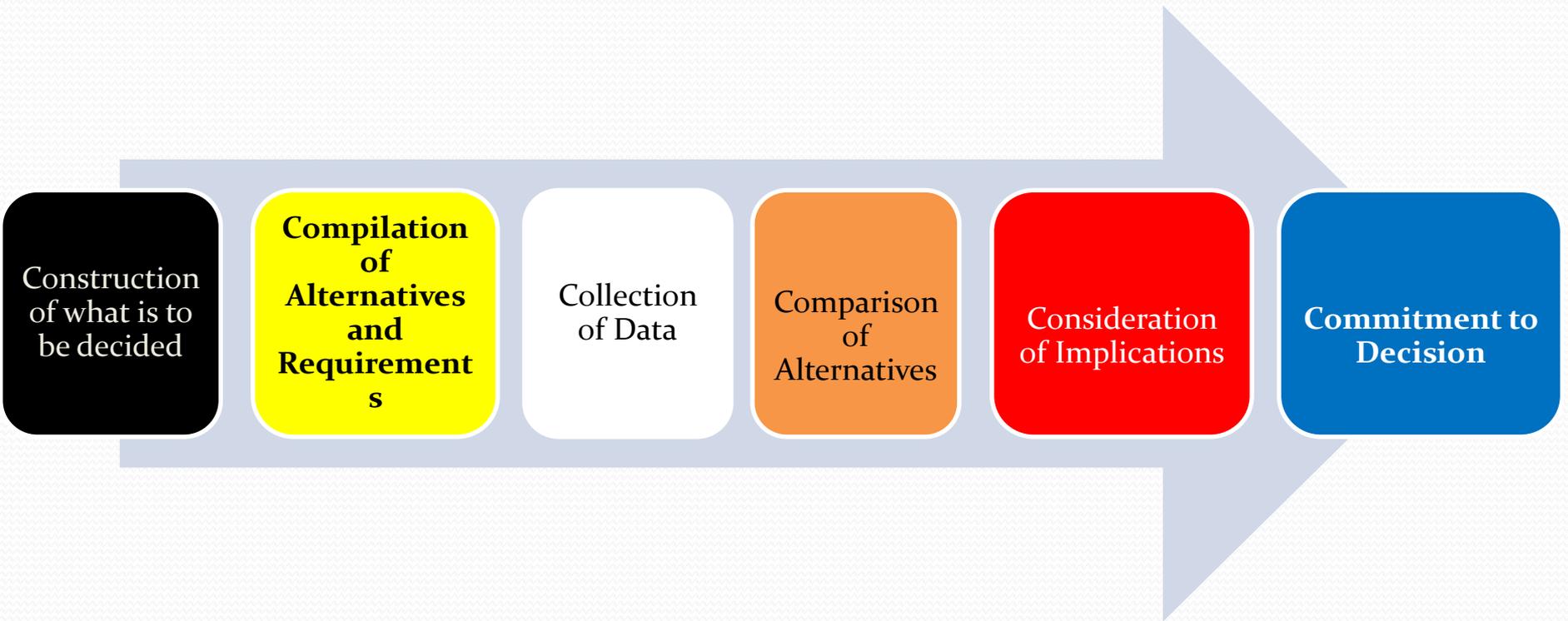
- ❑ Historical/Conceptual overview of analytical tools for decision-making.
- ❑ An Array of Analytical Tools for Strategic decision making.
- ❑ Review of some decision making tools.

HISTORICAL/CONCEPTUAL OVERVIEW

DIFFERENT LEVELS OF DECISION MAKING

Ser	Analytical Tools
(a)	(c)
1.	1708 – CBA developed in France by Saint Pierre in France
2.	1850s – In a book “The Functions of the Executive”, phrase ‘decision-making’ used by Chester Bernard
3.	1900s – Pareto Analysis created by Vilfredo Pareto
4.	
5.	1950 – Scenario Planning developed by Herman Kahn for US Army at RAND
6.	1960 – SWOT Analysis developed by Albert Humphrey - Accreditation debatable
7.	1960- Decision Matrix created by Stuart Pugh while working for Unilever Research Laboratories
8.	1963 – Decision Tree by Univ of Wisconsin Dept of Stats
9.	1970s – PESTLE created by Francis Aguillar

PROCESS OF DECISION MAKING



BASIC CONCEPTS

- ✓ Analytical tools for strategic decision were developed independently over a long time.
- ✓ Offer means, devices or instruments for achieving situation assessment or evaluation in an expeditious and accurate manner.
- ✓ Crucial because some of most difficult aspect of strategic decision making is to identify strategic issues and alternative strategic approaches
- ✓ Analytical tools shed light on issues, and gaps as well as point to the processes of generating viable strategic options.

AN ARRAY OF ANALYTICAL TOOLS FOR STRATEGIC DECISION-MAKING

DIFFERENT LEVELS OF DECISION MAKING

Ser	DM Tools	Remarks
(a)	(b)	(c)
1.	Cost Benefit Analysis	
2.	PESTLE (M)	
3.	Six Thinking Hats Analysis	
4.	Four Corners Analysis	
5.	Value Chain Analysis	
6.	MOST Analysis	
7.	Game Theory	
8.	Scenario Planning	
9.	Decision Matrix Analysis	
10.	Decision Tree Analysis	
11.	SWOT Analysis	

REVIEW OF SOME ANALYTICAL TOOLS FOR STRATEGIC DECISION-MAKING

COST BENEFIT ANALYSIS

- ✓ CBA is process of comparing estimated costs and projected benefits associated with a project/initiative to det if it makes sense from a business, operational or strategic point of view.
- ✓ C & B could be tangible or intangible.
- ✓ CBA - totalling all known & estimated costs and subtracting all known & projected benefits.
- ✓ Would give positive/negative CBA. or Cost CBR in which case value of C/B gives Ratio (R).

STEPS IN COST BENEFIT ANALYSIS

- ✓ Step 1: Framework. Estab framework for analysis such as objectives, requirements/conditions for interpreting results.
- ✓ Step 2: Identify Costs and Benefits. Identify all possible costs and benefits such as:
 - Direct costs.
 - Indirect costs.
 - Intangible costs.
 - Opportunity costs.
 - Direct benefits.
 - Indirect benefits.
 - Intangible benefits.
 - Competitive benefits.

STEPS IN COST BENEFIT ANALYSIS (CONT)

✓ Step 3: Quantify Cost and Benefit Elements.

Assign monetary values to each and every cost and benefit element identified.

Step 4: Tally the Total Costs and Benefits. Tally the total costs and total benefits

Ser	Costs	Amt (N)	Benefits	Amt (N)	CBA/CBR
(a)	(b)	(c)	(d)	(e)	(f)
1	Cost 1		Benefit 1		
2	Cost 2		Benefit 2		
3	Cost 3		Benefit 3		
4	Cost 4		Benefit 4		
5	Cost 5		Benefit 5		
6	Total Cost	C	Total Benefits	B	CBA/CBR

STEPS IN COST BENEFIT ANALYSIS (CONT)

Step 5: DM dependent to values of CBA or CBR.

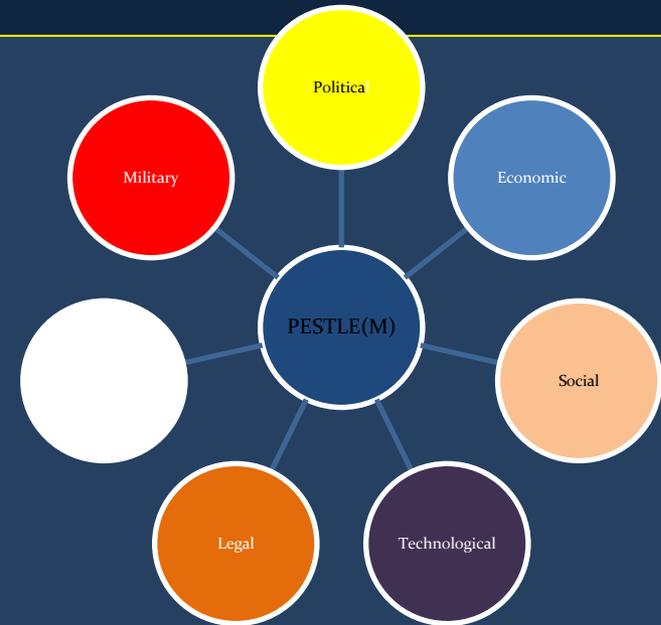
CBA can be negative, zero or positive.

CBR can be more than, equal to or less than 1.

Decision depends on thresholds set in Step 1.

PESTLE (M) ANALYSIS

PESTLE Analysis used by corporate entities in a competitive environment to analyse their standing or prospects of new products/initiatives.



PESTLE (M) analysis – ext of PESTLE for def and sec DM. Allows consideration of mil comp.

QUESTIONS IN PESTLE (M) ANALYSIS

- ✓ What is the **political situation** of the nation and how can it affect organisation, sector, product, service or initiative? Can organisation, initiative/product/service thrive?
- ✓ What are **prevailing Economic Factors**?
- ✓ What are the **Social Determinants**?
- ✓ What are **Technological Innovations**?
- ✓ What are current or evolving **Legislations**?
- ✓ What are environmental/ethical issues?
- ✓ What are military or security implications?

SIX THINKING HATS ANALYSIS

- ✓ Six Thinking Hats of analysis for decision making used to amplify creative conversations by making sure that a broad variety of viewpoints and thinking styles are represented.
- ✓ Using six roles or hats as shown

SIX THINKING HATS ANALYSIS

WHITE HAT.

logic

Objective hat focuses on facts &

Red Hat.

and emotion.

Intuitive hat focuses on intuition

Black Hat.

negative outcomes

Cautious hat used to predict

Yellow Hat.

positive outcomes

Optimistic hat used to look at

Green Hat.

incubated and criticism spare.

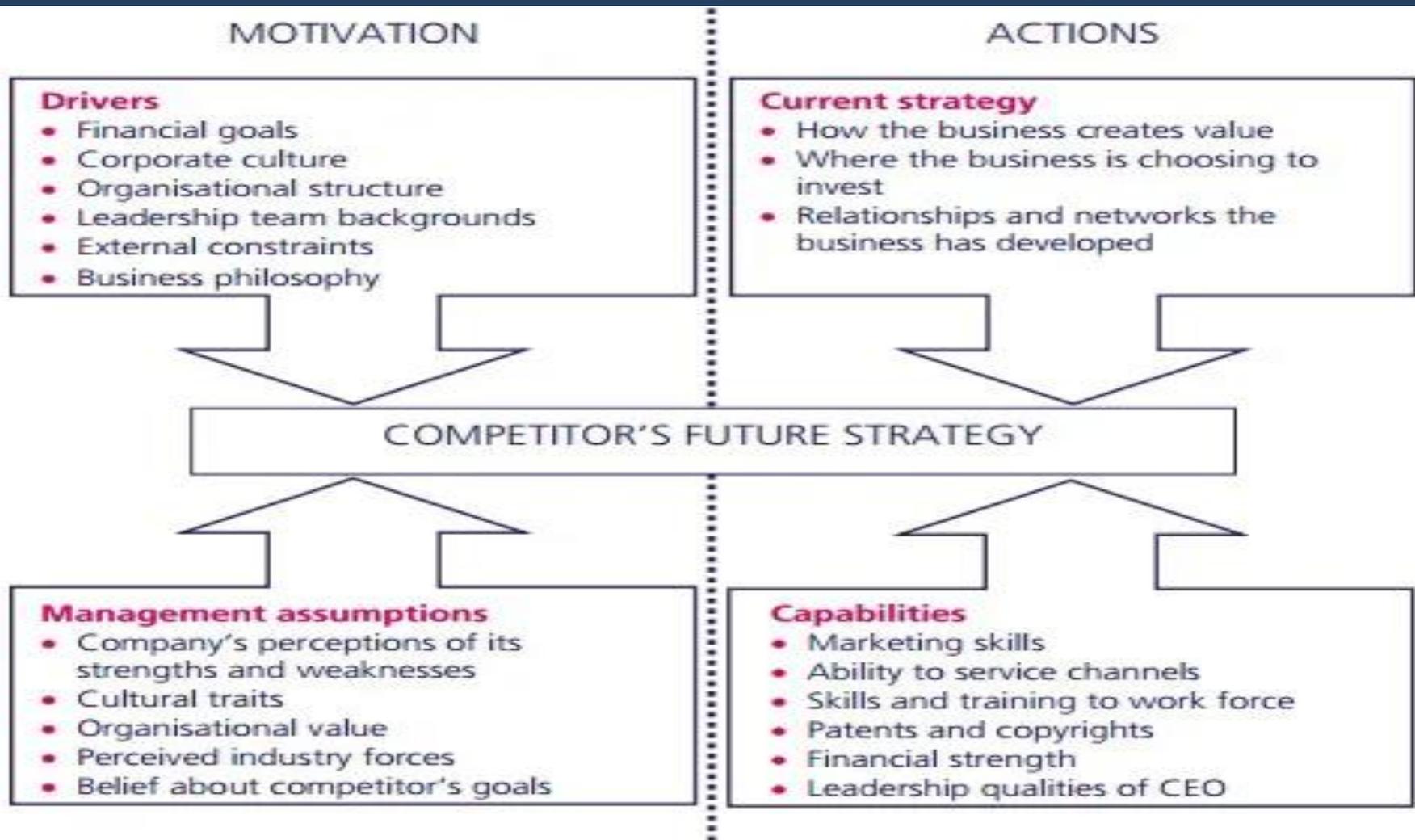
Creative hat where ideas are

Blue Hat.

and organisation

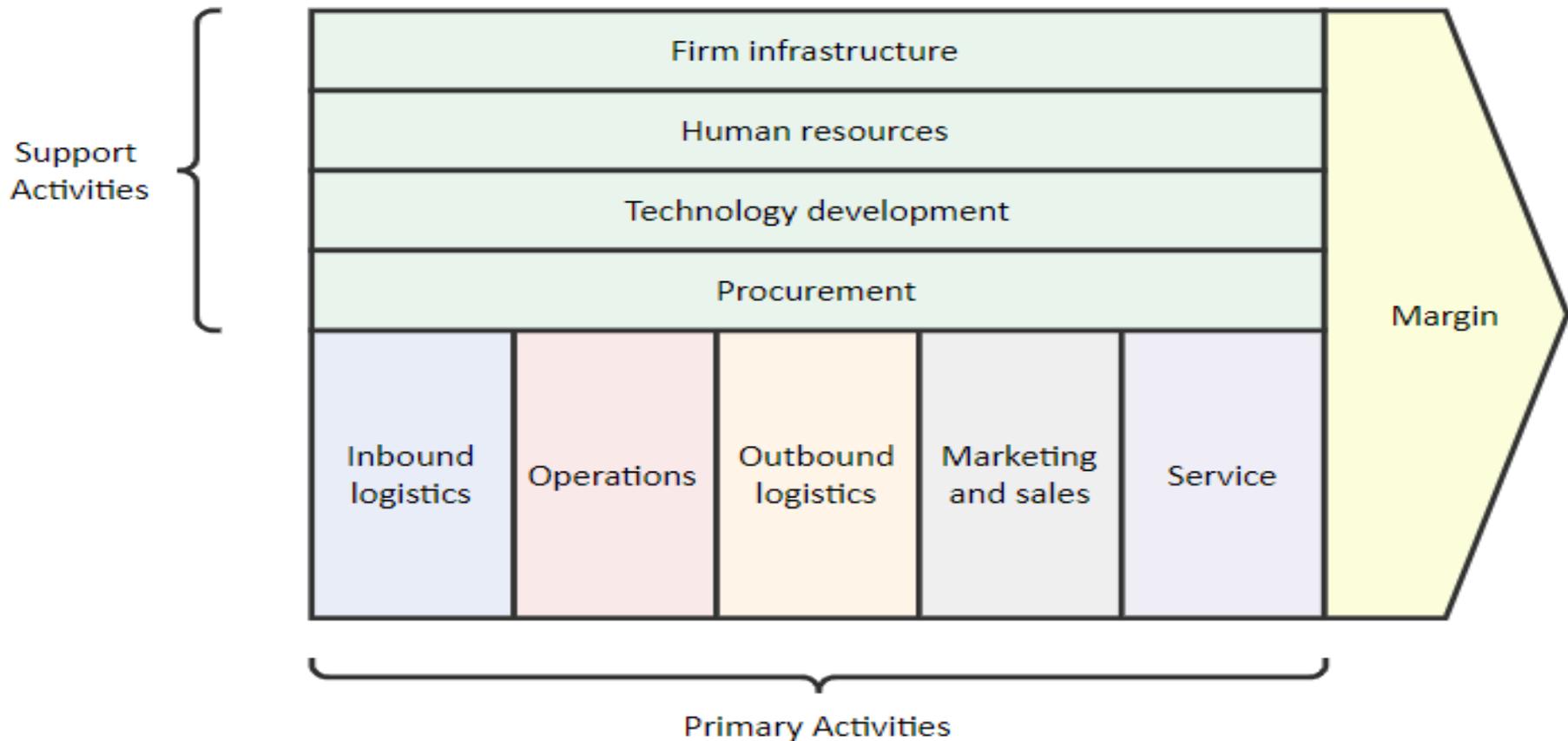
Control hat used for management

FOUR CORNER ANALYSIS



VALUE CHAIN ANALYSIS

Amazon's Value Chain Analysis



MOST ANALYSIS

Mission

Objectives

Strategies

Tactics

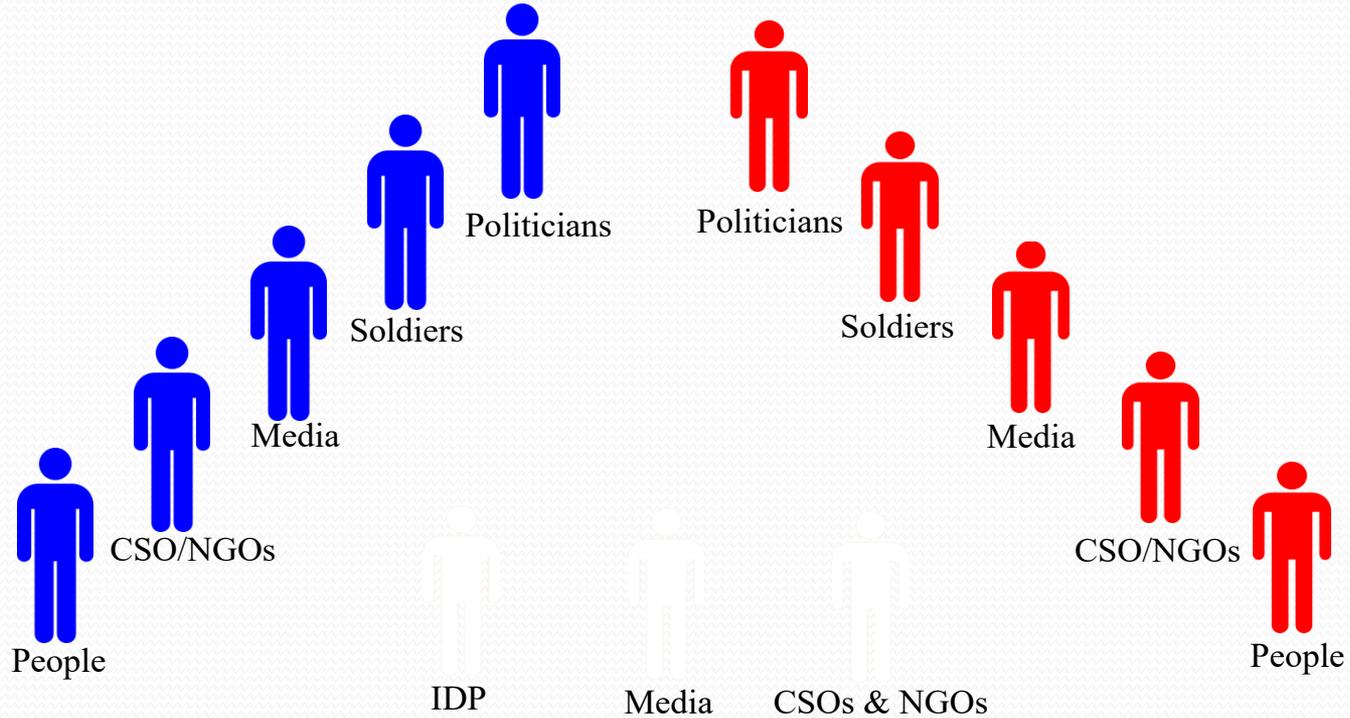
GAME THEORY

- ✓ Game Theory is an interactive DM tool, where the outcome for each participant or player depends on the actions of all.
- ✓ If you are a player, your choices or strategy must take account of the choices of others.
- ✓ Basic elements are a set of participants, the actions or moves and the scores or payoffs.

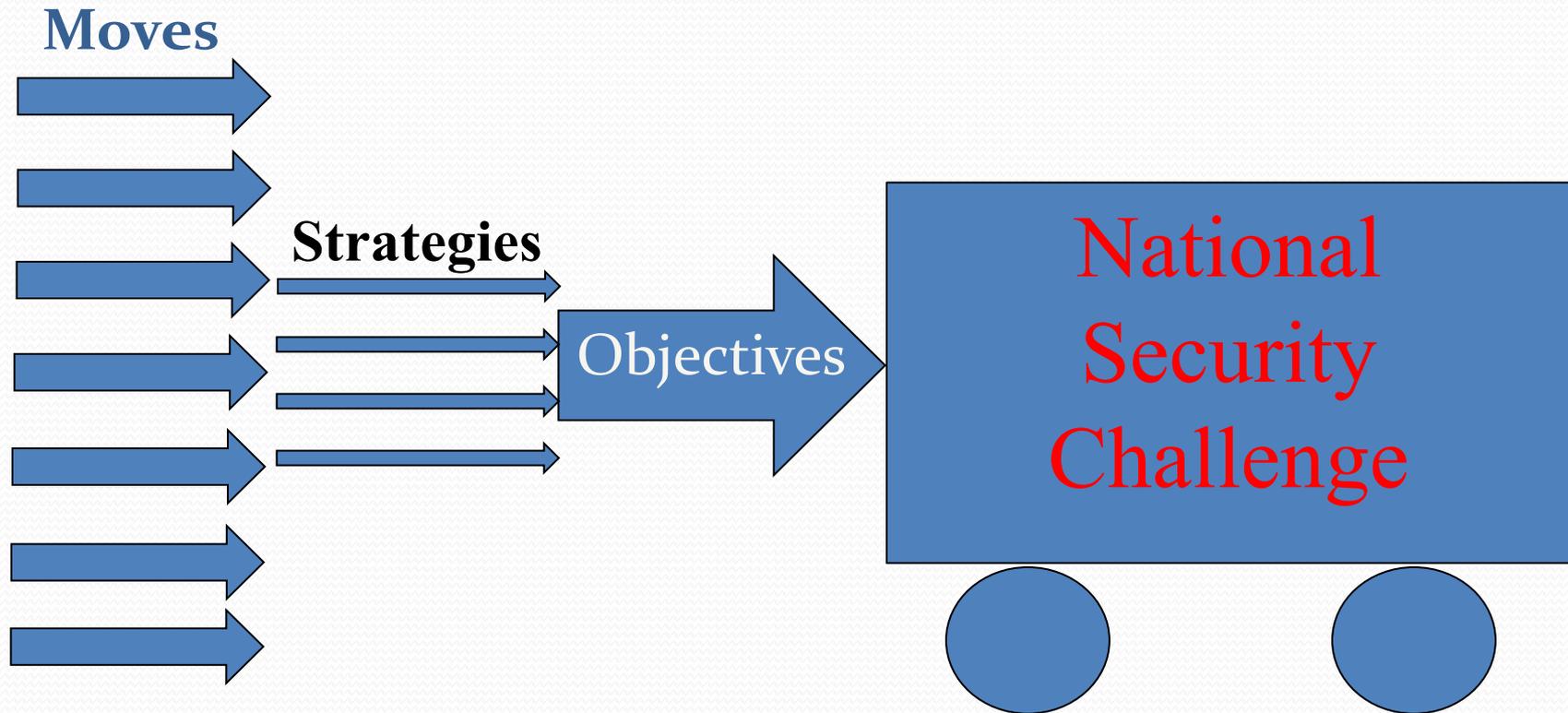
GAME THEORY (CONT)



Control



GAME THEORY (CONT)



SCENARIO PLANNING

- ✓ SP based on making assumptions on what the future is going to be
- ✓ Use the assumptions to predict or project the state of the organisation, product, service or initiative

DECISION MATRIX ANALYSIS

- ✓ DMA or Grid Analysis is used to objectively decide between several strategic options when many factors need to be considered.
- ✓ Similar to Options Model in Service Writing.

DECISION MATRIX ANALYSIS (CONT)

- ✓ Step 1. Identify all Strategic Options 1 to 5
- ✓ Step 2. Identify requirements/conditions that Options need to satisfy. These requirements may be weighted according to their importance or simply classified as Essential and Desirable.
- ✓ Step 3. Create a Table and lay out Options as rows and Requirements as columns

Serial	Options	Requirements					Remarks
		R1	R2	R3	R4	R5	
	Weights of Reqs	5	4	3	2	1	
1	Option 1						
2	Option 2						
3	Option 3						
4	Option 4						
5	Option 5						

DECISION MATRIX ANALYSIS (CONT)

✓ Example of Step 3.

The Power Reform

Ser	Options	Requirements					Remarks
		Avail	Access	Rate	Security	Political	
Weights of Reqs		5	4	5	2	2	
1	Govt Ownership						
2	Concession						
3	Full Privatisation						
4	Privatisation less Transco						

DECISION MATRIX ANALYSIS (CONT)

Step 4. Work your way down each column scoring the requirement for each Option using for instance, a Likert Scale of 1-3

Ser	Options	Scoring					Remarks
		R1	R2	R3	R4	R5	
		5	4	3	2	1	
1	Option 1	3	1	3	1	1	
2	Option 2	2	3	2	3	3	
3	Option 3	1	3	2	2	3	
4	Option 4	3	2	1	2	2	

DECISION MATRIX ANALYSIS (CONT)

Step 5. Multiply scores with weights of each requirement for each score. Add up the weighted scores. The Option with the highest overall score is chosen or the preferred option

Ser	Options	Analysis					Total	Rmks
		R1	R2	R3	R4	R5		
		5	4	3	2	1		
1	Option 1	3(15)	1(4)	3(9)	1(2)	1(1)	31	4
2	Option 2	2(10)	3(12)	2(6)	3(6)	3(3)	37	1
3	Option 3	1(5)	3(12)	2(6)	2(6)	3(3)	32	3
4	Option 4	3(15)	2(8)	1(3)	2(6)	2(2)	34	2

DECISION MATRIX ANALYSIS (CONT)

Alternative to Step 5.

Ser	Options	Analysis					Rmks
		R1	R2	R3	R4	R5	
Description of Rs		Essentials		Desirables			
1	Option 1	1	0	1	1	1	X
2	Option 2	1	1	1	0	1	
3	Option 3	0	1	1	1	1	X
4	Option 4	1	1	1	0	0	

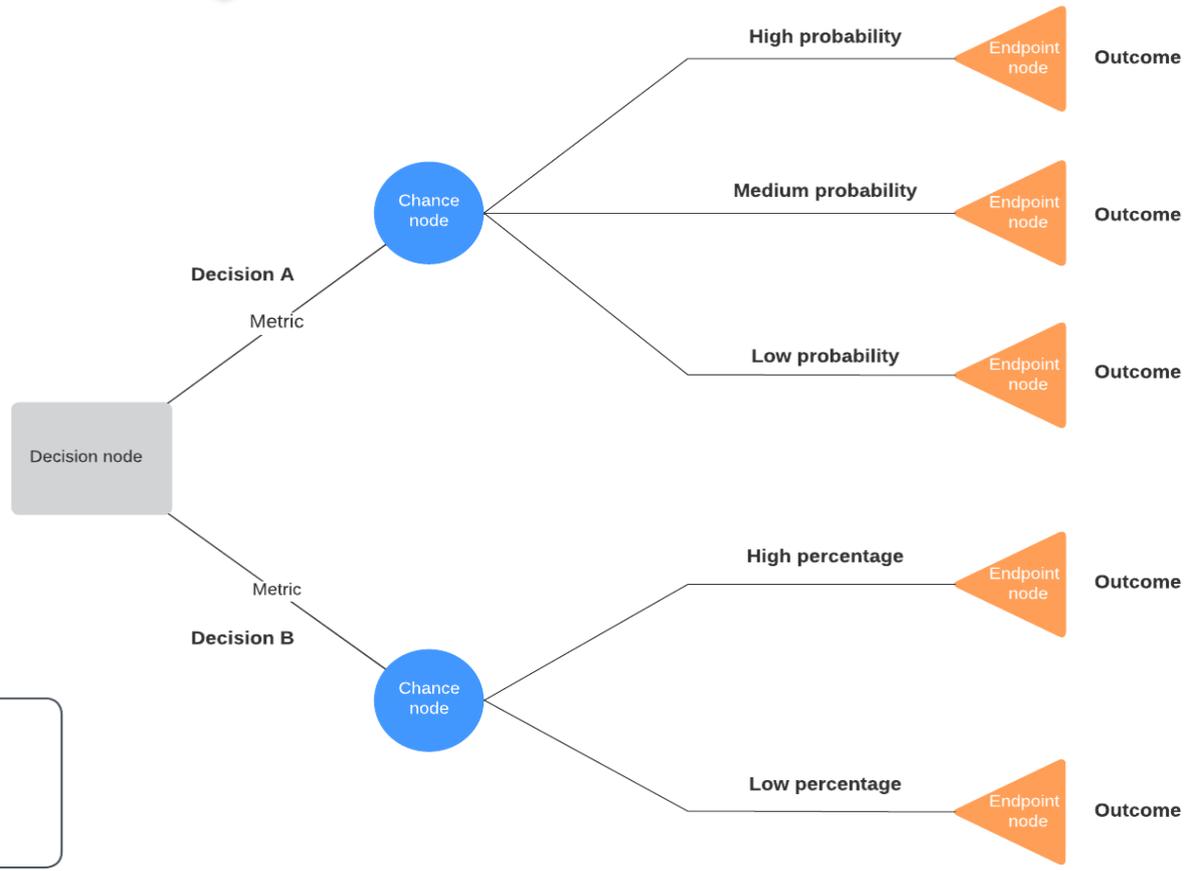
DECISION TREE

- DTA involves outlining various alternatives, potential outcomes, costs and consequences of a complex decision.
- Used in OR to identify a strategy that is most likely to achieve a goal.
- Consists of 3 type of nodes –

<u>Decision Nodes.</u>	Represented by squares
<u>Chance Notes.</u>	Represented by circles
<u>End Notes.</u>	Represented by a triangle.

DECISION TREE (CONT)

Show optimal path
(Hold Shift + ⌘ or Ctrl, then click)



SWOT ANALYSIS

- ❑ SWOT stands for Strengths, Weaknesses, Opportunities and Threats.
- ❑ SWOT Analysis - process of systematic identification and informed consideration of critical inputs to organizational goal attainment and the selection of the best strategy that reflects an optimum match of these inputs
- ❑ Inputs are Internal factors - S & W and External factors – O & T

SWOT ELEMENTS

□ Strengths. Overall endowments of organisation relative to competition and needs of existing/anticipated env't. Include tangible/intangible attributes - leadership/mgt, skills, resources, caps, avail tech, economies of scale, patents, products and services, customer goodwill, staff loyalty, brand leadership and loyalties.

□ Weaknesses. Liabilities, deficiencies, limitations, resource gaps or other disadvantages that can impede perf of organisation relative to competition and needs of existing/anticipated env't. Include: poor leadership/mgt, limited resources, low spending on R&D, higher costs, out-dated tech, under-trained staff, narrow product line.

SWOT ELEMENTS (CONT)

□ Opportunities. Favourable situations in ext'l ops env't that are helpful to the organisation. Examples: favourable political climate, economic boom, government deregulations, rapid market growth, changing customer needs,

□ Threats. Unfavourable situations in ext'l ops env't that are harmful to the organisation. Examples: unfavourable political climate, economic downturn, adverse government regulation, foreign competitor, intro of new substitutes, new strategies by rival organisations.

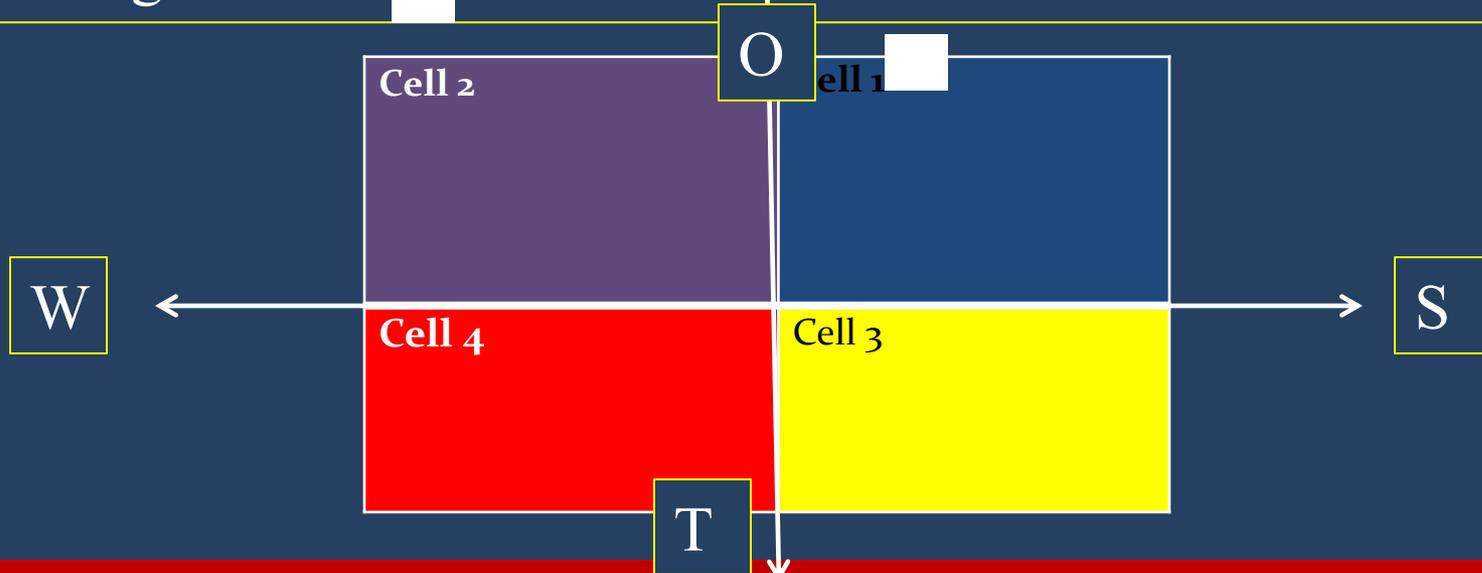
□ Hints. Likely sources - Internal Audits, NEED Analysis, Cap Gap Analysis, Env't Scan, PESTLE(M)

SWOT ELEMENTS (CONT)

Serial	Groupings	Helpful Elements	Harmful Elements	
(a)	(b)	(c)	(d)	(e)
1	Internal Dynamics	STRENGTHS (Apply)	WEAKNESSES (Minimise)	S vs W
2	External Dynamics	OPPORTUNITIES (Exploit)	THREATS (Avoid or Overcome)	O vs T
3		S + O	W + T	

SWOT ANALYSIS

- **Step 1.** Step 1 is to compare S and W elements to get the internal health of the organisation.
- b. **Step 2.** Step 2 is to compare O and T elements to get the external health of the organisation.
- c. **Step 3.** Draw a graph showing the net value of the organisation or project based on the outcome of Steps 1 and 2 above. This will give 4 cells as shown below:



STRATEGIES FROM SWOT ANALYSIS

Strategic Options. Based on analysis and location of the organisation/project, consider fol strat initiatives.

- ❑ Cell 1. Strength and Opportunities are both positive. Consider Aggressive Growth Oriented (SO) Strategy
- ❑ Cell 2. Gross Weaknesses but positive Opportunities. Consider Turn-around and Alliance (WO) strategies.
- ❑ Cell 3. Positive Strengths but major threats. - Stabilisation, Sustainment & Diversification (ST).
- ❑ Cell 4. Weaknesses and Threats are both dominant. Consider Survival, Defensive and Containment (WT).

CONCLUSION

THANK YOU FOR
YOUR
ATTENTION