Important Insights for Decision Making

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Decision Making

a course of action purposely chosen from a set of alternatives to achieve organizational or managerial objectives or goals within a period of time – PMI

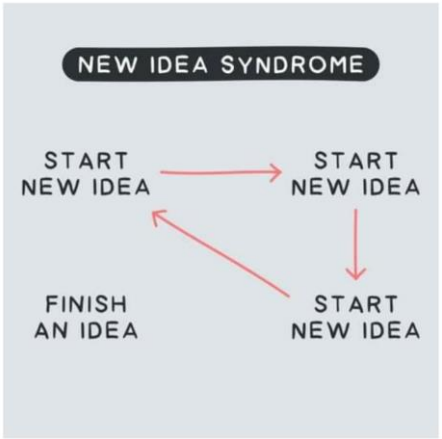
Types of Decision Making

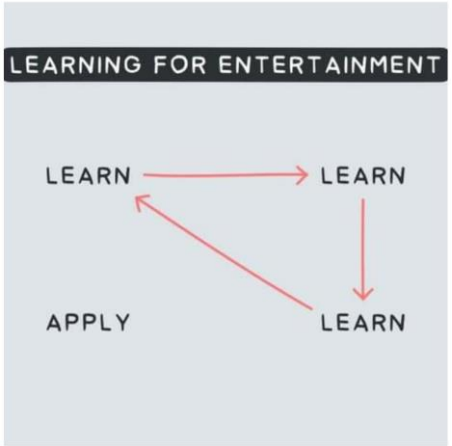
- Programmed and Non-programmed
- Major and Minor decisions
- Routine and Strategic
- Organizational and Personal
- Individual and Group
- Policy and Operational
- Long-term, departmental, and non-economic
- Dependent and Independent

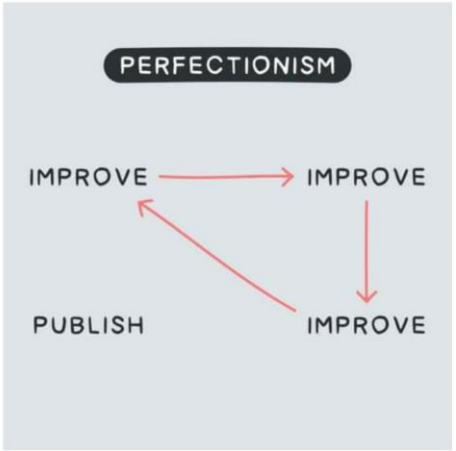
The Alpha

Confident, charismatic, leader/boss, polite yet assertive, would not seek external validation, high self-efficacy, acknowledge their weakness, and therefore strive for self-development.

Which one are you?







Programmed and Non-programmed

Programmed

Habits, rules, or procedures.

Ex: Salary scales for promoted employees

Non-programmed

Uusual or prompt (important) problems that were not covered in policies; they need special treatment.

Major and Minor

Major

Ex: Purchasing a CNC or Server

Minor

Getting some papers for office printing

Routine and Strategic

Routine

Similar to programmed

Repetitive

Does not require analysis and/or evaluation

Left to the middle-level management

Strategic

Related to the policy of organization

Made by higher-level management

Ex: Pricing, and budget approvals

Organizational and Personal

Organization

Manager makes these decisions on behalf of company's employees and officers

Directly affects policies

Personal

Manager makes decision in a smaller scale

Individual and Group

Individual

Taken by single individual, and usually taken according to a set of guidelines

Group

Team or committee meetings, list of actions points.

Policy and Operative

Policy

Critical, and left to the top-level (senior) management

Operative

Related to day-to-day operations, and left to the low-level management.

Long-term, Departmental, and Non-economic

Long Term

Very critical, and are taken for a longer periods of time. They involve high risks.

Departmental

Taken by department head, and closely related to a departmental particular issue.

Non-economic

Related to non-commercial and no cost factors, such as technical values, moral behavior, brand and visual communication, etc.

Dependent and Independent

Dependent

"I need someone else to tell me what to do!”

Relying on others to decide.

Good for families and friends, but not for business.

Independent

“I know what to do!”

Sometimes seeking guidance to take decisions by themselves.

However, they can be facing the ‘Avoidant’ problem; pretending that issues does not exist or neglecting its significance.

Decision-making Situations

Decision analysis

Decision making under uncertainty

Decision making under risk

BIT Company

Product #	State of nature (or level of demand)		
	Low (0.25)	Moderate (0.45)	High (0.30)
#1	-1000	5900	8000
#2	400	3100	8200
#3	-700	6200	7300
#4	-5400	1400	9800
#5	-2000	0	5000
#6	1800	3000	3750
#7 (Do Nothing)	0	0	0

BIT Company

Product #	State of nature (or level of demand)			Find expected value for each alternative ➔ EV
	Low (0.25)	Moderate (0.45)	High (0.30)	
#1	-1000	5900	8000	EV1 = 0.25(-1000) + 0.45(5900) + 0.30(8000) = **4805**
#2	400	3100	8200	EV2 = 0.25(400) + 0.45(3100) + 0.30(8200) = **3955**
#3	-700	6200	7300	EV3 = 0.25(-700) + 0.45(6200) + 0.30(7300) = **4805**
#4	-5400	1400	9800	EV4 = 0.25(-5400) + 0.45(1400) + 0.30(9800) = **2220**
#5	-2000	0	5000	EV5 = 0.25(-2000) + 0.45(0) + 0.30(5000) = **1000**
#6	1800	3000	3750	EV6 = 0.25(1800) + 0.45(3000) + 0.30(3750) = **2925**
#7 (Do Nothing)	0	0	0	EV7 = 0.25(0) + 0.45(0) + 0.30(0) = **0**

Best Decision: **product #1 or product #3, EV = 4805.**

BIT Company

Product #	State of nature (or level of demand)			
	Low (0.25)	Moderate (0.45)	High (0.30)	
#1	-1000	5900	8000	
#2	400	3100	8200	
#3	-700	6200	7300	
#4	-5400	1400	9800	
#5	-2000	0	5000	
#6	1800	3000	3750	
#7 (Do Nothing)	0	0	0	
PI	1800	6200	9800	EVwPI = 0.25(1800) + 0.45(6200) + 0.30(9800) = 6180

- EVwPI = 0.25(1800) + 0.45(6200) + 0.30(9800) = 6180
- EVPI = EVwPI – best EV = 6180 – 4805 = **1375**

BIT Company

Product #	State of nature (or level of demand)		
	Low	Moderate	High
#1	-1000	5900	8000
#2	400	3100	8200
#3	-700	6200	7300
#4	-5400	1400	9800
#5	-2000	0	5000
#6	1800	3000	3750
#7 (Do Nothing)	0	0	0

- Select the best decision (which product should be introduced) according to the following decision criteria:

1. MaxiMax (optimistic)
2. MaxiMin (pessimistic)
3. Hurwicz ($\alpha = 0.7$)
4. Equal Likelihood (Laplace)
5. MiniMax Regret

BIT Company

- Find the optimistic value (best value) for each alternative; then select the best one.

Product #	State of nature (or level of demand)			Find Maximum value in each row
	Low	Moderate	High	➔ Max in Row
#1	-1000	5900	8000	8000
#2	400	3100	8200	8200
#3	-700	6200	7300	7300
#4	-5400	1400	9800	9800
#5	-2000	0	5000	5000
#6	1800	3000	3750	3750
#7 (Do Nothing)	0	0	0	0

- Best decision: **product #4, payoff = 9800**

BIT Company

- Find the pessimistic value (worst value) for each alternative; then select the best one

Product #	State of nature (or level of demand)			Find Minimum value in each row
	Low	Moderate	High	➔ Min in Row
#1	-1000	5900	8000	-1000
#2	400	3100	8200	400
#3	-700	6200	7300	-700
#4	-5400	1400	9800	-5400
#5	-2000	0	5000	-2000
#6	1800	3000	3750	1800
#7 (Do Nothing)	0	0	0	0

- Best Decision: **Product #6, payoff = 1800**

BIT Company

Product #	State of nature (or level of demand)			Find Hurwicz value for each alternative
	Low	Moderate	High	➔ Hurwicz
#1	-1000	5900	8000	Hurwicz = 0.7(8000) + 0.3(-1000) = 5300
#2	400	3100	8200	Hurwicz = 0.7(8200) + 0.3(400) = 5860
#3	-700	6200	7300	Hurwicz = 0.7(7300) + 0.3(-700) = 4900
#4	-5400	1400	9800	Hurwicz = 0.7(9800) + 0.3(-5400) = 5240
#5	-2000	0	5000	Hurwicz = 0.7(5000) + 0.3(-2000) = 2900
#6	1800	3000	3750	Hurwicz = 0.7(3750) + 0.3(1800) = 3165
#7 (Do Nothing)	0	0	0	Hurwicz = 0.7(0) + 0.3(0) = 0

- Best Decision: **Product #2, Hurwicz = 5860**

BIT Company

- Find average value for each decision (alternative); then select the best one.

Product #	State of nature (or level of demand)			Find average value for each alternative
	Low	Moderate	High	➔ Average Payoff
#1	-1000	5900	8000	Average = (-1000+5900+8000)/3 = 4300
#2	400	3100	8200	Average = (400+3100+8200)/3 = 3900
#3	-700	6200	7300	Average = (-700+6200+7300)/3 = 4266.67
#4	-5400	1400	9800	Average = (-5400+1400+9800)/3 = 1933.33
#5	-2000	0	5000	Average = (-2000+0+5000)/3 = 1000
#6	1800	3000	3750	Average = (1800+3000+3750)/3 = 2850
#7 (Do Nothing)	0	0	0	Average = (0+0+0)/3 = 0

- Best Decision: **Product #1, average payoff = 4300**

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Regret Table (Opportunity Loss Table)

- Original table:

Product #	State of nature (or level of demand)		
	Low (0.25)	Moderate (0.45)	High (0.30)
#1	-1000	5900	8000
#2	400	3100	8200
#3	-700	6200	7300
#4	-5400	1400	9800
#5	-2000	0	5000
#6	1800	3000	3750
#7 (Do Nothing)	0	0	0

- regret:

Product #	State of nature (or level of demand)		
	Low (0.25)	Moderate (0.45)	High (0.30)
#1	1800 - (-1000) = 2800	6200 – 5900 = 300	9800 – 8000 = 1800
#2	1800 – (400) = 1400	6200 – 3100 = 3100	9800 – 8200 = 1600
#3	1800 - (-700) = 2500	6200 – 6200 = 0	9800 – 7300 = 2500
#4	1800-(-5400) = 7200	6200 – 1400 = 4800	9800 – 9800 = 0
#5	1800-(-2000) = 3800	6200 – 0 = 6200	9800 – 5000 = 4800
#6	1800 – (1800) = 0	6200 – 3000 = 3200	9800 – 3750 = 6050
#7 (Do Nothing)	1800 - (0) = 1800	6200 – 0 = 6200	9800 – 0 = 9800

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- In regret table; find the maximum value in each row, then select the minimum of them.

Product #	State of nature (or level of demand)			Find maximum regret for each alternative ➔ Max in Row
	Low	Moderate	High	
#1	2800	300	1800	2800
#2	1400	3100	1600	3100
#3	2500	0	2500	2500
#4	7200	4800	0	7200
#5	3800	6200	4800	6200
#6	0	3200	6050	6050
#7 (Do Nothing)	1800	6200	9800	9800

- Best Decision: **product #3, regret = 2500**.