INDIVIDUAL DECISION MAKING

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Abstract

Individuals in organizations make decision. The optimizing decision maker is rational. Top managers, for instance, determine their organization`s goals, what products or services to offer, how best to organize corporate headquarters, or where to locate a new manufacturing plant. Middle – and mower – level managers determine production schedules, select new employees, and decide how pay raises are to be allocated. The making of decisions, however, is not the sole province of managers. No managerial employees also make decisions that after their jobs and the organizations they work for. The more obvious of these decisions might include whether to come to work on any given day, how much effort to put forward once at work and whether to comply with a request made by the boss. So all individuals in every organization regularly engage in decision making, that is they make choices from among two or more alternatives. Undoubtedly, many of these choices are almost reflex actions undertaken with little conscious thought. When individuals conform new or important decisions, they can be expected to reason them out thoughtfully. Alternatives will be developed. Pros and cons will be weighed. The result is that what people do on their jobs is influenced by their decision processes.

Key words: individual decisions, the rational decision – making process, individual behavior, values, perception process

1. Introduction

The optimizing decision maker is rational. In this article, we will focus on two different approaches to understanding decision making. First, we describe how decisions should be made. Then, we review a large body of evidence to show you how decisions actually are made in organizations. We conclude by offering some specific suggestions on how managers can improve their decision – making effectiveness.

2. How should decisions be made?

The model begins by *define the problem*. A problem exists when there is a discrepancy between an existing and a desired state of affairs. Once a decision maker has defined the problem, he or she needs to *identify the decision criteria* that will be important in solving the problem. In this step, the decision maker is determining what`s relevant in making the decision. This step brings the decision maker`s interests, values and personal preferences into the process. Values represent basic convictions that ,,a specific mode of conduct or end-state of existence is personally preferable to an opposite or converse mode of conduct or end – state existence.

Can we classify values? The answer is – yes. Milton Rokeach crated the Rokeach Value Survey (RVS). The RVS consists of two sets of values, with each set containing 18 individual value items. One set, called terminal values, refers to desirable end – states of existence. These are the goals that a person would like to achieve during his or her lifetime. The other set called instrumental values, refers to preferable modes of behavior, or means of achieving the terminal values.

Table 1: Example of Terminal and Instrumental values in the Rokeach Value Survey

Terminal values	Instrumental values
A comfortable life	Ambitious (hardworking, aspiring)
A sense of accomplishment	Capable (competent, effective)
Equality	Cheerful
A world of peace	Clean
Family security	Helpful
Freedom	Honest
Happiness	Imaginative
Inner harmony	Logical
Pleasure	Loving
Salvation	Obedient
Social recognition	Polite
True friendship	Responsible

Source: Adapted from M. Rokeach, the nature of human values (New York: The tree press, 1973

The criteria identified are rarely all equal in importance. Therefore, the third step requires the decision maker to *weight the previously identified criteria* in order to give them correct priority in the decision. The fourth step requires the decision maker to *generate possible alternatives*

that could succeed in resolving the problem. No attempt is made in this step to appraise these alternatives, only to list them.

Table 2: The six step rational decision-making model [1]

1.	**Define a problem**
2.	**Identify decision criteria**
3.	**Weight the criteria**
4.	**Generate alternatives**
5.	**Rate each alternative on each criterion**
6.	**Compute the optimal decision**

Source: Boston: Houghton Mifflin, 1999

Once the alternatives have been generated, the decision marker must critically analyse and evaluate each one. This is done by *rating each alternative on each criterion*. The strengths and weaknesses of each alternative become evident as they are compared with the criteria and weights established in the second and third steps.

The final step in this model requires *computing the optimal decision*. This is done by evaluating each alternative against the weighted criteria and selecting the alternative with the highest total score.

2.1 Improving creativity in decision model

The rational decision maker needs creativity, that is the ability to produce novel and useful ideas. These are ideas that are different from what`s been done before but that are also appropriate to the problem or opportunity presented.

Why is creativity important to decision making? It allows the decision marker to more fully appraise and understand the problem, including seeing problems others can`t see. However, creativity`s most obvious value is in helping the decision maker identify all viable alternatives. Most people have creative potential that they can use when confronted with a decision-making problem. But to unleash that potential, they have to get out of the psychological ruts most of us get into and learn how to think about a problem in divergent ways.

Figure 1: The three components of creativity

Source: amabile, Motivating Creativity in Organizations, California Management Review, Fall 1997, p.43

Given that most people have the capacity to be at least moderately creative, what can individuals and organizations do to stimulate employee creativity? The best answer to this question lies in the three-component model of creativity. [2] Based on an extensive body of research, this model proposes that individual creativity essentially requires expertise, creative – thinking skills, and intrinsic task motivation. Studies confirm that the higher the level is of each of these three components, the higher the creativity is.

Expertise is the foundation of all creative work. Picasso`s understanding of art and Einstein`s knowledge of physics were necessary conditions for them to be able to make creative contributions to their fields. And you wouldn`t expect someone with a minimal knowledge of programming to be very creative as a software engineer. The potential for creativity is enhanced when individuals have abilities, knowledge, proficiencies and similar expertise in their fields of endeavor.

The second component is *creative – thinking skills.* This encompasses personality characteristics associated with creativity the ability to use analogies, as well as the talent to see the familiar in a different light. For instance, the following individual traits have been found to be associated with the development of creative ideas: intelligence, independence, self – confidence, risk – taking, an internal locus of control, tolerance for ambiguity and perseverance in the face of frustration.[3] The effective use of analogies allows decision makers to apply an idea from one context to another. One of the most famous examples in which analogy resulted in a creative breakthrough was Alexander Graham Bell`s observation that it might be possible to take concepts that operate in the ear and apply them to his ,,talking box,, He noticed that the bones in the ear are operated by a delicate, thin membrane. He wondered why, then a thicker and stronger piece of membrane shouldn`t be able to move a piece of steel. Out of that analogy, the telephone was conceived. Of course, some people have developed their skill at being able to see problems a new way. They`re able to make the strange familiar and the familiar strange. [4] For instance, most of us think of hens laying eggs. But how many of us have considered that a hen is only an egg`s way of making another egg?

The final component in our model is *intrinsic task motivation*. This is the desire to work on something because it`s interesting, involving, exciting, satisfying, or personally challenging.

This motivational component is what turns creativity potential into actual creative ideas. It determines the extent to which individuals fully engage their expertise and creative skills. So creative people offer love their work, to the point of seeming obsessed. Importantly, an individual`s work environment can have a significant effect on intrinsic motivation. Specifically, five organizational factors have been found that can impede your individual creativity:

4. competition - facing win-lose situations with peers	1. expected evaluation - focusing on how your work is going to be evaluated
	2. surveillance - being watched while you`re working
	3. external motivators - emphasizing external, tangible rewards
5. constrained choice - being given limits on how you can do your work	

Figure 2: Five organizational factors of creativity[5]

3. Measures and analysis of security in the decision-making process

All measures of reliability in the decision-making process are time dependent. The reliability (R(t)) of a product is the probability that will be still functioning at time t. This may be calculated as follows:

$$R(t) = \frac{NumberSurvivingAtTimeT}{NumberExistingAtT = o}$$

There is another important measures of reliability in use, the failure or hazard rate φ(t)

$$\varphi(t) = \frac{NumberFailingInUnitTimeAttimeT}{NumberSurvivingAtTimeT}$$

For example, if data on 200 products were collected which showed that, for the time period 10-11 months, 60 units were functioning at the beginning and 57 were functioning at the end of the period:

Number existing at t = 0	200
Number surviving at t = 10 months	60
Number surviving at t = 11 months	57
Number failing in unit time at t = 11 months	3

At time t = 11 months, the reliability function

$$R(11) = \frac{57}{200} = 0.285$$

and the failure or hazard rate

$$\varphi(11) = \frac{3}{60} = 0.050$$

The curve from the point of failure or hazard rate φ(t) against time is known as the 'bath tub curve', from its shape and it is extremely useful in the analysis of product reliability. This shape is characteristic of the failure – rate curve of many well- designed products and components including the human body

The bath tub curve

The bath tub curve is usually considered to be made up of three distinct parts:

1. the 'infant' or early failure phase, when the failure rate decreases rapidly;
2. the 'adult' or 'useful life' phase, when the failure rate is almost constant;
3. the 'wear- out' phase, when the failure rate increases.

Clearly, it is desirable that the initial phase should be as short as possible, and to this end manufacturers may 'load' or 'burn – in' their products before sending them to the user, so that the consumer meets the product at the beginning of its 'adult' or 'useful' life. When the failure rate has increased to a value twice that during the constant failure rate period, the 'wear – out' phase is said to start. Knowledge of when this begins is vital if warranty or guarantee periods are to be determined on the basis of the product reliability.

3.1 Reliability of the system in the decision-making process

Systems, including managerial systems, can be considered to be of two kinds:

1. Series systems where two or more components operate in series:

The characteristics of this situation are:

a) if either component fails, the system itself fails;

b) the effective reliability of the system between points A ana B is

$$RAB = R1\ R2$$

where R1 and R2 are the reliabilities of the two components or, more generally

$$Rtotal = R1\ R2\ldots..RN$$

Since R, by definition, is less that 1, then the total reliability of a series system is always less that reliability of each component.

For example, if

$$R1 = 0,95 \text{ and } R2 = 0,90$$

$$RAB = 0,95 \times 0,90 = 0.855$$

2. Parallel system where two or more components operate in parallel

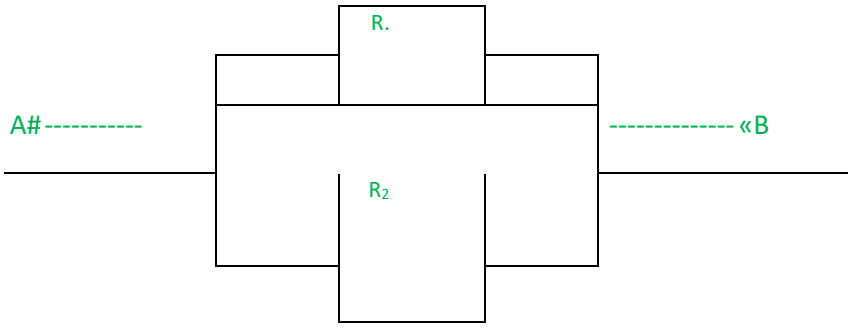

Figure 3. Parallel system where two or more components operate in parallel

The characteristics of this situation are:

a) If eather component fails, the system continues to operate, albeit at a reduced performance;

b) The effective reliability of the system between points A and B is

$$RAB = 1 – (1 – R1) (1 – R2)$$

or more generally

$$Rtotal = 1 – (1\text{-}R1) (1 – R2) (1 – R3) …. (1 – RN)$$

Here the total system reliability is greated than the reliability of each component. As before,

$$\text{If } R1 = 0.95 \text{ and } R2 = 0.90$$

$$RAB = 1 – (1 – 0.95) (1 – 0.90) = 0.995$$

In managerial terms, this means that the combined reliability of two-control system acting in parallel is greater than that of either system, or the graeter the number of systems, the graeter the total reliability. Thus, a cost control and a stock control system acting in parallel will be more effective than either system acting singly.

Reliability, like all other properties of products and services, will not just happen, it must be planned, designed and built in using systematic

3.2 How decisions are actually made in organization?

Are decision makers in organizations rational? Do they carefully assess problems, identify all relevant criteria, use their creativity to identify all viable alternatives, and painstakingly

evaluate every alternative to find an optimizing choice? This is a very important question. In some situations they do. When decision makes are faced with a simple problem having few alternative courses of action, and when the cost of searching out and evaluating alternatives is low, the rational model provides a fairly accurate description of the decision – making process. However, such situations are the exception.

Most decisions in the real world don`t follow the rational model. For instance, people are usually content to find an acceptable or reasonable solution to their problem rather than an optimizing one. Consequently, decision makers generally make limited use of their creativity. Choices tend to be confined to the neighborhood of the problem symptom and to the neighborhood of the current alternative. As one expert in decision making recently concluded:,, Most significant decisions are made by judgment, rather that by a defined prescriptive model.,,[6] The following section reviews a large body of evidence to provide you with a more accurate description of how most decisions in organizations are actually made.

Conclusion

When faced with a complex problem, most people respond by reducing the problem to a level at which it can be readily understood. The limited information – processing capability of human beings makes it impossible to assimilate and understand all the information necessary to optimize. So people satisfice, that is they seek solutions that are satisfactory and sufficient. Because the capability of the human mind for formulating and solving complex problems is far too small to meet the requirements for full rationality, individuals operate within the confines of bounded rationality.

One of the more interesting aspects of bounded rationality is that the order in which alternatives are considered is critical in determining which alternative is selected. All alternatives are eventually listed in a hierarchy of preferred order. Because all alternatives are considered, the initial order in which they are evaluated is irrelevant. Every potential solution gets a full and complete evaluation. But this isn`t the case with bounded rationality. If we assume that a problem has more than one potential solution, the satisficing choice will be the first acceptable one the decision maker encounters. Decision makers use simple and limited models, so they typically begin by identifying alternatives that are obvious, ones with which they are familiar, and those not too far from the status quo. Solutions that depart least from the status quo and meet the decision criteria are most likely to be selected. A unique and creative alternative may present an optimizing solution to the problem, but it`s unlikely to be chosen because an acceptable solution will be identified well before the decision maker is required to search very far beyond the status quo.

References

[1] For a review of the rational model see E. F. Harrison, The managerial decision-making process, 5th ed. (Boston: Houghton Mifflin, 1999), p. 75 - 102

[2] This section is based on T.M.Amabile, motivating creativity in organizations,,, California Management Review, Fall, 1997, pp.42-52

[3] R.W.Woodman, J.E.Sawyer and R.W.Griffin, Toward a Theory of organizational creativity, Academy of management review, April 1993, p.298

[4] W.J.J Gordon, Synectics, New York: Harper& Row, 1961

[5] Cited in T. Stevens, Creativity Killers, Industry Week, January 23 1995, p.63

[6] M. Bazerman, Judgment in Managerial Decision Making, 3rd ed. New York: Wiley, 1994, p.5

[7] Stephan P. Robbins, Essentials of organizational behavior, eight edition, 2004, p. 85