THE STUDY OF DECISION-MAKING BEHAVIOUR IN UNCERTAINTY SITUATIONS

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Abstract

In many cases, managers have incomplete information, which complicates the objective determination of probabilities of possible outcomes. Because of the complexity of the world nowadays, managers often face this situation and must therefore rely on their intuition to make decisions. The confidence in the success of such decisions is lower because of the lack of historical data.

The classical theories of the decision process focus on probability and utility, considering the individual from the outset as a rational, logical and efficient factor.

This attitude was supported by game theory. In an attempt to defend the assertions of probability and game theory, it was assumed that, compared to other people, scientists can be effective decision makers, due to their rational, logical and rigorous decision skills. Nevertheless, it was demonstrated that both lay individuals and scientists are imperfect in terms of their decision-making behaviour, as human performance is non-optimal.

This paper emphasises the role of the study of decision behaviour, which can be conducted based on classical traditional psychology, and on contemporary, cognitive psychology.

Key words: uncertainty, probabilities, decision.

Decisions constitute a key component of our daily life and activities, underlying teleological human behaviour. Teleology represents the theory and research which focus on the goal or end of things and beings in nature.

The intentionality of human beings is directly and materially expressed in their decision-making acts. Alongside problem-solving, decision-making is a complex activity, which, in functional terms, involves mainly the workings of the mind.

Broadly speaking, a decision refers to the cognitive (intellectual) process of managing behaviours in alternative situations, as the subject is supposed to make successive choices of the optimal or at the least the convenient option.

The more numerous the external information, the greater the number of alternatives will be and certainty will turn into **uncertainty**. More specifically, at a moment characterised by a low level of knowledge, the decider is in the **uncertainty** situation X. Through the addition of information, the uncertainty becomes the certainty X. The accrual of knowledge produces de-structuring effects, resulting in the emergence of the **uncertainty** situation Y. The increasing build-up of knowledge will lead to stabilising effects and uncertainty will be substituted by certainty Y. Thus, the decider undergoes a continuum of states, a constant oscillation between certainty and **uncertainty**.

The block of actions (output values) involves one's attitudes, namely deliberate **behaviour** or action (the selected choice is put into practice → post-decision phase).

In cases of ***persistent uncertainty***, the decision-making process acquires an iterative character: the current state may revert to the initial state; one and the same alternative is examined according to various criteria and multiple perspectives, accepting or rejecting various options based on accumulated knowledge. In such a cyclical process, decision does not constitute the end point, but rather a stage, because the cycle resumes as the subject acquires new information which enable him to reconsider initial decisions based on more accurate understanding. In situations of great social impact and significance, decisions are particularly influenced by social, moral and cultural norms and values, by the subject's attitude towards them, by the degree of social desirability, the expectation of possible social reinforcements, etc. Besides the intellectual processes, the emotional-attitudinal, motivational, volition and regulatory subsystem intervenes in the decision-making dynamics.

MATERIAL AND METHOD

In many cases the manager lacks adequate information and, as a result, *the objective determination of potential outcomes* becomes difficult. Due to the complexity of the world today, managers often face these situations, which is why they must rely on intuition to base their decisions. The confidence in decisions taken under such circumstances is lower, due to the lack of historical data.

Four main reasons for the failure of decisions have been proposed:

- *The decision itself*. This type of factors refers to the nature of the required course of action, which may generate temporary or lasting problems.
- *The manager's intuition*. Some managers believe that success in difficult conditions will be rewarded by the organisation, others tend to only be concerned about aspects that agree with their own view, still others will see obstacles as personal failures while others will keep investing time and resources because they trust their own intuition.
- *Social pressures*. Sometimes managers will continue to implement a certain decision not only because they refuse to admit failure, but also because they do not want others to see that they have failed and are incompetent.
- *Organisational inertia*. Organisational inertia is the most basic factor which blocks the abandonment of a course of action. It derives from established procedures and the difficulties faced in the attempt to change strategic decisions.

From a psychological point of view, uncertainty is experienced subjectively as a set of factors or variables, which have raised the interest of modern experimental cognitive psychology.

Thus, beginning with the 1980s, researchers in experimental psychology focusing on the study of decision-making behaviour attempted to highlight the fact that best-practice and know-how transfer manual constantly faces uncertainty situations and that ordinary man and the scientist alike make for low-performance decision-makers, precisely because of the myriad factors which influence behaviour in uncertainty situations.

Classical decision theories (The classical decision theory identifies risk as „an uncertain yet possible element which constantly emerges during human social activities, with damaging and irreversible effects.") have emphasised probability and utility and have considered man from the onset to be a ***rational, logical and effective decision-maker***. This attitude has been endorsed by ***game theory***. Attempts have been made to preserve the view of game theory and probability theory by underlining the fact that, compared to other people, scientists can be effective deciders, because they act rationally, logically and rigorously. However, it has been demonstrated that both lay persons and scientists are imperfect in terms of their decision-making behaviour; human performance remains non-optimal.

Using game theory allows not only the incorporation of uncertainty and asymmetrical information, but also enables the construction of dynamic, highly demonstrative models.

Game theory has rekindled the interest for the old form of monopolies, of oligopolistic models, as described by Betrand, Conrust and Stackelberg (Marting S.- 1993), part of the foundation texts of macroeconomy, to the extent that the theory of the development of oligopolies is a dominant feature in the industrial economy.

RESULTS AND DISCUSSIONS

The study of decision behaviour can be conducted both ***based on the perspective of classical, traditional psychology, and of cognitive, contemporary psychology***, as follows:

- The system of formal logic allows the correct construction of certain undecidable propositions (Undecidable propositions – the words whose meaning incorporates the positive and opposite sense. As a result it is impossible to circumscribe them to a clearly defined section of reality. Such words illustrate the dialectic nature of reality, as it can be perceived by human consciousness.);
- A logical system allows the formulation of questions which can have no answer;
- There emerges an inductive duality between the formal and the intuitive;
- The issues related to the field of intuition can never be completely formalised.

From the standpoint of traditional psychology, decision was tackled based on theories of researchers who examined on the issue of will (undertaken by Byrne, Th. Ribot, Ch. Sigwart) and outlined a scheme of goal-oriented action, which featured the following phases: emergence of incentive (need), conflicting motivations, decision-making and performing the action.

Towards the end of the 19th century, Christoph Sigwart used the indicators *Must I?, Can I?* and *Resulting action* to produce the following diagram of action:

Drive to action	Yes	Yes
Desire	Yes	?
Intention	Yes	Possibly, yet towards which goal?
Decision, risk-taking	?	Yes

Certain shortcomings of the scheme were subsequently highlighted, including:

- that it does not provide for abandonment or postponement and
- it does not include conflict situations.

These issues will be addressed by the American researchers William James who took into account conflict and the *fight impulse* (directed towards fight or action) and defined the following types of decision: ***rational, accidental, impulsive, determined by changes in one's scale of values, and determined by will.***

In the 20th century, cybernetics opened new dimensions in the study of decision mechanisms, with the main merit of contributing to the emergence of the ***prediction theory and the concept of reverse connection.*** It has been shown that the difficulty of prediction and decision increases inversely proportionally with the quantity of information that the subject must handle.

In the theory of conflict, the US psychology researcher E. N. Miller explains the behaviour relationships between the two vectors, the avoidance gradient and the approach gradient, as follows:

- in choosing between two goals with negative valences, one notices either avoidance (going out of the field) or compromise solutions;
- in tackling a goal that features both positive and negative valences, the approach gradient prevails;
- in selecting between goals with two positive valences no balance will be reached, because one of the positive valence will prevail over the other and will direct the decision towards it.

Continuing Miller's research, the German psychologist Kurt Lewin (1890 – 1947), based on the research into the field of action and valences theory, noted that in cases when conflict is caused by deciding on the level of aspiration, such conflict will emerge in the highest difficulty area (the aspiration level – high and difficult goals).

Degree of difficulty of the task	A Difficult	B Less difficult	C Average	D Easy	E Very easy
Valence of success	5	4	3	2	1
Valence of failure	-1	-2	-3	-4	-5
Sum of valences	4	2	0	-2	-4

The situation is confirmed in the case of the aspiration level. Based on this body of research, Prof. Mihai Aniţei transposed the results into the actual action situations, which led to

Product of valences	5	8	9	8	5

In concrete situations, when choosing between utility and the probability of success, we resort to the ***product of valences, which expresses the relationship between the subjective utility and the probability of success***. Real action refers to those situations when there is a ***balance*** between the subjective utility and the probability of success. Utility reflects the specific position of an object on a preference scale; however the objective value does not equal the subjective utility, because people assign different values to the same object in different circumstances.

This fact calls for a debate on subjective and the objective value. The value of the success probability is a range on a scale of values between 0 and 1:

- ***Probability equals 1: certainty that the event will occur;***
- ***Probability equals 0: impossibility that the event will occur;***
- ***Probability equals 0.5: uncertainty.***.

Objective probability is equivalent with calculated eventuality, which is possible in cases with a finite and known number of variables (for example, the rolling of dice.

Subjective probability results from an intuitive estimation expressed by qualifiers: very probable, almost certain, improbable. Subjective probability is commonly used to describe events in advance.

If utility is determined by the components of the motivational sphere, probability will be constructed by mind mechanisms, expressed in the form of problem-solving.

CONCLUSIONS

Life itself is a sum of uncertainties as one error or loss can be compensated by a future gain.

Uncertainty constitutes the deficiency of necessary knowledge for a decision process under certainty. The weight of a decision enhances the effects of uncertainty, while its lack of importance will diminish them. Under uncertainty, the decision-maker is required to make a special decision on the type of certainty the subject faces and consequently on his own decision-making behaviour.

The cases of uncertainty in decision-making behaviour generate both positive and negative effects. The positive ones include the incentive to expand one's knowledge.

Negative aspects include:

- postponement of decision, hence vacillation;
- decrease of motivation to achieve performance;
- conflict situations, anxiety, social tension.

In recent years, Romania has shown a high level of uncertainty avoidance, which demonstrates that the local population experiences a high degree of anxiety about the future and prefers the certainty of the present-day to the uncertainty of tomorrow. Some Romanians exhibit difficulties in facing ambiguous situations and the opposing views of other people. Generally, people from such cultures are more comfortable in situations of broad consensus. At times which generate anxiety, such as elections, security and safety threats or in the face of the necessity to accept something "foreign", such as advanced technology or the existence of a minority party, the population reacts negatively and emotionally and resists acceptance.

The reduction in uncertainty may be achieved by decreasing both objective and subjective uncertainty. Thus, in the case of objective uncertainty, it is necessary to reduce the ratio of the quantity and quality required to make a decision and the knowledge the decision-maker actually possesses. As subjective uncertainty is less distinctly perceived, rather as intuition of objective uncertainty, it cannot be an accurate measure of our uncertainty.

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