

## RISK ELEMENTS IN COMMUNICATING THE MANAGERIAL DECISIONS

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### ABSTRACT

**T**he place and role of risk in managerial activity must be analysed by taking into account the relation where the two concepts about risk are, namely: The concept suggested by the **decision theory** and concept suggested by **managers**. It is necessary to take into account managers' behaviour towards the risk defined by **the theory of choice**, which leads to the following conclusion: managers actually assume risks and express preferences in terms of risk, using techniques and procedures – other than the traditional ones – such as media, variation of probabilistic distributions of possible outcomes, etc.

**Key words:** risk, uncertainty, risk assessment / information engineering, decision, intelligence of complex systems.

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Transmission of decisions taken by the manager to the performers is a specific form of hierarchic communication

**Influence on Decision Theory**

The researches on adopting the decision have shown that in practice decisions are made, which are in contradiction with the perceptions of the theory. [4] But, they partly set contradiction on the limits of the theory and not simply on the limits of human behaviour. For example, a rigid joint between the information and decision is not useful in ambiguous situations where preferences, causal structures and meanings are vague and changeable. As it has been previously shown, this type of situation is frequent. And if numerous decision problems of the contemporary systems fall without difficulty within the theory of decision and are suitable to its laws, those most interesting of these decision problems mostly do not fall into this frame.

The difficulties arose from the ambiguity of preferences, pertinence, intelligence and meaning can be illustrated by a reflection on some aphorisms suggested by decision theory:

- Never start an action unknowingly. To the extent where it is operated inside the anticipative and consequential framework of rationality, it is important to know what is desired before acting. But, it is obvious that intelligent decision makers often behaved as if they would not believe in this need. They see in action a way to discover and elaborate preferences, rather than a modality to operate based on them;

- Refrain yourself under ignorance. One of the axioms of the theory of rational choices is that actions are justified by understanding and anticipating their consequences. Even if it is admitted that this understanding of consequences cannot be total, the optimal amplitude of ignorance is determined by its expected consequences. But, it is certain that a decision maker can act intelligently without explicitly knowing the “consequential” reasons of his/her actions, but following his/her intuition, complying with his/her rules and duties or following his/her peers’ notice;

- Do not ask a question if its answer cannot change your decision. In the decision theory optics, the value of an information is related to reducing the uncertainties which surround choice. Or, the essence regarding the information collected, purchased or communicated does not have this direct pertinence for decisions. It enables the creation of a background of knowledge and meanings, usable for possible actions or to explain the experience. The participants understand the collection of information as an investment into a collection of knowledge and as an aid to define and choose preferences and options;

- Do not speak before knowing what you want to say. Certain communication theoreticians say that a message must be fully understood by its issuer before being sent, as accurately as possible, to its addressee. But a large part of the effective communication in systems overcomes the ambiguous formulations and leads to answers representing the message and seeks its possible meanings.

The conclusion is simple; an information system can be designed based on a static and precise decision structure and this is a good idea. But the information engineering has a more difficult and more important duty: designing a system for imprecise decision structures and which modify.

In some cases, the problems can be reduced to a standard problem variant, supposing that the distribution of probabilities of uses and possible users is known or can be assessed, which is proved to be of limited utility. [5] Taking into account that an explicit solution of a complex problem is of a completely different difficulty level than that of the initial problem, this solution shall not solve the deeper problems of ambiguity.

These more general problems have been discussed before, but not really solved in the institutes related to the knowledge systems of advanced cultures. It is possible, at least in principle, to imagine a system for generating and diffusing the knowledge that explicitly identifies the probable decisions to adopt, the knowledge needed to these decisions and expected marginal output of other knowledge tools. This approach has already been suggested for decisions of assignment within the knowledge systems like science, journalism or education. But it is clear in each of these cases that the “ex-ante” connection between the information forecasted uses, its generation and actual uses is rather a connection of weak intensity.

In general, one may notice that preferences are developed during the problem solving and construction of interpretations asking the question how this more intelligent elaboration is stated. It shall be noticed that rules contain the essence of an inoperable historical experience. A way to estimate and increase the probable value of information of certain inexplicable rules shall also be sought. One can also highlight that the best approach to such problems is often achieved by a resolution of problems, slightly structured and exploratory.

### **Influences on Decision Makers' Activities**

These remarks regarding the ambiguity of the information-decision adoption connections also reappear frequently in the recent behaviour of systems. If they are exact even partially, they shall have consequences concerning the reflection on the information systems. Actually, they must take into account the characteristics of the elements, even though they are in causality relations.

Three classical approaches may be distinguished when dealing with the human deficiencies through engineering, and namely:

- The first approach consists in adapting the system to the observed features of human beings. Instead of a supporting system in decision making, disconnected from the world, as decision makers want it and which they do not use, the system may be designed to provide them with the information in a familiar and useful form. The main difficulty for this approach consists in understanding the users' demands and in adapting the system to these requests. This is not as easy as it seems;

- The second approach consists in changing the how the decision makers adopt their decisions and attitude in relation to the information. In over three decades of training and consultancy, scientific management and operational research have operated important changes in the field of adopting the decisions in modern systems. Recent researches regarding the decision behaviour have been related to the strategies of improving the capacities of information processing by the human brain. Decades of efforts for determining the decision makers to adopt a behaviour closer to the decision theory precepts have proven that this is not an easy duty because the prejudices, "a priori" reasoning and decision makers' wisdom are resistant to decision theory attacks and modern statistics;

- The third approach consists in replacing human beings with machines, mainly computers accompanied by logicians. Replacing the information electronic processing by human processing is frequent nowadays, as phrases like "artificial intelligence", "knowledge engineering" and "expert systems" are too. Even if the speed at which the machines shall replace humans in adopting the complex decisions was all the time more exaggerated, progresses have been achieved for situations where the problems can be decomposed into hierarchical structures or where the amount of available pertinent information exceeds the human memory operation capacities. The perspectives of improving man's decision adoption through a form of computer software seem promising in the case where a decision involves the storage and operation of a large number of data or modelling the complex processes and where the organisation structure directs this effort.

We should also emphasise the problem of capacities of storage and data processing which the computer-based information systems have available, which considerably lowers the advantages of carefully prepared classical data collection. Contemporary researches in the field of data processing seem to show that the exploratory analysis of the data collected, without reference to a precise use, clearly progresses to prior formulation of the needs for information. This shall verify the arguments according to which future information systems are not supported anymore by the idea of a close connection between the collection of information and anticipation of its use.

## Definition of risk

In the classical theory of decision, risk **reflects the variations of distributing the possible results, their subjective probability and values.** It is measured either **by the non-linearity of the money relevant utility, or by the variation of distributing the probabilities of possible winnings and losses for every particular choice.** According to the latest formulation, a risky option is that which variation is large for and the risk is one of the assessment elements in order to achieve the expected value of the various possible options. Of course, the notion of risk is included into the vaster notion of choice according to the output expected from a certain option. Virtually, all theories of choice start from the premises that those who decide prefer an increased output rather than a weaker one provided that all other factors (for example the risk) are considered to be constant. They also imply emphasising a smaller risk, when all other factors are constant (the expected value, for example). Thus, the expected value is considered to be a positive element in assessing an option, and the risk as negative element. Therefore, it has not been easy to formulate a satisfactory definition of risk within the limits of a rudimentary framework (media, variation of probabilistic distributions of the possible results, etc.). For these reasons, efforts were needed to develop a new concept about risk, especially for the study of financial markets. Defining the risk according to variation was criticised for the confusion it maintains between the negative risk and positive opportunity. This criticism is at the origins of elaborating the patterns based on semi-variation. But these have also been criticised, because they fulfil Von Neumann's axioms, just in certain very limited circumstances. This unsuccessful attempt has incited researchers to try a pattern to assess risk and preferences in terms of risk, based on the prices observed. Most of the contemporary publications dedicated to the risk of financial markets reflect this concept (the pattern of setting the asset price that proved a high closeness to financial analysis, for example). This pattern defines the systematic risk as being the co-variation degree between a given price and market price, and regression is defined as unsystematic or specific risk. Although these mouldings have contributed to a better understanding of financial markets, the risk – output relation suggested by this pattern has not been confirmed through facts.

Using the concept of “risk” outcome from the theory of decision as means to describe the actual behaviour mechanisms in terms of choice raises many additional complications in practice. Thus, there is the possibility that who decides to show a tendency of not taking into account the very unlikely or very far events, whichever their possible consequences would be. There are also situations where just a small part of the possible results is taken into account, the decision being made only according to the extent of the variation of these results in a few hypotheses. Thus, those who decide seem to prefer verbal feedback rather than numerical ones concerning the risk, even if the transformation of the first ones in numerical terms show their high degree of variation and dependence in relation to the context of the problem, and the probabilities of results and their values are independently taken into account, rather than their mathematical product.

All these situations tend to prove that those who decide have a concept of the risk that is very different from the definitions suggested in specialised literature and that various decision makers shall have a different concept for the same situation.

## Risk in Decision Theory

For the conventional theory of decision, choice involves a compromise between risk and hoped output. Those who make the decision and who are a little adventurous prefer to minimise risks being prepared to scarify part of the hoped output in order to reduce the range of the possible results. On the contrary, those who have the taste of risk shall consent to a reduction of hoped output in order to increase this range. In theory, decision makers begin by assessing the risks before making a choice between the various possible risk-output combinations.

Obviously, it is not always how this is done in practice. It happens that decision makers deny the existence of a risk or consider it to be negligible. This negation often associates an acceptance of the risk actuarial reality to a refusal to integrate this reality. Without being psychological or pathological, this refusal

may mean a philosophical rejection of probabilistic judgement applied to a unique case, or the trust in the casualty of events.

Various experiments have enabled emphasising in certain people the tendency to see a casualty in the random events and therefore a possibility to master them, as well as a tendency to establish connections from the cause to effect between events which were established to be purely accidental.

### **The Risk – Component of the Decision Making Process**

The importance of risk in making a decision is given by the location it occupies in the theory of decision, by the rank in the managerial ideology and by the – ascending – interest to assess the management risks. Different from such an approach, most of the empirical studies about decision making did not lead to highlighting a clear concept about manager's attitude towards risk or about accepting the risk in the managerial action. Researching the role of risk in decision making rarely also had the managerial behaviour as object, which has led to the existence of clear difference regarding the concept of "risk" suggested by the theory of decision and that suggested by the manager.

### **Attitudes Towards Risk**

Most opinions start from the principle that those who decide have an aversion to risk. Between an option that certainly goes towards a given result and another option offering the same expected value, but without a safe certitude, they shall choose the first one.

This would imply that those who decide would obtain a compensation for the variability of possible results. Thus, the more the resulted income after the investment is increased for an option, the more important should such a variant be. Thus, by studying the investment through placement funds, it has been established that investors detest the variation of outputs, but it is doubtful that managers determine a positive correlation between risk and output. This is why the studies carried out about mergers rather prove the opposite, and the assembly of data collected about this subject leads to some ambiguous results.

The attitude in relation to risk is often described as a stable characteristic of each individual, perhaps related to its personality development and culture. The taste of risk could be associated with certain aspects of personality, such as the desire to succeed. But it is always difficult to discern precisely what differentiates risk amateurs from the other members of the same culture or of the same profession.

If it possible for the taste of risk to be a stable element of personality, certain variables such as humour, sentiments or how problems are presented can change the perception of risk and attitude towards risk. Particularly, subjects disdain the acceptance of risks before a risky alternative whose possible results are good as a whole (positive results) compared to the temptation to accept a risky alternative whose possible results are risky. This dependence in relation to the context is familiar to those who study the acceptance of risk by managers.

Unsolved problems however remain. We may even admit the idea that adversity favours risk taking, but history does not show that the great changes and major innovations can be the result of an unfavourable context.

### **Managers' Definition of Risks**

Managers' view of risk is different than the one existing in the theory of decision, particularly being less accurate. Managers rarely measure the risk of an option according to the variation of distributing the probabilities of possible results.

There appear at least three characteristic features:

- **Most managers do not consider the uncertainty of a positive output to be an important aspect of risk.** The possibilities to win have an essential importance in assessing the attraction of an option, and the idea of "risk" is related to a negative result;

- **For managers, risk is not a probabilistic concept.** Most managers consider the uncertainty to be a risk factor, and the amplitude of possibly bad results an outstanding element. There is the possibility to define the risk in terms which would define what could be lost and not the moments of distributing the results (“I assume high risks to probabilities but not to total amounts”, “I do not look at the probability of a success or of a failure, but the amplitude of risk”). This tendency to ignore or minimise the probability of a loss after its moment reveals more repugnancy to loss than to risk. It is obvious that managers assess the risk they assume more depending on a few key values and not depending on the support provided by the computer or probability theory;
- **Most managers do not want to reduce the risk to a single figure element, although they seek a certain accuracy in assessing the risk based on numerical calculations** (“Nobody needs a ciphered assessment”, “Do not cipher the risk, you must be capable to discern it”). Aware of the multiple aspects of risk, managers say that risk cannot be expressed by a single figure or by a statistical series, and quantifying the risk by a single figure is almost impossible, because risk is a multidimensional phenomenon.

### **Managers’ Attitude Towards Risk**

Managers’ tendency to assume risks varies depending on individuals and contexts. Individual behaviour variations originate from experience and existing context. Thus, certain individuals like risk less than others, and certain motivation elements related to risk are integral part of a certain personality. These differences from one individual to another are however less important compared to those resulting from the incentive measures and from the managerial behaviour standards.

According to certain studies, the average staff have the tendency to say “the more they climb hierarchically, the less people are willing to assume risks”, and senior staff believe that new managers able to assume risks must be trained.

Managers admit that risk assumption is also a need and a pleasure in leading positions, observing it is rather a personal motivation than an incentive measure. There are three essential motivations in assuming calculated risks, namely:

- Risk assumption is essential to the success of the decisions made;
- Risk assumption is for managers rather a matter of professional obligation than a personal incline;
- Manager’s risk assumption has an emotional content due to anxiety, fear, excitement and joy, due to the danger of providing delicate chills.

Variations attributable to the context differences can be added to these three essential motivations. Thus, managers’ attitude in relation to risk is that of the staff in general, it can vary according to the conditions, meaning that risk assumption depends on the relation between the position at a given moment and certain critical reference points, such as: profit level, size of liquidities and sales at a reference level, current position of the organisation and its possible disappearance, etc.

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