

# Group Decision Making: Integrating Different Interests into a Joint Decision

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The paper discusses group decision making as a way of managing decision knowledge. Described are pros and cons of group decision making. Special emphasis is given to the leveraging of different interests and possibilities of formulating a joint decision. Available methods and techniques together with a properly organized group work can make a substantial contribution.

**Keywords:** decision making, groups, conflict of interest, leveraging interests, hierarchical modelling

## 1 Introduction

Let me start by posing the question, what is the point behind group decision making? Or what is its added value? There is probably no apparent reason for doubting the old proverb »More heads are better than one« in decision making. Still, it is useful to understand the advantages of participating in a group compared to decisions made by an individual. Clearly, such an approach may also be met by certain problems as implies the proverb that »Too many cooks spoil the broth«.

The purpose of this contribution is to present how people work with one another in a decision group through stages of decision knowledge acquisition, processing and use. In other words it deals with *management of decision knowledge*.

Group decision making assumes participation of different people. It is a process in which two or more people influence one another while the decision is being carried out. Usually, the decision in questions will affect those participating or their representatives at some point in the future. Participation is furthermore built around the idea of *different interests* that need to be integrated into a *joint decision*.

What is the role of methods and techniques in facilitating decision making? Specifically, what can be expected from the information communication technology (ICT) that lies at our disposal? During the decision making as a socio-technological process we can justly count on the *synergy between a human and technology*. According to Dreyfus (1992) neither human nor computer can achieve on their own what they can achieve together. It is by far not enough to be aware of existing methods, techniques and technologies. Group decision making has to be appropriately organized. The individual and the group have to be technologically literate. The aim is to harmonize

the work among the members of the decision group by using different evaluation and decision making tools (Hammond et al., 2000; Bohanec, 2006; Zarate et al., 2008; Bazerman and Moore, 2009).

## 2 The advantages of group decision making

The main reasoning for supporting participation of those affected in the decision process is the *human right* to have a say in their own destiny. The broader environment contributes to achieving the goal of the »common good«. The aim of the decision reached through discussion, criticism and compromise is to take into account as much as possible the many different interests, that is not to focus only on a specific subgroup or individual.

The ancient Greeks used the term *democracy* to describe the right of the people to decide on public issues. The decision was considered democratic if the answer to the question »Who decided on this?« was »More or less everyone«. The opposite to democratic decision making is meritocratic decision making, where decisions are made by selected few, and autocratic decision making with a single decision maker.

An additional important reason in favour of group decision making lies in the *complexity of decision situation*. Number of elements and intricacy of connections between them can be extensive. This places even experts in a difficult situation. The cooperation of all the decision stakeholders increases the probability that together with the »elite« the users gain a system they want since they contribute already in the phase of the system articulation.

Cooperation within a group can be observed also in the light of *management of change*. If we are passive observers of changes, we tend to fear and often resist them. Those who take an active part, learn how to deal with them. We adjust ourselves to the changes as well as the changes within us in accordance with the actual changes and possibilities.

There is also an *educational* aspect to participation. If we want to reach a decision which we can understand and know whether it is good or not, we need appropriate knowledge. By taking part in a group we are in a way forced to acquire this knowledge. Other members of the group can of course help us. At the same time we take the responsibility for the final decision. We develop our sense of responsibility, cooperation and communication skills together with the need for sufficient and clearly presented knowledge.

### 3 Problems encountered in group decision making

It is a sensible question to ask oneself, what are the actual benefits of group decision making? If we take into account the invested time and work, this approach proves to be more costly. However, invested effort and money will yield special kind of returns, namely, the decision will be better understood and accepted by those affected. These sorts of returns are hardly expressed with money.

Opponents of the participatory approach often dispute that by including stakeholders with lesser knowledge, *responsibility is shared* only to defend those who are indeed responsible, thus using a refined form of *manipulation*. Maybe these reproaches indeed bear some truth. A way to deal with this is by providing comprehensive decision knowledge. Most often participation enables us to access and understand this knowledge and gives us a possibility to make a contribution. If a decision is based on knowledge that is understood, then we know why the decision was met in a certain way and we are not intimidated by taking the responsibility for it. Fear of manipulation loses its ground as well.

Let us take a further look into suitable *organization and management of the decision group*. The basic question is, how a decision maker should act in a group to achieve the above-mentioned goals of participation? One of the prerequisites is the general climate that needs to provide all members of the group with a sense of equality among equals and a common goal regarding the decision problem. The three basic conditions for successful participation to be met are: motivation, level of knowledge and absence of animosity.

A member of the group, who is not motivated, usually cannot contribute her/his complete potential. Motivation is often founded on fear that if we were not present, the decision would be made to our disadvantage. The level of general knowledge needs to be high enough in order for the problem with its possible solutions to be understood. Among the members of the decision group there should be no hostile rivalry.

Organization of the group work can be burdensome especially for the *group leader* who tends to also act as *decision analyst* or expert in the decision field. Knowledge of psychol-

ogy and sociology is crucial. The same holds also for knowledge of modelling and decision knowledge management.

For further readings on advantages and disadvantages of group decision making see Zarate et al. (2008), Teale et al. (2003), Skinner (2001) and Mintzberg (1984).

### 4 How to manage different interests?

It is completely natural for people to come to different decisions on the same issues. It is due to differences in preferential knowledge what can be attributed to differences in relations to the decision situation, values, principles, understanding of circumstances, knowledge and lack thereof. A decision regarding a new family car is subject to differences in preferences among parents and children, for instance.

On the basis of preferential knowledge a preferential relation between alternatives is established. This way they are listed according to their desirability – utility. An evaluation model can also be used to assess the degree of desirability of a specific alternative, for example by assigning scores on a scale from 0 to 10. Children and parents assess different cars in a different way.

*How to merge different scores in order to reach a single decision?* First we should check if different scores are not due to insufficient knowledge regarding goals, alternatives and possibilities. Providing arguments for one's different preferences can be helpful. Afterwards we face the different interests.

We differentiate among two basic approaches that are founded on the distinction whether different interest groups are willing to cooperate or not in search of a righteous decision or choice.

Those groups that do not wish to consult one another and cooperate can implement one of the formal methods, for example voting. Again, every method has its advantages and disadvantages. Nobel laureate Arrow (awarded Nobel prize in 1972; see Arrow et al., (2002)) demonstrated and proved through the *impossibility theorem* that an ideal method cannot and does not exist. Still, this does not preclude us from group decision making altogether but rather encourages us to look for the most appropriate method in a given situation.

If we decide that each interest group assigns to each alternative its own degree of utility and if they are willing to look for a *compromise solution*, a few other approaches are available (for example see Lu et al. (2007)). Let us take the two already mentioned interest groups, namely parents and children deciding on a new family car. Each group assesses each car that matches their preferences with scores from 0 to 10. Each alternative, in our case a car, can be presented as a point in a system of coordinates, for example V1 (value 1 assigned by parents) and V2 (value 2 assigned by children) as shown in Figure 1.

It is sensible to deal with only non-inferior alternatives which lie on the bolded line depicted in Figure 1. Cars below this line have clear superior alternatives with a higher score given by one group and same or higher score given by the other group. Being aware of this can save us quite some further work.

The remaining question is, which of the alternatives that do not fall among the inferior ones should be chosen as a final group decision? If we choose the approach of »equal satisfaction«, graphically this means deciding for the intersection of a straight line connecting points where  $V_1$  equals  $V_2$  with a bolded line in Figure 1. Our imaginary family would thus look for a car that would be similarly assessed by both parents and children. Harsanyi (1955) proposes to choose the alternative that maximizes the sum of individual utilities. It is disputed that what can occur are situations in which some groups sacrifice their interest for the common good. Nash (awarded Nobel prize in 1994) proposed leveraging of interests by maximizing the product of utilities (individual utilities multiplied) (Nash, 1950). In other words, we consider not only ourselves but also others. It is in the group's best interest not to allow sacrificial lamb.

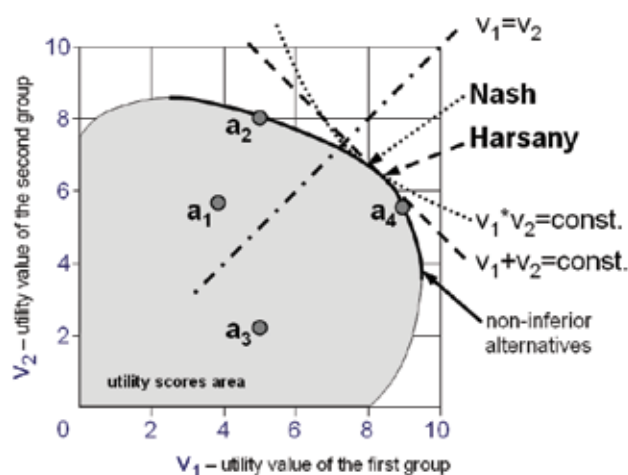


Figure 1: Comparison of alternatives evaluated by two different interest groups

Examples of leveraging in Figure 1 depict leveraging of interest based on final utilities (scores). Decision knowledge is expressed only with the final utility value. Still, we lack the understanding of the origin of the different scores. The final score is only a consequence.

When we try to leverage the origins of different scores and not only the consequence, that is the final score, we can apply the hierarchical multi-attribute models (Lu et al., 2007; Triantaphyllou, 2000). They are structured, have internally devised parameters and are open. This is why they not only produce final scores but also enable us to »look inside« and see how and why the scores came about. We can address specific parameters, their values and relationships among them. All of the evaluation elements are at our hand.

Our experiences (Bohanec and Rajkovič, 1999; Bohanec, 2006) show that a unified model structure should be used despite different preferences that may arise due to different interests. Each interest group can however define within this structure its own utility function (Rajkovič et al., 1988; Jereb, 2003; Bazerman and Moore, 2009). The model is then used to evaluate the alternatives for each group separately. Usually, we end up with different scores for the same alternatives. We are not faced with the diversity only when it comes to final scores

but can also gain insight into the reasons and origins of the scores provided for specific parameters for each alternative. Instead of leveraging (harmonizing) only the final score, we can investigate at where the differences stem from and what they are like. An explanation helps us realize the key stumbling blocks responsible for disagreements that can serve as a foundation for further interest leveraging among groups.

## 5 Conclusion

Group decision making tends to be more demanding. Its result is a decision that is more easily understood and can be better justified. Argumentation, why a certain decision was made in a particular way and not the other, increases the probability for a good decision or at least diminishes probability of a bad one.

A clear and well justified decision is crucial for a sensible leveraging of different interests. Final score of the alternative is a consequence of numerous factors that appear in the evaluation process. Our decision processes can be and need to be transparent all the way from specific criteria (measures), to their aggregation and final score assigned to an alternative.

Various existing approaches, methods and techniques supported with ICT can be applied. Let us make use of them. We should strive for open and clear models in order to make decision knowledge available to everyone affected. When we are deciding on the most suitable alternative, let us not consider only ourselves but also everyone else involved.

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### Skupinsko odločanje: združimo različne interese v skupno odločitev?

Članek obravnava skupinsko odločanje kot način upravljanja odločitvenega znanja. Opisani so razlogi za in proti skupinskemu odločanju. Poseben poudarek je na usklajevanju različnih interesov in možnostih za skupno odločitev. Pri tem igrajo pomembno vlogo razpoložljive metode in tehnike skupaj z ustrezno organizacijo dela v skupini.

**Ključne besede:** odločanje, skupine, usklajevanje različnih interesov, hierarhično modeliranje