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Psychological influences II: Risk assessment in groups

Emerging Risk Discussion Paper

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When insurers assess risk, they often assume that group discussions are better than individual assessments, i.e. *the more numerous the experts, the more accurate the assessment*. However, psychological research has shown that risk assessment by groups is associated with a range of problems. The quality of risk identification and evaluation depends significantly on whether group effects have been taken into account, and whether appropriate methods have been applied. For example, Munich Re uses several structured expert elicitation methods in its emerging risk management. The goal is to create a context which allows the experts' valuable experience to generate accurate risk assessments that remain as undistorted as possible.

When dealing with new risks, organisations have to rely on intuitive estimates by experts, especially since empirical data, which would otherwise be factored into the risk calculations, is often sparse. Although expert estimates are indispensable in such cases given the lack of viable alternatives, insurers must keep in mind that intuitive assessments remain susceptible to distortion in a range of ways (see Emerging Risk Discussion Paper 09/2013: *Psychological influences on the individual assessment of risks*). Industry experience has shown that an expert assessment often means having a group of experts come together to discuss the respective topic and then collectively make an assessment or decision. In this regard, it is often assumed that group discussions are better than individual assessments, i.e. that *the more numerous the experts, the more accurate the assessment*. However, research over the last few decades has identified a number of group effects that can lead to distorted results, especially with regard to risk assessments.

Groups are very important to people. Our selfimages and our identities result, among other things, from our belonging to certain groups, from the feedback we receive from other group members, and from comparing ourselves with other groups. Groups create roles and norms, compliance with which is important to gain acceptance within the group, and which therefore influence the behaviour of group members. These and other social factors lead to people in groups not always acting or making decisions perfectly rationally. On the contrary, when a group makes a decision, social factors are always involved, in addition to objective reasons, in determining each individual member's behaviour. The simple fact of being in a group already influences members' behaviour. In the present paper we will discuss three findings that are important for risk assessment in groups:

1. Groups are less creative than individuals in their identification of risks.

2. Groups rarely manage to exchange information properly.

3. Groups have a tendency to make extreme judgements in their risk assessments.

Groups are less creative than individuals in their identification of risks

Before risks can be analysed and assessed, they have to be recognised as potential risks in the first place. The assessment step is, therefore, always preceded by the identification step. In a few cases, the risks to be assessed are already known, for example because claims statistics are available. In other cases, however, the process of risk identification is more difficult and it becomes necessary to consciously search, as systematically as possible, for potential risks, as is the case for example with *emerging risks*.

In risk management practice, idea-generation techniques such as brainstorming are often used to identify possible risks. This means attempting to collect as many risks as possible, in a manner that is as free from judgement or criticism as possible. Although it is often assumed that brainstorming works particularly well in groups, experiments have in fact shown that brainstorming in groups is less productive, in both quality and quantity, than when the same set of people work by themselves without exchanging ideas with each other. Brainstorming in groups thus regularly leads to a decrease in both number and quality of the identified risk candidates. The larger the group, the greater the loss in production.

Groups' negative effects on the identification of risks can be explained, among other factors, by the phenomenon of „social loafing" (also known as the Ringelmann effect), whereby individual members of a group make less of an effort, i.e. perform less well, than when acting alone. Social loafing has been shown to occur both in physical activities (e.g. tugs-of-war) as well as intellectual tasks (e.g. generation of ideas). The phenomenon seems to occur mainly when the performance of a given group cannot be traced back to the contributions of particular group members. Groups may also have difficulty identifying risks due to heightened self-consciousness and excitement levels. In a sense, the group context distracts the individual members from the actual task at hand.

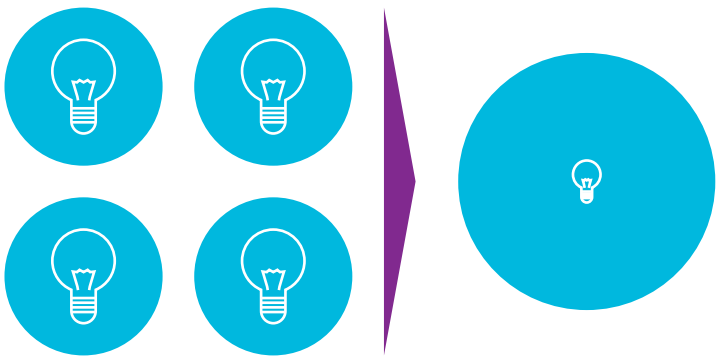
One method which can reduce the negative effects of brainstorming in groups is „brainwriting." This involves having the participants not exchange ideas orally, but rather write them down for themselves. In order to counteract negative group dynamics as much as possible, the group context should be eliminated completely in this regard, i.e. the members should neither gather together physically nor should the individual members present their ideas in a group. Insurance companies are thus recommended to maintain and even intensify their consultation with networks of experts when identifying risks, but to thereby address each of the members individually in writing. This method maintains the advantages resulting from the group's size and composition, while at the same time preventing the overall result – i.e. the identification of as many potential risk candidates as possible – from being limited by group dynamics. At Munich Re, we in Emerging Risk Management have developed a corresponding concept and are currently implementing it, both within existing processes as well as outside them, e.g. by using social media within the company.

Groups rarely manage to exchange information properly

When assessing risks or other factual situations, groups have the advantage over individuals in that, generally speaking, they have more information available to them. Group decisions are often overrated for this reason. One would assume that, since more people have more knowledge available to them, they will make better decisions together than alone. This theory presupposes, however, that groups exchange all the information available to them and that their decisions are made based on all this information. As a consequence, the quality of a group decision will substantially depend on how well the members are able to exchange relevant information that is known only to one or a few of them. It has been shown, however, that groups are usually quite incapable of doing this:

Information, especially if it is known only to particular individuals, is in most cases not mentioned in group discussions. Instead, groups mainly tend to discuss information that is already known to most or all group members. Moreover, information that was already known to all members at the beginning of a meeting, tends to be repeated and taken up more often in the discussion than other information which is provided by individual members, but which is new to the rest of the group. This tendency is caused, among other things, by the phenomena of „social proof" *(if other*

Fig. 1: Individual vs. group brainstorming



Individual brainstorming

Brainstorming in a group

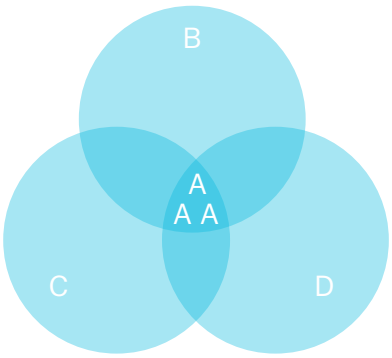
A given set of people generally produces more and better ideas when each participant thinks of ideas by themselves, than if they brainstorm together as a group.

group members have the same information, it must be important) and „impression management" *(more competence will be attributed to me for providing information that is already known than for information that is unknown and potentially uncomfortable)*. Both phenomena lead to the result that information known to all group members before a discussion influences the group decision more than information known only to individual members. This allows a consensus to be reached very easily, whereas conflict is avoided.

Groups have a particularly difficult time taking into account information that is only known to certain individuals, when they are convinced that the problem under discussion is irresolvable due to lack of information, or that only one decision can be made. This finding is particularly relevant in the context of risk evaluations, since it is precisely when information is scarce that insurers usually turn to expert assessments. Research has shown that group discussions generally come to better decisions than individuals only in cases of so-called eureka problems, when, once the right answer has been expressed, it strikes everyone immediately as being correct. Eureka problems will tend to be very rare in emerging risk management: instead, the lack of dependable data and the potential impacts of new risks tend to lead to discussions with differing opinions in group situations. It is precisely in such cases that making information completely available becomes critical for the assessment.

For companies engaged in risk identification and evaluation, this means: Collecting the information necessary to evaluate a new risk should not be done in groups. Here again, a more appropriate method would be to collect results from a network of individuals centrally, and in a potential second step, send the results back to each respondent. The analysis of all the information should ideally also occur outside the group. Should it remain necessary in risk assessments to use groups, they should remain as small as possible, especially since the negative effects caused by group dynamics tend to increase with the size of the group. Another successful strategy is to avoid status differences within discussion groups, particularly as people from an elevated social standing tend to contribute more than people whose social status is lower. If status differences are unavoidable, this phenomenon can be counteracted if higher-status people request that people with a lower social standing contribute as well, and if the former reveal their own opinions only later on in the discussion. Where a group is highly diverse, the exchange of information known to only certain members increases if the individual participants are aware of each other's professional expertise.

Fig. 2: Information exchange in groups



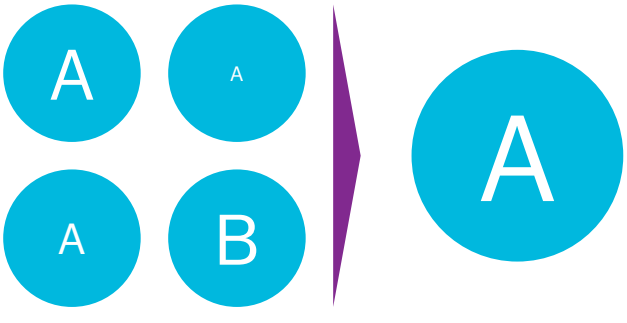
When making decisions and solving problems, groups are often unable to exchange information that is known only to individual members (information B, C and D). Instead, groups tend to discuss information that is already known to all participants (information A).

Groups have a tendency to make extreme judgements in their risk assessments

Another relatively stable phenomenon in risk evaluation is that groups tend to make more extreme judgements than individuals. Experiments have shown that oral discussions in groups tend to result in more extreme judgements, especially when the participants held similar opinions already beforehand. Applied to risk assessments, this means that groups rate risks either distinctly higher (risky shift) or distinctly lower (cautious shift) than individuals. In this regard, each group member's willingness to take risks is correspondingly increased or decreased through interaction with the group. These effects are known to psychologists as „group polarisation", i.e. the tendency to become more extreme towards one of the two poles: risk or security.

Why does this effect occur, and why is a polarisation of risk assessment possible both towards risk and towards security? Group discussions amplify tendencies already existing within a given person. If a person perceives risks to be low beforehand,

Fig. 3: Group polarisation



Individual assessments

Group assessments

Group discussions often lead to the polarisation of judgements, i.e. previously existing decision tendencies become amplified.

then this perception will become even lower through the discussion. If a person perceives risks to be high beforehand, then this perception will become higher through the discussion. One's previously existing tendencies are substantially conditioned by social norms. Since our social identities and self-image are strongly influenced by group membership, we are highly sensitive to how other people in the group deal with the respective issue. *What is the group's purpose? What are its values? How important are risk and caution to the group?* In uncertain situations, we tend to assume that other people's interpretations are more correct than our own. In order to avoid making a negative impression, we also tend to take positions that are similar to others', and are even somewhat more extreme. As individuals, we can thereby strengthen the group's values and, at the same time, appear to be active members of the group.

There are naturally various different functions and roles within a company. For example, people who work in risk management tend to be averse to risk. Therefore, one can expect the discussion of a risk by a group of risk managers to lead to the perception of a high risk (cautious shift). On the other hand, in operational divisions, the focus tends to be more on the opportunities afforded by a risk. Thus a discussion of the same risk in an operational division could, given correspondingly low individual risk assessments, lead to a lower perception of risk (risky shift). Within an organisation, the relevant corporate culture and specific norms for particular groups can, among other things, affect risk perception accordingly, and any corresponding tendencies can be increased further through group discussions. One possibility for improving the quality of group decisions is to use the devil's advocate method. This involves having one participant always hold the opinion contrary to that currently held by the group, and attempt to convince the group of his stand-point accordingly. It can also be helpful to appeal to an external moderator. A moderator can encourage the participants to express their own opinions, thereby preventing the group from becoming satisfied with its common views too soon.

Conclusion and outlook

Comprehensive risk identification and accurate risk assessment by experts depends considerably an understanding of the conditions best suited to creative thinking and analytical decision-making. In order to ensure reliable expert assessments, one has to be aware of those elements that have been shown to influence risk evaluation by individuals and groups. The quality of a risk assessment by experts therefore depends crucially on how the survey is carried out. While the present paper merely provides an overview of the applicable group dynamics, the work for business organisations is just beginning. They must analyse and carefully design their corporate processes, thereby actively choosing, as well as continually validating and improving, their methods of surveying experts.

Structured expert elicitation methods, which take into account existing group effects, can provide a successful approach to obtaining as valid an assessment as possible via expert consensus. This is usually done by surveying experts individually and then afterwards compiling the results. This method aims to retain the potential advantages of the group, such as diversity of information and opinion, while limiting the possible dangers posed by group assessments. For example, in its management of emerging risks, Munich Re applies various combined methods in performing its structured expert surveys. In cooperation with the Risklab at the Psychology Department at Ludwig-Maximilians University, we are continually evaluating and further developing our various methods and processes. Our goal is to create contexts in which experts can apply their experience as effectively as possible, thereby providing risk assessments that are as unbiased as possible.

Further reading

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