

IFORS/Euro working group on Group Decision and
Negotiation Support
Vienna July 2005

Participation and priorities in risk management

by

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Abstract

The focus in risk management according to Aaron Wildawsky and others is very culturally conditioned and sometimes even arbitrary. (9) This concerns both the allocation of risk awareness and the employment of preparedness. Subjectivity may be inevitable and participative procedures are no guarantee neither for an efficient risk management nor for a defensible economy.

The purpose of this paper is to draw a method which is to combine participation with explicit logics. We shall discuss both the overriding problem formulations and the concrete priority selections. The method is that we make explicit and conscious choices of perspectives first and then make choices about our more precise priorities – all this in a participative context. The text will be a story through theoretical reflections and a systems design case to end up in a conjecture about using the same methodological principles for risk management.

1 Background

A friend of mine says he can not work unless he is angry and I sometimes feel the same. I am now angry about the superficial and obscure consensus controlling so much of decision-making. West Churchman in a more cultivated vein writes calmly that the Lockean consensus logic is insufficient.(8) The key to making better is the concept of perspective and much methodology comes out of this.

A perspective is something different to a *part*. There is dependence, but the thing/matter/part is the *what* you see and the perspective is the *how* you see it. Systems theories, to me, are a kind of perspective. That is clear now, though the early inventors saw them more as realistic representations (22). I see the concepts of *perspective* and *part* as opposites, and in this I take an anti-cartesian¹ and an anti-positivistic² world-view.

The word *world-view* is useful. It denotes a way to see big or small things, and when it is used I also feel an epistemological connotation. A world view is a kind of ontology, but the act of making your world-views explicit is epistemology.

¹ This is to find the famous *method* of René Descartes (1637) insufficient. His second rule to cut up a problem in parts may even be misleading. Recent editions exist e.g. in Larousse 1972.

² Positivism is an epistemological movement founded by Auguste Comte. It meant a belief in objectivity and a confidence in man's ability to predict and control. The opposite stand is a less optimistic view on the power of knowledge.

For a long time I have been applying West Churchman (8), Harold Linstone (23), Ian Mitroff (26), John P Van Gigch (14) and Donald de Raadt (29) in efforts to base my applied systems design upon decently chosen perspectives. They give nice general lists of possible perspectives for systems analysis and design with a certain ambition of completeness.

I did not see at once that the metaphores of the TSI³ culture were also a way to express perspectives.⁴ Now this is clear to me, as well as their importance as a means to fight corruption. They provide a kind of completeness of analyses, which might be aborted otherwise. It becomes more difficult to hide good options. Bob Flood from this culture takes a very explicit stand in making the choice of perspectives the main choice in problem solving.(11) I shall not define the concept of a perspective further. Let me just conclude by offering the following sentence: *You take a perspective and you get an aspect.*

I have also joined courses in philosophy in order to create a professional basis precisely for the management of perspectives in my regular systems analysis consultation. In those courses I found good backing with David Hume (18), Immanuel Kant (21), Michel Foucault (12) and many others. Hume and Kant make a clear distinction between the theoretical and practical perspectives and they show how a perspective really is something that has to be chosen by an act of will. Kants well-known categories amplifies this message. They are one tool to make a choice of perspectives explicit and precise. They show how many options there are and how widely they differ in their consequences. Foucault stresses the importance of the perspective in another way. He elaborates the power of the group. He writes about pleasure and pain in obedience to the group and its discourse, obedience to its perspective that is.

As a precious counter weight to these explicit theoretical elements I also wish to mention the explorative empirically based wisdom taught by the French scientific niche of *Recherche en gestion/management*. They have a fascinating way of playing standard management tools differently in different contexts^{5,6} (27).

Ontologies differ and ways to proceed differ and it is not obvious by which of them you should start when you shape your perspective in a systems analysis or design. Anyhow they depend on each other. In a recent study for the Swedish Navy we made an original participative effort to start by defining the ontology. I can not say that this went smoothly, but we had results, and I intend to continue with similar efforts in areas of systems design where a comprehensive awareness is crucial and where blindness and obfuscation must be avoided.

I what follows I shall give a summary of the naval project and its more general command systems design methodology and I shall discuss what of its methodology may be transferred to participative risk management projects.

2 A methodological origin in the defense arena

There is a methodological origin in a report where a broad-based game of perspectives is knit together into a method about command systems assessment for the Swedish defence (3). Now, in what follows, a summary in English is given.

Some general properties with a specified perspectives approach were indicated :

- The overview of options and values becomes honestly complete within their framework if you work with a specified perspective.

³ TSI = Total Systems Intervention, an ethically and epistemologically reflecting systems paradigm with its main stronghold in the universities of northern England.

⁴ See for example Gerald Midgley, *Systemic Intervention*, Kluwer 2000 and Mike Jackson & Bob Flood, *Critical systems thinking*, 1991.

⁵ With Claude Riveline, Jean-Claude Moisdon, Christophe Midler, Michel Berry, Jacques Girin, Daniel Fixari, Armand Hatchuel and others. Do read J-C. Moisdon ed: *Du mode d'existence des outils de gestion*. Seli Arslan 1992 !

⁶ For an item in English see for example PS Agrell & JC Moisdon 1985: *Discovering Local Logics in the Hospital World*. In *Operations and Productions Management* vol 5 no 1.

- Specified perspectives invite to formulation and selection of priorities.
- They make clear what is deleted. They make a framework for mapping different kinds of concern in different parts of a study.
- Superficial consensus, lobbyism and zero sum negotiations may be countered, still maintaining other kinds of participative procedures.
- Both tractability and traceability are achieved, both along means-ends and along epistemological dimensions.
- Having an identified perspective helps the generation of relevant discoveries and ideas.⁷
- Identified perspectives are necessary to establish *ceteris paribus*⁸ frameworks for comparisons.
- A framework to make the knowledge presented precise is identified. So the knowledge may be remembered, preserved and transferred.
- Perspectives are themselves a format for deliberations about relevance, and also frameworks for an identification of the most urgent sub-problems.
- To identify and declare a perspective applied is a good substitute for a more absolute objectivity sometimes desired.

Four specific perspectives were mentioned as leading lighthouses for the assessment of command systems:⁹

- One perspective of effects, e g of efficacy, effectivity and efficiency.
- A resource perspective with a concern for realities and internal coherence. Acts and remedies must not counteract each other. Instead synergies is to be sought.
- A perspective of organization, e g a regard from the inside focusing abilities of adaption and survival. About autopoietics we could say.¹⁰
- An external stakeholders perspective, e g to listen to the people involved and affected.

The following alternative ways to reconcile different perspectives are mentioned:

- 1•To build in a Cartesian/Newtonian paradigm, e g to put together different aspects by fitting interfaces.
- 2•Deliberations by a dialogue between the perspectives without à priori formats. Cogitation though, not superficial compromise!
- 3•Giving priority to one of the perspectives and interpret the others by the view of this one.
- 4•The perspectives may interpret each other iteratively and in circular fashions. The paradox, that a perspective may both represent a totality and a part must be endured.¹¹
- 5•The perspectives may make steps in a search process.
- 6•You may select perspectives (as you always do it), and afterwards explain which perspectives are taken and which are not.
- 7•Any combination of perspectives can be given sense and reason if it is well explained with all its drawbacks.

You may notice, that the popular linear methods with weights for importance, preferences or probabilities are not mentioned. They lead to superficial compromises, and there is no guarantee that sufficient coherence, synergy and functionality are created. However, a reader who absolutely wants to see this class of methods in his systematics may include it in the last niche above, n:o 7. Do note though, that the explanation required may be hard to find.

⁷ Edward de Bono and many others write about the importance of starting with abstract requirements in design (7).

⁸ *Ceteris paribus* means *all else equal*.

⁹ Inspired by Amanda Gregory och Mike Jackson. Se f ex MC Jackson 1997, Pluralism in Systems Thinking and Practice, Chapt 13 in Mingers & Gill, Multimethodology, Wiley or A Gregory 1996, The Road to Integration, in Omega vol 24 No3.

¹⁰ Autopoietic organizations survive and renew themselves. This is a problem when sub-groups become rigid or parasitic. The master today of that concept is Niklas Luhman.

¹¹ As Stafford Beer 1979 in The heart of Enterprise, Wiley or in Raul Espejo & Roger Harnden 1989, The Viable System Model, Wiley.

In a recent study for the Navy the item 3 above was applied with supplementary comments from item 6. We have here a discourse rather than a single perspective¹². This one started with an elaboration of possible perspectives in the form of ontologies. Then one of these were chosen and as a third step the priorities were set.

We shall deal with this study in the next chapter.

3 A study of naval command&control

In parallel with studies on joint levels studies were done by the services under the respective inspectors general. The present study¹³ (4) was to deal with the command of naval operations. It was to express a comprehensive requirements specification for a continued development of the naval command system. A strongly influential factor was the ongoing development of a major test-bed for joint and combined command. Our naval study should neither compete with nor oppose this development. It should provide a naval input to simulations and exercises in the test-bed. We should in the naval study give an expression of the will of an educated and experienced naval profession.

Lessons learned from exercises and international missions existed already as well as a perspective plan and a series of futures oriented studies from all the military services. This rich material meant both restrictions and useful suggestions for the present study. The issue in our study was to test coherence and to set priorities on the basis of an overview. This is a common situation, not least in risk management. The information was there but not the structure.

A use of documents from the Government and from the Defence Ministry goes without saying. An expression *traceability*¹⁴ is a guiding buzz-word producing tractability. In the study we also wanted a further *traceability* by an explicit logics in our setting of priorities. Explaining the perspectives applied opened up for such analyses and arguments.

Do notice, how our naval study is neither pure science nor pure battlefield analysis. It is an effort to relate a complex administration to the battlefield.

A *first* phase of the study was an explorative *resource perspective*. We wanted an overview of available options, not too much in detail, but enough to be able to judge what functionalities could go together into the naval command. We also wanted to be able to present, at the same time, chosen and not chosen options. Phase one was a two-step procedure, first an elaboration of perspectives, then a choice of more precise issues to elaborate. Else we would have had neither traceability nor tractability for our choice of foci. The perspectives chosen came partly from strategic and political levels of command partly from systems theory. James Miller's Living Systems Theory¹⁵ (25) got a dominating role with us and it also made a starting point for cognitive mapping developments (1). We also studied an international documentation, and its perspectives, from cooperating partner countries. Once we had this overview, a playground for setting priorities, a fair discussion about details could start.

The key issues finally chosen were the following:

- Roles for a marine component command and its more or less free contacts in a network,
- Independence, initiative and authority of lower-level commanders,
- Information security in open nets
- How to deal with unexpected information needs, which surpasses the formats of prepared data fusion.

This may seem to be an odd and not so complete list. It is however what the realities imposed upon us

¹² As argues Charles Morris in his *Signs, Language and Behaviour*, Prentice Hall 1946.

¹³ A project M00158S with the Swedish Defence HQ.

¹⁴ In Swedish: *spårbarhet*.

¹⁵ See figure and bibliography.

as we experienced it by our analyses and by checking up with available lessons learned from exercises and missions. We wanted a short list and determined priorities so as not to overload the subsequent experiments in our demonstrator equipment.

An important element in a resource perspective is to check the internal coherence of the studied combinations.¹⁶ After such a check two alternative command systems were chosen as an input to a phase two of the study:

Alternative one: The role and the profession is fight, the command is fairly detailed, the communication is by secure niches, there is not much automatics in the information system.

Alternative two: Judgements of all kind make part of the profession on all levels, the command is mission oriented, the communication networks are relatively open, there are automatics and qualified search procedures in the information system.

Do notice how the two alternatives were not strong or soft regulation. Such alternatives would have been precisely the non-coherent alternatives we wanted to avoid. Instead the difference between the alternatives lay in where and how would play the elements of human control.

The *second* phase of our project was an assessment of precise improvements by precise questions in a *perspective of effects* by gaming. This is standard in most defence organizations. The structures compared were both evaluated and modified, something not permitted in statistical testing, but well accepted in this kind of assessment for design. In Sweden and in most countries there is considerable experience in how to use qualitative results achieved by this kind of gaming.

A *stakeholders' perspective* was applied by the presence of experienced naval officers. The major branches of the profession were represented in the games. We had the advantage of knowledge present at the same time as a risk for parochial negotiation.

The *organizational perspective* was applied by the efforts to serve the test-bed experiments with a relevant input. This was, among other things, a way to join the armed forces continuing evolutionary development. A more executive role in the design of the generic structure for this development was not possible for a single-service study.

Let us summarize the method applied:

A combination of effect- and resource-perspectives	
<i>Phase 1, a resource-perspective</i>	<i>Phase 2, an effect-perspective</i>
Reasoning about metaphors and perspectives	Assessment by gaming
Overviews & pinpointing selected issues	Modifications and elaboration
Idéas and coherent alternatives	Implementation by delivery of alternatives to a test-bed simulation

3.1 A Result

¹⁶ This is included in what John Friend calls design (13). Older sources could have called it morphology. Se Fritz Zwicky (1957): *Morphological Astronomy*, Wiley.

The major result of the study, as I see it, was the definition of the four key issues for the Navy. Another result was that the alternative two indicated above was recommended as a first alternative for test in exercises and by simulation in the test-bed. Other alternatives and suggestions were mentioned as specifications in the recommendation. Several compatibility problems were identified.

Simplified worldview by systems perspectives proved possible to discuss with naval officers though they had to be elaborated in a small team which knew and trusted each other since long. Gaming then was done by a larger group who loved this and never questioned its preliminaries.

This study entangled a bushy totality. We gave a clear and apt response to a complicated situation. We gave a view on *what* are the actual issues of the naval capabilities and *which* are our suggestions.

3.2 A methodological reflection

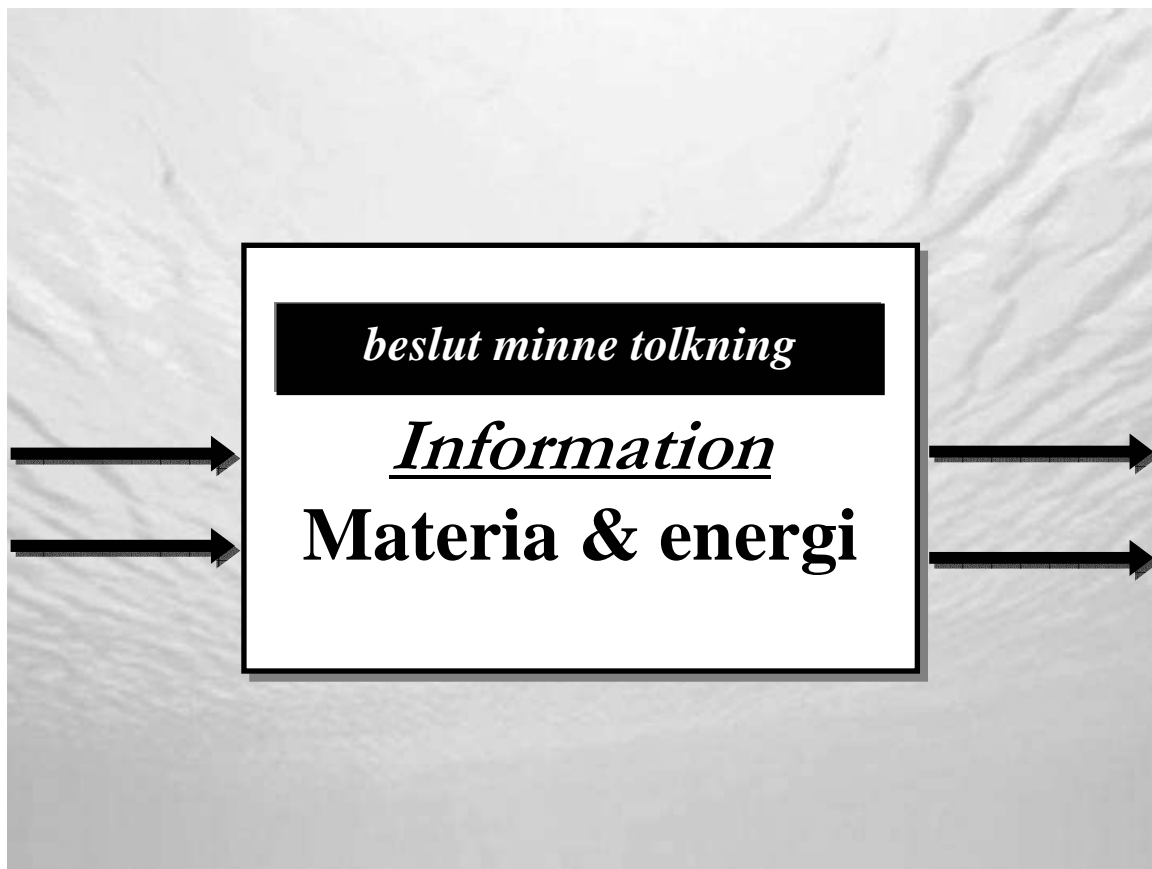
In spite of the importance of the project as a piece of real design, the Conference participants would surely be more interested in the methodological side of it. In any case we have reasons to challenge the methodology. In the following table the match is indicated between the method declared and the real proceedings.

<u>Original method</u>	<u>The project</u>
Four standard perspectives	OK
To explore by perspectives	OK
Perspectives make a difference	Yes, and the four perspectives matched well.
The aims of management counts	Yes, especially in this complex milieu.
Coherent piecewise design	Yes, and we sorted out discordant combinations.
Priorities and simplification	Yes, done.

The four standard perspectives came about quite naturally. The resource- and the effect-perspectives were applied in the phases one and two respectively, for compatibility testing vs for testing consequences in war gaming. The organization perspective was realized by the concerns for our study fitting into the armed forces totality of command systems studies, and also by the involvements with an adaptivity-producing test-bed. A spectrum of stakeholders were invited to discussions and gaming sessions, and they had a free say during the whole study.

Other perspectives were applied as well. This was obliged to some extent, and it also helped the explorative side of the study. It helped setting priorities. To discuss systems theories with the officers proved possible, but they preferred much to arbitrate issues than to stay on problem formulation levels. Once the James Miller systems perspective was chosen, it was no problem to limit parochial interests to their due place and to discuss perspectives even of absent stakeholders. The morphological piecewise approach was strong. We discovered many hidden traps of impossible combinations.

Do notice the difference with positivism and with René Descartes and his second rule in the Method! (See footnote one.) We split up to see relationships, not to dig further into the details. We did not have a fix body to cut up. We surfaced perspectives and we discovered possibilities. We simplified and we set priorities.



Living systems according to James Miller

4 Discussion

This is what has happened. Now to the design of further applications of this approach with the area of risk management. Older Swedish laws oblige agencies to limit risks, to prevent and mitigate damage and to assess the risks in financial terms.¹⁷ Recent laws oblige authorities on all levels to make explicit emergency plans.¹⁸ Major catastrophes have come in focus more than before.

The situation in the risk management area has similarities with the naval project in that there is very much information available based upon experience. As it was with the naval command systems development there are now, for Swedish (and European) risk management, enormous amounts of detailed information and advice available from central national authorities and from consultant enterprises. All public agencies and major enterprises have extensive systems for follow-up. There are for example files of a software ProTarge which contains more than seven thousand questions/reminders (33) and this firm is not alone in a continuing struggle to create comprehensive overviews. The small enterprise SCSC¹⁹ can be mentioned as another kind, a specialist in precautions for the heavy catastrophes. Even if those are rare, this enterprise has also got a problem with managing overviews and priorities – the same type of

¹⁷ In the law SFS 1995:1300

¹⁸ In the laws SFS 2002:833 and SFS 2003:778.

¹⁹ SCSC = Swedish Catastrophe and Safety Center

problem as we had in the naval project: more of information and possibilities than structure and overview. Still priorities must be agreed, set and accounted for.

All risk and crisis managers work by a background of experience and reflection as far as I have been able to find out. Questions and advice are expressed for the existing roles and responsibilities, for geographical and professional domains. There is a systems thinking in the so called business continuity planning and in that chains of activities and chains of consequences are considered, but all check of completeness is empirically based and especially no classical systems theory like the ones of Ludwig von Bertalanffy, Stafford Beer (6) or James Miller (25) is employed for this. The back-bone of synthesis is the couple of probability and consequence. Precautions suggested are organization, training and planning. So there is room for more systems theory both about what may happen in the field and about management's own activities, in both cases in order to gain the advantages sketched in paragraph 2 above.

The development of methods has been pushed by events like the World Trade Center destruction, the Indian Ocean tsunami and a more local Swedish storm incident and of course by the extensive laws prescribing a preparedness for public agencies on all levels with plans and resources and an organization. (31),(32). The methodological and organizational developments are quite dynamic now. However, instruments for convenient complete overviews and instruments for setting priorities are lacking. To find them together with the strategy and the procedures is not easy but it is necessary if we are to reduce the number of unexpected catastrophes.

Public authorities on all levels have many obligations in way of planning and they see a problem, for financial reasons, in adding plans for safety. Moreover there is the work of coordinating the plans. Just to mention one example: Building permits and environmental protection must be linked, functionally and as a relation between the authorities. Also the laws do not help such coordination.

Moreover, as was reported from a recent municipality planners conference the learning dynamics required is not there and neither so the flexible net-work spirit. It might also have to be admitted that public administration generally speaking does not carry the load of theory necessary to face the elements of surprise hidden in risk management. I am afraid that this picture would be true for most countries.

There is a cultural problem which should call for a methodologically well founded intervention at the same time as the ruling culture opposes change. My effort in this context is to plead for explicit and transparent perspectives in the precaution's phase of risk management in order to make the overviews manageable – as was done in our naval example. (1) As in the naval example described above and as in the anterior theory (15), we shall need the four perspectives: *effect, resource, organization* and *stakeholders*. We shall also need functionally coherent models of the society we want to protect, the ones of Miller (25) and Beer (6) to start with – still as in the naval example. We would gain the same advantages as in this example, not least the possibilities of participation both in problem formulation and in the more precise setting of priorities. The complex hierarchy of actors involved requires a different language on different levels and in different sectors. It also requires different perspectives facing different functionalities, flows and responsibilities. This is the complex real world. Speaking about perspectives in this context is not a further complication. It is to bring a coherent order. Each actor needs his perspective. He needs it to work and he needs to make it explicit to explain his stand to the others.

In organizing hearings about and with perspectives we shall have the dilemma of reconciling a functional systems language with the language of responsibilities, areas and professions - and with local expressions. Here Colin Eden advises his Decision Explorer methodology for a

participative creation of language but he also offers facilitators a part in the dialogues and this is where the card of systems theory may be played. (1) Systems theory has always had a facet of language. It is a way to make different conceptual frameworks compatible, and this is one of the things risk management in our complex bureaucracies needs.

It may seem strange to promote systems theories from fifty years ago to create a modern organizational dynamics, but we have now a new context for them and new ways of looking at (appreciating) explicit statements (2),(27). It is great to see systems theory as pictures instead of as truths, and this gives us the liberty to see, use and appreciate them as we and the democratic bodies who engage us may wish.

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