

DeTombe, Dorien J.

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## A new methodology for complex societal problems

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**38<sup>th</sup> CONGRESS OF THE EUROPEAN REGIONAL SCIENCE ASSOCIATION**

**28 AUGUST- 1 SEPTEMBER 1998**

**VIENNA**

**EUROPE QUO VADIS**

**REGIONAL QUESTIONS AT THE TURN OF THE CENTURY**

**A NEW METHODOLOGY FOR COMPLEX SOCIETAL PROBLEMS**

Dorien J. DeTombe

Delft University of Technology

School of Systems Engineering, Policy Analysis and Management

P.O. Box 5015 2600 GA Delft (The Netherlands)

Phone: +31 15 278 69 49 Fax: + 31 15 278 34 29

email: detombe @ sepa.tudelft.nl

[http: //www.sepa.tudelft.nl/webstaf/detombe/index.htm](http://www.sepa.tudelft.nl/webstaf/detombe/index.htm)

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# A NEW METHODOLOGY FOR COMPLEX SOCIETAL PROBLEMS

Dorien J. DeTombe

## *Abstract*

Questions on the theme which developments will be in Europe the next ten, thirty to fifty years can be considered as complex societal problems. These problems need an integral approach based on analysis of the temporary situation, with a reflection of the past and focusing on new developments, trends, political values and ideas. Analyzing the situation in Europe should be done in accordance to a micro analysis of the states of Europe and a macro analyses of the world. Several issues like finance, economy, infrastructure, internet, environment, employment, knowledge, education, health care, technical developments etc. should be integrated with each other and should be analyzed in relation to the legal and political ideas. Many actors with different power and emotions are involved. Analyzing as well as predicting future developments should be done with several groups of people.

A new methodology is developed that handles these kind of questions. The method support the analysis of the past, the temporary situation and the future, integrating the many different aspects. This new methodology, the Compram method (DeTombe, 1994), is based on the idea that handling complex societal problems is based on knowledge, power and emotion. The method handles these problems with a six step approach starting with analyzing the situation with neutral experts from different fields, then analyzing the same situation with the parties involved, then together based on several scenario's trying to make a picture of future developments. In the paper the method will be described in relation to the questions of future development of Europe.

## *1 Predicting the future*

Predicting the future is one of the most difficult things to do. From the times described in the bible (the prophets), the Delphi oracle of the Greeks, the fortunetellers on festivals, to contemporary consultancy bureaus and scientists, people are asked to predict the future. Knowing what lies ahead makes it more fruitful to make decisions at this moment. Europe Quo Vadis, the theme of the conference is a reflection of this feeling. People do feel very much unsure when they do not know what to expect in the future. This accounts for one's personal life as well for the future of a company or a country. Europe that has suffered in the twentieth century of two world wars, which negative effects even after fifty years are still visible<sup>1</sup>, which slowly recovering of the moral and economical damages of a totalitarian system, like that of the communism in East Europe, and suffering from relatively small but severe local national wars, e.g. in former Yugoslavia. That Europe faces a new century. The expected ideas about the future at least at this moment, in the dominant European countries (France and Germany) is going towards a more central organized Europe, where there is more unity in legislation and in financial currency (the Euro) then it was during the last century, although less centralized as it was in times of Spanish monarchy in the 15th and 16<sup>th</sup> century in the time of Charlemagne or of the House of Habsburgs in the 16th and 17th century.

How will the future, the near future of the first fifteen to twenty years of the 21st century look like? What will be the political, and economical developments be, how will the infrastructure develop. What will a more united Europe mean to the feelings of people towards their 'own' country, their own nationality. Will the national feelings grow stronger<sup>2</sup>, or will the feelings of the people go more towards being an European.

The general governmental approach of the Western European was in the twenties century national thinking. Important issues were national. To be the number one in your own country. Over the borders was more or less the world outside. Now the focus is widened, which make the world more complicated, and the goals more difficult to reach. In order to survive in Europe, the European situation has to be examined. In stead of being number one in your own country were at least the rules and habits are familiar, one should now try to be to the best in Europe, the best university of Europe and the number one company of Europe. The national view have to be changed to an European view, which is per definition more complicated.

Take for instance the airport hubs. Hubs are the central places were the majority of the airplanes for freight as well for passengers arrive and depart. Several countries are fighting on European level to become the main airport hub in Europe, among them the airport of Frankfurt in Germany and Schiphol in The Netherlands. Meanwhile the airport companies are on national level pretending that this fight is already won in their favor and are persuading the national government to invest in their airport as if it was already a fact that this airport will be the central airport for handling all passengers and freight in Europe (see the Dutch Schiphol discussion, Van der Riet,1998; Rooze, 1998).

## *2 European changes in the near future*

In the next fifteen years many things will change however in Europe probably towards a more centralist guided Europe, what exactly will be changed, when and how, is difficult to say. Each expert has on his own field probably some ideas and queues in what direction his or her own field will change. However what is happening in other fields will be unclear to him or her. Developments in one field are not isolated. Each field is depending on others, one development provokes and influences others, and European developments are influenced by national developments on one side and one worldwide influences on the other. See for instance the mutual dependency of the financial world on the stock exchange, the world economy, and the world trade in relation to continental trade protections.

In order to see what will happen in Europe, if it can be seen at all, the content experts should discuss with each other and explain to each other what the developments in their own field will be and than interpret this knowledge according to the consequences what the development of other fields has to their own field and discuss these new developments with experts of other fields. So in an interactive discussion of several rounds experts discuss what they think what will happen in Europe. The same can be done with the several parties involved like the national governments and large national and international European firms and world organizations. What are their goals, what direction do they want to go, what influence can they have, what is their power and emotion towards several developments etc.

Then based on several scenario's some careful predictions can be given. Based on these prediction actions can be taken. These actions in turn can provoke new opportunities, treats and challenges<sup>3</sup>.

### *3 Is the future predictable?*

Predicting new developments for the future is an iterative and interactive process, in which knowledge, power and emotion play an important role. This kind of discussions about future developments can be made based on development of the past, analyzes of the temporary situation and on an thorough analysis of the new trends and possible developments of the future described in several scenario's (Bahlmann, 1996).

By analyzing the past or the contemporary situation knowledge experts should discuss together which the phenomena and mayor issues are involved and how they are related and depending on each other. In a simulation model on the basic ideas of System Thinking (Forrester, 1972) it is easy to show, by just drawing some feedback loops, that developments are iterative, and the more complex the situation is, the more uncertainty there is in the model. Because all the phenomena interact the uncertainty can be quickly growing. The initially linear relations can change to non-linear relations, which enlarges the unpredictability (see Van Dijkum, 1996). How this can influence the predictive value of the model is described in several articles and books about application of chaos theory on models of complex societal problems (DeTombe & 't Hart, 1996; Metz, 1994).

Not only the chaos theory make us alert on the unpredictability of future developments also the knowledge of socio-cybernetic theory alert us of unpredictability. The socio-cybernetic concept of self-organization gives clear queues that future prediction is only possible to a certain extend, and under certain circumstances. Which circumstances, that are is often not so clear at the start (see DeTombe, 1998). The concept of self-organization can be applied to the behavior of different parties involved, which in the case of the future development of Europe are an enormous amount of local and national government, organizations, firms, national and international firms. These parties can organize themselves in their own way depending to their own ideas, emotions towards their own goals. This process is only to be guided and structure to a certain extent. Of course the national and European government tries to influence this as much as possible with legislation and rules, however never completely succeed, also because the concept of self-organization shows that nobody knows what the reaction of the parties will be. See for instance the European influence on drug use, cocaine smuggling, pornography, and the pig farmers. In the Netherlands the pig farmers were first subsidized and a manure problems was created, which ended with swine fever and subsidizing<sup>4</sup> the farmer to kill the pigs (DeTombe, 1993; Termeer, 1993).

The theory of psychology points to emotions, which also play a role in complex societal problems, often more then problem handlers know or like to admit. These emotions can ruing a very good structured problem handling process in such a way that the outcome can be quite different. See for instance several fusion processes between large companies that due to dislike of each other suddenly break off. The process of dividing internet allowances was held up for a long time because the dominant players had emotional problems which each other (Kets de Vries, 1997).

Predicting future developments is difficult. Nevertheless sitting back and doing nothing would probably not be the right thing to do. People do like to be in control as much as possible and guide our own future. To predict the future developments and to guide the developments is only to a certain extent possible. However we can make a picture or at least try to make one of past developments, see what this means for the future, analyze the contemporary situation and the possible future trends all on the base of several scenario's e.g. of different economical and ecological scenario's.

#### *4 The Compram method: guiding the process of future developments*

A way to handle this kind of complex problem is the let knowledge experts and different mayor parties, firms governmental and non-governmental organizations, and world wide organizations and European other countries, discuss with each other and let them make some possible future predictions. This discussion should be well organized and structured. A way to structure and guide such discussions is described in the Compram method. The Compram method is a method that supports the problem handling process of complex societal problems. Compram stands for Complex Problem Analyzing Method. The method is developed by DeTombe (1994), and is based on the idea that complex interdisciplinary societal problems should be handled cooperatively. A team of different \* must explore and analyze the problems and make recommendations for changes.

The Compram method distinguishes six steps in the problem handling process.

The first step is to consider the problem as knowledge problem. Therefore the problem will be analyzed with a team of 'neutral' content experts. They should try to get a clear unbiased picture of the problem. These experts should be selected based on their knowledge of one of the domains involved, or their knowledge of one of the parties involved.

The second step is to consider the problem as an interest and power problem. The problem should be discussed at group level by each party involved in the problem. The third step is to combine the various view points, knowledge and power. A representative selection of all the actors should work together to arrive at a set of possible interventions that are mutual acceptable for the parties involved. The fourth step is to anticipate the societal reactions the selected interventions may provoke. The fifth step is to guide the process of implementation. The sixth step is to evaluate the resulting changes.

The Compram method has a strong emphasis on communication, to stimulate knowledge exchange between the participants of the problem handling process. In order to support the communication several special communication tools are developed of which the seven layer schema in which the problem can be expressed in different models and languages is one of them (see DeTombe, 1994).

The Compram method is interdisciplinary in two ways. One because of the type of problems, the problem involves many domains, phenomena and parties. Two the method requires input from different scientific fields.

The problem handling process is supported by a facilitator, who uses special group facilitation tools to support information exchange. The facilitator should not use only one method, and apply the method by default. It is necessary to apply additional methods

depending on the phase of the problem handling process, the available money, the composition of the group and the kind of problem. The method can be applied as a framework. This means that, within the constraints of the method, depending on the problem, the amount of time, the money available, and the group. A good facilitator will have extensive methodological knowledge of the methods and tools that can be used to support complex problems and of group processes (see DeTombe, 1994). How the method works in detail is described in several articles and books (see DeTombe, 1993, 1994, 1996).

The Compram method can be applied to all types of complex societal problems for instance on problems of environment, infrastructure, communications and transportation, and on future developments in Europe.

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<sup>1</sup> See e.g. the Jewish Gold the Nazis kept in the banks of Switzerland, and the suffering for war victims even till the second and sometimes third generation.

<sup>2</sup> See the developments of nationalism by people that want to talk their own language officially and be taught in their own language, or even their local dialect, no matter how uneasy this will be for future schooling and development, e.g. the small group of people in the North of The Netherlands the Friezen like to speak their own language officially.

<sup>3</sup> See e.g. the discussion about ecology based on the Reports of the Club of Rome (Meadows, Meadows, Randers & Berends, 1972).

<sup>4</sup> The farmers were subsidized with national and European money.