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Operation Research and Ethics and Societal Complexity:
The EWG OR and Ethics and Societal Complexity

Since 2017 the two Euro Working Groups (EWG) the EWG OR and Ethics and the EWG Methodology of Societal Complexity (MSC) were merged together, due to a large overlap of the content of their research. Both EWGs focus at ethical subjects in doing research in the way of how to make the world a better place to live for all people. Giving that each researcher has only one life, the members of both these research groups decided to dedicate their lives, research capability, brains and efforts to improve the living conditions of all the people in the world. This idea of research often includes criticizing issues and circumstances that abuse privacy, like unethical use of data mining for companies, Google and Facebook, abuse health of people by the alcohol and tobacco industry, criticize unethical labor conditions like child labor, improving the position of women by emphasizing education of women, especially in developing countries, by being financial independent, by forbidding child marriages and stimulate equal pay for equal jobs given that women rights are human rights.

Reflecting and handling these kind of complex societal ethical problems is the focus of the researchers belonging to the EWG OR and Ethics and Societal Complexity. In most complex societal problems some persons benefit while most people suffer. Given this reality the researchers of our EWG research group of OR and Ethics and Societal Complexity like to minimalize the personal benefit of those who profit of the complex problems, like the banks who created the credit crisis and the pharmacy industry who benefited for dangerous drugs and to maximize the situation of all people in a social based democracy where all people can be protected by the rule of law of a social based democracy.

The EWG Methodology of Societal Complexity (MSC) was a part of the International International Research Society on Methodology of Societal Complexity (MSC), founded and chaired by Prof Dr Dorien DeTombe, created in 1993. The International Research Society on Methodology of Societal Complexity (MSC) and the EWG Methodology of Societal Complexity (MSC) has since 1993 organized many conferences in all continents all over the world and published many books and articles in scientific journals, see http://www.complexitycourse.org

The EWG Methodology of Societal Complexity organizes each year special sessions on this topic on the Euro conferences of the EURO Operational Research Conference together with OR and Ethics.

Methodology of Societal Complexity focuses on methodologies, methods and tools for analyzing, structuring, guiding and evaluating complex societal problems. Complex societal problems are often policy problems that can occur in many fields, like in the Agro-industry (water pollution by too much manure and fowl plague), in the transportation sector, in healthcare (Malaria, HIV/Aids, Flu), in Water affairs and in economy (credit crisis). The field focuses on handling local safety problems like large city issues and natural disasters as flood and hurricanes and global safety problems like war and terrorism. Although many of these issues have different causes, they have so much in common that they can be approached in the same way by using the Compram methodology, a methodology based on the use of experts and actors and the voice of the people in a democratic way.

Complex societal problems, as such, are unstructured, dynamical, constantly changing and have a large impact on society on macro, meso and micro level. Handling complex societal problems needs a special multi-disciplinary approach. The content knowledge comes from content experts. The process knowledge comes from facilitators. The power is in the hand of actors. The attention of the research of Methodology of Societal Complexity is on the
methods and tools facilitators need for guiding these kinds of problems. The facilitators use methodologies specially created for the field of societal problems combined with methods and insights derived from fields like medicine, law, economics, societal sciences, methodology, mathematics, computer sciences, technology, engineering sciences, socio-cybernetic, chaos theory and operational research combined with content knowledge. Often a combination of methods is needed as is prescribed by the Compram methodology for handling complex societal problems.

The Operation Research (EURO) branch OR and Ethics: Operation Research and Ethics is created in 2001 at EURO XVIII by Prof Dr Jean-Pierre Brands of the Free University of Brussels, Belgium. The goal of OR and Ethics is creating increasing interest on ethical issues in OR research, teaching, consultancy and practice. This can be reached by organizing OR and Ethics on the EURO and IFORS conferences.

On the 29th Euro conference in Valencia OR and Ethics an Societal Complexity organized thirteen lectures and an Award session for the best paper. Award former were in Rome (2013), Glasgow (2015) and Poznan (2016).

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EWG EUROPT
EWG EURO Continuous Optimization
EWG OR for Development
EURO MCDA

Keywords: Methodology, Complex Societal Issues, Decisions, Sustainable Development, Healthcare, Economy

Amsterdam,
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1 Big Data driven Government Policy: a Complex Societal Problem

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Abstract

The Dutch government designs policy on the basis of large quantities of data. The Central Bureau of Statistics (CBS) is one of the government agencies that takes care of collecting, storing and analyzing data for government policy. New data techniques make it possible to collect increasingly large amounts of data, to link datasets in different ways and to analyze data faster and more varied. Based on these analyzes the design of more effective and more efficient government policy is possible. The government is becoming increasingly aware of the possibilities offered by big data for government policy. Recently, a new division has been set up within the CBS that focuses on big data statistics, the Center for Big Data Statistics (CBDS). The government also asked the Scientific Council for Government Policy (WRR) for a report on big data and security. The WRR notes that big data can provide an important contribution to designing effective government policy, however large-scale collection, re-use of data and automated data analysis with profiles also entails risks related to privacy, discrimination and “chilling” effects. Therefore it is important to identify both the advantages and the disadvantages of using big data for government policy.

In this paper we state that Big Data driven government policy is a complex societal problem. Complex societal problems demand an interdisciplinary way of handling. We will analyze the problem of Big Data driven government policy following the methodological requirements from the field of Societal Complexity using COMPRAM.

Keywords: Compram, big data, law

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Big Data Value Center (2017). Big data oplossingen voor de overheid.

1 Awareness, see DeTombe, 2015 p. 188.
2 In accordance with the law the council has the task to provide scientific findings on developments that may affect society for the benefit of government policy.
3 DeTombe (2015; 1994).
Muntjewerff, A.J. (2017). Mom and Dad are Watching you and more … Human Rights Surveillance and more. ELSA FdR UvA.
2 Using Decision Analytics to Discover Care, the Missing Construct Between Duty and Consequences in Ethics

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Abstract

This paper applies nomology to the ongoing debate about the challenge of ethics and its relevance to public life and to business. Nomology uses an over-arching or top-down approach. Being ‘subjectively’ ethical ‘oneself’ is about ‘committing’ to developing the community through needs to preferences to providing value. Generally ethics should be about values. The ‘others’ focused ‘subjective’ structure is about ‘convincing’, one version of which involves self, others and the world. This paper considers a case from the 1916 Rising in Dublin about an ethical conflict between two Irish-born British officers: Captain Bowen-Colthurst who carried out several atrocities, and Sir Fletcher Vane who sought to have him held accountable for his wrong-doing. It uses the theory of nomology to evaluate their ethical conflict, and show that ethics should be redefined as being about duty, care and consequences.

Keywords: Ethics, analytics, duty, care, consequences, cognitive structures, nomology

1. Introduction to meta-modelling ethics using cognitive structures

This article remodels ethics. Like many human activities, ethics is broadly ‘an activity done by people for people’ (Ormerod & Ulrich, 2013) (p.291), and consequently raises three issues: (1) who it is done by: the subject carrying out the activity; (2) who are the people or entities it is done for: the object of the activity; and (3) the activity itself: the nature of the engagement between subject and object. To model ‘who it is done by’ needs cognitive structures because they require getting into the mind of the subject making the decision (Kennedy, 2012). Kant introduced the term ‘cognitive’ when he wrote “we can trace all faculties of the human mind back to these three: the faculty of cognition, the feeling of pleasure and displeasure, and the faculty of desire” (Kant, 2000) (p.11). Other versions of this triadic structure are ‘thinking, feeling and knowing’, ‘analysis, design, and implementation’, ‘need, preference, and value’, and ‘fear, anxiety, and resentment’, and relate to a process of committing oneself (C. M. Brugha, 1998a; Cathal MacSwiney Brugha, 2015).

Using models of cognitive structures to model cognitive structures, like using a tool to fix a tool, requires a higher level of abstraction, or meta-modelling. To deduce the underlying model structures that govern the processes that are evident in practice involves at least three levels of inquiry (Eriksson, 2003) (pp. 203–4). First is modelling the actual practices, second explaining them using various theories and methods, and third using meta-theories to interpret the second level explanations. This article adds a fourth level, to propose an improved cognitive model of some process, in this case of ethics. This uses the theory of nomology, which may come from Aristotle (Aristotle, 1995). Similar to Kant, Aristotle used an over-arching or top-down approach. He introduced the idea that there are ‘regularities’ in how people think: the origin of cognitive structures. He differentiated between subjective approaches, as used in fields such as psychology, and the importance of virtue; and objective approaches, as used in fields such as economics, and the importance of responsibility. In introducing the objective-subjective distinction Aristotle described there being “two sources of action, mind (nous) and desire
The ‘nom-’ part of nomology comes from ‘nomos’ the Greek word for ‘law’, and implies objective rules and systems. The ‘-ology’ suffix comes from the Greek word ‘logos’ meaning ‘order’, ‘word’ and ‘reason’, and is about the ‘logic’ associated with sociology and psychology. Nomology provides a modelling foundation for both objective and subjective cognitive structures (Cathal MacSwiney Brugha, 2015; Cartwright & Pemberton, 2011; Tappan, 1855).

The discussion begins with a review of ‘second level explanations’ about ethics’ systems, given in articles from journals that use modelling approaches in management, including special issues devoted to ethics and an invited review (Ormerod & Ulrich, 2013). It introduces some issues and unresolved questions (Wenstop, 2010), with the aim to build a model of the cognitive processes relevant to ethics: “that can include stakeholder interests and contribute toward sustainability, as well as more ethical decision-making processes where emotions can play a role” (Ormerod & Ulrich, 2013)(p. 307).

It starts with a clarification of the terms ethics, values and value. Ethics is considered here as a broad all-encompassing term for all issues about the subject, in line with its origin from Aristotle who wrote in the *Eudemian Ethics* that “the function of each thing is its end” (Lear, 2009) (p.388). Throughout his writings Kant reiterated the same theme, that ethics can be “defined as the system of *ends* of pure practical reason” (Wood, 1999)(p.326). Aristotle and Kant’s writings on ethics might nowadays look more like their prescriptions for ‘good management’. Values can refer to things that have value. But occasionally they can refer to peoples’ motivations on any level: political, economic, social, etc. (Schwartz, 1992). The term value is generally understood to be about delivering value, or doing something that has value for clients and end-users.

This first dimension ‘who it is done by’ is about the motivation of the subject carrying out the activity. The remainder of this article takes as ‘given’, that people are committed to delivering value, or at least they should be. The next stage is to consider the people or entities the project is done for, i.e. the object of the activity.

Presented at 19th Annual Irish Academy of Management Conference 2016
3 Earthquake preparedness: optimal deployment of emergency treatment sites

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Abstract

The official framework of the earthquake preparation policy in Israel presumes that care for all casualties is of main interest and as so defines the necessity of deploying Emergency Treatment Site (ETS) as part of disaster logistics preparedness. These ETS's will provide medical first aid during the first 72 hours to moderate and light condition casualties. Modeling the ETS's deployment and finding their optimal locations and quantities by minimizing distance, is our main interest. While authorities define only one kind of ETS, equipped and located in advance, defined here as static ETS, our optimization model suggests adding new mobile ETS that operates under command of static ETS. These mobile ETS’s will be equipped only after an event occurs.

The model is based on network hierarchical location problem with "soft" constraints, where a set of destruction points and sets of candidate static and mobile points are given. The destruction sites are based on prediction at specific area, while the candidate points are according to the relevant authorities' instructions. The research scenario assumes that a mobile ETS will be connected only to one destruction site and one static ETS within defined maximal distance and capacity constraints while static ETS can serve several sites. The planned facilities can help minimize uncertainty of policy makers at disaster logistics during the first hours, saving more lives. A small numerical example is presented.

Keywords: Disaster and Crisis Management, Location, Logistics
4 The position of women in life: a complex societal problem

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Abstract

Unfortunately, biological differences between men and women are often used to justify unequal cultural and political rights, and treatment of women. Although human rights should apply worldwide to all humans, both men and women, in many countries the political and cultural differences between men and women vary considerably in daily life. Often women are found to have fewer rights and opportunities than men. Illustrative cases may be found in property rights, the ability to borrow and lend money, to start businesses and even in the habits of travelling by one’s self. Even in most Western-European and Anglo-Saxon countries, where there is a stated respect for the human rights for both sexes, women may find themselves in disadvantageous situations. Even in these countries the rights, when examined from a women’s perspective, are often more paper rights than practical. One still sees too few women in higher positions in politics, science and business. Given that the brains and capacities are equally divided among humans, men and women alike, it is a waste of societal resources to not develop the capacities of women and allow them to bloom. When a country agrees to protect human rights, then some changes should be made. Making changes is not easy. It took, for instance, a lot of effort to change the position of laborers in the 19th century in Europe, and to extend the voting rights to women in the 20th century in Europe.

Improving the position of women is a complex societal problem. First, there has to be an awareness that the position of women can and should be improved. The issue should be put on a political agenda and promoted by a political lobby group representing the people who support this as a good idea. Then the current position of women should be determined, and the goals for change should be formalized. Often change is best started by improving education for all children, boys and girls alike. The Methodology of Societal Complexity provides approaches for describing and handling this type of problem. The Compram methodology is one of the central methodologies of this emerging field.

The Compram methodology describes several steps that should be taken after the problem is put on the political agenda. A facilitator who can coordinate, and lead the process must be appointed. First the current position of women must be described. This is a knowledge problem, and the facilitator invites experts from different fields to consider the issue. Then the desired goals must be formulated. These indicate the desired position of women after the change process is implemented. The facilitator considers the different interest groups, the parties, involved in this problem. This step considers the power and particular power differences among the different interest groups. In addition, the facilitator establishes what the different parties want in regard to the position of women. Eventually, the different parties should find mutual agreements about the goals, desired changes, and processes. These must be discussed among the people in order to find out their opinions before the changes are implemented. This step provokes emotions, and it is important to consider and handle these before any change process is implemented. After a few years the implementations can be
evaluated to determine their success. Cultural and political changes happen very slowly and are often very difficult to implement. These represent complex societal problems which are the object of research of the field of Methodology of Societal Complexity.

Keywords: Compram methodology, societal complexity, women
5 Societal Complexity versus LEARN TO LIVE TOGETHER: Contemporaneous ‘Science/Culture/Religion Dialogue’. COMPRAM Methodology and ‘Decisional Nomology’ contributions

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Abstract

There is the OR community’s related heritage, challenge, tensions/perspectives within the possible ‘Science/Culture/Religion Dialogue’.
In order to acknowledge the tragedy of war (mostly within the actual 100 years from the end of the WW1) at least the scientific community would advance any alternative solution comparing to the war oriented track of the (entire) 20 century – and no significant ideas/acts within the started 21 century.
This study is tending to (re)present the projects oriented (re)search from the still open International Consortium Generosity_Creativity_Solidarity: learn to live together (hypothetical) reality, modeling/simulation/emulation and ideals generations – as a subtle turning point into the possible Network of Networks on. ‘Network of Networks’ construct sustains an original awareness/insight/action.
The co-organizers of the current OR and Ethics stream into Euro Conference 2018 Valencia have synergic and original contributions within – i.e. Prof. dr. Dorien DeTombe’s COMPRAM Methodology / Methodology for Handling Complex Societal problems, and Prof. dr. Cathal Brugha’s Decisional Nomology / Nomology - modelling generic cognitive structures / ‘science of the processes of the mind’.

A book, and respectively a project description are subtle related to the study inquires:
- Dorien DeTombe Handling Societal Complexity
A Study of the Theory of the Methodology of Societal Complexity and the COMPRAM Methodology, Springer-Verlag Berlin Heidelberg 2015, 978-3-662-43916-6

So, the study proceeds on the open Ethics and OR new realm onto the contemporary global (post-)crisis reverse as dedicated Inter/Trans/Co-disciplinary, Intercultural and Ecumenical approaches oriented within the thesis: Knowledge Society toward consciousness society.
A related (f)act to tacit and explicit knowledge/innovation, and follow up consequences would draw up and extend an implementation of a ‘local’ nucleus of an in ovo inquiring “science-nature-culture-spirituality-religion Meta-Dialogue”.

Within this stage of the research, there is the consideration that it is necessary to joint to the documentary basis of this study the correlative/concordant Knowledge Transfer from the following three debates happened on 1975 / 2000 / 2001 – three debates between (apparently total) divergent great public personalities. There are 3 x 2 couples, downward pointed within the *, **, *** stages. As an ‘e.g’ there is presented ‘only’ one www-study as a minimal proof on each of these three famous debates:

* 1975 debate:
Naom CHOMSKY and Jean PIAGET
on the innateness / grasping of language

e.g.:
Throwing fuel on the embers: Probability or Dichotomy, Cognitive or Linguistic?
- by David M. W. Powers

Debate between Carlo Maria MARTINI and Umberto ECCO
on 2000 Belief or nonbelief?:
a confrontation / Umberto ECO, Carlo Maria MARTINI

As author of this study/research <<Societal Complexity versus learn to live together: Contemporaneous ‘Science/Culture/Religion Dialogue’. COMPRAM Methodology and ‘Decisional Nomology’ contributions>>, it was and still is the inter/trans/co-disciplinary tension(s) and will to advance the proves and inquiring stages in front of the Ethics and OR (e-)readers. So, it was a necessary (but still not sufficient) task to apply the step by step COMPRAM Methodology to the Contemporaneous ‘Science/Culture/Religion Dialogue’ positive hypothesis – as a complex problem. These tension(s) and will was and are grasped the knowledge / forms attaining the seven layers.

I.e.: In Layer I the problem is described in a natural language, in words.
In **Layer II** the concepts and the phenomena used in the description of the problem in Layer I are defined.

In **Layer III** the relations between the concepts and the phenomena of the problem are described in natural language.

**Layer IV** shows the knowledge islands - the way the knowledge islands are filled indicates the completeness of the knowledge.

**Layer V** a semantic model of the problem is made as a graphic representation of the relations between the concepts and the phenomena of the problem described in Layer I.

In **Layer VI** a graphic representation of the causal relations between the concepts and the phenomena of the problem is shown.

**Layer VII** contains a system dynamic model of the problem based on the causal model in Layer VI.

So, as author of this study/research <<Societal Complexity versus learn to live together …>> I can present (even at this stage) seven draft-schemes as containing the ‘imagistic’ solutions for each of these seven Layers. Here and now let be:

**A:: Layer IV:** the **KNOWLEDGE ISLANDS** // **B: Layer V:** a **SEMANTIC MODEL OF THE PROBLEM** // **C::** the scheme related to the ‘transition’ from the Layer V [semantic model] to the Layer VI [causal model] of this Contemporaneous ‘Science/Culture/Religion Dialogue’ complex problem:
A: Layer IV: the KNOWLEDGE ISLANDS [coherent and cohesive stance – with minimal conceptual-intersections; the sharpen border take up a potential flow of a Science/Culture/Religion///Politics re-structured presence within a next step Humankind’s problem]
B: Layer V: a two steps details of the SEMANTIC MODEL OF THE PROBLEM [coherent and cohesive stance two steps details assuring the cognitive explanation/understanding of the Collective towards Societal Intelligence re-balance (within majoritary_implicit and some explicit flows – with a minimal conceptual-intersections between the string of concepts/constructs TRUTH / CONSCIOUSNESS / LANGUAGE / LOGIC / INTENTIONALITY / RESPONSIBILITY / Praxis / Morality / Beauty / Value; the four ‘geometrical patterns suggests the role(s) of the of sharpen border take up a potential flow of a Science/Culture/Religion///Politics re-structured presence within a next step Humankind’s problem]
C: On this last page it is presented the draft-scheme of the last layer Layer VII – it contains a draft of the representation for the **SYSTEM DYNAMIC MODEL OF THE PROBLEM** – oriented on a vertex-sensed direction / and the ‘aggregation’ of all these draft-schemes (seven + one).

Keywords:
6 Inhabitants take responsibility of their health position

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Abstract

This summary gives in particular main lines. The presentation in Valencia will in particular give starting points and work methods, designed by the inhabitants, be discussed but also be tested by ourselves.

Transition

The Dutch society is in transition. The transition must culminate in, what we call it in the Netherlands: the ‘participatiesamenleving’; a society in which anyone who can take responsibility for his or her own life and environment, where the government has no or only a facilitating role. The transition is a long-term development in the social domain, which has everything to do with individualization, emancipation and development in assertiveness. With the host of a number of responsibilities within social policy of the national government to the municipal government, there is formally a tilting force. With the tilt, it is meant that the center of gravity in the distribution of the responsibility shifts from the government to the population. This tilting occurs not only through government actions. The tilt follows the informal development of the individualization in society.

Community of Assen

Assen is a middle-large community in the north east of the Netherlands. It wants to be running ahead in the Netherlands with this transition. They realized a new social institution in 2015. This organization was meant to be the bridge between government and residents. The tilt was accompanied by the change of three laws. The municipality was responsible for the implementation of the law of participation, the law on social support and the law on youth care. This gobbled up a lot of attention from the Government. There was a vacuum between the municipality and the residents. The question arose how to get inhabitants in the center of social policy. The domain where this issue focuses on is health, participation and sports.

We agreed to handle the issue with the COMPRAM-methodology (DeTombe 2015). Client was the Councilor Health of the college in Assen. The contractor was yours truly, Hans Derks. He picked up the role of facilitator. There was an accompanying group consisting of official representatives of the municipality, from health and communication. The name of the process: Gezond@Assen (Healty@Assen)

Positive health

When we discuss health, we mean positive health. Positive health is the name of the health concept in which health, as the absence of disease shifts to the possibilities of the human being in 6 dimensions. bodily functions, mental well-being, vitality, quality of life, getting involved and daily functioning. In the new concept of health it is about the individual, not about the disease. People feel addressed in their force and not in their weakness.

As assessment of own health, we use perceived health. Perceived health, also called subjective health or health experience, reflects the assessment of own health. Perceived health is a summary health measure of all relevant health aspects for the person in question. The establishment of the social domain for 2015 is fragmented on products, services and organizations. Coherence and coordination was insufficient. Functions from various agencies were merged into a new social institution ‘Vaart Welzijn’. The new welfare organization
started on 1 July 2015. After two years, however, the distance between inhabitants and authorities increased.

**COMPRAM-method**

To handle the problem we use a variation of the COMPRAM-method. The problem statement is how do we develop policy in the field of health, where the inhabitants take responsibility and do we get organizations next to and behind inhabitants and the municipality in a supporting role? How do inhabitants become owner and how they come in the role of client?

To start the process properly there have been three actions:
1. Club of objective experts searched and showed various aspects of the issue.
2. The most commonly involved actors gave collected, commitment and the problem domain.
3. Residents in their new role. We called them Club of 100. 100 residents are involved.

After domain-designing through the experts, the Club of 100 took over their role as experts. After all, residents are experts in their own life.

**Deliberation**

First half year was a period of consultation. After defining the domain by the actors (professionals) the Club of 100 gave the domain color. The Club of 100 has been carefully selected. It is a representative group. Shaping started from their own daily routine, from their own home. Shaping also started on a higher level of abstraction. We would like to start with a common perspective. At first we thought the perspective would be something like 'Assen, the healthiest city'. But the residents called a very different starting point:

Health is finding nearby what you are looking for …

Each session with the Club of 100 was followed by a meeting of the Club of 13. They designed following questions and gave focus to the process. The Club of 100 finally came after several sessions with a slogan and eight main principles. The Club of 13 then designed eight possible actions. These actions were checked again at the Club of 100.

The working methods in all meetings were chosen carefully. Mentimeter was used a lot. This is a Web-based decision room. When there was more consultation asked, there are live methods deployed.

**Main principles**

The main principles in this process according to the residents are:

1. I have the right to ...
2. Stop coming up with new things and be consistent with what we, inhabitants, want.
3. No fingers raising and condemnation ... give us more explanation
4. 90% of attention to 10% of the people (who need it) and the other 10% to the rest.
5. Everything starts with encounter ...
6. ... but if you need care ...it has to be good
7. Clear direction of your needed care
8. We do like to sport and move

**Conclusion for the actors**
This seems to be clear recommendations, but they didn't fit (completely) in the working methods of the organizations. The professional organizations normally choose for general methods to make the city healthier or sportier. The inhabitants asked not to come up with new general things but only to connect to what comes from inhabitants. That is why the organizations has to be among inhabitants.

It is decided that the principles from the inhabitants is the measuring rod for each new policy in the field of health, participation and sports.

There are eight actions developed and checked:
* We develop a health credit for residents to develop a healthy lifestyle.
* We encourage test gardens where we support informal groups in their (healthy) ambitions.
* We are going to accompany inhabitants as near as possible and opportunities.
* We experiment with inhabitants in the role of client
* We want to come into contact with groups, which do not yet participate sufficiently.
* We are going to train people to give shape to this new role.
* We set up an infrastructure suitable to this work method.
* We develop a specific attack plan on the use of the power of sport.

Implementation
For the implementation, we use the eight action points. On each cue point, inhabitants are involved in the role of client. On each action a minimum of four actors work together.

The whole process is followed by the Club of 100. The actors are the performers. The municipality makes the process possible. Evaluation in November of the years 2018, 2019 and 2020.

Keywords: sport, Compram, poverty
7 Using the Comram methodology by handling Intergenerational transmitted poverty: a personal journey

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In this article I describe, as an administrative policymaker of a municipality of Emmen (105.000 inhabitants), my journey introducing a methodology of handling complex societal problems using the elements of knowledge, power and emotions on two scales. In de Veenkoloniën and in a cooperation with three municipalities. This article shows how I get to some conclusions.

In ZO-Drenthe in the northern part of the Netherlands, de Veenkoloniën, lives a rather great group of poor people. 1 of 9 children are being raised in poverty. This is a serious problem for personal development of these children with risks of sustainability. How can we as a municipality solve this problem? How can we handle such a complex societal problem? And how do we create a process that gives possibilities for improvement?

Afb. 1: Routenet.

Afb. 2: ZIF, Visser, S; April 18

Intergenerational transmission of Poverty is the phenomenon that I define as when a poor family raises children in poverty and this children are raising children in poverty also.

Literature distinguishes three types of poverty: 1) the relatively low financial/material, social and cultural resources of a family compared to the national standard, 2) this situation for 4 years or longer and 3) the intergenerational transmission of poverty to the next generation.

This journey is a theoretical session whereby I used the elements of the Comram methodology\(^4\) and do some recommendations for handling this problem on the scale of a municipality. The Comram methodology is constructed for the methodological field of social complexity and seems to be constructed for a (inter)national scale. The goal is working towards a dynamic model with accepted interventions. In these methodology, attention is paid to a deep level of knowledge and sharing of knowledge, clashing rationalities, mutual power relations and emotions. The process is going after the last step in a programmatic approach with shared ownership.

\(^4\) DeTombe.: Handling societal complexity, a study of the theory of the methodology of societal complexity and the COMPRAM methodology, 2015, Springer-Verlag Berlin Heidelberg
A policy process can contain different part processes\(^5\). The theoretical Six phases are

1. the agenda setting: the process by which social problems get the attention of the public and policy makers
2. the policy preparation: the systematic collection, analysis and preparation of a policy using along obtained knowledge and insights of scientific information and the formulation of opinions with a view to devising policy to be pursued, that is to say, argue and formulate a policy to be pursued.
3. the policy making: making decisions about the content of policy. Choosing and specifying the purposes, the resources and the time schedules.
4. the policy implementation and implementation: the implementation, applying the means chosen for your chosen purposes.
5. compliance with the policy and policy enforcement: the worry that the prescribed standards of conduct really are complied with.
6. the policy evaluation: Judging by the content, process and effects based on well-chosen criteria

When I began my process of handling intergenerational poverty this theme was already put on a regional agenda by Tinten, a large welfare organization with more than 1000 employees (step 1 of phases of policymaking). They had two arguments to put it on the regional political agenda: they were concerned about the destructive effects for families and society and they want to pro-active educate their employees already existing interventions to solve this problem, while being contracted by municipalities doing so.

When I get involved I tried to figure out step 2. Digging in literature and trained by Prof. Dr. Dorien DeTombe in her course ‘Handling complex societal problems’ I became aware as an administrator that I saw some problems: the absence of a clear definition of poverty and the lack of an integrated policy. I shared this awareness with the organizations involved. At first they agreed to my analysis. But when I suggested to start a process to integrate existing knowledge and try to explore new knowledge and try to get funding for a well-structured methodological COMPRAM based approach, they refused at last. Not only for financial reasons (more than 20,000 euros to facilitate step 1) but also for the timing. They did not want to take enough time to explore as fully as can be the domain of knowledge. They had already made other plans. I was very disappointed.

In the cooperation with the two other municipalities there was also a budget problem. Only combined financial budgets would be sufficient to raise the facilitations costs. And for this three municipalities it was impossible. Only financial cooperation with the Veenkoloniën and Tinten could do the trick. But the other municipalities agreed with my first proposal of a model for handling this major problem.

In a personal reflection I suggest that in the mix of the elements of knowledge, power and emotions defined through Compram I have not succeeded in increasing the knowledge domain to a higher level on the scale of the Veenkoloniën. I made my own analysis which is accepted in three municipalities as a little part of this region. This analysis will probably be enriched with other knowledge disciplines this year (2018). After that we will try to influence the Veenkoloniën again.

My reflection on the element of power is that I negotiated with an important actor (Tinten) who had other goals by cooperation with my approach. When my suggested process influenced large on budget and timing, the interest in specific knowledge seems to diminish. They had other goals with their initiative, which prevailed.

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As the first domains were not worked out properly there has not been any comments of the element of emotions. The shared developing of interventions has not taken place. Yet. Although I was (and still am) disappointed in the result of my ambition of introduce a decent methodological approach of decrease intergenerational transmitted poverty in the Veenkoloniën, there has been some success. In the municipalities of Borger-Odoorn, Coevorden and Emmen we have developed a better understanding of the elements of poverty and intergenerational transmitted poverty and there is a will to improve that. At this moment there is a notion of making policy based on the ideas of the methodology of handling complex societal problems to handle the problem of intergenerational transmission of poverty. This issue is theoretical worked out to a basis conceptual model and will be theoretical enriched and will be practical implemented in three different administrations, Borger-Odoorn, Coevorden en Emmen.

Another type of success is that there are questions asked of the intellectual premises of the existent interventions. And some organizations try to help to increase the level of knowledge. The current theoretical research in the region of the Veenkoloniën shows the following pictorial knowledge:

How is handled, in this process, with the element of knowledge, the element of power and the element of emotions?

**The knowledge**

On the knowledge part some researchers reported in a presentation in April 2018 that they miss knowledge about poverty in cultural-geographical perspective and knowledge about poverty transmitted to three generations. They are aware that their knowledge is not sufficient enough. Further research has to be integrated. Is this a result of my intervention? I hope so.

The actors

This model (afb. 3) is the result of a little group researchers from the University of Groningen. The departments of Groningen and Drenthe financed this research without consulting the wishes or intuitive ideas of administrators of municipalities in ‘de Veenkoloniën’. Other actors are also not involved. Therefore in this process there is a risk involved in the process with the actors as they will be confronted by this research design.

Another possible problem is the process to develop relevant interventions together as actors and researchers (combining the domains of knowledge and power). An important actor (a Welfare group with thousands of employees, Tinten) is already tooling and educating their employees on possible interventions, which they predict. What will be the effect on this employees if there will be fundamentally other interventions developed? And how will their reaction will have an effect on the choice and development of new interventions?
My personal conclusions
1. The Compram methodology is useful as a tool for warning not to jump into conclusions too soon.
2. A decent theoretical approach of the knowledge domain is too costly for a (combination of) municipalities. We should develop cheaper ways of combining knowledge.
3. It is getting complicated if a powerful actor starts a policy process. Knowledge, power and emotions get mixed up easily.

Keywords: Compram, poverty
8 Modelling ethical level in financial entity performance appraisal: assessment in a multi-dimensional framework using data envelopment analysis

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Abstract

Interest in sustainable investing is widespread and growing. Hence, it is in the best interest of socially responsible investment fund managers that they maintain best sustainability practices. For investors, how to determine whether the funds in their portfolios adopt best practices while generating expected rewards is a pertinent question. Recognising this need, investment research organisations provide ratings that reflect how well a fund manages environment, social and governance (ESG) issues relative to its competitors. The traditional measures assess financial performance considering risk and return. However, empirical evidence suggests that factors other than risk and risk return may be associated with performance. In this study, we propose a methodology to assess fund performance under a framework that unifies ESG and financial performance measures. Appraising performance incorporating multiple measures of financial and economic performance together with measures of commitment to ethical issues such as ESG score is essentially an undertaking in a multidimensional framework. Further, when appraising financial portfolio performance, it is important to recognise that portfolio construction and management may be conditional upon corporate policy on ethical issues.

We assess performance using data envelopment analysis (DEA) and recognising that (i) ESG score reflects medium- to long-term corporate policy on ethical issues and (ii) portfolio management is conditional upon such corporate policy. We model these aspects by conceptualising overall fund management process as a serially linked two-stage process (operational management and portfolio management) and treating ESG score as a first-stage nondiscretionary output. The formulated DEA models assess overall performance and decompose it at the stage-level to reflect relative performance from operational management and portfolio management aspects of the overall fund management process. For funds deemed relatively inefficient, we propose a procedure that provides information as to how they may reach the frontier of best performance and thereby become relative efficient. We highlight our procedure as a methodological advancement in ethical fund performance appraisal using DEA. We illustrate application of the proposed methodology using a sample of large U.S. equity mutual funds.

This is a demonstration of operations research practice from ethics-in-analysis context where an analytical investment decision-making process integrates commitment to ethical issues. Here, we contribute to the literature on how socially responsible investors may put their ethical concerns into practice in their pursuit for desired financial and economic outcomes. Nevertheless, given that appraising investment portfolio performance under the sustainable investment banner is a complex task, the debate on whether investors can do well while doing good in the short- and long-term will go on.

Keywords: Finance, ethics
Ethical investment performance: Evidence from the portfolio theory perspective

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Abstract

This paper explores and examines the performance of socially responsible investments (SRI), frequently called ethical investments or sustainable investments, from the portfolio theory perspective. In particular, we use three different portfolio strategies to compare the financial performance of SRI and conventional investments. In this context, we propose a new portfolio strategy that maximizes the Sharpe ratio under the third-order stochastic dominance constraints. Applying the portfolio optimization methods to different ethical funds/indexes, we can answer several questions that arise with SRI opportunities. Thus, we first consider the Italian ethical market and then we strengthen our analysis on SRI to the international market using MSCI KLD 400 social index. Initial empirical results from Italian market are in contrast with the corporate social responsibility (CSR) theory conclusion, which confirms that SRI are performing much better than their conventional counterparts. This may well be linked to the characteristics and the peculiarity of the Italian market, e.g., recentness and dimensionality. International ethical indexes, on the other hand, give the best results and conforming to the CSR theory. The proposed empirical analysis allows us to understand the complexity and dynamics of the SRI and to evaluate their performance. Conceptually, the debate on the performance of SRI has been centered on the tradeoff between the arguments of diversification and the benefits of CSR. On the one hand, several authors, by the postulates of modern portfolio theory, argue that screening criteria limit the possibility of creating a well-diversified portfolio. On the other hand, opponent scholars confirm that ethical companies obtain better performance than traditional companies in the long term as a result of their positive stakeholder relationship. We go further in this paper, arguing that the use of suitable portfolio optimization methods and various datasets allow us to get meaningful conclusions. More specifically, we examine portfolio strategies based on optimizing the proposed performance measure and two well-known strategies (i.e., uniform portfolio and Sharpe ratio). In addition, we evaluate and test the proposed portfolio strategies using the stochastic dominance relations on the observed ex-post wealth. Thus, we examine and check whether there exist stochastic dominance orderings between the ex-post log-returns of the optimal portfolios. This is of great practical importance since it allows investors to optimize their portfolios considering environmental, social and governance issues.

Keywords: Financial performance, SRI, portfolio optimization, CSR theory.
10 Design of decision support systems for large infrastructure projects: a review

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Abstract

The need for intervention in large-scale social choices is articulated by Flyvbjerg (2014) through the iron law of mega projects that are "over budget, over time, under benefits, over and over again". This paper will present a review of mathematical modeling and implementation approaches (optimization, simulation, MCDA, DEA etc.) as well as the approaches for understanding and eliciting values in large infrastructure projects (>£1bn), as part of the complex societal problems field (DeTombe, 2002).

From the UK perspective, the infrastructure pipeline size (£500bn as of 2017), systemic cost overruns, together with the growing requirement for transparency call for an inquiry into prescriptive analytics (Bilal et al., 2016). However, the complexity, ambiguity and the continuous redefinition of objectives of mega projects (delivery of the asset but also social, environmental and political objectives) call for a holistic approach to optimization and attention to the dynamic processes and values in which the model building work is embedded.

This review paper is part of a larger interdisciplinary research ambition between operations research, critical accounting and organization theory aim to address the challenges of designing, building and, implementing the decision structures for megaprojects.

Keywords: Decision Support Systems, Complex Societal Problems, OR/MS and the Public Sector
11 Optimization problems in designing post-disaster relief system

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Abstract

There are many metropolitan cities such that disaster, for example earthquake, can be expected in the city. Part of the preparedness for disaster can be that authorities establish, maintain, and train a relief organization. After selecting the proper technology, the parts of the system are to be optimized. Optimization problems arise both before and after the disaster. Pre-disaster optimization is again part of the preparedness. These kinds of problems are static. It is enough to solve them only once after any significant change in the system. Optimization in the post-disaster period is part the disaster response. These problems are dynamic as the situation and its known description can be changed very fast. The aim of these optimization problems is to find the proper answers for the disaster to save human life and property. This talk discusses several optimization problems as follows:
1. Assignment of surgeons and anesthetists to operating rooms including both static and dynamic version. The objective is to maximize the number of working operating rooms. Only the expected value can be maximized in the static case.
2. Finding shortest path for emergency vehicles in a partially destroyed city; dynamic version. Computational analysis of the existing methods is provided.
3. Emergency transportation of injured people to hospitals including mathematical analysis of the problem, models, and ethical considerations.

Keywords: Humanitarian Applications, Optimization Modeling, Programming, Integer
travel from the hospital such that the number of saved people is maximized. The result is highly city-dependent. If the calculation is done in the pre-disaster period, then the results show the unprovided areas to the city authorities. This information can be used determining the location where to deploy further emergency stations. If the same method is applied after the disaster, then it is a life-and-death decision and must be on good moral bases. Topic 3.2 is the schedule of the emergency vehicles in the post-disaster period. It is supposed that every injured person has a deadline until he/she must reach a hospital before the deadline otherwise the person dies. The schedule of the emergency vehicles is equivalent to a large number of life-and-death decisions. The algorithm must be based on good moral principles as well. The relevant problem of ethics is the trolley problem. The talk discusses also a paradox situation. There are two places and three injured persons in this example. The emergency vehicle can transport two persons. Two out of the three injured persons are on the same place but they have different deadlines. There is a way to save all of them. In that solution, the emergency vehicle visits first the place where two persons are. It picks up the person with the closest deadline, leaves the other person there and continues its mission to the second location. The person remained on the spot is saved in a second mission. If the vehicle picks up both persons on the same location, then the third person dies.
12 Using soft systems methodology to incorporate ecological ethics and systems thinking in education

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Abstract

Higher Education Institutions (HEI) are committed to promote sustainable development/regional development (SD/RD). Over the last years, HEIs have been involved in providing education for SD/RD. These include critical thinking, creative thinking, systems thinking (ST), and leadership. HEIs have embedded some of the above elements in the curricula of its programmes. This paper argues that the principles and practice of ecological ethics (EE) need to be incorporated. We understand EE as a set of moral principles governing the human attitude towards the environment, and rules of conduct for environmental care and preservation. EE advances a way of life practicing a set of skills and abilities, based on mutual acceptance and equal (horizontal) co-existence among human beings. Furthermore, we also argue that ST skills need more prominence in current HEIs programmes. The University of Ibagué in Colombia has tried to incorporate these elements into the curricula as part of students’ basic studies. In this paper, we report on this experience and outline strategies that will allow us to continue promoting students abilities/capabilities by exposing them to the principles of systems thinking and ecologic ethics. Drawing from the experience of teaching these principles to first year students at Ibagüe University, in this article we argue that these two principles should have more prominence in the curriculum of universities if we want to truly achieve sustainable development and regional development in developing economies.

We regard educational setting as problematic situations where improvements can be facilitated by the use of soft systems methodology (SSM) for analysing students and lecturers’ views on the specific benefits and systemic advantages of using ST and EE when promoting SD/RD. The paper proposes a re-designed course structure in which ST skills and EE principles for SD/RD awareness are incorporated. We report on the application of Soft Systems Methodology approach for a case in the real world of redesigning the curriculum of an UG programme at the University of Ibagué. Results confirm that SSM helps to structure the situation and provides a platform to discuss, develop and implement a co-constructed design proposal, based on the trust and participation of the agents involved; this is illustrated with a real-word case in the classroom that demonstrates understanding and appreciation of systems thinking skills that develop and ethical ecology awareness amongst UG students.

Keywords: Soft OR; Problem Structuring; Ethics, Ecology education, sustainable development
13 Economic Efficiency And Variable Structure Optimal Control Problem

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Abstract

Economic system is unity of possibility complex actions, which provides all the basic public service needs satisfaction in every time moment from a given time interval. The economic system is optimal, if it fully satisfies all the basic requirements of the society. Society’s production is mainly involved in the governance of the existing material and labor resources. In addition, the economic system depends on the essence of the current political system, which is constant at the given time interval and can be in the three mutually exclusive positions: capitalist, socialist and transition. All of them received from the general economic system.

Obviously, the economic efficiency of the system is combined with a cyclical nature and is conjugate with the time interval (cycle). Therefore, it provides information about the weaknesses of the economic system only at the end of the cycle. Economic system for optimal management task is seen as a complex social problem. Its solution we try by using “COMPRAM” methodology and Pontriagin maximum principle.

Keywords: Compram, economy, complexity
14 The political sentiment of feeling at home

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Abstract

The focus in the Netherlands as for the political discourse in the late elections is to feel at home. The election programs where filled with notions on how the nation should feel like home for the average Dutchman, how this sense of feeling at home is pressurized as a result of migration, by e.g. labor migrants and refugees, and that people feel alienated in their neighborhood. Almost all of the political parties aimed to make the Netherlands feel as a place to be called home. But to whom? For the problem is that the feeling at home is an emotion. An emotion that includes and excludes elements, for in this case that is people. The focus on this emotion functions as a bellows on nationalistic, nativistic and populistic ideas. For that endangers the unity in the Netherlands and Europe. I claim that this political discourse strengthens intolerance, it more likely divides the nation instead of unite. It might even result in an upswing of racism and discrimination, most likely between Dutchman with and without a migration background.

Instead of focusing on a political discours of feeling at home, which can have ferocious effects on the nation, the political parties have to search for subjects that creates more coherence in the country. Subjects like climate change or employment. Something that concerns us all, no matter our background, habits or religion.

Keywords: Feeling at home, political discours, migration, emotion, nativistic

References
EthOR Award

The competition of EthOR Award is only meant for graduate students completing or having completed recently a PhD, thus staying in academic research. The main EthOR objective is to promote the sense of Ethics in young OR researchers and practitioners for influencing for the good their future OR work.

The EthOR Award is organized by the EURO Working Group on “Ethics and OR”, a network that gathers scientists, lecturers and professionals in the field of Operational Research who are committed to inspire OR researchers, teachers, students, consultants and decision makers to integrate ethical aspects and considerations in their OR research, teaching, consultancy and decision-making (info: http://euro-online.org/web/ewg/24/euro-workinggroup-on-ethics-and-or).

The purpose of this award is to distinguish outstanding work by young graduate OR researchers promoting ethical dimensions in OR-based studies. Our aim is to encourage young researchers, as members of the future generation of managers and decision-makers, in developing and implementing Operations Research techniques for solving contemporary problems presenting ethical dimensions. Many fields of application may be considered like energy, environment, health care, peace studies, economics, corporate social responsibility, finance and others.

Applications will be strictly limited to young graduate researchers who are still PhD students at the time of the conference in July, or who did complete their PhD after July 2015. To apply, the researcher should prepare an extended abstract of maximum 6 pages summarizing his or her research work relevant for OR and ethical issues. This work must be in direct connection with the PhD thesis, and/or with published or submitted articles for which the applicant is the main author. Furthermore an accompanying letter must be joined giving the candidate details, setting out the general framework of the PhD research, and explaining why it is relevant for the EthOR Award. Some joined research articles may support the application.

The selected finalists will be requested to present their work in a special session of the EWG Stream held during the conference. An important condition to be eligible for the award is that the candidate must present himself or herself his/her work. Presentations by someone else will not be accepted.

Each presenting candidate for the award will receive an official certificate of excellence in developing OR techniques and/or applications contributing to ethical decision-making.

In addition the winner will get full reimbursement of the registration & gala dinner fees at the EURO conference of that year, and will be also cordially honored as keynote speaker for the next event of the EWG on “Ethics and OR” after the EURO conference.

Entry requirements

The extended abstract and the accompanying letter must be written in English. As said above, they should clearly explicit the ethical aspects present in the submitted work either as a direct theoretical contribution to Ethics in OR, or, as an important part of some practical problem solved with OR techniques: it should be evidenced how Ethics is taken into account in the decision-making process, in the valuation of alternatives, in the interactions between analysts, decision-makers and stakeholders, etc. .

Selection Process

The EWG Board will designate an EthOR Award committee that should not have any relationship with any of the applicants. The selection process will proceed in the following steps: Firstly, the submissions will be analyzed by the committee for acceptability in order to select a shortlist of maximum three finalists. In case no finalist can be found the award will not be made. The following non-exhaustive aspects will be scrutinized:

1. Novelty and originality of the contribution.
2. Pertinence and applicability for solving contemporary issues with ethical dimensions.
3. Explicit references to the contributions to Ethics and OR as stressed in the accompanying letter and the extended abstract
4. Quality and clarity of the presented documents.

The finalists should be able to register to the Euro conference under early registration conditions for students. Finally, in this session, the finalists will have 20 minutes to present their work, explaining details and answering questions from the members of the award committee. They will make the final deliberation in private after the presentations to designate the winning finalist, although the award may not be made if the quality of the presentations is not considered sufficient. The nominee will be announced by the president of the award committee on the last session of the stream on “Ethics and OR”. The certificate(s) will then be handed over to the finalist(s).

Results:
1st edition EURO/INFORMS Conference 2013 in Rome
3 shortlisted candidates Master’s Theses
Winner: Robyn Moore New Zealand
Reaching consensus on water reforms: a case of Community Operational Research in Kāpiti, New Zealand

2nd edition EURO 2015 in Glasgow Scotland, UK
3 applicants Master’s Theses some starting PhD
Winner: Anastasiia Lisogor Ukraine
Modelling of sustainable development for municipalities using the complex indicators’ structure

3rd edition EURO 2016 in Poznan Poland
Winner: Rossen Kazakov from Bulgaria

4th edition EURO 2018 in Valencia Spain
Winner: Hans Derks from The Netherlands
Inhabitants take responsibility of their health position.