

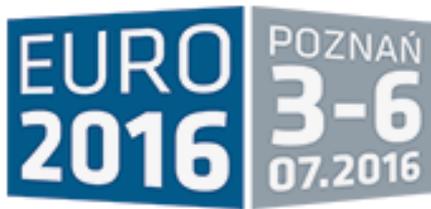


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Cathal Brugha, Dorien DeTombe, Erik Kropat, Pierre Kunsch & Gerhard-Wilhelm Weber,  
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## Or and Ethics: Operation Research and Ethics

The new Operation Research (EURO) branch Or and Ethics: Operation Research and Ethics was created in 2001 at EURO XVIII. 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 28<sup>th</sup> Euro conference in Poland OR and Ethics filled three session and the we hope to reach the same amount on the IFORS conference 2017 in Quebec, Canada. Publishing Special Issues in journals is another way to stimulate the field. June 2016 in EJDP were four papers published on the 'Ethics-based virtues'. Organizing special workshop is another way to stimulate this field as is the EthOR Award to best PhD Thesis. On the 28<sup>th</sup> Euro conference in Poland OR and Ethics 3<sup>rd</sup> time for this Award former were in Rome (2013), Glasgow (2015).

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Euro working groups related to EWG Or and Ethics are:

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EWG Methodology for Complex Societal Problems (MSC)

EURO MCDA

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## **1 On the Role of Multicriteria Decision Aiding (MCDA) in Strategic Assessment of Olympic Games (OG)**

Joao Clímaco, Rogério Valle

### Abstract

Multidimensional assessment of megaprojects is crucial today. There is a EU directive regulating Strategic Environmental Assessment (SEA), proposing a systematic evaluation of the consequences of policies or plans from an early stage of the decision process, involving economical, social and environmental issues. The Mega Sporting Events (MSE), such as O.G., are still more complex than mega projects. The original purity of the Olympic Chart is deeply contaminated by the globally mercantiled world. The public and private stakeholders are very diversified, involving local and global economic interests, financial and corruption risks, etc. Impacts of forced displacement of people, employment and tourism promotion, urbanism issues, very fast physical infrastructure works, etc, are relevant issues. In this communication, first we discourse on the extension of SEA framework to MSE; secondly we discuss the potential of MCDA in the assessment of MSE, trying to make the specification of the adequate characteristics of an approach taking into account some specificities of our problem, for instance, related to the combination of quantitative and qualitative issues, the promotion of the transparency, the public participation issues, the explicit consideration of several decision agents, etc. Finally, the comparison of MCDA with Cost-Benefit Analysis, is also tackled. The case of Rio de Janeiro Olympic Games is used as an example, emphasising the peculiarities of development countries.

Keywords: Ethics, Multi-Criteria Decision Aids, Complex Societal Problems

## **2 Unleashing third sector potential: a case of Community Operational Research (COR) in Aotearoa New Zealand**

Robyn Moore

### Abstract

This paper is an account of Community Operational Research (COR) undertaken for a government-funded project in 2014/15 (High Performance Work Initiative - HPWI). HPWI programmes aim to help New Zealand enterprises be higher performers. The motive was to examine the challenges and opportunities faced by not-for-profits in New Zealand and deliver a 'Best Practice Toolkit' to assist third sector managers in improving their organisational performance. Volunteering and volunteer-involved organisations contribute close to 7 billion dollars to the New Zealand economy annually, while the associated social and environmental returns from volunteer activity are yet to be reliably quantified. Notably, New Zealand gains high ranking on social well-being indicators, and derives economic value from its globally-recognised socio-environmental credentials. Stakeholder analysis was used to ensure the toolkit would be useful to the broadest range of people and organisations, while problem-structuring was used to reach consensus on the toolkit through the development stages. The result is a cross-sector toolkit for supporting human resource management and operational best practice, available in online and print forms. Future research is warranted to test the effectiveness of the toolkit, as realities change.

Keywords: Problem Structuring Human Resources Management, Soft OR

### **3 The EthOR award and the importance of OR education for Ethics**

Pierre Kunsch

BUTO, Vrije Universiteit Brussel

#### **Abstract**

This presentation recalls the objectives of the creation of the EthOR award by the Euro working group 'OR and Ethics' at the occasion of the Euro/Informs 2013 conference in Rome. The third edition goes on during the Poznan conference, but some difficulties appear year after year to stimulate more OR contributions in the ethical field by young researchers and practitioners, more than often exclusively oriented to 'hard' modelling giving few or no thoughts to human aspects in decision processes. It is why OR education stressing ethical values is particularly important. The author describes his own experience with system-dynamics education contributing to develop ethical awareness even in 'hard' modelling of complex societal problems.

**Keywords:** Ethics, OR in Education, Complex Societal Problems

#### **4. A New Analytics Model for Rethinking Ethics and Community**

**Cathal Brugha**

Centre for Business Analytics, University College Dublin

##### **Abstract**

We use nomology to rethink ethics, which comes from ‘ethos’ and relates to ‘morals’ and ‘custom’ in the community. Nomology balances the subjective ‘logical’ as in psychology with the objective ‘nomical’ as in economics; and ‘self’ with ‘others’ perspectives. Ethics is about excelling in four processes. Being ‘subjectively’ ethical ‘oneself’ is about ‘committing’ to developing the community through needs to preferences to providing value, having values. Corporate greed and political extremism are unethical. ‘Subjectively’ relating ethically to ‘others’ is about the duty to ‘convince’: firstly virtuous oneself, next deontologically in relation to others, and then about the consequences of one’s impact on the world of practice. Corporate codes of conduct exist, but are not evidence of ethics. ‘Objectively’ in relation to ‘others’ there should be a balance between: capacity, capability, community, and contribution; responsibility, transparency, authority, and accountability; financiers, bureaucrats, citizens, and owners; banking, government, households, and corporate. An ethical deficit is about failure to protect the community; their authority over decisions; rights of citizens; impacts on households. In relation to ‘self’ one should ‘objectively’ balance addressing: fears, anxieties, guilt, and resentment; by faith, hope, righteousness, and love. A weak ‘moral compass’ ignores guilt, and righteousness.

**Keywords:** Complex Societal Problems, Ethics, Analytics and Data Science

## **5 Behavioral analysis of social actors in municipal sanitation problematic**

Juliana de Souza Hyczy Hamberland, Mischel Carmen N. Belderrain

### Abstract

Sanitation services have been a priority for public management because of the growing concern regarding environmental and public health issues. Sanitation covers four major infrastructure services: waste management, water treatment, sewage treatment and urban drainage. These four subsystems have a common, relevant social actor: the local population. Although not having the ability to make decisions for solving problems related to the subject, the population influences the decision-making actions as well as the consequences of those actions since population behavior may signify the success or the failure of a decision. Regarding the current scenario of the Brazilian municipality of Tibagi, Parana, Brazil, this paper presents the sanitation problem structuring considering the behavioral actions of the population in order to understand how population behavior impacts the four subsystems as well as the whole municipal sanitation system. A cause and effect analysis of the relevant variables that affect the sanitation services was performed. Also, an idealized design was conceived for further study applying System Dynamics modelling.

Keywords: Behavioural OR, Dynamical Systems Environmental Management

## **6 Qualitative Analysis of Social Synchrony**

Shantanu Biswas, Nirmal Kumar, Sivaraman, Sakthi Balan Muthiah, Pushkal Agarwal

### **Abstract**

In this paper we intend to study the qualitative aspect of the synchrony of action in online social media. We collect the text content from the online social media over a time period. This time period is divided into smaller time slices of equal duration. Then we analyze the content qualitatively in two ways: (1) we look at each time slice and collect the contents posted in that time slice, and (2) we collect all the content with respect to each user over the entire time period. The qualitative analysis is the analysis of the content with respect to abstraction and expression. Abstraction refers to objective assertions about the topic or issue in question, while expression refers to communication of user's subjective feeling or emotion in that situation. Our main objective of looking this in two ways is to see if there are any pattern that we can find between the individual behavior and the group behavior in a social phenomena. The qualitative study of social synchrony is useful in many areas, for example, in identifying the suitable time slices and the suitable contents for viral marketing and identifying unethical behaviour in online MOOCs. We have done experiments on large data sets crawled from the popular social media site Twitter. Our experiments indicate that our model can identify the patterns in user actions during periods with and without synchrony.

**Keywords:** Analytics and Data Science, Social Networks

## **7 Combining Equity and Utilitarianism - Comparison of Two Approaches in Diet Modelling Context**

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### **Abstract**

Diet modelling is a useful approach for addressing complex issues re-garding global food, nutrition and health challenges. Many diet models use some form of goal programming. Extended Goal Programming (EGP) is a widely used approach in multi-criteria decision making. It balances between equity and utilitarianism by optimizing a convex combination of a Rawlsian criterion and a utilitarian criterion. It is difficult to determine the precise value of the associated parameter. Recently, a novel approach for Combining Equity and Utilitarianism (CEU) was introduced. Its parameter has an intuitive meaning. We compare EGP and CEU in the context of a diet modelling problem. We contribute to the insight in CEU and in the added value of applying CEU in general and in diet modelling context.

**Keyword:** Food, Utilarisme, Diet

## **EthOR Award**

The competition of EthOR Award is only mend 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 organised 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 decisionmakers 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-2016 conference, and will be also cordially honored as keynote speaker for the next event of the EWG on “Ethics and OR” after the EURO-2016 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).

History:

1<sup>st</sup> edition in EURO/INFORMS Conference 2013 in Rome

3 shortlisted candidates Master’s Theses

Winner:

Robyn Moore from New Zealand

*Reaching consensus on water reforms: a case of Community Operational Research in Kāpiti, New Zealand*

2<sup>nd</sup> edition in EURO 2015 in Glasgow

3 applicants Master’s Theses some starting PhD

Anastasiia Lisogor Winner from Ukraine

*Modelling of sustainable development for municipalities using the complex indicators’ structure*

### **3<sup>rd</sup> edition EthOR Award Poznan, Poland 2016**

In 2016 there are four Ph.D students selected as finalists. All presentations were good. Each jury member appointed another candidate. Finally the chair decided that Rossen Kasakov from Bulgaria, a part-time student at Strathclyde University, UK, was the winner.

His research paper was entitled Exploring Cultural Corruptions in Financial Organizations: a Hybrid Modeling Approach.

#### **A Development of a Markovian Decision Model (MDM) for Collection Centers for disaster relief operations**

Irais Mora-Ochomogo

#### **B Analysis of social actors' behavior in a municipal sanitation problem**

Juliana de Souza Hyczy Hamberland

#### **C The Possibilities of Paul Ricoeur Philosophy in the Context of the Ethical Predicaments of Journalism**

Duygu Onay-Coker

#### **D On the emergence of fairness norm via social networks: an experimental study**

Omar Rifki and Hirotaka Ono

#### **E. World Business Web Association**

Penka Petrova, Ross Kazakov [Strateggo Ltd]

## **A Development of a Markovian Decision Model (MDM) for Collection Centers for disaster relief operations**

Irais Mora-Ochomogo

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### Abstract

Statistics show that natural disasters have been increasing considerably in recent years, not only in number of events, but also in intensity and in the impact they have in the communities they strike. Mexico due to its geographical location, is very susceptible to present different types of disasters each year. When a disaster strikes in Mexico, around 80% of the donations made are in-kind, this arises the need to have an efficient donations' handling from the beginning of the supply chain, considering the logistical and ethical implications. This document presents the general description of the research carried on by the author and her thesis advisors about Markov Decision Model for Collection Points or Collection Centers, as well as the ethical issues faced in the development of this research.

### Introduction

Five days from the earthquake that destroyed communities in the coast of Ecuador this April 2016, the authorities report 587 deaths, 7,015 people injured, 25,362 people in shelters and around 720,000 in urgent need of humanitarian help (ROLAC, 2016). Only in The Americas in the past fifteen years more than 50 million people have been affected by natural disasters and the average annual losses from 1990 to 2012 caused by natural disasters rise to more than 35 billion of USD, making The Americas the second continent, after Asia, that has more damages caused by reported natural disasters, and the first place in technological disasters (EM-DAT, 2012).

Statistics show that both, natural and man-made disasters have been increasing considerably in recent years and they continue to increase. Particularly natural disasters, that are the ones this research focus on, are on the rise, not only in number of events, but also in intensity and in the impact they have in the communities they strike (EM-DAT, 2012). There are several causes for this increasing trend which go from climate change to the exponential growth of the global population.

These shocking numbers and the importance of human life prove the need of improvement in the humanitarian practices. Since 80% of the disaster relief is about logistics (Van Wassenhove, 2006) Humanitarian Logistics (HL) becomes a crucial element in executing an effective and efficient disaster relief.

Managing post-disaster supply chains has different challenges and goals, as compared to commercial logistics. For Humanitarian Logistics (HL), the principal goal pursued is to minimize the social cost taking into consideration the limited budget (Holguín-Veras, Jaller, Van Wassenhove, Pérez, & Wachtendorf, 2012b; Van Wassenhove, 2006). Furthermore, organizations cannot have standardized or very specific action plans or procedures due to the uncertainty in time, place, impact and nature of each disaster, among other differences. In the post disaster inventory management, there are also crucial differences compared to commercial inventory management; one of the key differences is the uncertainty in quantity

and nature of donations (Holguín-Veras, Jaller, Van Wassenhove, Pérez, & Wachtendorf, 2012a).

### Problem Description

In the case of Mexico throughout history the country has been in a vulnerable geographical location for different natural disasters. Only in the past decade Mexico has experienced 64 cyclones affecting both, the Pacific and Atlantic coasts (SEMARNAT, 2015), along with over one hundred different disasters including earthquakes, floods, and transportation and industrial accidents amongst others (EM-DAT, 2015). Most of the events that have taken place in Mexico can be defined as non-catastrophic disasters, which means that local communities, private organizations, and local governments are able to cope with the initial impact by providing a first wave of resources to aid survivors (Holguín-Veras et al., 2012a). Such situations require national and local government agencies and corresponding Non-Governmental Organizations (NGOs) to be prepared for such kinds of contingencies at any time.

Mexican Red Cross is one of the NGOs with more presence across the country, and among other objectives they are engaged to provide emergency medical services to victims of disasters and alleviate the suffering of the affected population (Mexican-Red-Cross, 2015). When a disaster, it coordinates with different government agencies, like the National Centre of Disaster Prevention and the National Army, to respond timely and efficiently to the affected population.

In the case of the Mexican Red Cross, donations are their main source of funding their operations. Due to social and cultural beliefs, donating products to help during disasters represents a very common practice in many countries of Latin-America, and in Mexico it represents around the 80% of the received donations during disaster relief operation (Oxenhaut, 2015). When a disaster occurs, they enable certain locations all over the country to collect in-kind donations and send them to the affected area.

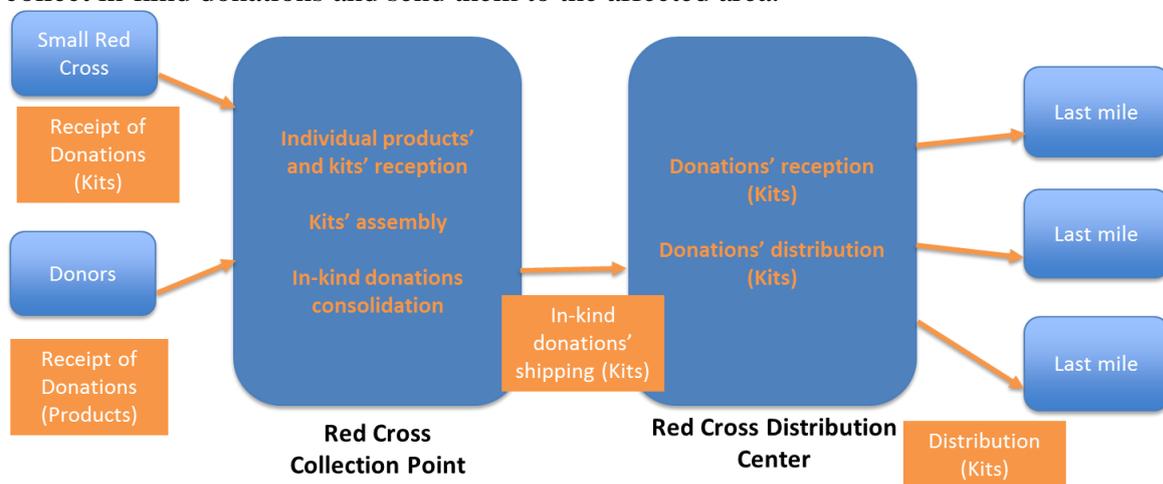


Figure 1 Basic supply chain structure for Mexican Red Cross

Figure 1 shows the basic supply chain structure Mexican Red Cross follows during a national or international crisis. This structure can be adapted to the specific necessities or characteristics of the disaster. The flow of materials starts on the left side with the donations made by corporations, organizations, independent donors or even small Red Cross dependencies.

The donations can be made as products or kits. The International Federation of the Red Cross and Red Crescent Societies (IFRC) as well as the Mexican Red Cross work with different types of kits, for example, personal hygiene, housecleaning products or food (IFRC, 2011).

These kits contain the basic requirements for a family's survival certain amount of days, considering each family has five members.

The products they receive as donations are used to assemble the kits in boxes and are packed for a more efficient transportation and handling. All these donations are consolidated at the Red Cross Collection Center which is a permanent warehouse equipped for the activities carried out there. At this warehouse all the donations are received, sorted and packed in the kits previously described, for their future shipping to the Distribution Center in affected area.

The Distribution Center is a provisional warehouse at the place of the disaster, depending on the special characteristics of the disaster, the location, size and conditions of the place can vary from one situation to another (Andersen, 2015). In this warehouse the kits are received from the Collection Center and the distribution plan is made for a later distribution to the last mile.

The objective of this research is to propose an adequate model that resembles the special operations that occur in a Collection Center during the response stage of a non-catastrophic disaster; with the intention to support decision makers in charge of the warehouse to determine the optimal amount and timing for the incoming donations to be sent to the disaster area while aiming to minimize the suffering of the affected people.

### Methodology

The methodology used for the development of the model described in the previous section is the Markov Decision Process (MDP), also referred to as stochastic dynamic programs or stochastic control problems. These are models for sequential decision making when outcomes are uncertain (Puterman, 1994). In this case there are two important stochastic variables, the demand of kits in the affected area and the donations received by the population at a certain time.

The Markov decision process model consists of decision epochs, states, actions, rewards, and transition probabilities. Choosing an action in a state generates a reward and determines the state at the next decision epoch through a transition probability function. Policies or strategies are prescriptions of which action to choose under any eventuality at every future decision epoch. Decision makers seek policies which are optimal in some sense (Puterman, 1994). In the case of this research, the goal is to minimize the total cost of the Collection Center operation considering the logistics costs and the ethical implications by the social cost of the affected people.

The final goal of this stage of the research is through the MDP that captures the special features this variable setting implicates, develop a Monotone Optimal Policy that helps the people in charge of the Collection Point make accurate decisions in an easy and practical way. The details of the actual progress in the development of the model are presented in the article "A Monotone Optimal Policy for Collection Points in Disaster Relief Operations" that has been accepted in the IIE Annual Conference 2016 and a copy has been attached with this document.

### Ethical Issues

To set the ethical approach for the situation modeled in this research it can be set first the range of intervention of the decision maker at the Collection Center. Considering the range of interventions proposed by Ormerod & Ulrich (2013) this case would involve ethical issues from both, the simple and complex poles.

In the case of the simple pole the situation presents an inventory problem with the goal to send the donations received making an optimal use of the available resources; meanwhile in the case of the complex pole, this situation implies social issues, because in the end, the work

is being done to help people in a hard situation and doing a negligent work may impact greatly in human lives.

One of the initial ethical issue which addresses our research is the quantification of the social costs, i.e. how much does a day without water costs? How can a human life been quantified? For this particular dilemma this research has resumed some aspects of a previous research done by Holguín-Veras PhD et al. (2013). This research suggests the use of social costs—the summation of logistic and deprivation costs—as the preferred objective function for post-disaster humanitarian logistic models (Holguín-Veras et al., 2013). Throughout this research the authors consider socio-economic characteristics of the individuals and develop a monotonic, non-linear, and convex function for the deprivation cost that will depend on the deprivation time.

The principal ethical issue that is faced in this research is to find the optimal balance between an efficient use of the corresponding organization- NGOs or government agency- and the urgency of the donations to be in the needed place in the shortest time possible. For this point the International Federation of the Red Cross and Red Crescent (IFRC) and the Mexican Red Cross –two important and recognized humanitarian organizations- have been reached to recognize and take into consideration their Fundamental Principles and humanitarian values, which are: humanity, impartiality, neutrality, independence, voluntary service, unity and universality. This values set a spine in the ethical and humanitarian aspects of this research and provides guidance of what real organizations consider when facing an ethical dilemma.

The final goal of this research mentioned previously requires us to look at many different considerations, as mentioned by Ormerod & Ulrich (2013), the possible consequences need to be included since the modeling stage.

### Conclusions and Future Work

It can be concluded that working in humanitarian logistics and disaster relief operations in general includes a high level of ethical implications, and the initial echelons of the supply chain are as vital as the last ones. When the research that is being developed has directly to work with the wellbeing of people in a vulnerable situation the values and ethical implications of the decisions made must be always on top of mind.

As future work this research pretends to include some cultural and qualitative variables to adapt the model to other Latin American countries as well as diverse humanitarian organizations with different supply chains and methodology of operations.

### References

- Andersen, B. (2015) Regional Senior Logistics Officer, IFRC Americas Zone Officer/Interviewer: I. Mora-Ochomogo.
- EM-DAT. (2012). Disaster trends. The International Disaste Database.
- EM-DAT. (2015). International disasters database. Retrieved from <http://www.emdat.be/>
- Holguín-Veras, J., Jaller, M., Van Wassenhove, L. N., Pérez, N., & Wachtendorf, T. (2012a). Material convergence: Important and understudied disaster phenomenon. *Natural Hazards Review*, 15(1), 1-12.
- Holguín-Veras, J., Jaller, M., Van Wassenhove, L. N., Pérez, N., & Wachtendorf, T. (2012b). On the unique features of post-disaster humanitarian logistics. *Journal of Operations Management*, 30(7), 494-506.
- Holguín-Veras, J., Pérez, N., Jaller, M., Van Wassenhove, L. N., & Aros-Vera, F. (2013). On the appropriate objective function for post-disaster humanitarian logistics models. *Journal of Operations Management*, 31(5), 262-280.
- IFRC. (2011). Relief and Logistics Kits. Retrieved from <http://procurement.ifrc.org/catalogue/>

- Mexican-Red-Cross. (2015) *Nosotros*.
- Ormerod, R., & Ulrich, W. (2013). Operational Research and ethics: A literature review. *European Journal of Operational Research*, 228(2), 291-307.
- Oxenhaut, I. (2015) *National Director of the Disasters Division. Mexican Red Cross/Interviewer: I. Mora-Ochomogo*.
- Puterman, M. L. (1994). Markov decision processes: Discrete dynamic stochastic programming. *New York, NY: John Wiley*. doi, 10, 9780470316887.
- ROLAC, O. (2016). Ecuador: Terremoto *Reporte de situación No.5*. [http://reliefweb.int/sites/reliefweb.int/files/resources/EC-Terremoto\\_OCHA\\_Situation\\_Report\\_5\\_SPA\\_KM\\_PGS-20160421-MR-18135.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/EC-Terremoto_OCHA_Situation_Report_5_SPA_KM_PGS-20160421-MR-18135.pdf): OCHA.
- SEMARNAT. (2015). Número de ciclones que han entrado a México por litoral, según clasificación de su intensidad en su primer impacto. Retrieved from [http://dgeiawf.semarnat.gob.mx:8080/ibi\\_apps/WFServlet?IBIF\\_ex=D1\\_DESASTRE00\\_04&IBIC\\_user=dgeia\\_mce&IBIC\\_pass=dgeia\\_mce](http://dgeiawf.semarnat.gob.mx:8080/ibi_apps/WFServlet?IBIF_ex=D1_DESASTRE00_04&IBIC_user=dgeia_mce&IBIC_pass=dgeia_mce)
- Van Wassenhove, L. N. (2006). Blackett Memorial Lecture - Humanitarian aid logistics: supply chain management in high gear. *Journal of the Operational Research Society*, 57(5), 475-489. doi:10.1057/palgrave.jors.2602125

### **B Analysis of social actors' behavior in a municipal sanitation problem**

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#### Abstract

Sanitation services have been a priority for public management because of the growing concern regarding environmental and public health issues. Sanitation covers four major infrastructure services: waste management, water treatment, sewage treatment and urban drainage. These four subsystems have a common, relevant social actor: the local population. Although not having the ability to make decisions for solving problems related to the subject, the population influences the decision-making actions as well as the consequences of those actions. In fact, population behavior may signify the success or the failure of a decision. Regarding the current scenario of the Brazilian municipality of Tibagi, Parana, Brazil, this paper presents the sanitation problem structuring by considering the behavioral actions of the population in order to understand how population behavior impacts the four subsystems as well as the whole municipal sanitation system. A cause and effect analysis of the relevant variables that affect the sanitation services was performed. Also, an idealized design was conceived for further study by applying System Dynamics modelling.

Keywords: System Dynamics modelling, Health

## **C The Possibilities of Paul Ricoeur Philosophy in the Context of the Ethical Predicaments of Journalism**

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### Abstract

My dissertation identifies the main problems of journalism ethics and proposes a new perspective by French Philosopher Paul Ricoeur for daily routines of journalism. Ricoeur's ethical thoughts postulate an ethical life with the main idea of "living together with and for others". In a globally connected world, media acts the main role for knowing and accepting each other and living with harmoniously. Therefore media itself should transform its linguistic into more peaceful structure.

In my dissertation I argue that media needs more ethical perspective to carry out its ethical assignment and the theory of linguistic hospitality by Ricoeur is valuable for journalistic daily routines. I believe my dissertation is relevant for the EthOR Award since my dissertation presents a new perspective of living with and for others through ethical media for creating a more peaceful society.

Keywords: Philosophy, Ricoeur

**D On the emergence of fairness norm via social networks:  
an experimental study**

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**Abstract**

Recently there has been an increased interest in adopting game-theoretic models to social norms. Most of these approaches are generally lacking a structure linking the local level of 'norm' interactions to the global 'social' nature. Although numerous studies examined local interaction games, which deal extensively with neighborhood structures, regarding social network as a whole entity is quite limited. In this paper, we conduct a series of simulation experiments to examine the effects that a network topology could have on the speed of emergence of social norm. The emphasis is placed on the fairness norm in the ultimatum game context (Bicchieri 2006), by considering three network type models (Erdos-Reny, Barabasi-Albert and Watts-Strogatz) and several intrinsic topological properties, such as network diameter and density.

**Keywords:** Social Network, Fairness

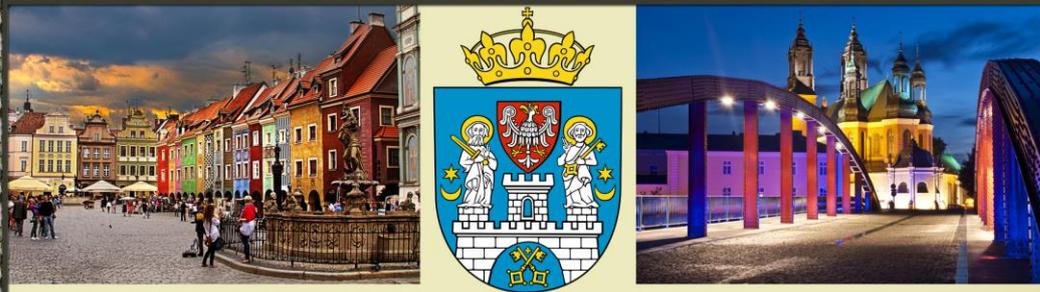
**E. World Business Web Association**

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**Abstract**

Organizations are complex social systems or "organisms" made out of agents, which socioeconomic status is dependent on the degree of their cultural health, i.e., the level of the unity of their ethical values and beliefs. A hybrid system dynamics and agent-based modelling experiment is conducted to explore the phenomenon of "cultural corruption" in a financial credit department and related effects on the department work flow, employee turnover and productivity. A metaphorical perspective is taken in relation to the organization as being a living organism which "cultural health" is being attacked by culturally corrupted "bacteria", i.e., new employees with corrupted moral and ethical values. The aim of the experiment is to explore the effect of the above on the organizational culture in the credit department, i.e., its degree of cultural corruption, on the working quality and efficiency, on employee turnover influenced by the "bacteria" employee infiltration and on the department organizational health. Key questions which we try to find answer to are "When organizations and their cultural health become vulnerable to "bacteria" employee?", "What is the role of the organization hiring and reward policy" when linked to the "personified cultural replication" agency phenomena, and "What "antimicrobial" policy an organization needs to undertake in order to protect its cultural health and to strengthen its cultural "immune" system".

**Keywords:** Agent Systems, Behavioural OR, Complex Societal Problems



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