

13th International Conference of Sociocybernetics
**Sociocybernetics Facing Turbulent Times:
Media, Politics and Societies**

University of Zaragoza, Spain

June 29-July 3, 2015



13th International Conference of Sociocybernetics
“Sociocybernetics Facing Turbulent Times:
Media, Politics and Societies”

29th to 3rd July

“Society can only be understood through a study of the messages and the communication facilities which belong to it; and that in the future development of these messages and communication facilities, messages between man and machines, between machines and man, and between machine and machine, are destined to play an ever-increasing part”.

Norbert Wiener. The Human Use of Human Beings: Cybernetics and Society (1950).

Reading these words in 2015, it's hard not to recognize the vision of the founding father of Cybernetics as a defining feature of contemporary society. The interplay between mass media, algorithms and digital technologies is deeply affecting what we know about the world around us and, in turn, our everyday life choices (from what brand to buy to what party to vote). Understanding “media effects”, as clearly pointed out by the tradition of media studies, requires a combination of different approaches and disciplines. At the same time, these effects are always complex and non-linear. The contemporary scenario is further complicated by the presence of multiple feedback loops: we are not simply a target of the contents produced by the media system. We share and create our own contents becoming part of the media ourselves. The system affecting our choices is thus, in turn, affected by our choices. Empowering technologies are, at the same time, new subtle and powerful means of control. Participation, self-organization, hierarchies and benevolent dictatorships, once mutually exclusive, happily co-exist in modern communities such as Wikipedia or Linux developers.

Complexity, self-organizations, non-linearity, control and feedback loops are core concepts in cybernetics and general systems theory. Furthermore, both approaches are intrinsically interdisciplinary. A Conference of Sociocybernetics is therefore a unique and ideal academic forum in which to discuss this topic, one that goes beyond the boundaries of traditional disciplines.

The goal of this conference is therefore to bring researchers from different disciplines together (media studies, sociology, psychology, political science, computer science, etc.) to explore, within a sociocybernetic approach, the opportunities and challenges related to the complex new relationships between media, politics and contemporary society.

CONFERENCE PROGRAMME (v. 25june2015)

MONDAY, JUNE 29

8.45-9.00. Participants registration

9.00-9.30. Opening ceremony

Dr. Manuel López, Rector University of Zaragoza.

Dr. José Mariano Moneva, Dean Facultad de Economía y Empresa

Dr. Chaime Marcuello, President RC51, ISA.

Pedro J. Escriche, Chair of the Local Organizing Committee, University of Zaragoza

9.30-11.00. Inaugural Lecture: **From Small to Big data: The Physics of Human Behavior**

Dr. Yamir Moreno, Research Professor & Deputy Director of the Institute for Biocomputation and Physics of Complex Systems (BIFI)

11.00-11.30. Coffee break

11.30-13.30. **Session 1: About messages, data and control.** Chair: *Eva Buchinger*

- 1. *On Messages*, **Bernard Scott**. bernces1@gmail.com, bernard.scott@sociocybernetics.eu. Center for Sociocybernetics Studies, Bonn
- 2. *The social in the times of globalization and Big Data: A proposal of a social systems paradigm for the Global Brain*. **Roberto Mancilla**. roberto.mancilla.castro@gmail.com.
- 3. *Is external control important for internal control?* **Evo Busseniers**. ebusseni@vub.ac.be. Global Brain Institute, Vrije Universiteit Brussel

13.30-16.00. Lunch.

16.00-18.00 **Session 2: Social research and complex issues.** Chair: *Bernd Hornung*

- 4. *Performativity of Social Research in the Context of Information Flows and Social Networks*. **Victoria Dudina**. viktorija_dudina@mail.ru. St. Petersburg State University, Russian Federation
- 5. *Therapeutic intervention and high-order adjustments of recursion*. **Cláudio Carvalho**. kraftcasc@gmail.com. University of Coimbra
- 6. *Interdisciplinary research on ageing: theoretical and methodological strategies within a systemic approach*. **Margarita Maass**. UNAM

18.30-19.30 Board Meeting

TUESDAY, JUNE 30

9.00-11.00. **Session 3: On Education in digital and turbulent times.** Chair: *J.A. Amozurrutia*

- 7. *How to steer and lead educational processes in a digital medium environment?* **Jesper Tække**. imvjet@dac.au.dk Aarhus University
- 8. *Dynamics in the schooled society*. **Raf Vanderstraeten**, raf.vanderstraeten@ugent.be. Center for Social Theory, Department of Sociology, Ghent University
- 9. *Intentionality and usability of learning objects: two perspectives in intersection through Sociocybernetics*, **Santiago Chío Zulaica**, schio43@hotmail.com. Universidad Autónoma de Coahuila, México.

11.00-11.30. Coffee break

11.30-13.30. **Session 4: On Politics and convergent issues (I).** Chair: *Patricia Almaguer*

- 10. *Political Crisis and Societal Governance: How Media Can be 'Societal Media'?* **Toru Takahashi**. ttakahashi0@gmail.com. Chuo University, Japan.
- 11. *The failure of functional differentiation in Japan's political system*. **Andrew Mitchell**. mitchell.andrewneil@gmail.com. Kumamoto University, Japan.
- 12. *Bitcoin: The Emergence of Self-Organized Crypto-currency*. **Michael Paetau**, michael.paetau@sociocybernetics.eu. Center for Sociocybernetics Studies, www.sociocybernetics.eu

13.30-16.00. Lunch.

16.00-18.00 **Session 5: On Politics and convergent issues (II).** Chair: Chaime Marcuello

- 13. *Henri Poincaré's conventionalistic determination of democracy and equality in 1898.* **Arne Kjellman**, kjellman@dsv.su.se. Dept. of Computer and Systems Sciences, Stockholm University and KTH
- 14. *To be or not to be Charlie: Twitter hashtags as a discourse and counter-discourse in the aftermath of the 2015 Charlie Hebdo shooting in France.* **Fabio Giglietto**, fabio.giglietto@uniurb.it. University of Urbino "Carlo Bo"
- 15. *Non-profit Organisations in geographically isolated contexts: challenges and opportunities for digital connectivity.* **Patricia E. Almaguer-Kalixto**, Isabel Saz, Juan David Gómez-Quintero, endev.research@gmail.com, sazgl@unizar.es, jdgoomez@unizar.es, University of Zaragoza

WEDNESDAY, JULY 1

9.00-11.00. **Session 6: Innovation, economics and technologies.** Chair: Michael Paetau

- 16. *Inclusive innovation: The role of public demand.* **Eva Buchinger**, eva.buchinger@ait.ac.at. AIT Austrian Institute of Technology, Vienna
- 17. *Definitions of Complexity of Social Systems and Large Scale Socioeconomic Crises.* **Czesław Mesjasz**, mesjaszc@uek.krakow.poland. Cracow University of Economics
- 18. *Technological separation in economy. The case of algorithmic transactions as the ultimate alienation.* **Eliana Herrera-Vega**. Aerea.eliana@gmail.com, eherrera@uottawa.ca. University of Ottawa, Communication Department

11.00-11.30. Coffee break

11.30-13.30. **Session 7: Knowledge, management and ethics.** Chair: Pedro Escriche

- 19. *Some Reflections on Agency and (Systems) Ethics.* **Karl-Heinz Simon**, simon@cesr.de. University of Kassel, Center for Environmental Systems Research, Kassel
- 20. *Knowledge Management in Health Care The Virtual Health Care Library (INFOMED) in Cuba* ** **Anamaris Martín Marrero**, Silvia Abella Garcés, Carmen Elboj Saso. anamarismartin@gmail.com
- 21. *Avalanches, management, and leadership in turbulent times. Searching for Points of Intervention.* **Bernd R. Hornung**, hornung@med.uni-marburg.de University Hospital Giessen and Marburg GmbH - Data Protection Office

13.30-16.00. Lunch.

16.00-18.00 **Session 8: Common goods, common issues.** Chair: Fabio Giglietto

- 22. *Prospective scenarios of Oasian socio-environmental systems using a second order cybernetics.* **Pedro J. Escriche Bueno**, pescrich@unizar.es University of Zaragoza
- 23. *Harnessing Social Processes For The Common Good In Turbulent Times.* **John Raven**. jraven@ednet.co.uk. Consultant 30 Great King St., Edinburgh EH3 6QH Scotland
- Panel discussion: *Alternative forms of governance: a sociocybernetic account of Spanish societal/systemic reaction.*

18.30-19.30. Business Meeting

THURSDAY, JULY 2

9.00-11.00. **Session 9: Complex issues on Turbulent times.** Chair: Czeslaw Mesjasz

- 24. *Cybercult@ and knowledge communities: The experience of an emerging community of knowledge at the University.* **Blanca Eva González Monroy**, Angélica Cardona Clemente, Alfonso Espinoza Rodríguez, Evodio Don Juan Hernández, Ociel Monroy Choreño, Paola Álvarez Sánchez, Christian Armando Galindo Pacheco, Nestor Ramírez Bautista, José Alberto Valencia Ramírez, David Ricardo Aguilar Meza, José Guadalupe Daniel Serrano and Alejandra Pérez Angeles
- 25. *Partner violence analysis in complex contexts: cases in the rural communities in Imbabura (Ecuador).* **Santiago Boira**, sboira@unizar.es University of Zaragoza.
- 26. *Femicide as a complex issue: Sociocybernetical approach against a violent phenomenon.* **Chaime Marcuello**, chaime@unizar.es. University of Zaragoza

11.00-11.30. Coffee break

11.30-13.30. **Session 10: Observing systems, System thinking.** Chair: *Bernard Scott*

- 27. *Cold Hearted Society: Toward Understanding the Observation of Social Systems.* **Saburo Akahori**, akahori@lab.twcu.ac.jp. Tokyo Woman's Christian University. Japan
- 28. Materialism, Institutionalism, Objectualism: Three Views on Social Structure and how they can be combined into an Evolutionary Theory of Social Objects. **Pablo Navarro** pablo.navarro@uv.es Universidad de Valencia, Spain
- 29. *System thinking and Turbulent Social Phenomena: a Sociocybernetic social complex systems. Construction.* **José A. Amozurrutia**. j.antonio.amoz@gmail.com. UNAM

13.30-14.00. Closing ceremony.

20.30-23.30. Official Dinner

FRIDAY, JULY 3

- Sociocybernetical Excursion:
Visit to Loarre Castle (<http://www.hikepyrenees.co.uk/loarre-castle.html>) and Riglos.
More information in two days.

ABSTRACTS

INAUGURAL LECTURE: **FROM SMALL TO BIG DATA: THE PHYSICS OF HUMAN BEHAVIOR**

Dr. Yamir Moreno, Research Professor & Deputy Director of the Institute for Biocomputation and Physics of Complex Systems (BIFI)

Physics has been extremely successful in describing our natural world, from the very small to the very large scales. However, as we will argue in this talk, the study of human collective behavior is not as easy as dealing, for instance, with ideal gases. The reasons are multiple, among which one can mention the fact that we do not know what are the laws describing most human behaviors and that in many dynamical processes details really matter. This calls for the analysis of human behavioral data, in some cases small, in some other cases big, but also at intermediate scales. Through the dissemblance of 3 different examples of human collective behavior and using data at different scales, we will show what are the experimental (data) and theoretical challenges in the study of social systems and propose a way to tackle such problems.

SESSION 1: ABOUT MESSAGES, DATA AND CONTROL.

Chair: Eva Buchinger. eva.buchinger@ait.ac.at
AIT Austrian Institute of Technology, Vienna

1. *On Messages*, **Bernard Scott**. bernces1@gmail.com, bernard.scott@sociocybernetics.eu.
Center for Sociocybernetics Studies, Bonn

In the paper, I will discuss the concept of 'message' as applied to these different forms of communication: between man and machine, between machine and machine and between man and man. (As intended by Wiener, 'man' is used as general noun that includes all human beings). As Ludwig Wittgenstein reminds us, rather than ask what a word means we should look to see how it is used. The term 'message' can refer to a relatively simple cause and effect interaction. An example is the transmission of a mechanical signal, that when decoded by a receiving system, triggers a standard response. It can also refer to the much more subtle and complex case where recipients construct meanings on the basis of the messages they receive. I contend that it is only in this latter case that we can properly refer to the interaction as a 'conversation'. In the paper I present cybernetic models of these two usages, messages as codes and messages as constituents of conversations. I go on to discuss the relevance of the code/conversation distinction for the different cases when senders and recipients are human beings or machines. I relate the abstract discussion to current developments, some examples of which are: algorithms for search and retrieval and other data mining processes, the development of recommender systems and the emergence of the constituents of what some now refer to as a 'global brain'.

2. *The social in the times of globalization and Big Data: A proposal of a social systems paradigm for the Global Brain*. **Roberto Mancilla**. roberto.mancilla.castro@gmail.com.

The purpose of this paper will be to offer a practical schema for understanding social organization in a way that complies with aspects of cognition general to all living systems and those of humans. This will all be expressed in a tree level triadic system, which is recursive-each node presupposes internal models of the other triadic components, and so on-and organizes as a heterarchy, where the importance of a component or a triad is determined by the circumstances and whoever makes the observation. [...]

3. *Is external control important for internal control?* **Evo Busseniers**. ebusseni@vub.ac.be. Global Brain Institute, Vrije Universiteit Brussel

Systems attempt to establish internal control, i.e. control over their situation. Humans are no exception to this general rule. Some people aim for external control: they attempt to determine environmental behaviour. While others aim for control by finding useful synergies with the local environment. On the one hand, the difference between these strategies lies in the locality: one could develop local actions to find synergies, or one could attempt to influence the global system. On the other hand, the difference lies in what one tries to change. An agent could adapt its links, or try to change either the methods or the goals of its neighbours. How can we formalize these different strategies for control? And which of these strategies functions the best? I will answer these questions by generalizing the concept of coordination in hierarchical systems, introduced by Mesarovic. I will apply this to model different strategies for control: a global one used in the theory of controllability, or local ones based on neural networks and perceptual control theory. In the last model agents attempt to change the method of their neighbours, while in neural networks agents adapt their links. These models show that global control is difficult to obtain, while local control is easily possible. This framework can be used to develop a different way of thinking about social organization, with particular emphasis on ways of developing control through symbiosis with the local environment.

SESSION 2: SOCIAL RESEARCH AND COMPLEX ISSUES

Chair: Bernd Hornung. hornung@med.uni-marburg.de

University Hospital Giessen and Marburg GmbH - Data Protection Office

4. *Performativity of Social Research in the Context of Information Flows and Social Networks.* **Victoria Dudina**. viktoria_dudina@mail.ru. St. Petersburg State University, Russian Federation

In recent years social media (online collection of technologies that allow users to communicate with each other and exchange of user-generated content) have shown their ability to influence social behavior, transform social reality and generate social events; in other words social media have performative effects. Performativity of social media is a potential for transformation some aspects of sociological research. Social media contribute to the growth of information flows intensity, extension of social networks and change the nature of social data. The presentation discusses changes in social theory, data and methods of social research influenced by the development of social media in the context of performative methodology.

Performative methodology redefines basic elements of social research by treating research as practical activity implying such strategies as recruiting, networking, creating alliances. Practices and networks constitute both epistemic subjects and objects. The epistemic subject (knower) is treated as a dispersed subject. Humans are considered as entangled with non-humans in heterogeneous networks. Facts and observations are considered as effects of networks and flows. Principal developments in sociological methodology are identified: the end of the dominance of question-based data collection methods; the shift from theory development to methods of data analysis; the changing nature of sociological explanations; reconsideration concepts of sampling and representativeness; the democratization of knowledge production and the new totalitarianism.

5. *Therapeutic intervention and high-order adjustments of recursion.* **Cláudio Carvalho**. kraftcasc@gmail.com. University of Coimbra

The insertion of "second-order sciences" in therapeutic models involving psychic and communicative systems lead to a more sensible attunement of recursive interventions, due to a greater attention to high-order processes of punctuation and learning. The acknowledgement of uncertain repercussions of interventions in the equilibrium of a system (or organization) is not a sign of weakness of therapy, but: 1) a consequence of the "individuation" of modern society and 2) a call for renewed and creative forms of therapeutic intervention.

The introduction of second-order cybernetics on therapeutic practices required the acknowledgement of the role of the therapist on the transitory system created, both as an observer and an agent of change or irritation of communicative and cognitive processes. Dysfunctions, no longer conceived as directly accessible, independent of an epistemic standpoint, nor independent of recursion patterns. Systemic therapy, but also forms of psychotherapy, underlined the frailties of pre-established modes of assessment and intervention, and, more profoundly, the insufficiency of normative models imposed to persons, "fixing" the coupling between the psychic and the communicative.

In a wide range of disorders, approaches that dispense with the 1) active enrolment of the patient in the changing process and 2) the recursive evaluation (and readjustment) of the punctuation of sequences, its self-reflection, tend to originate high order problems. This opens a renewed discussion on the unacknowledged assumptions of therapies concerns their first-order observers (both client/patient and therapist(s)) and the founding distinctions guiding their interaction.

6. Interdisciplinary research on ageing: theoretical and methodological strategies within a systemic approach. **Margarita Maass**. margarita_maass@yahoo.com.mx. UNAM

Old age and aging in Mexico have many interdependent faces (Aréchiga, Hugo (1999), making them a complex problem. The elderly group forms a widening highly vulnerable population. It makes therefore, more relevant and necessary studying this population from a systemic orientation. The aim of this paper is to present the theoretical and methodological, holistic approach to interdisciplinary research, applied to the work done by a group of researchers who study aging from multiple determinations, integrating knowledge on the subject.

The proposal suggests thinking as an organized whole or Socio-Cultural Complex System, as suggested by Rolando Garcia (2006), from the genetic epistemology of Piaget and Garcia (2000).

The problems of today's world are becoming more complex due to their interdefinability. Then, the G9 group of interdisciplinary research of the PhD program in Science and Humanities for Interdisciplinary Development, is studying the stage of old age and aging for 7 defined complementary areas of interest:

- a) Old age, Aging and Retirement (Alma Delia Sanchez)
- b) Old age, aging and safety (Leticia Treviño)
- c) Old age, aging and body (Ramses Ojeda)
- d) Aging and Memory (Abel Rodríguez)
- e) Old age and Social representations (Minerva Maciel)
- f) Old age and housing (Margarita Maass)
- g) Old age and gender (Dora Alonso Gómez)

These seven areas are worked as an organized whole. Thus, this paper aims at contributing to the reflection on the process of interaction between seven projects that make subsystems within a systemic problem (Amozurrutia and Maass, 2013).

SESSION 3: ON EDUCATION IN DIGITAL AND TURBULENT TIMES

Chair: J.A. Amozurrutia. j.antonio.amoz@gmail.com.

UNAM

7. *How to steer and lead educational processes in a digital medium environment?* **Jesper Tække**. imvjet@dac.au.dk Aarhus University

This paper is about challenges to steering and leadership of educational interaction in schoolrooms provided by the new medium environment that comes with digital media. In the new medium environment the old way of steering what is going on in the classroom seems not to work any more since the students are disturbed by the new media, instead of learning through them. The paper sketch out the contours of an adequate way of being teacher in the new medium environment – a teacher who can manage the new situation and use the new possibilities provided by the digital media. The paper build on empirical findings from the action research project *Socio Media Education*, which has worked with possibilities and problems in regard to the digital medium revolution's perturbation of the Danish upper secondary school. Theoretically it builds on medium

theory, especially Joshua Meyrowitz, Henry Jenkins and Axel Bruns and systems theoretically it builds on Niklas Luhmann's sociological theory.

8. *Dynamics in the schooled society.* **Raf Vanderstraeten**, raf.vanderstraeten@ugent.be. Center for Social Theory, Department of Sociology, Ghent University

There is much empirical evidence, which supports the claim that education has become of increasing social and economic relevance in the period after the Second World War. Expenses for education are now commonly perceived as investments in 'human capital.' For generations of social policy makers, the role of human capital in economic development, productivity growth, and innovation has provided a justification for government subsidies for, and interventions in, education. What has not been discussed, however, is the way in which the massive expansion of schooling is about to change our society. Not much attention has hitherto been given to the ways in which mass schooling influences society at large, in particular how it affects the dynamics of social mobility. This paper will present an analysis of geographical divergences at the top and the bottom end of the human capital distribution across Belgium's local communities. The segregation of university trained human capital within Belgium and its major institutional regions has remained high throughout the second half of the twentieth and the early twenty-first century. There is a clear decrease of the shares of adults without educational credentials in Belgium, but this decrease goes hand in hand with the emergence of a growing divergence between the Flemish and the Walloon region. The geographical clustering also increased. Our empirical findings suggest that the success of particular areas in a knowledge-based economy depends not only on the abundance of highly skilled workers, but also on their ability to avoid relatively large shares of the less-skilled.

9. *Intentionality and usability of learning objects: two perspectives in intersection through Sociocybernetics.* **Santiago Chío Zulaica**, schio43@hotmail.com. Universidad Autónoma de Coahuila, México.

In this paper, I reflect on the current research focus related to the uses of new technologies for education, taking the case of a multidisciplinary group a e-graduate program at the Autonomous University of Coahuila.

TICC are seen as an object of learning designed and built by a creative subject and used by another subject based on theories of activity as mediator object (Vygotsky, 2010)

The emerging findings of my research suggest to revisit the subject-object relationship with different scale of observation (first and second order) proposing new strategies for positioning as agents from the within the learning system itself, in relation with heterogeneous elements and their own interdefinable relationships. This complicated network requires an approach for a question of emergence, reflecting on the subject-object relationship: Who makes the learning objects? [...]

SESSION 4: ON POLITICS AND CONVERGENT ISSUES (I)

Chair: Patricia E. Almaguer-Kalixto. endevelopresearch@gmail.com
University of Zaragoza

10. *Political Crisis and Societal Governance: How Media Can be 'Societal Media'?* **Toru Takahashi**. ttakahashi0@gmail.com. Chuo University, Japan.

The political frustration of the people often comes along with protest movements on the streets. The street democracy becomes most powerful when the political system loses the people's systemic trust. So, we can see the street democracy as a symptom of the political systemic crisis. We have to be vigilant for political adventurism that exploits the people's discontent. However, considering the chronic fiscal deficits of governments, we cannot rely only on the governments. We have to expand our view beyond politics and governments.

We are facing various problems at local, national and global level. So, it is necessary to develop *societal* governance that mobilizes and organizes *multi-functional* resources to cope with the *multilevel* challenge. As J.N. Rosenau formulates, governance is encompassing phenomenon that embraces governmental and non-governmental mechanisms. I reformulate the comprehensiveness of societal governance as *multi-functionality* and *multi-levelness*. It means that societal governance is an ecosystem of collaborative efforts that mobilizes multi-functional resources to cope with our problems across local, national and global level. Innovations in media (especially in the Internet) can contribute to creating fertile conditions for the efforts by advocating issues and connecting actors and resources. Media can make another step to a next stage of the development as liaison media in societal governance. Now we are witnessing the next step of the development towards "societal media".

11. *The failure of functional differentiation in Japan's political system.* **Andrew Mitchell.** mitchell.andrewneil@gmail.com. Kumamoto University, Japan.

Niklas Luhmann's theory of society is based on the emergence of functional differentiation. In political terms this means that the government no longer occupies a central role in society as its control mechanism and politics becomes merely one system amongst hierarchical equals, operating democratically and with definable cycles in order to manage both political and public expectations. Whilst this scheme may fit well with post-War European political models, there seems to be a gap between theory and empirical reality when it is applied to Japan. The same political party has been in power for almost the entire post-War period, raising questions about the viability of applying the binary coding government/opposition. Planned revisions to the constitution and the restart of nuclear plants post-Fukushima, which find broad public opposition, makes Luhmann's suggestion that the public as a mediator of political power through elections seem invalid. Even the idea of politics as a functionally differentiated system comes into question when one considers the collaboration between elites which is unparalleled in the West.

In this paper I shall discuss Luhmann's political theory and contrast this with the political situation in Japan post-War; discussing the suppression of a genuine opposition within the Japanese political system, a relative lack of economic/political differentiation, and the contemporary political situation. I shall conclude by considering the impact of this upon Luhmann's systems theory and potentials for adjustment to bring its description closer to Japanese political reality.

12. *Bitcoin: The Emergence of Self-Organized Crypto-currency.* **Michael Paetau,** michael.paetau@sociocybernetics.eu. Center for Sociocybernetics Studies, Bonn, Germany www.sociocybernetics.eu

Bitcoin is a peer-to-peer, electronic cash system, which is designed around the idea of using cryptography to control the creation and transfer of money, rather than relying on central authorities. It is based on an open-source cryptographic protocol that is independent of any central authority like a Central Reserve Bank or another administrative institution. They can be transferred through a computer or smartphone without an intermediate financial institution. Transactions are verified by network nodes and recorded in a public distributed ledger called the block chain. Worldwide there are several currency exchanges where one can change bitcoins from or into other currencies. Bitcoins are captured in a digital wallet on a personal computer or mobile device.

The creation of bitcoin is secured by individuals, called MINERS. Generally every person can create bitcoins but this is a very elaborated process, only practicable with very powerful computers. So, in the end bitcoins are generated by processing power. The amount of Bitcoin worldwide is limited to 21 Million and this sum cannot be increased. Currently there are 3,8 Million Bitcoins mined and in circulation.

From a scientific view generally the system is not well understood. There are still many open sociological and economic questions. Why it function? And which consequences would have the loss of influence by central reserve banks for economic steering processes in general? And which consequences we may expect for the current capitalistic finance system? In my paper I want to go behind these questions from a sociocybernetics point of view. Especially the question, if this new money can play the societal function as a symbolic generalized medium is an open question. Money as a symbolic generalized medium plays different roles: it has a function for payment, it

serves as a store of value, and it functions as a clearing and accounting unit. It is a commodity like other commodities, it does not supply a want directly, however it has a use-value. Money can be expensed or saved. It gives criteria for other far reaching decisions in society. It is the result of production and however has an universal and objective importance. In the present discussion it is controversial if Bitcoin can play this role. A very critical point is the fact of enormous fluctuations of the exchange rate which indicates a lack of business confidence.

SESSION 5: ON POLITICS AND CONVERGENT ISSUES (II)

Chair: Chaime Marcuello. chaime@unizar.es
University of Zaragoza

13. *Henri Poincaré's conventionalistic determination of democracy and equality in 1898.* **Arne Kjellman**, kjellman@dsv.su.se. Dept. of Computer and Systems Sciences, Stockholm University and KTH

In 1898 conventionalism was born and unresolvable tied to human consciousness revealing that science and knowing, from a living beings point of view, is and has always been, processes of construction taking place in a knower's or a scientists private mind, which comes out most evident in the thinking of mathematics, and its abstract theories.

The SOA has for many years, and totally unnoticed as it seems, made exactly the same claim, when approaching the problem of consciousness and knowing from the "experimental point of view" of a living being and its sociology. Facing the puzzlement of the many faceted explications revealed by men of substantial practical action skills, the human feeling and the feedback functionality of cybernetics has proven to be the only way to solve the present riddle. Tracing these ideas to their very foundation we find that the classical ideas of science have great difficulties to accommodate the ideas of human equality and democracy. We must ask ourselves whether this weakness, which basically can be derived from an inconsistency deeply inherent in scientific dualism, by unscrupulous forces during the years have been used to engage less rational men of science in mankind's ruthless struggle for power, fame and wealth.

14. *To be or not to be Charlie: Twitter hashtags as a discourse and counter-discourse in the aftermath of the 2015 Charlie Hebdo shooting in France.* **Fabio Giglietto**, fabio.giglietto@uniurb.it. University of Urbino "Carlo Bo"

Following a shooting attack by two self-proclaimed Islamist gunmen at the offices of French satirical weekly Charlie Hebdo on 7th January 2015, there emerged the hashtag #JeSuisCharlie on Twitter as an expression of condolences for the victims, solidarity, and support for the magazine's right to free speech. Almost simultaneously, however, there was also #JeNeSuisPasCharlie explicitly countering the former, affirmative hashtag. In this paper, we analyse 74,047 tweets containing #JeNeSuisPasCharlie posted between 7th and 11th January. Our network analysis and semantic cluster analysis of those 74,047 tweets reveal that the hashtag in question constituted a form of resistance to the mainstream framing of the issue as freedom of expression being threatened by religious intolerance and violence. The resistance was manifested through three phases: sharing condolences but indicating a reservation against the mainstream frame (Grief); voicing out resistance against the frame (Resistance); and developing and deploying alternative frames such as hate speech, Eurocentrism, and Islamophobia (Alternatives). The hashtag in this context served as a vehicle through which users formed, enhanced, and declared their self-identity.

15. *Non-profit Organisations in geographically isolated contexts: challenges and opportunities for digital connectivity.* **Patricia E. Almaguer-Kalixto**, Isabel Saz, Juan David Gómez-Quintero, endevelop.research@gmail.com, sazgil@unizar.es, jdgomez@unizar.es, University of Zaragoza

Academic analysis of Nonprofit Organizations, highlights its importance in promoting volunteer work, solidarity, and even complement the coverage of some social services. From a Social Economy perspective, those organisations also play an important role on promoting social innovation, and creating a democratic dimension of the production of social goods. Different authors emphasize the importance of social relations in this sector as a key element of valuable social capital and current literature refers the role of digital technology to empower this process. However, in contrast with the enhancement of production, circulation and consumption that in theory is produced with information technologies among organizations, we found a case study in the Teruel province (Spain) where they are not as connected as, in theory, they could be. Using a Sociocybernetic approach, the first part of this analysis presents a diagnosis of the current system, its key elements and their relationships. We found 3 characteristics that may explain the current gap: a) a geographical/demographical factor, as this province is highly rural and with an increasing factor aging and depopulation; b) Non profit organisations share similar territorial identity but they does not perceive themselves as a single system; c) Use of digital technology and virtual social networks are not part of common social practice within the managers or volunteers of the organisations to engage among their peer organisations. Traditional communication formats are prevalent and centralise –not distributive- communication forms are prioritised. Using an interdisciplinary research approach (Garcia 2006), the second part of the presentation elaborates a prospective analysis to define what elements would be needed to improve the current situation. The overall objective is to develop a model based on the interaction of the actors (stakeholders model) that can enhance reflexivity of the system analyzing the challenges and opportunities for digital connectivity of this type of organisations located in isolated contexts, suggest desirable changes of the system and prospective scenarios relevant to improve social capital of the overall system.

SESSION 6: INNOVATION, ECONOMICS AND TECHNOLOGIES

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16. *Inclusive innovation: The role of public demand.* **Eva Buchinger**, eva.buchinger@ait.ac.at. AIT Austrian Institute of Technology, Vienna

Inclusive innovation aims at improving welfare for all citizens. This means the broad public as well as special groups not so well integrated in society (elderly, disabled, jobless youth etc.). Inclusive innovation is therefore necessarily combined with a demand-side approach and implies the transition from ‘technology push’ to ‘market pull’; plus a focus on ‘weakly integrated groups’ (because the latter are often not big and/or visible enough to mobilize market forces). The public sector as procurer plays here a specific role because of two reasons. On the one hand, the public sector disposes about big purchasing volumes; on the other hand, it is its explicit task to offer highly qualitative services for all citizens – major groups as well as minor groups (i.e. to be inclusive). From a systems theoretical perspective, public procurement of innovation serves as a coupling – in the meaning of N. Luhmann – between the political and the economic system. This has been clearly seen by global players (e.g. OECD, World Bank) and also the European Commission – although without using system-theoretic terms. In this paper first the notion of coupling will be theoretically clarified. Second, the European ‘Horizon 2020 Work Programme 2014-2015’ will be used as practical example to explore demand-side couplings. Thereby, themes, measures and addressed societal groups will be considered. This includes the analysis from a systems and sociocybernetic perspective how “inclusion” is conceptualized in the ‘Horizon 2020 Work Programme’.

17. Definitions of Complexity of Social Systems and Large Scale Socioeconomic Crises. Czesław Mesjasz, mesjaszc@uek.krakow.poland. Cracow University of Economics

In the beginning of the 21st Century, a great popularity has been gained by various considerations on complexity of socioeconomic systems at various levels of societal hierarchy. Such considerations have roots which are associated with another significant theoretical and policy issue, i.e. sustainability at all levels of societal hierarchy. Some works on crises and complexity had been already published before 2000 but majority of them have become popular after 2001. The most influential works were written by Tainter, Diamond, Homer-Dixon, and Ferguson. Another approach was used by Beck who defined the threats to modern society deriving from “risk” defined in a specific manner. In all those attempts several meanings of complexity are used. Most frequently, the “hard” complexity is applied, which is defined with mathematical models of consequences of non-linearity, far-from-equilibrium, chaos, etc. The “soft” complexity applying analogies and metaphors deriving from those models and from indigenous ideas as those of Luhmann, are not applied in those studies.

The aim of the paper is to analyze the applications of the concepts of complexity in the models of large scale socioeconomic crises. The main hypothesis of the paper is that potential crises in the 21st Century which are deriving from the increase in complexity of “tangible” attributes of social systems as well as from the exponentially rising amount of information, may occur not only due to “hard” (physical) complexity, but especially, due to increasing incomprehensibility of the social phenomena. The main recommendation of the paper is that in theoretical studies of socioeconomic large scale crises, a new and deepened understanding of complexity of societal phenomena is needed. This new approach to complexity of social systems is developed in the paper.

18. Technological separation in economy. The case of algorithmic transactions as the ultimate alienation. Eliana Herrera-Vega. Aerea.eliana@gmail.com, eherrera@uottawa.ca. University of Ottawa, Communication Department

‘There are two sides of the life of every man, his individual life which is the more free, the more abstract its interests, and his elemental swarm-life in which he, inevitably, obeys laws laid down for him’ (Leon Tolstoy, War and Peace)

Human experience is conditioned by new modalities of agency, which are inherently technological: social systems, made by autonomous and stabilized communications. Social systems respond solely to self-defined codes, social systems will only realize the operations that are deemed necessary for their maintenance and will decrypt external requests as environmental noise, interpreting those requests within the limits of reflexivity.

This paper seeks to analyze the role that symbolic media of communication has in the realization of technological separation between human needs and contemporary economy, following the events of the current global economic crisis. The piece studies how endogenous market failures in financial markets depend on the very technological nature that social systems feature, technology that builds on recurrent mediations to develop the full autonomy of the system, which is both the reason of its ultimate success and its final demise. The case-analysis is put together on algorithmic transactions, which feature the ultimate level of alienation in respect to the level of humanity. The piece shows how technology exponentially amplifies the gap between traditional ‘reality’ and ‘constructed’ reality.

SESSION 7: KNOWLEDGE, MANAGEMENT AND ETHICS

Chair: Pedro J. Escriche. pescrich@unizar.es
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19. Some Reflections on Agency and (Systems) Ethics. Karl-Heinz Simon, simon@cesr.de. University of Kassel, Center for Environmental Systems Research, Kassel

Recent debates about *Ethics* emphasize its role as a philosophical inquiry into the evaluation of moral behavior and action. The mainstream discussions about ethics, however, are not explicitly recognizing the concept of an “ethics of cybernetics” or a “system ethics”. In the following, we are

referring to some contributions from cybernetics and systems theory and are trying to build bridges between these different perspectives in Sociocybernetics and applications.

Von Foerster added important ideas to the concept of ethic. Well-known are his "theorems" formulated in several contributions to conferences and readers. The most important one is his maxim "increase the number of choices". The consequences of such a recommendation have to be made explicit, for example, how to achieve compromises and commitment?

The points mentioned refer to another interesting problem in the context of systems theory. How to extend the maxims of von Forster to higher systems levels? There are, among others, the contributions of Churchman and Bühl, who contributed to the foundation of a systems ethics. Bühl goes into details about the characteristics of a system ethics. He identifies concepts, among others, like adaptability, the capacity to develop, self-reference, and self-organization.

Bossel's approach to a systems ethics is based on the ultimate goal "viability and capacity to develop". In order to reach that goal several system characteristics have to be considered: security aspects, efficiency, adaptability, freedom to act, and some others.

The paper is on building bridges between these concepts and to analyse congruencies but also discrepancies.

20. *Knowledge Management in Health Care The Virtual Health Care Library (INFOMED) in Cuba ***
Anamaris Martín Marrero, *Silvia Abella Garcés and Carmen Elboj Saso.*
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All the enterprises in the 21st century, are immersed in the changes of their environment (competitors, globalization of social relations and knowledge). In the face of this situation, the possession of knowledge and its management is a decisive resource for such a company and a competitive advantage in order to create, maintain, and achieve lasting success, Rodríguez, et al. (2013). Knowledge management is a management discipline whose central aspect, that of finding the best ways to cultivate, nurture and apply knowledge in the different levels at which it is present within an organization. In the 21st century the health care services are in the middle of these changes of their environment. The present and future of health care services is based on electronic health (E-Health) and knowledge management.

In a context in developing countries and in view of the necessity to develop networks of knowledge, in 1992 in Cuba began the construction of a digital network, which should provide access to information and knowledge with the purpose of improving the health of the population. This network is known as "INFOMED". The present paper will outline the current state of INFOMED with regard to knowledge management in the health care sector of Cuba. It will then analyze in a concrete case, the Hospital Docente Gineco Obstétrico, the effects of the virtual library on the daily activities of the medical personnel and the management and their acquisition of better information and evidence for the management of knowledge. A field study has permitted to find out that there still remains a lot to be done in order to get really to the point of using this instrument for knowledge management in the hospital.

21. *Avalanches, management, and leadership in turbulent times. Searching for Points of Intervention.* **Bernd R. Hornung**, hornung@med.uni-marburg.de University Hospital Giessen and Marburg GmbH - Data Protection Office

Society is man-made, but when we are born into it and start acting, it is a given. Social processes are going on in structures given at that moment. Often they go on behind our backs without being realized, moving society in unwanted directions. Attempts at controlling and steering such social forces turned out quite ineffective, and organizational actors, which are supposed to do so (like governments), are quite helpless. "Social forces" does not refer to some global conspiracy group, but to the mechanisms and processes built into society at a given moment. This paper explores to what extent and possibly by what mechanisms human intention can effectively influence where society is going, also at the global level. A threefold approach is taken. (1) Can the individual actor influence where society is going? A "YES" leads to grassroots movements. A "NO" means, that the individual voice or action is powerless and does not make a difference. Therefore (2) "they" have to change things, i.e. organizations or leaders of organizations, including governments. (3) A look at

the global system could find a world government, a world conspiracy group, or groups of powerful individuals like the heads of the big digital corporations, the "Lords of the Digital". For coping with this situation two approaches are proposed. First, to say definitely farewell to the machine paradigm of determination and (top-down) control of social processes and to adopt a cybernetic view instead, conceiving individuals, social systems, and societies as navigating in troubled waters which, as such, cannot be influenced while the ship itself can be steered. Covey calls this the knowledge-worker mind-set. Second, to develop individual, collective, and organizational behavior and ways of management towards what Covey calls the habits of effective people in the age of knowledge society and which corresponds to sociocybernetic principles.

SESSION 8: COMMON GOODS, COMMON ISSUES

Chair: Fabio Giglietto. fabio.giglietto@uniurb.it
University of Urbino "Carlo Bo"

22. *Prospective scenarios of Oasian socio-environmental systems using a second order cybernetics.* **Pedro J. Escriche Bueno**, pescrich@unizar.es University of Zaragoza

The paper presents an analysis of how oasian communities in Morocco face their socio-environmental problems –in specific, water management- and how these systems could change using a second order cybernetics a prospective system intervention taken from Rolando Garcia's work.

In the first part, we study the different elements of the oasis as a complex system, considering internal elements like local institutions, hotels, associations, etc. and external elements like regional government, NGOs, international institutions and, specially, international tourists. We will briefly analyze how the decision making process on environmental relations and, specially, water management, has worked up to now, and how it has remained static despite the recent conflicts and challenges in last years.

In the second part we present a prospective analysis of the possible evolution of the elements of the oasian system using Rolando Garcia's proposal (García: 2006, 102). This analysis has been elaborated with the active participation of community members. The objective was to put into practice a second order cybernetics of the system to reflect about: a) the prospective scenarios of the oasian communities with a focus on water management, b) the possible interventions in the system in order to change and/or avoid undesirable consequences.

The conclusions seek to be a contribution to the sustainability of oasian communities in South Morocco, through the diagnosis shared with the community, the scenarios designed together and the lessons learnt in this experience.

23. *Harnessing Social Processes For The Common Good In Turbulent Times.* **John Raven**. jraven@ednet.co.uk. Consultant 30 Great King St., Edinburgh EH3 6QH Scotland

The paper deals with ways of tackling the serious ecological, economic, and social problems facing our society. Findings suggest that these problems are not economic but arise from the way society is run. The solution proposed is a learning and management system which is decentralised, dynamic, and characterised by innovation and evaluation. It will not appeal to those preoccupied with centralised planning, control, orderliness, and narrowly defined efficiency. The first of three requirements for any radical transformation in society is the creation of a climate of innovation going along with better arrangements for monitoring innovative experiments. Second, the evolution of much better arrangements is required for initiating the collection of information, bringing it together, sifting it for good ideas, initiating action, monitoring the results, learning from the monitoring process, and restarting the cycle. This is primarily a responsibility for public servants. Third, new ways of thinking about management, bureaucracy, democracy, and citizenship are required. Recognition is necessary that management has to focus on releasing the energy, creativity, and initiative of others. Such innovation requires new forms of participative democracy grounded in networkbased supervision of the public service. It cannot not be implemented by central decree. The invisible hand of the marketplace will be replaced by visible monitoring and learning arrangements aimed at understanding systems processes. This will allow the

consideration, assessment, and control of multiple determinants of events and identification of a wide range of desired and desirable outcomes. The main aim of this paper is to help to operationalise a concept of “the information society”. An issue not discussed in the paper, but to which input is expected from the audience, is methodology. What is the appropriate methodology to understand and analyze the systems processes? Systemograms? Computer simulation? If so, which kind of simulation?

SESSION 9: COMPLEX ISSUES ON TURBULENT TIMES

Chair: Czeslaw Mesjasz. mesjaszc@uek.krakow.poland.
Cracow University of Economics

24. *Cybercult@ and knowledge communities: The experience of an emerging community of knowledge at the University.* **Blanca Eva González Monroy**, Angélica Cardona Clemente, Alfonso Espinoza Rodríguez, Evodio Don Juan Hernández, Ociel Monroy Choreño, Paola Álvarez Sánchez, Christian Armando Galindo Pacheco, Nestor Ramírez Bautista, José Alberto Valencia Ramírez, David Ricardo Aguilar Meza, José Guadalupe Daniel Serrano and Alejandra Pérez Angeles

Instituto Tecnológico de Atitalaquia - ITAt - is located in the state of Hidalgo, ranked as one of the 10 poorest states of the country and most backward in education. One factor that is attributed at this zone is the present high levels of pollution.

The –ITAt- urged young people to complex thinking and work based on the methodology of interdisciplinary work from systems theory of Rolando García and within the framework of the Sociocybernetics. The researched problem is focused on finding better ways to reduce the high levels of greenhouse gases and avoid non-compliance with the regulations of the companies that are established in areas of high poverty. For this we have established a strategy to avoid disjointed work among workers and their relationship with the environment.

This paper presents the theoretical and methodological strategy of the group, which led to the formation of an Emerging Community of Knowledge in the institution, according to the proposal from the Cybercult@ and support of the Sociocybernetics. In the first part we present levels of complexity of the problem, the strategy for setting up the team and its interdisciplinary activity. In the second, we show the results obtained with respect to the problem described.

25. *Partner violence analysis in complex contexts: cases in the rural communities in Imbabura (Ecuador).* **Santiago Boira**, sboira@unizar.es University of Zaragoza.

The intimate partner violence (IPV) is a complex problem which causes devastating effects on a global scale. There are still many questions that need to be clarified in relation to violence within the couple. Aspects such as the explanatory frameworks of the phenomenon, how works the violent dynamics inside the couple or the effectiveness of the measures proposed are the subject of debate.

This communication discusses violence against women within the couple and intervention in a context of small rural community. Some preliminary results of research are presented. The study was conducted in rural communities in the province of Imbabura in Ecuador. The methodological strategy was qualitative and we analyzed information from seven focus groups. From the ecological model, we describe the main characteristics of violence in this context, the difficulties for victims and propose some intervention strategies.

The results show: a) the importance of community environment and interactions of victim and perpetrator to the family, neighborhood and police intervention; b) the way that the territory structure and state action affect the handling of situations of intimate partner violence; c) the effects of the pressure exerted by the various members of the community can have on the victim and their ability to report the situation. Finally, the possibility that the identified factors can be explanatory and illuminating elements of the dynamics of violence in similar contexts to the case study is targeted.

26. *Femicide as a complex issue: Sociocybernetical approach against a violent phenomenon.* **Chaime Marcuello**, chaime@unizar.es. University of Zaragoza

Femicide is a term that refers to a complicated and complex fact: the violent and intentional killing of women and girls. This is a social evil present in all continents. The attendees to the Vienna Symposium on Femicide, held on 26 November 2012 launched the Vienna Declaration as an alarm call to governments and societies worldwide. Their goal was to fight and eradicate this social problem. In this paper, I review the origins, following Diana EH Russell and other authors and milestones of the term femicide. I will review its etymology and the conceptual construction process. One important step was its translation into Spanish by Marcela Lagarde as “feminicidio” in the Mexican context. She did a contribution to observe the phenomena and to adopt legal and political decisions to fight against this social problem. At the same time, I explore the limits and scope of social research of the phenomenon of violence against women in its most extreme expression. I propose a sociocybernetical approach to apply for observing, understanding and explaining these phenomena. This type of violent death is a complex social phenomenon that goes beyond the criminal investigation through criminology technical difficulties. I conclude by proposing a framework where femicide, as a violent result, requires an interdisciplinary approach and an adaptive observing system.

SESSION 10: OBSERVING SYSTEMS, SYSTEM THINKING

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27. *Cold Hearted Society: Toward Understanding the Observation of Social Systems.* **Saburo Akahori**, akahori@lab.twcu.ac.jp. Tokyo Woman's Christian University. Japan

In the past decade or so, the word Jiko-Sekinin comes to widely used in Japan. The literal meaning of the word is “self-responsibility”, but it has much broader implications such as “Take your own risk”, or more, “Don't cause trouble for the others, especially for the public”.

The prevalence of the word Jiko-Sekinin has been argued as problematic because it sounds to be too cold hearted. However this paper is not going to deal with this phenomenon with respect to moral principles or cultural peculiarity, but from the viewpoint of sociological systems theory. Moreover, this paper explores a more appropriate “general” framework for this kind of phenomena related to communication media through systems theoretical examination.

Based on sociological systems theory, we see this kind of phenomenon not on the level of each person, but on the level of communication systems.

We assume that, firstly, this phenomenon can be understood as a kind of deviation amplifying process related to new communication media which appeared around the beginning of the 21st century. Secondly, we suppose the core of the change is so-called social media. The rise of social media seems to cause radical transformation of feedback loop related to public opinion. The polarization of opinion can be understood on the level of social systems.

Lastly, we conclude if we hope to change the direction of the polarization of public opinion, we had better take a systems theoretical viewpoint. Then we will be able to illustrate how the feedback loop works and look for how we can break the loop.

28. *Materialism, Institutionalism, Objectualism: Three Views on Social Structure and how they can be combined into an Evolutionary Theory of Social Objects.* **Pablo Navarro** pablo.navarro@uv.es
Universidad de Valencia, Spain

Sociological theory has contemplated social structure from two main perspectives, materialism and institutionalism. For materialism (from Marx to Harris and Diamond), social structure basically depends on a set of factors which are seen as “material” (in some of these senses: on the one hand, “economic dependent”, “technological dependent”, or “ecological dependent”; on the other hand, “meaning independent”, “cognition independent”, or “actor independent”). For institutionalism (from Spencer to the New Institutionalists), social structure is made up of social institutions, which are understood in various ways.

But how do social institutions arise? For social materialists, the answer is clear: they arise as an effect of the causative power of the “material infrastructure” (be it conceived in some way or another). The problem is that such “infrastructure” clearly underdetermines the sphere of social institutions. On the other hand, institutionalists explain the emergence of society’s institutional level in functional, utilitarian or abstract terms (differentiation, etc.). In this case, the problem is that this sort of explanation verges on tautology.

The concept of “Social Objects” would provide a natural link between the “material”, infrastructural level of society, and society’s institutional level. That level of objectual structure would have a cognitive-pragmatic nature and would represent the matrix of cultural-institutional creativity. Social objects evolve, from a natural bedrock of “universal social objects” to elaborated systems of artificial social objects, and this evolution would explain the succession of societies in history.

29. *System thinking and Turbulent Social Phenomena: a Sociocybernetic social complex systems. Construction.* **José A. Amozurrutia**. j.antonio.amoz@gmail.com. UNAM.

Organization and subsequent analysis of vast social empirical complex related to a social problem is a challenge that can be approached from various disciplinary perspectives. It is imperative to create research groups to integrate interdisciplinary approach. To articulate multifactorial fields of study and at the same time linked to a micro, meso and macro space-time, we face a challenge that requires greater attention to organize social interactions and processes for such vastness. From a Sociocybernetic perspective, multidisciplinary approach includes systemic thinking and model simulation as an essential components from which analysis may become more powerful. Creative criteria should be improved to weave transversal attributes and processes that configure new ways of observing social behavior.

This paper proposes a strategy called "Essential System Interactions in Vast Empirical Complex" – ESiVEC- to deal with problematic social phenomenon that may be related to the analysis of past and present situations and even to a prospective scenario analysis. ESiVEC is based on a multidimensional matrix organization within system thinking analysis. The unit of observation is the interaction between social actors i.e. persons, groups or communities, under types of facts, actions, communications or activities. These units are related to spatial, temporal, mediator objects and information sources valuations established by the research group. The application rearranges ESiVEC Matrix information to display different types of interactions according to one or more conditioning variables. Potential reflexivity may be derived from these information oriented to construct better explanations for genealogical interactions as well as to anticipate behaviors and possible scenarios. The paper present an example related to educational problems in Mexico.