WCSA - WORLD COMPLEXITY SCIENCE ACADEMY

IV CONFERENCE
DECEMBER 15TH - 16TH, 2013
HOTEL LA CALETA
C/ La Enramada, 9; 38670
La Caleta -Adeje; Tenerife; SPAIN

REDESIGNING WORLDWIDE CONNECTIONS:
Theoretical and Pragmatical Systemic Approaches to the Complexity Management

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This conference will focus on both the most recent achievements of the theoretical debate on Complexity Theory and Systemics, and the uses of these theories in specific, practical domains.

More than welcome are proposals devoted to Information and Communication technologies, as well as Environment issues; though, besides this, the conference is open to researches on every other domain, especially with disciplinary and interdisciplinary perspectives (sociology, management, engineering, biology, economics, mathematics, statistics, etc.).

The aim of WCSA is to create networks among students and scholars, that deal with systemic and complexity, either as a study object or as epistemic instruments.

The official language of the conference is English, and the conference is divided into four panels, two panels per day, with each panel lasting about 3 hours.

Panel speakers are limited to 10 minutes for their presentations and 10 minutes for a roundtable debate of their presentations with the chairperson and the public.

CONFERENCE SCHEDULE

SUNDAY 15 TH

8:20 a.m.	CONFERENCE REGISTRATION
8:40 a.m.	SPEECH OF PRO TEMPORE WCSA PRESIDENT C.TROFINO
9:00 a.m.	WCSA POLICY SPEECH OF THE SCIENTIFIC DIRECTOR, AND HON. PRESIDENT A. PITASI

I PANEL: SYSTEMIC THEORIES AND PARADIGMS
PANEL CHAIR Massimiliano Ruzzeddu, Unicusano, Rome, Italy

PANELISTS

9:30 a.m. – 9:50 a.m.	**COGNITIVE NETWORKS AND SOCIAL COMPLEXITY** Magali Orillard, Aix-Marseille University Aix-Marseille School of Economics, Cnrs & Ehess, France
9:50 a.m. – 10:10 a.m.	**HERITAGE SCIENCE, COMPLEXITY THEORY AND SYSTEMICS. REDESIGNING HERITAGE POLICIES AS A COMPLEX, ADAPTIVE PHENOMENON** Andrea Nanetti and Siew Ann Cheong, Singapore Nanyang Technological University, Singapore **(Virtual Presentation)**
10:10 a.m. – 10:30 a.m.	**TOWARDS A *SYSTEMIC SEMANTIC FOR THE MEDIA RESEARCH*: WORKING ON NIKLAS LUHMANN'S THOUGHT AND LEXICON** Michele Infante, Link Campus University, Rome, Italy **(Virtual Presentation)**
10:30 a.m. – 10:45 a.m.	**COFFEE BREAK**
10:45 a.m. – 11:05 a.m.	**THE SOCIETY IN SYSTEMIC PERSPECTIVE: AN INTEGRATED WHOLE, OR A MULTICENTRIC WORLD?** Jiří Šubrt, Prague University, Czech Republic

11:05 a.m. – 11:25 a.m.	**INNOVATION TECHNOLOGY AND ORGANIZATION OF HEALTH POLICY** Giulia Mancini, Gabriele d'Annunzio University, Chieti and Pescara, Italy Valentina Di Simone Gabriele d'Annunzio University, Chieti and Pescara, Italy
11:25 a.m. – 12:00 p.m.	**MAPPING SYSTEMIC KNOWLEDGE BOOK** Mariarosalba Angrisani, Federico II Univeristy, Naples, Italy
12:00 p.m. – 12:45 p.m.	**Debate**
12:45 p.m. – 2:30 p.m.	**LUNCH BREAK**

II PANEL: DIGITAL REALITY AND SOCIAL COMPLEXITY: DISORDER AND ORDER SELECTIONS IN A CONNECTED WORLD
PANEL CHAIR, Jiří Šubrt, Charles University, Prague

PANELISTS

2:30 p.m. – 2:50 p.m.	**THE ITALIAN NETWORK CONTRACT OF POLO HIGH FASHION AREA OF VESTINA. FROM A TERRITORIAL NET TO A SYSTEM OF EXCELLENCES.** Elena Cedrola Macerata University, Italy. Stefania Masè Macerata University, Italy, Co-tutorship with Paris Sorbonne University, France **(Virtual Presentation)**
2:50 p.m. – 3:10 p.m.	**CAPTURING THE PUBLICS: HOW COLLEGES AND UNIVERSITIES UTILIZE HOMEPAGES** Amber Narro, Southeastern Louisiana University, Louisiana
3:10 p.m. – 3:30 p.m.	**THE DIGITALIZATION OF EVERYDAY LIFE. A NEW WAY TO LOOK AT THE CONNECTED WORLD** Michele Bonazzi, Bologna University, Italy
3:30 p.m. – 3:50 p.m	**THE SYSTEMIC CONSTRUCTION OF ACADEMIC CAPITALISM** Emilia Ferone, G. d'Annunzio University, Chieti-Pescara, Italy
3:50 p.m. – 4:10 p.m.	**Debate**
4:10 p.m. – 4:30	**COFFEE TIME**
8:00 p.m.	**Social Dinner**

MONDAY 16TH

8:30 a.m.   **CONFERENCE REGISTRATION**

III PANEL: SYSTEMIC ENVIRONMENTS AND NATURAL ONES BETWEEN CONTINUITY AND DIFFERENCE
PANEL CHAIR Amber Narro, Univeristy Lousiana Usa

PANELISTS

8:50 a.m. – 9:10 a.m.   **LOCAL SOLUTIONS IN A GLOBAL ENVIRONMENT: FACILITATING NATIONAL STRATEGIES IN NEW ZEALAND**
Jim Sheffield, Victoria Wellington University, New Zealand **(Virtual Presentation)**

9:10 a.m. – 9:30 a.m.   ***THE COMPLEXITY EPISTEMOLOGY AND THE CONTEMPORARY LAW ISSUES RELATED TO ECONOMICS, SOCIAL SCIENCES AND ECOLOGY***
André Folloni, Programa de Pós-Graduação em Direito – PUCPR, Brazil

9:30 a.m. – 9:50 a.m.   **QUANTUM COGNITION MODELING**
Franco Vaio, Politecnico Torino University, Italy

9:50 a.m. – 10:10 a.m.   **METAPARADIGM AND COMPLEXITY**
Massimo Magno, Gno.Sys, Italy

10:10 a.m. –10:30 a.m.   **COFFEE BREAK**

10:30 a.m. – 12:30 p.m.   **WCSA General Assembly**

12:30 a.m. – 1:00 p.m.   **SFAI-WCSA Agenda sharing**
Alfredo Spilzinger Lord of Brownsel **(Virtual Presentation)**

1:00 p.m. – 2:00 p.m.   **LUNCH BREAK**

PANELISTS

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2:00 p.m. – 2:20 p.m.	**COMPLEXITY IN THE PUBLIC SPHERE** Katerina Strani, Heriot-Watt University, Edinburgh, UK
2:20 p.m. – 2:40 p.m.	**VIABILITY OF CHANGING PARTNERSHIP MODELS** Edit Fabó, University Eötvös Loránd University **(Virtual Presentation)**
2:40 p.m. – 3:00 p.m.	**SOCIAL EMERGENCE IN THE MICRO-MACRO LINKAGE: PATH EMERGENCE THEORY PERSPECTIVE** Ki-Joon Hong, Kyung Hee University, Budapest
3:00 p.m. – 3:20 p.m.	**COFFE BREAK**
3:20 p.m. – 3:40 p.m.	**BUILDING A NEW TRANSDISCIPLINARY FRAMEWORK OF COMPLEXITY** Ton Jorg, Utrecht University, Amsterdam, Holland
3:40 p.m. – 4:00 p.m.	**SOCIAL COMPLEXITY AND CONFLICTS RESOLUTION. A SYSTEMIC APPROACH TO STUDYING VENGEANGE** Maria Rita Bartolomei, Macerata Univeristy, Italy **(Virtual Presentation)**
4:20 p.m. – 5:00 p.m.	**Debate**
5:40 p.m. – 6:00 p.m.	**Valediction**

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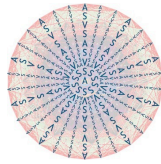
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DISCLAIMER:
Panel speakers must have paid their conference registration fees before they give their presentations otherwise they will not be admitted to speak.

LIST OF ABSTRACTS

I PANEL

1) COGNITIVE NETWORKS AND SOCIAL COMPLEXITY

Magali Orillard, Aix-Marseille University, Aix-Marseille School Of Economics, Cnrs & Ehess, France

The purpose here is to study the behaviour of the different types of actors from a pluridisciplinary point of view within a heterogeneous population as well as their interactions.

Through a cross analysis of the fields of economics, sociology and philosophy , we try to establish the dimension of the notion of social complexity particularly that which concerns the architecture of knowledge, the co-construction of the representations as well as the complex mediation processes which the interacting agents require.

Therefore, this study concerns a world where the actor is plural in the sense of Bernard Lahire, the latter takes us to the notion of the multi-self of Jon Elster. This plural character is seen here using different codes as manipulations of symbols and procedures of overcoding, as manipulations of codes among themselves.

The basic question confronting us here takes us to the interaction between the notions of social identity, social complexity and complex action that gives rise to the occurrence of the different forms of engagement - to be taken into account in the sense of Laurent Thévenot - related to the behaviours of actors participating in the emergence and in the development of social networks, of forums …. like hybrid forms emerging from the modelization of complex systems in the sense of Herbert Simon.

 From a methodological point of view the paradigm of methodological individualism and holism are abandoned by taking the systemic approach based on the interactionist paradigm.

The works of Mark Granovetter and his notion of embeddedness as well as those of Harrison White on his notion of decoupling are used in order to develop this analysis and thus to establish the links between codes, overcodes and different types of devices, within the meaning of the aesthetics of philosophy. The purpose here is to lend an epistemological content to the actor-network notion within the meaning of the sociology of translation as artefact in the sense of Simon.

The operating character of this type of modelization rests in particular on the cognitive shortcuts whose nature is highly linked with the identity of actors.

At this level we will examine the link existing between the autonomy of agents confronted to the emerging structures and the different forms of engagements participating in the emergence of hybrid structures.

This work makes it possible to foresee the consequences of the emergence and the development of these structures within a population of heterogeneous agents, in particular in terms of opacity and ambiguity, such is obviously the characteristic of social complexity relevant to the management of interactions within these populations and to the forms of actions conceivable in a complex socio-economic world.

2) HERITAGE SCIENCE, COMPLEXITY THEORY AND SYSTEMICS. REDESIGNING HERITAGE POLICIES AS A COMPLEX, ADAPTIVE PHENOMENON

Andrea Nanetti Singapore Nanyang Technological University Complexity Program, Singapore
Cheong Siew Ann Singapore Nanyang Technological University Complexity Program, Singapore

Heritage Science--according to the definition given by Andrea Nanetti, who helped to develop it as a domain--was born in the digital era and applies interdisciplinary methods to the study and conservation of tangible and intangible cultural heritage, not for the sake of the past but to contribute to a sustainable and better future. In a 21st century global perspective, innovation and change in heritage interpretation processes of indigenous traditions require strategic political choices. Indeed, the deep impact that heritage policies have on the future development of local identities is detectable in both local self-awareness and international external perception of the image of cities, countries, and nations.

As a contribution to understand how heritage can be systematically and scientifically exploited as a resource for the present and the future sustainable policies, we propose to observe it through the lens of complexity theory. In a nutshell, complexity is an emergent property of a system with a large number of players with strong nonlinear interactions. This complexity is irreducible in the sense that no change of reference frame can make the description of the system simpler. In our case, complex interactions between the present and the past give rise to regimes (basins of attraction) separated by tipping points in a very high-dimensional cultural landscape. Whether we wish to remain in the same regime or to make a transition to a different regime, we need to measure how close we are to the various tipping points. Complexity theory offers the tools to detect nonlinear and discontinuous regime shifts that are impossible to detect using methods developed for linear and continuous changes. Complexity theory, and in particular complex networks theory further helps us understand the nature of these regime shifts in terms of 'who' (key players), 'what' (key heritage elements), 'when' (key timings), 'where' (key locales), 'why' (key drivers for the change), 'how' (key mechanisms). Once we understand regime shifts, complexity theory then offers suggestions on what data-driven procedures we can adopt to engineer regime shifts, either towards a desired regime, or to stay within a given regime.

In 2012 the Government of Singapore became the 190th State Party to accept the Convention concerning the Protection of the World Cultural and Natural Heritage (ratification deposited with the Director-General of UNESCO on June 19 and convention entered into force on 19 September). How Complexity Theory and Systemic Approaches applied to heritage-related strategic decisions can contribute to better understanding and consolidating Singaporean identity, as an adaptive and complex phenomenon, is our case study for this conference.

3) TOWARDS A *SYSTEMIC SEMANTIC FOR THE MEDIA RESEARCH*: WORKING ON NIKLAS LUHMANN'S THOUGHT AND LEXICON.

Michele Infante, Link Campus University, Italy

During the last ten years, I worked on Niklas Luhmann's bibliography in order to study the role and concept of communication, as a pivotal keyword, in his work and theoretical construction. In this paper, I want to present the semantic ambiguity, the logical paradox, the arguing way and some of the systemic keywords of the German thinker, as a proposal for Communication Research. A theory of complexity can assume only a complex form in his explanation and writing. Its semantic language can reach a complex structure of theory, only if it can keep inside its own complexity. We use the conceptual frame of cybernetics (observation of second order, cognitive construction), cognitive evolution biology (autopoiesis, double contingency, systemic evolution) and information theory concepts (information, code and encode, noise) in order to analyze the role and function of Media System. Finally, we show how the reduction of complexity operated by the Media System

permits the communication between the Social Systems, through the Media System itself and his influence on society. Based on the last media research debates, this paper proposes a new lexicon (expectation, communicative event, social systemic meanings, self-observation) for understanding media.

4) THE SOCIETY IN SYSTEMIC PERSPECTIVE: AN INTEGRATED WHOLE, OR A MULTICENTRIC WORLD?

Jiří Šubrt, University in Prague, Czech Republic

In its early days, systemic sociology created – as can be seen in the theory of Talcott Parsons –a model of society in the form of an integrated whole. But it is different in the theory of Niklas Luhmann. For Luhmann modern society is a functionally differentiated society, ie. it is composed of heterogeneous but equal parts, which are relatively independent and are defined as societal subsystems. Luhmann's analysis presents contemporary society as a whole differentiated into autonomous subsystems, which constitute neighbouring worlds for each other. This paper examines the consequences of Luhmann's perspective for sociological theory, and how these consequences can be overcome.

5) INNOVATION TECHNOLOGY AND THE ORGANIZATION OF HEALTH POLICY

Giulia Mancini, Gabriele d'Annunzio University, Chieti and Pescara, Italy
Valentina Di Simone Gabriele d'Annunzio University, Chieti and Pescara, Italy

The title of this project is: Innovation Technology and the Organization of Health Policy.
The goal of this research is to investigate the impact of new technologies on the laws and rules regulating medical research, and the social consequences of these laws and rules.
In particular we will investigate the role of technological convergence in producing these consequences.
the concept of the human body has changed in that the human body is now very often the result of human and artificial interaction.
a)   What are the sociological implications of converging technologies?
b)   What medical results will the converging technologies produce over the next 10 to 20 years?

6) THE ITALIAN NETWORK CONTRACT OF POLO HIGH FASHION AREA OF VESTINA. FROM A TERRITORIAL NET TO A SYSTEM OF EXCELLENCES.

Elena Cedrola University of Macerata, Italy.
Stefania Masè University of Macerata, Italy, Co-tutorship with University of Paris Sorbonne, France

The paper presents the Polo High Fashion Area of Vestina agreement, signed on the 8th of June 2010 by some textile enterprises located on the area of Pescara, Italy.

Collaborations activities among firms which are part of Polo High Fashion Area of Vestina have a long history, and they are related to collaborations between enterprises developed in Italy from the years of economic boom. Historically these collaborations are mainly due to the de-vertical production chains, together with the geographical proximity between firms and the complementarity of their production.

However globalization, social changes, and technological developments that have been affecting the society over the last few decades, have made obsolete all those forms of cooperation based solely on geographical proximity, requiring new forms of interaction and contamination with other cultures and with other areas.

The Network Contract was introduced in the Italian legislation in 2009 in order to facilitate the creation of collaborative inter-firm systems, especially among small and medium sized companies as a complementary pattern to mergers and acquisitions. Thanks to this agreement enterprises can remain independent and, at the same time, realize joint industrial projects aimed at increasing innovation and competitiveness, skills that usually tend to be inversely proportional to firm's size.

The peculiarity of the Network Contract Polo High Fashion Area of Vestina must be found not only in the interesting use of the new legal form above mentioned, but in the specificity of the participating subjects. Among the contract signatories, in addition to manufacturing companies, there are two foundations specifically dedicated to human resources training in the fashion industry, and the International Museum of Fashion (under development). The participation of parties other than productive enterprises in a Contract Network seems to be a peculiarity in Italian legislation where, on 523 network contracts signed and 2798 signatories subjects surveyed by Unioncamere at the end of 2012, cultural foundations involved are only 6.

In 2012 a new firm located in the Marche Region, an area politically and territorially different from Pescara, famous for its excellent companies specialized in the hats industry, joined the Polo High Fashion network. This means that the Vestina companies are moving towards logics of quality instead of territorial ones in choosing their partners.

The Polo High Fashion Area of Vestina is then turning itself form a system linked to territorial dynamics to an excellence collector for a specific sector, high level man clothes creations, that overcome geographical barriers.

The effective capacity of the enterprises linked in the net going beyond territorial policies to support excellences, especially for innovation and internationalization activities, will be investigated through some in-depth interviews with company managers and representatives of the signatory Foundations. The intention is to study a best practice that will help Made in Italy companies to deal with the expansion of markets and increased international competitiveness without modifying its size, through collaborative and virtuous operations.

7) CAPTURING THE PUBLICS: HOW COLLEGES AND UNIVERSITIES UTILIZE HOMEPAGES

Amber Narro, Southeastern Louisiana University, Louisiana

In an article by Mark Wolski (2013), it is stated that the Internet is just one place just as it was when first introduced. Mobile users are actually using the traditional site rather than the mobile counterpart, people are still wanting broad and deep content. Universities and colleges across the United States communicate with current and potential students, faculty, and donors via the Internet and are searching for which content goes where for which audience.

Potential students and their parents research majors, activities and opportunities straight from home rather than through countless on-campus visits. Students consider fees, majors and location while universities are thinking of recruitment, retention and academic rigor. While the audiences also haven't changed, the medium of communication with colleges has, making online presence of utmost importance. These objectives meet online through university and college homepages, but how are colleges and universities utilizing their prime Internet real estate to communicate? What is on the home page? Who is their primary audience? What messages are sent?

In this paper, the researchers will utilize Rogers's Diffusion of Innovations theory (1997) to examine 250 universities from across the United States. Researchers will conduct a content analysis of the homepages of the top five universities by size from each state to determine whether different regions, different populations or different demographics determine the how universities are disseminating online information to their publics.

The researchers have conducted a preliminary study on the top universities (by population only) in nine US states: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware and Florida. The sizes of the institutions range from
3,000 students to over 50,000 students. This preliminary data examining over 250
variables for each site suggests that the universities are still targeting broad audiences and are including more and more opportunities for interactivity (70 percent of the universities had Facebook, twitter and Youtube, for example; 19 had other social media links such as Flickr, Foursquare or Pinterest). Still, traditional Web buttons are widely available such as the popular "About" button or the search function. While the current dataset is not large enough to run more rigorous analysis, these descriptive statistics are already producing results that will drive the final discussion. The review of relevant literature includes business and educational Website communication studies that led to
the current content analysis. It is expected that the final results will yield a discussion as to best practices concerning online communication between universities and colleges and their various publics. Universities will be examined by size, region and demographics, and final discussion will focus on current practices and opportunities for change.

8) THE DIGITALIZATION OF EVERYDAY LIFE. A NEW WAY TO LOOK AT THE CONNECTED WORLD

Michele Bonazzi, Bologna University, Italy

The world is changing. This process is happening as fast as possible. It is all in front of our eyes. We are at the dawn of a digital revolution that is changing our way of being in the world, our perception of reality, the distinctive characteristics of our identity, our social relations, the global nature of the world we live in and the little worlds that we inhabit. Toffler (1987) called "*the third wave*" the era in which we are now living inasmuch it is characterized by the third revolution that involved the human race, after the invention of agriculture and the industrial revolution. The

process of digitalization of the everyday life is underway and according to Kurzweil's vision, it is an evolution that will lead the human race to breakthroughs in genetics, robotics and nanotechnology that can completely change the global landscape and the very concept of reality (Kurzweil, 2008). The network and its use are now at the centre of a debate of great relevance and this has led to important contributions which can provide a key to understand the phenomenon. These points of view are in stark contrast: according to some, the use of digital media is capable of making us "stupid" (Carr, 2011), according to other "smart" (Rheingold, 2013); "obsessed" (Lovink, 2012) and "alone" (Turkle, 2012) or "aware" (Jurgenson, 2011) and "connected" (Artieri Boccia, 2012). The society is primarily based on communication (Luhmann-De Giorgi, 1992), and as communication, we can not understand it without its emerging media tools and the analysis of their convergence (Jenkins, 2007). The aim of this paper is therefore to critically explore a new universe that is emerging and it is constantly evolving in order to describe the historical passages and photograph the change trying to understand it in its peculiarities and in its complexity.

9) THE SYSTEMIC CONSTRUCTION OF ACADEMIC CAPITALISM
Emilia Ferone Gabriele d'Annunzio University – Chieti and Pescara, Italy

Max Weber in *The Science as vocation* highlights that the academic career is a matter of fate, moreover the author admits to not knowing any similar career with such characteristic.

This early 1900s topic well embeds the concept of Problem Setting of my paper. The research question is: within the knowledge based society and the intellectual capitalism, how Training & Development, Recruitment and Human Resources Management are linked to the fate? This research analyzes the academic world as example of organization where the Human Capital represents the intellectual resource; therefore, it is a laboratory full of case studies. From the mertonian distinction between manifest and latent functions, this research firstly pursues the study of the new logics behind the new HRM policies within the Academia. As the latent function, this research aims to study the development of standards (social, isotropic and legal) emblematic of the academic system and intellectual capital. The isotropic standards (ranking and rating organizational standard) are the hinge between production and circulation of effective social standards, although without legal value, and legal standards theoretically valid but not always effective. In that respect, the isotropic standards seem to be functional to overcome the difference between the scientific and humanistic knowledge.

The objective of this research is the social construction and its development into isotropic standards (and perhaps into legal standards as well) of the mechanisms underpinning the HR policies of the academic intellectual capitalism, because its focus is on the comparability of the research outcomes. This paper appears to be a surgical sectioning of the academic capitalism throughout a deep methodological reflection on the relationship between concepts-definitions operational-variables-indexes embedded within the rating and ranking procedures of the intellectual capital. The procedures are the organizational standards (rooted within the international scientific community) which benchmark to establish legal standards, as Leslie, Slaughter e Rhodes said on the academic capitalism which stresses once again the importance of the development of organizational best practices.

10) LOCAL SOLUTIONS IN A GLOBAL ENVIRONMENT: FACILITATING NATIONAL STRATEGIES IN NEW ZEALAND
Jim Sheffield, Victoria Wellington University, New Zealand

How should New Zealand respond to the multiple, intertwined and fast-changing impacts of globalization? What strategies are available to this small South Pacific country and how may these be facilitated? This empirical research frames the facilitation of selected local solutions in a global environment within the theoretical perspective of pluralism and communicative action. The facilitation of aspects of national policies in the domains of science funding, economic development and regional growth is reviewed. Electronic meeting technology was employed. The focus question is: 'Does electronic discourse increase the success of local solutions in a global environment?'

11) THE COMPLEXITY EPISTEMOLOGY AND THE CONTEMPORARY LAW ISSUES RELATED TO ECONOMICS, SOCIAL SCIENCES AND ECOLOGY
André Folloni, Programa de Pós-Graduação em Direito – PUCPR

Traditionally, legal theory is about the descriptive study of normativity, restricting their work to mere exposure, although critical, of the legal rules governing a particular field of legal expertise. This narrow type of approach on Social Sciences and Law studies were usually understood as correct in those times when the Law had no or only a few connections to major problems such as development and sustainability. The first part of this article exposes this situation. It was just recently in the history of Law that the legal systems began to impose on States the search for sustainable development. Nowadays the search for sustainable development is a legal obligation to governments around the world. This will be shown in the second part of this article. The problem is that the Law theory is not ready to address these issues, because of its long tradition of restriction. From now on, Law must open itself to other knowledge such as Economics and Ecology and must learn how to work with interdisciplinary issues that affect not only one country but also the whole world. With this new function, Law scholars must integrate themselves in the Complexity discussions. This will be the theme of the third part of the article. Complexity can be understood as an interdisciplinary paradigm of science useful in both nature and social sciences. Complexity can show how complex reality is and how it must be understood this way. It shows how the multiple aspects of reality depends on each other and are connected in a huge system, and so it is the studies that social scientists do about them, *e.g.*, Law, Economics and Ecology. These theories must learn how to work together. So Law scholars must understand it. Complexity theory must be tested as well to verify its goals in a new complex and systemic Law theory. The epistemology of complexity, as developed by current scientists and epistemologists, presents categories able to produce legal knowledge closer to reality. Categories such as recursive systems, organization and disorganization from interior and around, dialogical, individuality, diversity, event, ideality, rationalization, reflexivity and solidarity are useful and necessary to contemporary Law theory. The forth and last part of this article will expose some of these categories and its relations with the new complex Law system, which includes issues such as Development and Sustainability.

12) QUANTUM COGNITION MODELING

Franco Vaio, Politecnico of Torino University, Italy

Modern economic theories, as well as in other social sciences, have been strongly engaged in the formalization of decision-making processes. The expected utility models by von Neumann and Morgenstern (1944) and Savage (1954) became a sort of workhorse models in many applied and theoretical economic models. Some of the axioms in the expected utility models, based on the basic assumption of the rational agent, were however violated by numerous experimental studies and observation of real life situations. A number of paradoxes, such as the Allais paradox and Ellsberg paradox, as well as other experimental observations carried out from the Seventies models on have lead the current research in mathematical psychology and behavioral economics to address the questions of the contrast between the observed human behavior and what the expected utility theory dictates, and strive to build alternative behavioral models (in particular the work done by psychologists like Kahneman and Tversky has provided for extremely important achievements in this respect).

In the Nineties a new interdisciplinary field taking support from quantum physics emerged. The application of the mathematical formalism of quantum mechanics to model cognitive processes underlying the behavioral patterns in social science and economics is a novel field which more and more stimulates the interest of scientists belonging to different research fields.

Empirical findings proved that, when making a decision, people tend to violate the axioms of expected utility theory and Savage's sure thing principle, thus violating the law of total probability. Basically the quantum physics-based models ('quantum-like' models) aim at explaining the observed human behavior and the violations of the pure rationality assumption, frequently observed in real agents' behavior by relating the rationality violation with the violation of the law of total probability, as set by Kolmogorov, which emerges from the occurrence of probability interference in quantum physics.

Within cognitive science, the question of how to represent single concepts and make associations is still being debated. It has been observed that humans frequently generate novel associates when presented with unfamiliar conceptual combinations. As an example, let's consider the conceptual combination 'pet fish'. A guppy is not a prototypical 'pet', nor a prototypical 'fish', yet the tests show that a guppy is a very prototypical 'pet fish'. Therefore, the prototype of 'pet fish' cannot result from a simple composition of the prototypes 'pet' and

'fish' which makes the characterization of concepts in prototypical terms difficult to reconcile with compositionality. It can be argued, therefore, that conceptual combinations have a non-compositional semantics. A new approach to the modeling of human thought processes is emerging that makes use of the formalism of quantum mechanics to describe this phenomena. A new community of researchers, mainly physicists and psychologists, focuses on this approach to the understanding of mental processes, within the emerging domain of research called 'quantum cognition'.

13) METAPARADIGM AND COMPLEXITY

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The complexity arises as an element of innovation in the descriptive process.

Generally, if we have a low number of parameters involved, the mathematical solution is far to be trivial especially when the functional is partially or totally autocorrelated as cybernetics.

From the perspective of complexity the cybernetic argument is simple; connectivity between the components of a situation produces wholes with emergent properties that are different to those of these components. These emergent properties may be positive, as is the case with innovations which allow the system to respond successfully to huge challenges (Homer-Dixon, 2001), or negative, as

is the case for example with corruption and human made catastrophes. Connectivity among multiple components is the trigger for non-linear dynamic systems and their hallmark is complexity.

The word complex start to be appropriated then when the number of parameter and the autocorrelations between parameters and solutions become not evident. Complexity is a way to define some systems in terms of relationships, flows and levels, when the deterministics and/or analytics laws are not possibles to be revealed or even are completely absents.

The systemic model is built using the concept of the goal and the meta-goal of a system. The pragmatic problem will be developed by the introduction of a concept: the "paradigm". The paradigm is the frame within which the meaning or the semantic will be developed or restructured. Further, we will see how different frames of this kind when applied to a system model, such as the synchronic and diachronic frame, results in different perceptions a the same system. Different scales of time and functionality can influence strongly this perception.

The complexity perspective replaces the monolevel and multi variate complication with a descriptive element which is the paradigm model applied to another paradigm model - eventually is not the same semantic nature (E. Morin) -, for that, above defined, we associate the complexity concept to that one of the metaparadigm. The metalogic will be its characteristic design syntax.

There are two main parts in the structures between complexity and metaparadigm:
meta-structure
meta-goal

Different types of meta structures
functional metaparadigm
organic metaparadigm
abstract metaparadigm

Different construction of the model:
Selfreferential
Structure
Complexity

14) COMPLEXITY IN THE PUBLIC SPHERE
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This paper examines complexity and its management in communication, with a particular focus on the public sphere. Starting from Luhmann's social systems theory as the functionalist challenger of Habermas's public sphere theory, it then looks at different types of systemic complexity, such as world, environmental and internal complexity (Rossbach, 2000), as well as sociopolitical complexity in the form of hypercomplexity and overcomplexity (Bohman, 1996). While complexity is considered the lifeblood of social systems, as it leads to the creation of meaning (*Sinn*) and system autopoiesis, Habermas's epistemology sees it as a threat to the public sphere and to democracy in general, as it leads to detachment from critical-rational practices. Furthermore, the public sphere in conditions of complexity constitutes an essentially agonistic site where diverse public spheres and counterpublics compete in order for their discourses to dominate and move to more formal sites of the political arena. Against the backdrop of socio-political complexity, the uncertainty that is injected into political communication and to public spheres in particular is also crucial, as it has given rise to strategic instruments of media policy and intervention as complexity-coping strategies attempting to respond to it (Grant, 2007). Such strategies are based on complexity management models at systemic level, which involve processes of "enforced selectivity" (Luhmann, 1990) in internalizing selections of information into manageable parts. What is crucial in managing complexity in the public sphere is the distinction between manageable and unmanageable, as well as desirable and non-desirable levels of complexity. This paper recognises such dilemmas, as well as the challenges that public spheres must face in conditions of hypercomplexity, hyperrationality (Bohman) and competing rationalities, but rejects the pessimistic view that democracy cannot cope with these. Indeed, the relationship between complexity and social organisation, of which the core is an active public sphere, is as intertwined as the relation between public emergence and formalisation. The ultimate goal is to utilise hypercomplexity and harness overcomplexity to make the public sphere more relevant as well as efficient.

15) VIABILITY OF CHANGING PARTNERSHIP MODELS
Edit Fabó, University Eötvös Loránd University

Over thousands of years the usual traditional partnership and family structures has undergone significant changes in the past hundred years, and the process is not over.
In the second half of the 19th century women's emancipation movements strengthened, which later transformed largely the previously developed gender roles. The tasks were expanded, which can be made by women, but men's roles hardly changed. In case of women, the extension roles gave undoubtedly masculine characteristic to them, because the new roles were enrolled from men and the new activities, opportunities were ordered to men before. And vice versa, the men's much more moderate increase of roles definitely resulted feminine traits. Even though both sexes – specially women – would have like to keep to the opposite sex attractive, specific, destintctive own

peculiarity. The gender gap significantly reduced. In addition, the economic abilities because of the evolving consumer and globalizing societies have become more and more open, and in which, accordingly, the traditional family model has started to change.

The question is, where does it take this change on the level of the partnership and family. In fact, this problem is still concerning two seemingly contradictory developments can be observed. On the one hand, the present experienced efforts once again the traditional value system is considered to be sustainable and useful to the community and society in a long term. On the other hand, the latest results of the science – specially the nanotechnology – placed in a completely new dimension such like big question for example where begins the human, what is the natural or artificial life – at all what life is.

Ignoring the aspects of the larger philosophy (onotology) and theory of religion, I call the audience a thought experiment, which shows that the complex models can be outlined to how converging or diverging scenarios seem plausible. Is it possible to further changes in the gender roles, which one can be expected more significant, later adaptation. Whether the biotechnology says in the process, and how it influences or may affect our future. Actually, how the man remains a man and woman remains a woman in a partnership and in what form can be imagined the family?

16) SOCIAL EMERGENCE IN THE MICRO-MACRO LINKAGE:MA PATH EMERGENCE THEORY PERSPECTIVE
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The study of social institutions as dynamic entities has been one of the most intriguing themes for social scientists to examine. Although these new institutionalisms share a common recognition of social institutions as a central explanatory variable in social dynamics, they use different sets of analytical assumptions, which have resulted in various commitments to different theoretical approaches to institutional analysis. The theoretical insights garnered from the new institutionalism help to expand understanding of the complexities underlying institutional dynamics. Nevertheless, one facet of institutional dynamics has not been adequately explained by the new institutionalism, that is, the mechanism by which emergent properties are generated in the link between micro-level individual actions and macro-level social structure.

Facing this theoretical lapse, social scientists have debated this issue by further defining conception of social emergence. Common to all of these new emergentist perspectives is the basic insight that social emergence is more likely to be found in a social system link in which (i) many components interact in densely connected social networks, (ii) global system functions cannot be localized to any one subset of components but rather are distributed throughout the entire system, (iii) the overall system cannot be decomposed into subsystems in any meaningful fashion, (iv) and the components interact using a complex and sophisticated language. In this useful summary of the debate, it is hinted that "symbolic communication", i.e. intentional communication via symbol, is the most important missing link in understanding social emergence. Nevertheless, the question as to how symbolic communication is linked to social emergence has not yet been fully elaborated. New inquiry into this question requires an innovative approach that deviates from current conventional approaches. The primary purpose of this article is to investigate this recently revealed missing link by relying on scientific insights from a range of interdisciplinary works.

As a challenge to standard new institutionalism, this article suggests that "path emergence" can be complementary to new institutionalism as a theoretical scheme to capture the emergent process of linking micro-individual action to macro-institutional settings. This new approach largely draws on David Bohm's thesis of an "implicate order" and an "explicate order." In his term, the implicate order is a field of potentiality in which reality exists "folded up" in nature and gradually unfolds into an explicate order with multi-dimensionality. The implicate order is actually another label for what some quantum physicists call the "universal wavefunction," which is a quantum description of all the potentialities encompassing the manifestation of the experiential web of whole entities. In

other words, our reality manifests as an interference pattern of wavefunctions interacting with each other in the same way as images are unfolded from holograms. This new paradigm based on the quantum mechanics, if correct, has deep implications for nature in general and offers the possibility of including a wider domain of social phenomena. To provide a new kind of an epistemological map for a better account of the mechanism of a micro-macro link, path emergence theory suggests four illustrative metaphors: morphogenetic fields, social resonance, self-organized criticality, and co-evolution.

17) BUILDING A NEW TRANSDISCIPLINARY FRAMEWORK OF COMPLEXITY
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In this contribution, it is argued that the field of complexity science and complex systems is still waiting for a new conceptual framework to face the complexity of our world (cf. Mitchell, 2012). It seems that we are still not able to use the concept of complexity to open the 'world of the possible' (Kauffman, 1993, p. 375). An adequate conceptual framework of complexity is still missing. What is also missing is the vocabulary to describe self-organization and emergence (Mitchell, 2012, p. 301). To view the system with new eyes, we urgently need a paradigm of complexity that may offer "an *altered* account of reality" (Kauffman, 2009). We need a new lens, a *complexity* lens, to read reality anew (Kuhn, 1999). It will be possible, then, to read reality as a complex, dynamic, nonlinear reality (Mainzer, 2007). With this altered account of reality it will be possible to open the space of the *possible* in a world of the possible. To open this new space of the possible, a new calculus is needed: a *calculus* of the generative, of *generative* complexity, operating in myriad interactions that define a complex system (Strogatz, in Mitchell, 2012, p. 301). This calculus is a *generative* calculus of recursive, circular causality. It is a calculus about *mutual* causality, with hitherto unknown multiplier effects. This generative calculus shows the potential nonlinear effects of 'simple' causal interaction between evolving entities. This calculus may account for the *generative* mechanisms of interaction (Solé & Goodwin, 2000). Interactions are the key ingredients of behavioral complexity indeed (p. 176). The new calculus may also account for the deviation-amplifying effects within dynamic causal loops (Maruyama, 1962). Linking the new calculus with network thinking about dynamic, web-like networks of interconnected causal loops makes it possible to view complexity as a fundamental and foundational network concept. With this network concept of complexity, it will be possible to speak about *hyper*-complexity in a more concrete way (cf. Morin, 2008, p. 21). With the new concept of generative hyper-complexity, it will be possible to open up hitherto unknown spaces, like the multi-dimensional state hyperspace (Globus, 1995). Based on the concept of generative hyper-complexity, a so-called 'Space of Generativity' may be opened. This space is a state hyperspace, showing the dynamic paths of entities, as a kind of adaptive walks within complex landscapes. These are complex walks within a kind of dynamic, adaptive *fitness* landscape (Solé & Goodwin, 2000). With the new framework of generative hyper-complexity, it becomes possible to view the system with new eyes. Reality may be taken as a self-realizing, *emergent* kind of reality, with complex phenomena, showing up as "self-generated states of affairs" (Luhmann, 2002, p. 157). This notion of emergent reality links with a new kind of ontology, which is about "the ontological creativity of the entire world" (Juarrero, et al., 2007, p. xi). To understand reality as a creative, emergent kind of reality "mutuality is ontologically primal" (Ulanowicz, 2009, p. 76). This mutuality may now be linked to the generative, nonlinear dynamics of mutual causality. Finally, we should link this new ontology with a new epistemology: an epistemology of the ultimate *possible*.

18) SOCIAL COMPLEXITY AND CONFLICTS RESOLUTION. A SYSTEMIC APPROACH TO STUDYING VENGEANGE

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Over the past years the understanding of vengeance has evolved from an archaic antecedent of judicial punishment (a private or family matter not of concern to police or to criminal justice), into a social and legal problem which is fiercely debated.

This paper proposes to draw on two different experiences amassed in the field. One example will use outcomes of research work based on periods of participant observation and in-depth interviews given to people living in Barbagia, Italy. In support of Raymond Verdier (1980) and Antonio Pigliaru (1993), my findings stress the helpfulness to give up the evolutionary perspective of vengeance as an instinctive, enormous, uncontrolled, defensive impetus, regarding it instead as an out-and-out (vero e proprio) model of conflict resolution corresponding at the same time to an ethical system and a code of conduct.

In another example, the research relates to the specific case of the survival of traditional practices of vengeance among the Beluci shepherds living in Tanzania. Outcomes of this case study confirm the existence, in any social system, of close relationships between modes of conflicts resolution, social structure and patterns of culture.

Through my work I will try and discuss that, when we have vengeance, we can easily find livelihood grounded on nomadic pastoralism, a traditional code of honour and a ritual way of conflicts resolution. Adopting a legal anthropological approach, attempts are being made to relate many of the main social and cultural factors to one another, to set up an integrated interpretative framework. A sort of "model" which I suppose could be usefully employed to analyze current literature on the subject and even to achieve more further interesting comparisons.

Finally, the work aims to show how behaviours conforming with the ethics of vengeance are often in contrast with the official legal system. Nevertheless, the current persistence of those unofficial and banned practices cannot be read as a purely negative phenomenon that creates anarchy and chaos. On the contrary, it emerges from my study that people still use those rules and values constructively, to bolster their own cultural identity and enhance social continuity. Consequently, special attention is devoted to the effort done by nomadic people to using vengeance's practices as a sort of "political" strategy to challenge and defy disfavoured state choices, decisions and policy. That is, as an attempt to protect their own history, system of values and identity, which are more and more attacked and progressively deleted by the process of globalization.