

# GENERAL SYSTEMS BULLETIN

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### THE INTERNATIONAL SOCIETY FOR THE SYSTEMS SCIENCES

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# SECTION ONE

## EDITORIALS, PAPERS AND CORRESPONDENCE

### INCOMING PRESIDENTIAL ADDRESS

DAVID ING

Introduction -- Synthesis across the sciences of service systems and natural systems in a systems approach is a promising way to deal with complexity in our world

As we look forward into 2012, I encourage members of the ISSS to continue the development of sciences in synthesis. Synthesis means putting things together, rather than taking them apart. Synthesis leads to emergence: properties of a whole that are not in its parts. The research communities centered on service systems and on natural systems may benefit from a synthesis through a systems approach.

This presidential address has 5 parts.

1. Challenges where the systems approach can make a contribution
2. Research into service systems
3. Research into natural systems
4. Some frames brought with a systems approach
5. Learning and knowing

The address concludes with a call for participation at the 56th annual meeting of the ISSS in San Jose, California, in July 2012.

1. The systems approach continues to have functions in appreciating interconnections and surfacing blind spots in our views of the world

Where is a systems approach valuable? We can think about this in 3 parts:

1. Complexity in the 21st century
2. The heritage of the systems movement
3. A future for the systems movement

The value of the systems approach is associated with its functions to appreciate interconnections across a variety of systems, and to surface blind spots in our views of the world.

1.1 Issues in the 21st century world are often described as complex

The world, from the perspectives both from an average citizen and from world leaders, seems to be increasingly complex. In the 2011 World Economic Forum, these challenges were seen as risks.

The world has never been confronted with so many complex challenges at the same time. The role of the annual meeting in Davos is not just to address one of those challenges, but to provide a systemic, strategic overview about all that is important on the global agenda, and if possible, to come up with solutions, and how we should confront, as a multistakeholder community those challenges.

To name only some of the challenges, of course, it's the economic situation, it's the great volatility that we have not only in the capital markets, but food prices, commodity prices in general, and I could go on and on. Our risk report, which we will publish just in time for the annual meeting, will describe 34 of those challenges. [Schwab 2010]

In 2011, the World Economic Forum has identified risks in five domains:

- Economic risks
- Geopolitical risks
- Environmental risks

Societal risks

Technological risks

These risks are all depicted in as 37 risks in a landscape that depicts "perceived likelihood to occur in the next ten years" and "perceived impact in billion US \$". We cannot, however, divide and conquer. The risks are all interconnected. This is a problematique in an era of rapid technological progress and social change.

This new dimension of technological progress and social change is in its infancy. [...]

It is not only the velocity and nature of change, but also the increasing multiplicity of actors which characterizes the world of today and tomorrow. [...]

All of these accelerated trends -- velocity, multiplicity, interconnectivity -- are creating a completely new world in which the master of complexities will be the key challenge. Of course, the more complex the system is, the greater the risk of systemic breakdowns. [Schwab 2011]

Our modern world is estimated at a \$64 trillion complex, dynamic and interconnected system of systems, with the large core systems being

- (i) infrastructure (\$22.54 trillion);
- (ii) leisure / recreation / clothing (\$7.80 trillion);
- (iii) transportation (\$6.95 trillion);
- (iv) government and safety (\$5.21 trillion) and
- (v) food (\$4.89 trillion).

An estimated \$15 trillion is estimated as waste and loss through inefficiency in silos, of which \$4 trillion could be eliminated. The largest percentage inefficiencies relative to the systems total economic value are in

- (i) healthcare,
- (ii) education,
- (iii) government and safety,
- (iv) building and transportation infrastructure, and
- (v) electricity [IBM 2010].

Is this true that we have never faced this much complexity before? How might we, as scientists and citizens of the world, become part of the solutions rather than remaining as part of the problems?

1.2 The heritage of the system movement includes systems thinking, systems engineering, systems practice, and the systems sciences

These challenges of complexity were at the founding of the International Society for the Systems Sciences in 1954.

Early in the fall of 1954, four of the distinguished CASBS [Center for Advanced Studies in the Behavioral Sciences] fellows -- Bertalanffy, Boulding, Gerard, and Rapoport -- sat together at lunch discussing their mutual interest in theoretical frameworks relevant to the study of different kinds of systems, including physical, technological, biological, social, and symbolic systems. According to Boulding, someone suggested they form a society to foster interdisciplinary research on a general theory of complex systems, and thus the idea for the Society for General Systems Research (SGSR) was born. [Hammond 2003, p. 9]

The systems movement has a foundation in science that sweeps in many related perspectives, including systems thinking, systems engineering, systems practice and the systems sciences.

Systems thinking can be formally defined as ..

An epistemology which, when applied to human activity is based upon the four basic ideas: emergence, hierarchy, communication, and control as characteristics of systems. When applied to natural or designed systems the crucial characteristic is the emergent properties

of the whole. [Checkland 1981, p. 318]

Systems thinking, as a style, can be contrasted with the order of analysis and synthesis.

[In systems thinking] ... synthesis precedes analysis.

1. Identity a containing whole (system) of which the thing to be explained is a part.
2. Explain the behavior or property of the containing whole.
3. Then explain the behavior or properties of the thing to be explained in terms of its role(s) or function(s) within its containing whole. [Ackoff 1981, p. 16]

Systems engineering enables science to have an impact with progress through "organized creative technology":

... systems engineering ... attempts to shorten the time lags between scientific discoveries and their applications, and between the appearance of human needs and the production of new systems to satisfy those needs.

Systems engineering considers the content of the reservoir of new knowledge, then plans and participates in the action of projects and whole programs of projects leading to application. It considers the needs of its customers and determines how these can be best met in the light of all knowledge both old and new. Thus systems engineering operates in the space between research and business, and assumes the attitudes of both. [Hall 1965, pp. 3-4]

Systems practice sets a scope of human activity systems.

The idea of 'systems practice' implies a desire to find out how to use systems concepts in trying to solve problems. [...]

[A] possible approach to systems practiced aimed at real-world problem-solving .... can be tackled by identifying, designing, and implementing human activity systems. [Checkland 1981, p. 125]

Systems science has been associated with General Systems Theory.

The objectives of General Systems Theory then can be set out with varying degrees of ambition and confidence.

At a low level of ambition but with a high degree of confidence it aims to point out similarities in the theoretical constructions of different disciplines, where these exist, and to develop theoretical models having applicability to at least two different fields of study.

At a higher level of ambition, but with perhaps a lower degree of confidence it hopes to develop something like a "spectrum" of theories - a system of systems which may perform the function of a "gestalt" in theoretical construction. Such "gestalts" in special fields have been of great value in directing research towards the gaps which they reveal. [Boulding 1956, p. 198]

Thus, the research in the systems sciences has a unique function to assist disciplinary sciences with gaps that they themselves may or may not appreciate.

1.3 A future for the systems movement can be in continuing to learn about "unknown unknowns"

The systems movement has the benefit of a long tradition of learning. Learning may be associated with process, in a five level categorization by Bateson.

Zero learning is characterized by specificity of response, which -- right or wrong -- is not subject to correction. [...]

Learning I is change in specificity of response by correction of errors of choice within a set of alternatives. [...]

Learning II is change in the process of Learning I, e.g., a corrective change in the set of alternatives from which choice is made, or it is a change in how the sequence of experience is punctuated. [...]

Learning III is change in the process of Learning II, e.g., a corrective change in the system

of sets of alternatives from which choice is made. (We shall see later that to demand this level of performance of some men and some mammals is sometimes pathogenic.) [...]

Learning IV would be change in Learning III, but probably does not occur in any adult living organism on this earth. Evolutionary process has, however, created organisms whose ontogeny brings them to Level III. The combination of phylogenesis with ontogenesis, in fact, achieves Level IV. [...] [Bateson 1972]

In the Curriculum on Medical Ignorance at the University of Arizona College of Medicine, the portrayal of confidence in findings by doctors is appreciated, but physicians should also be mindful of the limits of science. [Witte, Kerwin, Witte 1998]

Ignorance can be approached in four areas:

- known unknowns;
- passive ignorance, as ignoring (which includes errors and unknown knowns)
- unknown knowns; and
- active ignorance, as the ignored (which includes taboos and denials). [Ing, Takala and Simmonds, 2003]

These are each handled in different ways:

Known Unknowns are gaps where competence development is clearly motivated

- A known unknown presents itself as a deficiency in a current organizational competence
- Known unknowns can be cleared with continued evolution of current competences

Passive ignorances includes errors and unknown knowns localized in competences

- Exploiting errors and unknown knowns leverages known competences elsewhere
- Ignoring can be overcome through self-reflection, criticism, review and cross-functional competence sharing

Unknown unknowns test the ability of competences to handle surprises

- Unknown unknowns test the robustness and flexibility of organizational competences
- Unknown unknowns can't be fought, but must be embraced in competence development

Active ignorances are "the ignored" taboos and denials of alternative competences

- The ignored of taboos and denials reflect an arrogance on the "best" competences
- Overcoming the ignored requires listening to alternative voices with credibility [Ing, Takala and Simmonds, 2003]

Ignorance may be disclosed through self-discovery, or by customers and competitors

In addition to the heritage community, two other communities of researchers and practitioners are on convergent paths: (i) the group associated with the emerging field of service science, management, engineering and design, and (ii) the group associated with resilience science and sustainability.

2. Service scientists are researching global post-industrial shifts, coproduction of outcomes and the newly-observable unobserved

Where are scientists researching service systems working? This can be outlined in 3 parts:

1. Forms of service systems and challenges
2. Coproduction of outcomes, interactive value
3. The unobservable becoming observable



Some service scientists already have foundations in the systems sciences. Others will require some encouragement and coaching to appreciate a systems approach.

## 2.1 Human civilization is served by systems in technical, organizational and socio-political forms

In the 21st century, the range of service systems that will benefit from better preparation through education and lifelong learning experiences is slightly different from the industrial age orientation the 20th century. From simplest to most complicated, the systems

- (i) move, store, harvest and process;
- (ii) enable healthy, wealthy and wise people, and
- (iii) govern. [Spohrer and Maglio 2010, p. 184]

### **Spohrer and Maglio 2010: Types of service systems**

Systems that move, store, harvest, process

Transportation	K
Water and waste management	1
Food and global supply chain	2
Energy and energy grid	3
Information and communications technology (ICT) infrastructure	4

Systems that enable healthy, wealthy and wise people

Building and construction	5
Banking and finance	6
Retail and hospitality	7
Healthcare	8
Education (including universities)	9

Systems that govern

Government (cities)	10
Government (regions / states)	11
Government (nations)	12

The distinction between definition of a service system, as compared to a system, lies in the value created and delivered through parties.

A service system can be defined as a dynamic configuration of resources (people, technology, organisations and shared information) that creates and delivers value between the provider and the customer through service.

In many cases, a service system is a complex system in that configurations of resources interact in a non-linear way. Primary interactions take place at the interface between the provider and the customer. However, with the advent of ICT,

customer-to-customer and supplier-to-supplier interactions have also become prevalent. These complex interactions create a system whose behaviour is difficult to explain and predict. [IfM and IBM 2008, p. 6]

From an engineering perspective, the shift to service systems from goods-oriented systems can associ-

ated with three 21st century shifts: (i) the emergence of electronic services; (ii) the relationship of services to manufacturing, and (iii) the movement towards mass customization of both goods and services [Tien 2008].

Electronic services are totally dependent on information technology

Tien 2008, Table II: Comparison of Traditional and Electronic Services .

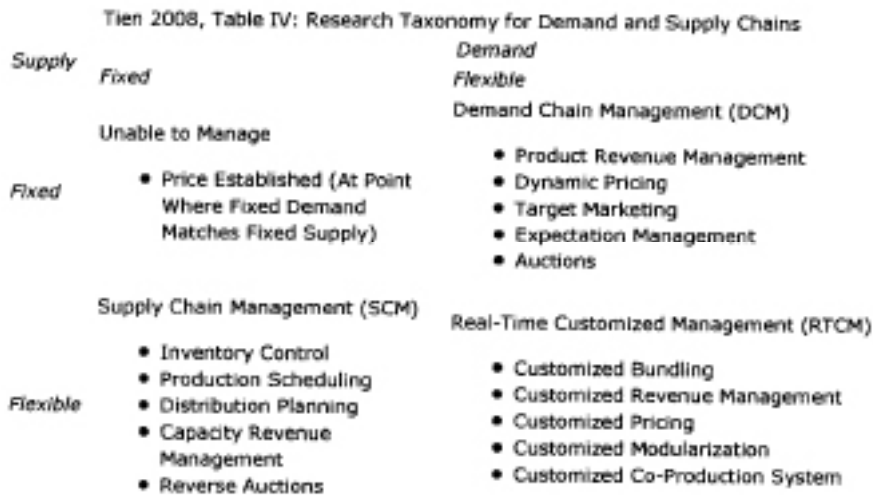
Issue	Service Enterprises	
	Traditional	Electronic
Co-Production Medium	Physical	Electronic
Labor Requirement	High	Low
Wage Level	Low	High
Self-Service Requirement	Low	High
Transaction Speed Requirement	Low	High
Computation Requirement	Medium	High
Data Sources	Multiple Homogenous	Multiple Non-Homogenous
Driver	Data-Driven	Information-Driven
Data Availability/Accuracy	Poor	Rich
Information Availability/Accuracy	Poor	Poor
Size	Economies of Scale	Economies of Expertise
Service Flexibility	Standard	Adaptive
Focus	Mass Production	Mass Customization
Decision Time Frame	Predetermined	Real-time

"The goods sector requires material as input, is physical in nature, involves the customer at the design stage, and employs mostly quantitative measures to assess its performance. On the other hand, the services sector requires information as input, is virtual in nature, involves the customer at the production/delivery stage, and employs mostly qualitative measures to assess its performance." [Tien 2008, p. 148]

Tien 2008, Table III: Services Versus Manufactured Goods

Focus	Services	Manufactured Goods
Production	Co_Produced	Pre-Produced
Variability	Heterogeneous	Identical
Physicality	Intangible	Tangible
Product	Perishable	"Inventoryable"
Objective	Personalizable	Reliable
Satisfaction	Expectation-Related	Utility-Related
Life Cycle	Reusable	Recyclable
OVERALL	CHIPPER	PITIRUR

Towards mass customization, a value chain can be defined and then partitioned into supply and demand chains.



The service systems perspective is now entering a stage of early maturity, with the publication of works such as *The Science of Service Systems* [Demirkan, Spohrer and Krishna 2011]

## 2.2. Coproduction of outcomes, interactive value

In systems theory, coproduction is one type of producer-product relation, in contrast to a cause-effect relation. The most rigorous formalism related to coproduction takes 5 pages to build up the following definition in Ackoff & Emery (1972)

2.31. Coproducers: two or more objects, properties and/or environments that are producers of the same product.

Since no producer is ever sufficient for its product, every producer has at least one coproducer. The set of all coproducers of a product  $y$  is the cause of  $y$ , since the set is sufficient as well as necessary for  $y$ . [Ackoff and Emery 1972, p. 23]

To be rigorous, there's a fine distinction making the linkage between action, product and outcome, in Ackoff & Emery (1972):

2.40. Outcome: the product of an individual's or system's action.

In other words, the outcome of an individual's or system's action is a change in that individual or system, or its environment, which is produced by that action. [Ackoff and Emery 1972, p. 26]

The distinctions between cause-effect and producer-product are expressed less mathematically in Ackoff (1981).

As Singer (1959) and Ackoff and Emery (1972) have shown, the view of the universe revealed by viewing it in terms of producer-product is quite different from that yielded by viewing it in terms of cause-effect. Because a producer is only necessary and not sufficient for its product, it cannot provide a complete explanation of it. There are always other necessary conditions, coproducers of its product. For example, moisture is a coproducer of an oak along with an acorn. These other necessary conditions taken collectively constitute the acorn's environment. Therefore the use of the producer-product relationship requires the environment to explain everything whereas use of cause-effect requires the environment to explain nothing. Science based on the producer-product relationship is environment-full, not environment-free.

A law based on the producer-product relationship must specify the environment(s) under which it applies. No such law can apply in every environment, because if it did, no environmental conditions would be necessary. Thus there are no universal laws in this view of the universe. [Ackoff 1981, p. 21]

While mechanical systems are usually modeled as cause-effect, a service system is a social system. In the creation of value, the supplier and customer take action together as coproducers of an outcome. Other third parties (e.g. subcontractor) may also be coproducers. A cause-effect relation may exclude inputs and outputs insignificant in one environment, but significant in another. As an example in a service system, autopilot is now standard on all commercial aircraft, coproducing air travel with a complement of passengers. Arriving at a destination, however, is rarely done without a flight crew as a coproducer, because all of the inputs and outputs of each journey are neither exactly the same nor foreseeable.

Interactive value is actualized not in coproduction of the supplier with customer, but in coproduction of the customer with his/her customer / counterparts.

There's a danger in using the phrase value-creating system, in the intimation that the value might be in the system itself. In any discussion of creating value, we should be careful to ask: value for whom? From a system approach, the value isn't in the parts, but in the interactions between the parts, as described by Ramírez and Wallin. 2000:

Facilitating customer value creation is, within the co-productive point of view, the *raison d'être* for a firm.

This perspective shifts the focus of strategic attention from actor or 'activity' to interaction. [Ramírez and Wallin 2000, p. 47]

It's not just the customer, nor is it just the supplier. It's the interaction between the two. Value is perceived by the customer, not in the customer-supplier coproduction, but yet another relationship beyond.

How is value produced from the point of view of the customer?

[... the] actualization of value takes place — that is, value is actually manifested — in the actual relationships between a customer and his or her customers or counterparts. In other words, for customers, value is not 'added' in the interaction between customer and supplier (when the customer buys [a white] shirt), but in the interaction between the customer and the customer's customer or counterpart (when they buy a shirt and her family and others see it on her). In co-productive terms, value is manifested thanks to the 'enabling' which the supplier brings to the customer's own value creating activity. By 'enabling' we mean 'supporting' or 'making possible'. [...]

It is thus not at the interface with the supplier that value is manifested for a customer, but at the interface between the customer and the customer's customer or counterparts. [Ramírez and Wallin 2000, p. 43]

In this discussion of value, the word actual isn't chosen lightly, but instead refers to the action that takes place.

Rather than being objective or subjective, interactive value is, in fact, 'actual'. It is 'actual' in the sense that it requires action on the part of both the customer, and his or her customers, and supplier for the value to become (actually) possible. Once the actions take place, they become facts. Actual value is thus dependent on 'action' and interaction, which upon taking place 'actually', becomes 'factual'.

With this understanding of customer valuation, the notion of 'end customer' — a customer at the end of the value chain that passively receives the value produced by the supplier — has lost its significance. Somebody buys an offering, seeking to co-create value with others, for themselves, for the other, and/or for third parties. We buy in order to create value, with others or in relationship to them. And we see value-creating opportunities, which guide much of our buying. [Ramírez and Wallin 2000, p. 45]

An objective view of value might suggest the monetization of the product, e.g. the price tag. A subjective view of value has been extensively studied in economics, as ordered preferences in utility theory that an individual can make, but can't be aggregated across a group. This interactive view of value gives a phenomenological spin, where a system is not independent of its environment.

### 2.3. The scope of science changes as the unobservable becomes observable

Sam Palmisano says that as the world gets "flatter", smaller and more interconnected, the planet is becoming smarter. Smarter means that ...

... digital and physical infrastructures of the world are converging.

Three advances in technology are driving this change.

- The world is becoming instrumented: transistor technology is embedded in the mobile phones of 4 billion mobile subscribers today, and there will be 30 million RFID (Radio Frequency Identification) tags within 2 years.
- The world is becoming interconnected: the Internet not only means 2 billion people connected person-to-person, but also the ability for instruments / devices to connect machine-to-machine.
- Things are becoming more intelligent: since instrumented devices generate data that can be stored and analyzed, advanced analytics enables intelligence that can be translated into action — with nearly-continual real-time updates streaming from supercomputers. [Palmisano 2008]

In an exercise with “instrument, interconnected, intelligent” in the right column, consider what alternative antonyms for the left column might be. Here’s my attempt.

Pre-digital physical infrastructure	.	Converging digital and physical infrastructures
World as invisible or unobserved	.	Our world is becoming INSTRUMENTED
Analog / synchronous connections, person-to-person and machine-to-machine.	.	Our world is becoming INTERCONNECTED
Things as dumb or unresponsive to interaction	.	Virtually all things, processes and ways of working are becoming INTELLIGENT

A world that is instrumented actively provides a continual stream of measurements. Without that active monitoring, those parts of the world are invisible or unobserved, as a tree falls in a forest with no one to hear it.

A world that is interconnected enables data and information to effortlessly flow and be applied in productive contexts, possibly beyond its originally designed purposes. Without reliable information interconnections, human beings serve as bridges: filling in contexts and storing subjective memories. While direct machine-to-machine interconnections are not a substitute for wisdom, the combination of observations from multiple devices can provide some consistency in objectivity.

Things that are intelligent can be programmed to selectively transmit varying sets of information to different receivers. Continual data streams encourage real-time alerts and action, when the receiving computer can process information at a rate faster than it arrives. In a data-rich environment, the constant arrival of fresh indicators eventually strains storage capacities, leading to archiving and/or data reduction procedures. A pre-digital infrastructure is unaware of its state, and has to be observed by something or someone outside itself.

3. Natural scientists are researching resilience, panarchy, thresholds and regime shifts

Where are natural scientists conducting research complemented by the systems sciences? The domain of natural science is more mature than service science, so let me focus on one field that has maintained a strong interaction with the systems community: ecology. Some fields research where ecologists and service scientists may benefit from exchanges include:

1. Resilience
2. Cross-scale relations and panarchy
3. Regime shifts and thresholds

Within ecology, there is a community focused on social ecological systems. They have developed an appreciation of social systems, and may not have encountered the perspective of service systems, yet.

3.1 Resilience

Ecosystem resilience has a history back into the 1970s [Holling 1973], with a rise in late 1990s associated with the Resilience Alliance [Petersen, Allen, Holling 1998]. This led to generalization across economic,

ecological and social systems in an adaptive cycle:

There are three properties that shape the adaptive cycle and the future state of the system:

- The inherent potential of a system that is available for change, since that potential determines the range of future options possible. This property can be thought of, loosely, as the "wealth" of a system.
- The internal controllability of a system; that is the degree of connectedness between internal controlling variables and processes; a measure that reflects the degree of flexibility or rigidity of such controls, such as their sensitivity or not to perturbation.
- The adaptive capacity; that is, the resilience of the system, a measure of its vulnerability to unexpected or unpredictable shocks. The property can be thought of as the opposite of the vulnerability of the system

These three properties -- wealth, controllability, and adaptive capacity -- are general ones, whether at the scale of the cell or the biosphere, the individual or the culture [Holling 2001]

In three dimensions, resilience is associated with potential and connectedness in an adaptive loop.

### 3.2 Cross-scale relations and panarchy

A system can be viewed at a variety of levels of scale. Changes at one scale might have impacts elsewhere at a different temporal or spatial scale.

Ecosystems are resilient when ecological interactions reinforce one another and dampen disruptions. Such situations may arise due to compensation when a species with an ecological function similar to another species increases in abundance as the other declines (Holling 1996), or as one species reduces the impact of a disruption on other species. However, different species operate at different temporal and spatial scales, as is clearly demonstrated by the scaling relationships that relate body size to ecological function (Peters 1983).

We define a scale as a range of spatial and temporal frequencies. This range of frequencies is defined by resolution below which faster and smaller frequencies are noise, and the extent above which slower and larger frequencies are background. Species that operate at the same scale interact strongly with one another, but the organization and context of these interactions are determined by the cross-scale organization of an ecosystem. Consequently, understanding interactions among species requires understanding how species interact within and across scales.

Many disturbance processes provide an ecological connection across scales. Contagious disturbance processes such as fire, disease, and insect outbreaks have the ability to propagate themselves across a landscape, which allows small-scale changes to drive larger-scale changes. [Peterson, Allen and Holling 1998]

The research into panarchy centers on cross-scale impacts.

The connected levels of a panarchy are illustrated ....

One is the "revolt" connection, which can cause a critical change in one cycle to cascade up to a vulnerable stage in a larger and slower one.

The other is the "remember" connection which facilitates renewal by drawing on the potential that has been accumulated and stored in a larger, slower cycle. [Holling 2001]

### 3.3 Regime shifts and thresholds

The possibility of multiple stable states in ecology brings forward the opportunity for regime shifts.

Ecosystems are complex, adaptive systems that are characterized by historical dependency, nonlinear dynamics, threshold effects, multiple basins of attraction, and limited predictability (Levin 1999). Increasing evidence suggests that ecosystems often do not respond to gradual change in a smooth way (Gunderson & Pritchard 2002). Threshold effects with regime shifts from one basin of attraction to another have been documented for a range of ecosystems (see Thresholds Database on the Web site [www.resalliance.org](http://www.resalliance.org)). Passing a

threshold marks a sudden change in feedbacks in the ecosystem, such that the trajectory of the system changes direction -- toward a different attractor. In some cases, crossing the threshold brings about a sudden, sharp, and dramatic change in the responding state variables, for example, the shift from clear to turbid water in lake systems (Carpenter 2003). In other cases, although the dynamics of the system have "flipped" from one attractor to another, the transition in the state variables is more gradual, such as the change from a grassy to a shrub dominated rangeland (Walker & Meyers 2004). [Folke, Carpenter, Walker et al. 2004, p. 559]

A threshold is a boundary in the transition from one stable state to another stable state.

What is a threshold?

A threshold is defined here as a point between alternate regimes in ecological or social-ecological systems. When a threshold along a controlling variable in a system is passed, the nature and extent of feedbacks change, such that there is a change in the direction in which the system moves. A shift occurs when internal processes of the system (rates of birth, mortality, growth, consumption, decomposition, leaching, etc.) have changed such that the variables that define the state of the system begin to change in a different direction, towards a different attractor. In some cases, crossing the threshold brings about a sudden, large and dramatic change in the responding variables, whilst in other cases the response in the state variables is continuous and more gradual. [Resilience Alliance and Santa Fe Institute 2004]

The Regime Shifts Database of large persistent changes in ecosystem services is at <http://regimeshifts.org>.

4. Which frames might be brought with a systems approach?

Where might service scientists and natural scientists look for some common ground? As starting points, the legacy and advancements in seven frames may service as foundational frames:

1. Socio-psychological, socio-technical, socio-ecological systems
2. Collapse, resilience, sustainability, regeneration
3. Complicatedness, complexity, gain
4. Dialogue, conversation, language-action
5. Power laws, scale-free networks
6. Communities of practice, world disclosing
7. Open standards, open source, reference models

In addition exchanges amongst scientists focused on service systems and natural systems, we should continue to look for opportunities for synergy, that may emerge as new knowledge.

4.1 Socio-psychological, socio-technical, socio-ecological systems

The socio-psychological, socio-technical and socio-ecological systems perspectives developed together, in a cascading sequence.

[... the] socio-psychological, the socio-technical and the socio-ecological perspectives ... emerged from each other in relation to changes taking place in the wider social environment. One could not have been forecast from the others. Though interdependent, each has its own focus. Many of the more complex projects require all three perspectives. [Trist & Murray 1997, p. 30]

The socio-psychological perspective grew out of World War II projects that included both the Tavistock Institute and the Tavistock Clinic.

[With ...] the socio-psychological [perspective ...] in Institute projects, the psychological forces are directed towards the social field, whereas in the the Clinic, it is the other way around [with social forces directed toward the psychological field]. [...]

[Trist] was led to a concept of culture as a psycho-social process which could mediate between purely sociological and purely psychological frames of reference, a combination of which was needed in action research. [Trist and Murray 1997, pp. 30-31]

The socio-technical perspective was novel.

[The socio-technical perspective] originated in the early mining studies (Trist and Bamforth, 1951). Numerous projects have shown that the prevailing pattern of top-down bureaucracy is beginning to give way to an emergent nonlinear platform. The new paradigm is based on discovering the best match between the social and technical systems of an organization, since called the principle of joint optimization (Emery 1959). The notion of one narrowly skilled man doing one fractionated task was replaced by that of the multiskilled work group that could exchange assignments in a whole task system. This led to the further formulation by Emery (1967/Vol. III) of the second design principle, the redundancy of functions, as contrasted with the redundancy of parts. [Trist and Murray 1997, p. 31]

The socio-ecological perspective emerged in a response to an inability to manage complex interactive webs of relationship.

The importance of self-regulating organizations has become much greater in the context of the increasing levels of interdependence, complexity and uncertainty that characterize societies at the present time. Beyond certain thresholds the center/periphery model (Schon, 1971) no longer holds. There comes into being far more complex interactive webs of relationship that cannot be handled in this way. These changes in the wider environment prompted creation of the socio-ecological perspective ....

The coming of the information technologies and the signs of a transition to a postindustrial society pose new problems related to emergent values such as cooperation and nurturance. Competition and dominance are becoming dysfunctional as the main drivers of post-industrial society. The value dilemmas created are reflected in the conflicts experienced by client organizations and in higher levels of stress for the individual. [Trist and Murray 1997, p. 32]

While each perspective may be emphasized in different social engagement, they can be tied together into a whole.

The socio-ecological approach is linked to the socio-technical because of the critical importance of self-regulating organizations for turbulence reduction. It is further linked to the socio-psychological approach because of the need to reduce stress and prevent regression. [Trist and Murray 1997, p. 33]

Much of the work of the Tavistock Institute has become common wisdom in the disciplines of organization design and organization development. Despite the history going back into the 1950s, the relevance of these ideas to today's society is still strong.

#### 4.2 Collapse, resilience, sustainability, regeneration

While sustainability is a popular idea in today's culture, it can be seen as a choice relative to other concepts.

A system that is not sustainable may decline, or come to a sudden collapse. Collapse can be seen in a sociopolitical context

Collapse ... is a political process. [...]

A society has collapsed when it displays a rapid, significant loss of an established level of sociopolitical complexity. [...]

To qualify as an instance of collapse a society must have been at, or developing toward, a level of complexity for more than one or two generations. [...]

The collapse, in turn, must be rapid - taking no more than a few decades — and must entail a substantial loss of sociopolitical structure. Losses that are less severe, or take longer to occur, are to be considered cases of weakness and decline.



Collapse is manifest in such things as:

- a lower degree of stratification and social differentiation;
- less economic and occupational specialization, of individuals, groups, and territories;
- less centralized control; that is, less regulation and integration of diverse economic and political groups by elites;
- less behavioral control and regimentation;
- less investment in the epiphenomena of complexity, those elements that define the concept of 'civilization': monumental architecture, artistic and literary achievements, and the like;
- less flow of information between individuals, between political and economic groups, and between a center and its periphery;
- less sharing, trading, and redistribution of resources;
- less overall coordination and organization of individuals and groups;
- a smaller territory integrated within a single political unit.

[...] Collapse is a general process that is not restricted to any type of society or level of complexity [Tainter 1990].

Ecological resilience was described above, and can be contrasted with engineering resilience.

Resilience of a system has been defined in two different ways in the ecological literature. [...]

One definition focuses on efficiency, constancy, and predictability—all attributes at the core of engineers' desires for fail-safe design. The other focuses on persistence, change, and unpredictability—all attributes embraced and celebrated by biologists with an evolutionary perspective and by those who search for safe-fail designs.

The first definition, and the more traditional, concentrates on stability near an equilibrium steady state, where resistance to disturbance and speed of return to the equilibrium are used to measure the property (O'Neill et al., 1986; Pimm, 1984; Tilman and Downing, 1994). That view provides one of the foundations for economic theory as well and may be termed engineering resilience.

The second definition emphasizes conditions far from any equilibrium steady state, where instabilities can flip a system into another regime of behavior—that is, to another stability domain (Holling, 1973). In this case the measurement of resilience is the magnitude of disturbance that can be absorbed before the system changes its structure by changing the variables and processes that control behavior. We shall call this view ecological resilience (Walker et al., 1969). [...]

The two contrasting aspects of stability—essentially one that focuses on maintaining efficiency of function (engineering resilience) and one that focuses on maintaining existence of function (ecological resilience)—are so fundamental that they can become alternative paradigms whose devotees reflect traditions of a discipline or of an attitude more than of a reality of nature [Holling 1996, pp. 32-33].

From a more rigorous systems appreciation of sustainability, the emphasis shifts from managing just consumption to managing the contexts of production and consumption.

We sketch ... an understanding of sustainability that is more fundamental than mere exhortations to do such things as use public transportation and take colder showers. Sustainability entails management of systems and their contexts that is intensive and heavily knowledge-based. We will achieve sustainability when it becomes a transparent outcome of managing the contexts of production and consumption rather than the consumption itself. If we shift our management emphases to managing from the context for whole ecosystem functions, rather than for resources, the cost of problem solving will diminish and the effectiveness of management greatly increase. When a manager gets the context right, the ecosystem does the rest. Because the material ecosystem supplies renewal resources and makes them

renewable, we call our approach supply-side sustainability. [Allen, Tainter and Hoekstra 2003, p. 14]

Sustainability involves choice, and can be contrasted to resilience.

... when confronted with the term sustainability one should always ask, "Of what, for whom, for how long, and at what cost?" Incorporating these questions, we define sustainability as maintaining, or fostering the development of systemic contexts that produce the goods, services and amenities that people need or value, at an acceptable cost, for as long as they are needed or valued. Our concern, as we emphasize throughout, is context, not outputs.

It is important to distinguish sustainability from resiliency. Sustainability is the capacity to continue a desired condition or process, social or ecological. Resiliency is the ability of a system to adjust its configuration and function under disturbance. In social systems, resiliency can mean abandoning sustainability goals and the values that underlie them. Sustainability and resiliency can conflict. [pp. 26]

Social systems can be sustainable and resilient (social goals are flexible and in harmony with underlying ecological processes), unsustainable but resilient (the system adjusts to perturbations but not as people wish) or sustainable but not resilient (sustainability goals are feasible within narrow parameters but inflexible).

- The first condition (sustainable and resilient) represents the mythical harmony that many writers impute (idealistically and often unrealistically) to tribal and peasant societies. Because such societies have dominated nearly all of human history, they may indeed, as a general class, be sustainable and resilient.
- The second type (unsustainable but resilient) might describe contemporary industries that must reorganize to survive in a global economy.
- The third case (sustainable but not resilient) describes societies that have diminished their own adaptability, which can arise from over-centralization [Allen, Tainter and Hoekstra 2003, pp. 26-27].

Regenerative systems can be contrasted to (non-sustainable) industrial systems. (note diagram on p. 26 on Google Books)

Industrial systems tend to apply strategies of concentration and subsidization; that is, energy and material flows are concentrated in small areas, and their operation is speed up by infusions of additional energy and materials. [...]

In contrast, regenerative systems tend to follow a strategy of dispersal, or spreading out over the landscape, combined with some degree of augmentation. [...]

Whatever the means used, sustainability requires that the basic processes not be exploited beyond their capacity for renewal. Whether by industrial or regenerative means, the landscape processes can only be used up to a point. If a higher volume of conversion is demanded than the sustainably productive capacities of the environment can provide, then the resource will become depleted. [Lyle 1996, pp. 28-29]

Lyle suggests a list of design strategies for regenerative systems" as a tentative effort to summarize the experience to date"

1. Letting nature do the work
2. Considering nature as both model and context
3. Aggregating, not isolating
4. Seeking optimum levels for multiple functions, not the maximum or minimum level for any one
5. Matching technology to need
6. Using information to replace power
7. Providing multiple pathways
8. Seeking common solutions to disparate problems

9. Managing storage as a key to sustainability
10. Shaping form to guide flow
11. Shaping for to manifest process
12. Prioritizing for sustainability [Lyle 1996, pp. 37-45]

Allen, Tainter and Hoekstra propose some principles of supply-side sustainability.

1. Manage for productive systems rather than for their outputs
2. Manage systems by managing their contexts
3. Identify what dysfunctional systems lack and supply only that
4. Deploy ecological processes to subsidize management efforts, rather than conversely
5. Understand the problem of diminishing returns to problem solving [Allen, Tainter and Hoekstra 2003].

#### 4.3 Complicatedness, complexity, gain

Complicatedness is differentiated from complexity in a sociopolitical context.

In a new vocabulary, we now identify structural elaboration as an increase in complicatedness, and distinguish it from elaboration of organization identified as an increase in complexity. We call the elaboration of organization a process of complexification, which leads to a complex system. The elaboration of structure we call a process of complication and it leads to a complicated system. The respective action verbs are to complexify and to complicate. Thus complexity is used hereafter in this paper to refer only to elaborate organization, except when we refer explicitly to usage in traditional or conventional terminology. By separating complicatedness from complexity, we are able to cast the modern human condition in terms of ancient and modern sociopolitical systems [Allen, Tainter and Hoekstra 1999, p. 407].

#### Gain in systems

The decline of high or low gain cycles leads to either extinction of some sort or a switch to the other type of gain.

High gain systems use readymade resources, and are so called because the return on effort of gathering the resource is high. Under a high gain regime, something other than the system at hand previously concentrated the resource. Therefore in the right situation the resource is ready for the taking without much need for refining what is gathered. But that right situation does not last because, once the hot spots of resource are dissipated, high gain systems either disappear or they must become low gain.

Low gain systems use lower quality resources. Under low gain the resource is so low quality as to require the system to extensively gather much raw material and then refine it. The process of refinement increases the quality of what has been captured so that it becomes high enough quality to be ready for use.

High and low gain systems both require fuel of high quality: high gain systems just take it, while low gain systems must make it.

[...]

In fact the duality of the resource as high or low depends not on the materiality of the situation, but upon how the system boundary is defined. A system is high gain if it is bounded so that refining the resource may be taken for granted because material exists already refined in the environment. Refining may be taken for granted because something in the environment refined the resources first (looted gold was refined by the previous owner, while seeds for eating were made by plants). But a high gain system redefined to be bounded as something larger may show low gain processes. In the larger conception the redefined system cannot take a high quality resource as a given and so must instead itself perform the refining of the resource as an active internal process. High and low gain thus becomes a matter of level of analysis. Hierarchy theory operates on questions of level of analysis, and so should be a useful framework here [Allen, Allen, Malek et. al. 2009, p. 586].

#### 4.4 Dialogue, language-action, conversation

Design conversations include both generative and strategic dialogue.

The type of dialogue discussed heretofore is often called "generative," meaning that it generates a collective worldview.

... strategic dialogue focuses on specific issues and tasks and is applied in finding specific solutions in organizational and social systems settings.

... it is important that before the design group engages in the substantive task of design, it involves itself in a generative dialogue.

This involvement will lead to the creation of collective consciousness, collective inquiry that focuses on the thoughts, values, and worldviews of the group and creates a flow of shared meaning, shared perceptions, a shared worldview, and a social milieu of friendship and fellowship. [Banathy 1996, p. 219]

The language-action perspective recognizes commitments, amongst other types of speech acts.

Searle distinguishes five kinds or 'families' of illocutionary acts along these dimensions of commitment, namely assertives, directives, commissives, declaratives, and expressives. [...]

##### Directives

The distinguishing characteristic of a directive is the commitment by the speaker, as he asks for the (future) performance of some action by the hearer. The propositional content of the directive expresses the action to be performed. [...] An imperative, where no illocutionary verb is explicitly mentioned, is normally understood as a directive. We may also distinguish actions such as requests, petitions, implorations, and orders as members of this class. [...]

##### Commissives

Searle gives the name commissives to the particular class of acts in which the speaker becomes committed to the future performance of an action. As a speaker utters a commissive — a promise for example — he is also making the commitment that he has a serious intention to perform the action. [...] Verbs such as swear, commit, vow, and pledge in the present indicative are normally taken as commitments of this kind. [...]

All utterances are commitments according to this theory. In everyday use the word commitment is normally associated with what we call commissives, but this is an understanding we challenge. We instead assert:

It is unavoidable that commitments are expressed and listened to by the participants in a conversation.

What is peculiar about commissives is the double self referentiality of the commitment of the speaker, i.e., the expressed commitment to the intention to perform the act and the creation of the obligation to perform the act, as such. [Winograd and Flores 1986, p. 98]

A conversation for action is recognized in the context of other types of conversations.

We distinguish several additional kinds of conversation that go along with conversations for action (CfA):

- conversation for clarification,
- conversation for possibilities, and
- conversation for orientation [Winograd 1986].

Conversations may be associated with accomplishments.

## Coordinations

Individual speech acts as well as protocols for making and fulfilling commitments, individually, on teams, and in organizations.

## Possibilities

Protocols for inventing new possible actions, often in response to threats or opportunities, and often followed by a declaration that the group will move toward one of the new possibilities. The declaration defines a new context and personal commitments to the next context. Managers, parents, and leaders make such declarations, often called "decisions."

## Disclosures

Revelations of concerns and worldviews. Some disclosures are willful, such as expressing an emotion or a concern. Others are revealed by our actions and practices, such as the aphorism "actions speak louder than words." The skill of disclosing is intimately coupled with the skill of listening. Possibilities and disclosures create contexts for coordination. [Denning 2003]

### 4.5 Power laws, scale-free networks

While many laymen assume that nature tends to follow a bell curve, mathematicians know that some frequencies follow power laws.

In the past few decades, scientists have recognized that on occasion nature generates quantities that follow a power law distribution instead of a bell curve. Power laws are very different from ... bell curves .... First, a power law distribution does not have a peak. Rather, a histogram following a power law is a continuously decreasing curve, implying that many small events coexist with a few large events. [...] [The] distinguishing feature of a power law is not only that there are many small events but that the numerous tiny events coexist with a few large ones. These extraordinary large events are simply forbidden in a bell curve.

1 Bell curves have a decaying tail, which is a much faster decrease than that displayed by a power law. The exponential tail is responsible for the absence of the hubs. In comparison, power laws decay far more slowly, allowing for "rare events" such as the hubs. [Barabási 2002, pp. 67-68]

In analyzing the World Wide Web, it seems that power laws only partially describe the network.

... real networks are governed by two laws: growth and preferential attachment. Each network starts from a small nucleus and expands with the addition of new nodes. Then those new nodes, when deciding where to link, prefer the nodes that have more links. These laws represent a significant departure from earlier models, which assumed a fixed number of nodes that are randomly connected to each other. [...]

As the first model to explain the scale-free power laws seen in real networks, it quickly became known as the scale-free model. [Barabási 2002, pp. 86-87]

### 4.6 Communities of practice, world disclosing

Communities of practice are based on a social theory of learning.

... the primary focus of this theory is on learning as social participation. Participation here refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the practices of social communities and constructing identities in relation to these communities. Participating in a playground clique or in a work team, for instance, is both a kind of action and a form of belonging. Such participation shapes not only what we do, but also who we are and how we interpret what we do.

A social theory of learning must therefore integrate the components necessary to characterize social participation as a process of learning. These components, shown in Figure 0.1, include the following.

1) Meaning: a way of talking about our (changing) ability -- individually and collectively -- to experience our life and world as meaningful.

2) Practice: a way of talking about the shared historical and social resources, frameworks, and perspectives that can sustain mutual engagement in action.

3) Community: a way of talking about the social configurations in which our enterprises are defined as worth pursuing and our participation is recognizable as competence.

4) Identity: a way of talking about how learning changes who we are and creates personal histories of becoming in the context of our communities.

Clearly, these elements are deeply interconnected and mutually defining. [Wenger 1999, pp. 4-5]

The disclosing of new worlds rests on an Heideggerian philosophy, where everyday practices ground historical disclosing.

We call the general everyday kind of disclosive activity we have just described customary disclosing. We now turn to several ways in which disclosive activity can change the style of a disclosive space. We call this type of activity historical disclosing.

There are two kinds of skills required for historical disclosing. First, one has to be able to sense and hold on to disharmonies in one's current disclosive activity; second, one has to be able to change one's disclosive space on the basis of the disharmonious practices. [...]

Articulation, reconfiguration, and cross-appropriation are three different ways in which disclosive skills can work to bring about meaningful historical change of a disclosive space. All of these types of change are historical because people sense them as continuous with the past. The practices that newly become important are not unfamiliar. We contrast, then, our notion of historical change with discontinuous change. When, for instance, the conqueror imposes a whole new set of practices on the people or a people is dispersed and must adopt wholly new practices to survive, such a change is discontinuous and is beyond our range of interests. [Spinosa, Flores and Dreyfus 1999, p. 28]

#### 4.7 Open standards, open source, reference models

The systems engineering community at INCOSE has developed SysML with the endorsement of the OMG.

The OMG systems Modeling Language (OMG SysML™) is a general-purpose graphical modeling language for specifying, analyzing, designing, and verifying complex systems that may include hardware, software, information, personnel, procedures, and facilities. In particular, the language provides graphical representations with a semantic foundation for modeling system requirements, behavior, structure, and parametrics, which is used to integrate with other engineering analysis models. SysML represents a subset of UML 2 with extensions needed to satisfy the requirements of the UML™ for Systems Engineering RFP as indicated in Figure 1. [Object Management Group 2008]

The design of cooperative work in software development teams is well-defined and supported by tools in an open source approach.

##### The Basic Elements

The basic elements ... are:

Work product: what is produced

Task: how to perform the work

Role: who performs the work

Process: used to define work breakdown and workflow

Guidance: templates, checklists, examples, guidelines, concepts, and so on.

These "basic elements" are the building blocks from which processes are composed.

##### Organizing Elements

The basic elements are organized using the following elements.

#### Practice

A practice is a documented approach to solving one or several commonly occurring problems. Practices are intended as "chunks" of process for adoption, enablement, and configuration. Practices are built from the basic elements described above.

#### Configuration

From the end-user perspective, a configuration is a selection of method content to be published. Most configurations consist of a selection of practices plus some content to tie the practices together. The published configuration is often loosely referred to as a process website. [Eclipse Foundation 2010]

Frameworks enable coordination across ecologies of communities of practice. One example of an industry-driven framework is TOGAF (The Open Group Architecture Framework)

The Open Group Architecture Framework (TOGAF) is a framework — a detailed method and a set of supporting tools — for developing an enterprise architecture. It may be used freely by any organization wishing to develop an enterprise architecture for use within that organization (see Section 4.5.1).

TOGAF is developed and maintained by members of The Open Group, working within the Architecture Forum (refer to [www.opengroup.org/architecture](http://www.opengroup.org/architecture)). [The Open Group 2009]

Reference models enable a common vocabulary as a starting point. One leading example Within a domain, an

Ontario Public Service is in the business of providing services; it creates programs and delivers services to achieve the desired goals of government. When designing and managing a public sector enterprise, programs and services should drive organizational, process and resource planning and design, rather than vice versa. Figure 1-1 is a reference model which shows the relationships among jurisdictions, programs, services, organizations, processes and resources in a public sector enterprise. [Government of Ontario MGS 2010]

5. Learning and knowing can be encouraged through multiple perspectives dialectics

"The systems approach begins when you first see the world through the eyes of another". [Churchman 1968, p. 231]

The systems approach has recognized five ways of knowing through the design of inquiring systems.

An Inquiry System, or IS for short, is a system of interrelated components for producing knowledge on a problem or issue of importance. [Mitroff and Linstone 1993]

The design of the 56th Annual Meeting of the ISSS is as a Singerian inquiring system, i.e. the "fifth way" of knowing of multiple perspectives dialectics.

6. Come share in the learning at ISSS San Jose 2012, in California, see <http://iss.org/world/sanjose-2012>

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**The Fukushima Catastrophe Seen as a Malfunction of Organizational Systems:  
Nuclear Fade-out and Hazard Maps for the World**

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**Kansai University, Japan**

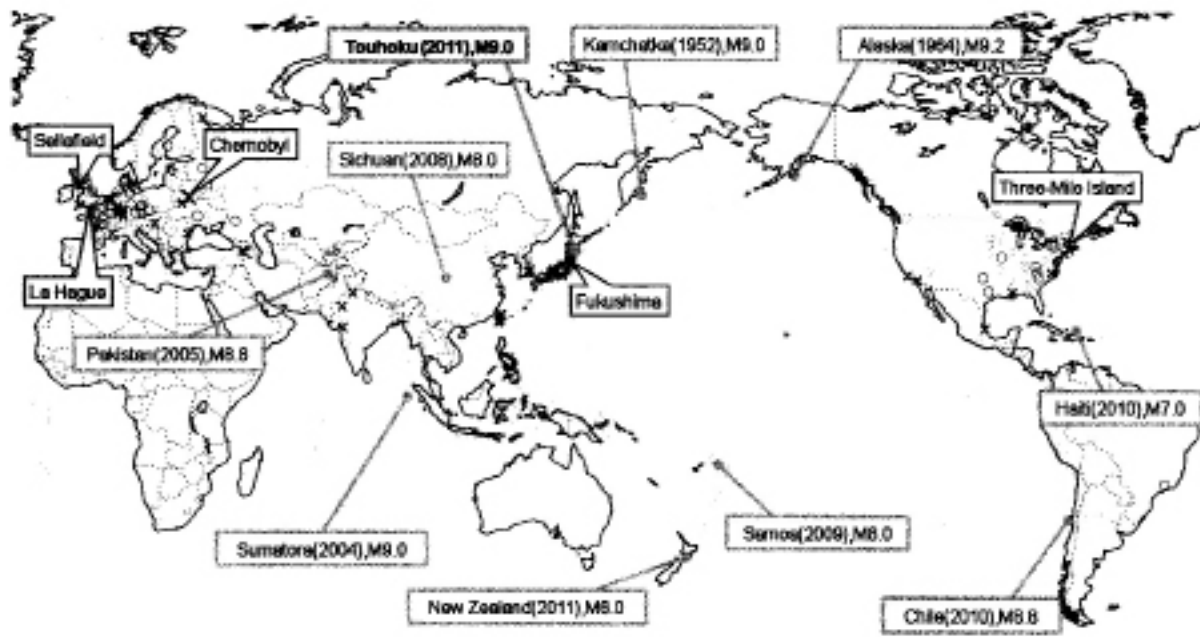
**URL: <http://fukushimanuclear.net/>**

Introduction: From the Fukushima Catastrophe to the Present and Beyond

The magnitude 9.0 earthquake and tsunami that struck northeast Japan on March 11, 2011, were unavoidable natural disasters, but we consider the subsequent breakdown of the Fukushima nuclear power plants to be a catastrophe created not only by nuclear engineering systems but also by avoidable the organizational errors – principally, safety management techniques without the necessary nuclear policy making considerations. The present article reviews, firstly, a complete re-thinking of the non-rational locations of atomic power stations throughout the world; secondly, an analysis of the irrational decision-making of nuclear policy and, finally, a rational proposal concerning the fade-out of nuclear power. These proposals are made on the basis of holistic, cybernetic “systems philosophy”.

I. The Non-rational Location of Atomic Power Plants in Quake-Prone Areas

Figure 1 shows the locations of nuclear power plants in relation to the known dangers of plate-type earthquakes (magnitude ~9.0 earthquakes since 2000). We have adapted the Fukushima’s decommissioning formula (previously advocated by us, Atsuji et al., 2011) to all nuclear power stations where relevant data are available. Figure 1 shows the results when the index is applied to nuclear reactors worldwide. Note the high-incidence of dangerous facilities along the Pacific rim.



**Fukushima Formula**  $\varepsilon = \alpha \times \beta \times \gamma / (\rho + \tau)$

O: safe    ? : unknown    X: dangerous

	U.S.A.	France	Japan	Russia	Korea	India	Ukraine	Canada	Germany	U.K.	China	Sweden
Units	104	58	54	32	21	20	19	18	17	15	13	10
Avg. Age	30	24	24	27	17	18	21	26	28	28	8	31

Figure 1: Hazard Map of world nuclear reactors using the ‘Fukushima Formula’ (Atsuji et al., 2011). Green circle-marks show safe nuclear power plants, orange question-marks show plants of unknown safety, and X-marks show dangerous plants.

In light of the current Fukushima disaster, we believe that Japan should take on the mission of establishing new safety guidelines for the operation of nuclear reactors. Specifically, we suggest a decommissioning standard, based on the empirical data from Fukushima (see Section II).

## II. The Fukushima Decommissioning Formula

A decommissioning formula has been constructed, as follows:  $\epsilon \propto \alpha \times \beta \times \gamma / (\rho + \tau)$

The 'Fukushima Formula' relies on four variables, for which empirical data are readily available: the operating age of the reactor ( $\alpha$ ), the number of reported troubles of the nuclear system ( $\beta$ ), the magnitude of earthquakes in the vicinity of the reactors ( $\gamma$ ), estimation of systemic fatigue in organizational management and the lack of clarity concerning nuclear policy ( $\rho + \tau$ ).

### ( $\alpha$ ) Age of Operation

The Fukushima Daiichi nuclear station includes 6 reactors, all of which are more than 30 years old. To begin with, the lifetime of nuclear reactors is not specified by International or Japanese law. Even if a nuclear reactor is found to be ageing, power companies can operate it semi-permanently, provided that it passes industry-regulated maintenance inspections every decade. The absurdity of this procedure is apparent from the fact that the Japanese Nuclear Industry Safety Agency granted permission to operate the No. 1 Fukushima reactor for more than 40 years on February 7, 2011 – approximately one month before the Fukushima disaster.

### ( $\beta$ ) Reported Troubles

There were fully 206 disclosed troubles (e.g., 'cracks in the nuclear reactor,' 'loosening of bolts, etc.')

### ( $\gamma$ ) Magnitude of Earthquakes

The primary and fatal human errors that led to the Fukushima catastrophe were made already in the late 1960s and early 1970s when the construction of multiple nuclear power plants on the northeast shoreline of Japan was approved. It is of course well-known that earthquake tremors are frequently felt in nearly all corners of Japan, but the historical record is unambiguous in indicating that the Tohoku Region has experienced the most frequent and most severe earthquakes in Japan, and is a region where catastrophic tsunamis have wiped out coastal towns and villages within recorded history.



Figure 2: The empirical data underlying the 'Fukushima Decommissioning Formula', employing  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\rho$ ,  $\tau$ . On the left is shown the age of operation and reported troubles. In the middle are shown the number of earthquakes in the Tohoku Region (from 2008.9 to 2009.8) and the locations of nuclear plants (Masai, 2009). On the right is shown a summary of the hidden troubles and record of concealment of nuclear power plant data at the Fukushima Daiichi Plant by TEPCO.

### ( $\rho + \tau$ ) Factors Related to Social Systems: Safety management and trust in nuclear policy

The Fukushima catastrophe was a consequence of not only a natural disaster, but also organizational policies that led to the hiding of nuclear troubles by electric companies and the absence of relevant data that should have been considered by the supervisory authorities. In effect, nuclear system was guarantee of the safety to consist the engineering technology with safety management and nuclear policy based on human cooperation. The case of Fukushima catastrophe occurred because of a failure of corporate management and the failure to separate the government's role as a supervisory power from business concerns. TEPCO has a history of hiding serious troubles at the Fukushima atomic power plants and this history indicates a loosening of 'social morality'. The loose supervisory role of the government allowed for a lack of corporate 'compliance', without 'corporate governance'. In retrospect, the most disturbing of unethical corporate behavior were: (i) the absence of 'human resource management' in the organizational system; (ii) the failure to disclose the radiation doses that sub-contract workers were exposed to; and (iii) the failure to inform local people of the dangers of increased radiation. Even if one assumes that nuclear engineering technology is fundamentally dependable, there is no excuse for the failure of management to inform people of the possibility of accidents or disasters. Because 'social trust' is essentially the 'chemistry' of human cooperation, it is difficult to quantify as an abstract, numerical index, but it is not unimportant. The measurement of nuclear security is possible by applying the credit ratings of corporations, such as that of Moody's and Standard & Poor's, as a proxy for corporate dependability and by using the same evaluating supervisory authority that is used for evaluating government bonds (AAA=3, AA=2, A=1, and so on). These organizational factors include not only nuclear science, but also organizational management and governmental policy – and are 'socio-institutional' factors, the origin by syntactic process of humanity. Bertalanffy and Barnard paid great attention to these aspects of hierarchical systems, and emphasized Aristotle's viewpoint that "Without 'Ethikos', there can be no 'Politikos'."

### III. The Fade-out Plan of Nuclear System for the World

Following the Fukushima catastrophe, the consciousness of denuclearization has increased not only in Japan but also worldwide. Nuclear policy is under active reconsideration in EU countries, especially Germany, but it is impractical to decommission all reactors immediately. Prior to decommissioning, alternative sources of nuclear energy must be developed for economic and social sustainability. We suggest a schedule for the fade-out of nuclear fission power plants, as shown in Figure 3.

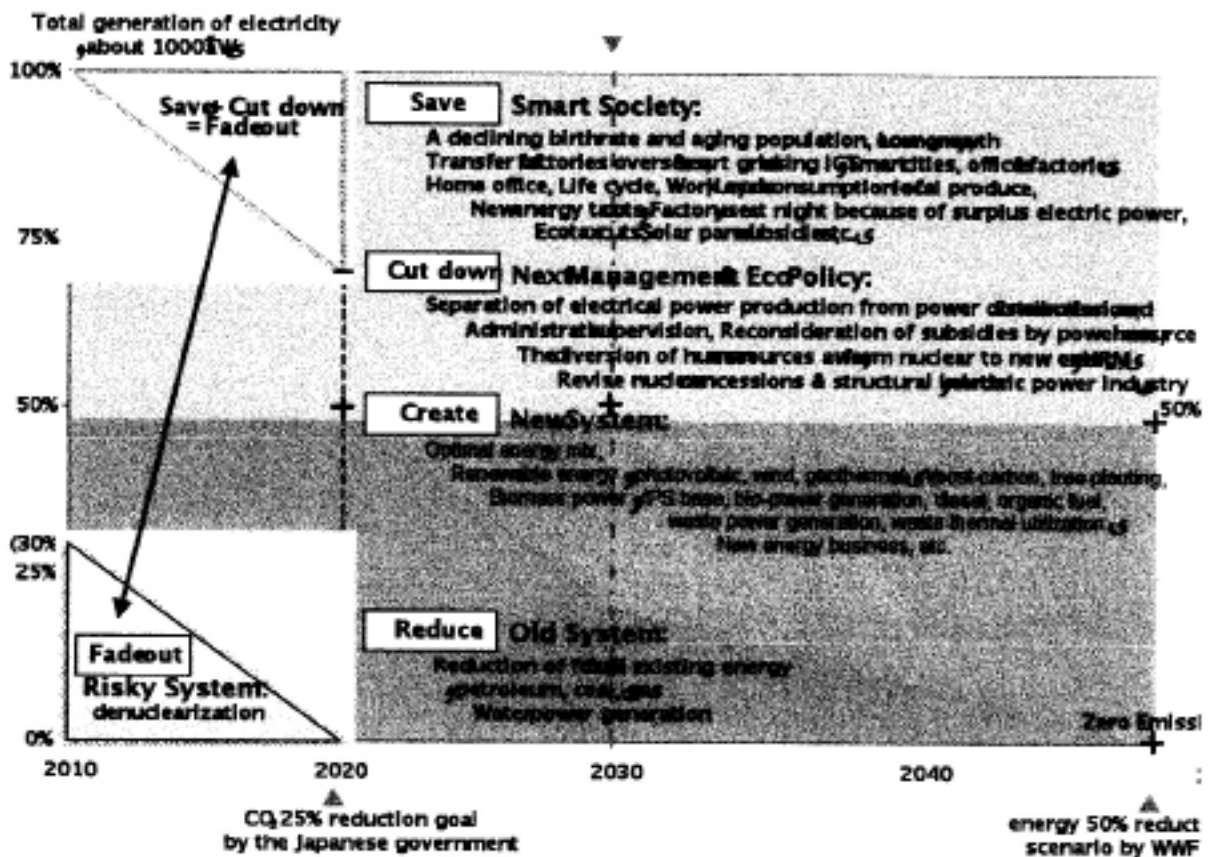


Figure 3: Electricity Scenario: Fade-out Plan of Nuclear Fission Power

In 2010 Japan, the percentage of the nuclear power supplied to the total electric grid was about 30%, while the contribution from 'renewable energy' (e.g., photovoltaic, geothermal, bio-power, waste power generation) was less than 1%. Because the technical developments needed for an increase in renewable energy sources inevitably take a long time, we focus on means for 'cutting down' plus 'saving' that are equivalent to the nuclear electricity supply. A particularly important problem for the attenuation of electricity to 50% is the 'separation of electrical power production from power distribution and transmission'. In our trial calculations, such developments could make up for nuclear generation of electricity, and the complete fade-out of nuclear power by means of the fission of Uranium and Plutonium can be realized by 2020. With regard to the 25% reduction in CO2 production, as envisioned by the Japanese government, it is clear that CO2 can be reduced when alternative energy sources compensate for fossil fuel. By 2050, electric power will be reduced by 50% and the remaining 50% will be generated by alternative energy sources, so-called 'Zero emission' energy.

#### IV. A Paradigm Shift to Sustainable Systems

The Fukushima nuclear catastrophe is an example of the pathology of organizational systems with multiple causes and effects, and entails problems of social responsibility and the dangers of failing to maintain a distinction between public and private sector functions. The current disaster indicates the need for a paradigm shift toward 'systems thinking' – a view emphasized by Barnard (1938) concerning the complex interactions among physical, biological, and social factors involved in the control of complex organizational systems. We believe that the deleterious effects of organizational pathology can be minimized by adapting to the conceptual framework of systems theory.

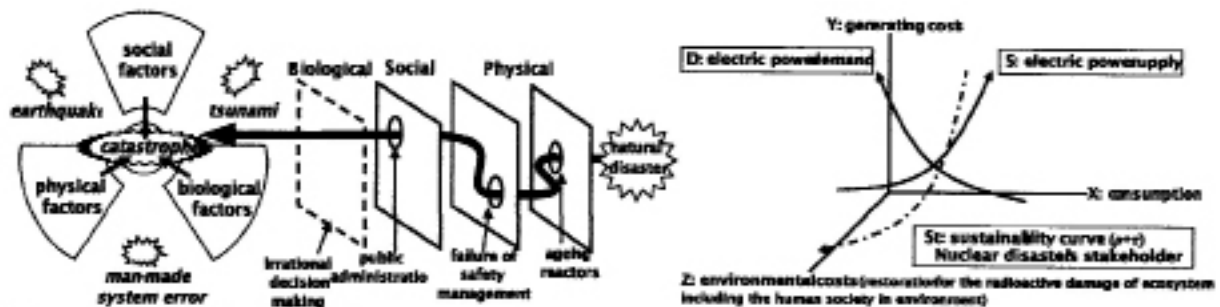


Figure 4: (Left) Mechanism of the Fukushima catastrophe and (Right) the dimensions of nuclear decision-making.

The necessity of social system's aspects involved the regulatory to the electric power company with the complex stakeholder, calculating the guarantee of the local people's health by radiation, including the environmental costs for agricultural soil contamination and marine pollutions. For sustainability is needs for freezing the corporation's capital or asset when occur organizational disaster, with controlling the electric business enterprise against for the stock exchange in securities markets. Fig.4 shows not only demand-supply decision-making but also environmental costs for the sustainability to the future.

Finally, it is worth repeating the fundamental idea that initiated the revolution in "general systems theory" some decades ago (Wiener, 1961; Bertalanffy, 1976; Maturana & Varela, 1980). In brief, the desirability and viability of nuclear power plants cannot be evaluated without consideration of the social systems in which they are embedded. From the Fukushima catastrophe, it can be said that decision-making based solely on short-sighted supply-and-demand economics was the cause of large-scale system pathology.

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## **Correlations of Howe's Columns with Symmetry Measures**

**Dennis Glenn Collins**

Calculated are the correlations of Howe's 12 columns only within the 5 symmetry ranking entries of each column (generally similar patterns) with their 5 SYM and UPED values, as well as the correlation between SYM and UPED to follow up on the APPENDIX in the "Symmetry Analysis of Howe's Patterns" (Jan. 7, 2011) by Dennis Glenn Collins, handed out at SIDIM-XXVI Conference, Humacao, PR.

Col #	Howe-SYM	Howe-UPED	SYM-UPED
1	-.877	-.928	.988
2	-.931	-.941	.994
3	-.913	-.878	.992
4	-.926	-.944	.996
5	-.939	-.959	.993
6	-.907	-.919	.994
7	-.968	-.956	.997
8	-.185	-.381	.951
9	-.771	-.818	.986
10	-.249	-.406	.981
11	-.172	-.648	.843
12	-.485	-.651	.969

Observe the first six columns (rows 1 - 6), based on the 6 highest-symmetry patterns, have very high correlation among all the symmetry measures. SYM and UPED are correlated above 95% for 11 of the 12 patterns. This result shows that in this somewhat limited way, all the Collins symmetry measures agree with Howe and with each other.

Reference:

Howe, Edmunds S. 1980, Effects of partial symmetry, exposure time, and backward masking on judged goodness and reproduction of visual patterns, Quarterly Journal of Experimental Psychology 32, 27-35.

# SECTION TWO: MEETINGS AND CONFERENCES

**The 56th Annual Meeting of the  
International Society for the Systems Sciences  
ISSS San Jose 2012  
July 15-20 2012, at San Jose State University, California  
Service Systems, Natural Systems  
A call for participation in San Jose, CA USA, July 15-20, 2012**

The systems sciences provide a platform of concepts and language that enables communities of interest to transcend disciplinary boundaries towards developing new knowledge and perspectives. The ISSS 2012 theme of Service Systems, Natural Systems draws attention to complex issues in today's world, where dialogue amongst the learned may lead to better futures.

The service systems sciences focus on the value cooperatively created and shared in human activities. Service systems support basic needs such as food and water, develop social potential through education and healthcare, and advance our societies through businesses, governments and social enterprises working in a globalized, networked world.

The natural systems sciences focus on the sustainability and diversity of life on our planet. Social ecological systems balance competing interests of human well-being, social development and economic progress. Maintaining resilience of natural capital and resources across temporal and spatial scales challenges policies, governance and stewardship.

The sessions of ISSS 2012 will foster learning conversations. The dialectic between service scientists and natural scientists will sweep in new perspectives in dialogues beyond disciplinary boundaries.

This meeting is designed at an interactive and collegial scale of 100 to 250 thinkers with diverse backgrounds and interests in the arts and sciences of systems.

Ways to participate include:

- Engaging with plenary speakers, discussants and groups in reflections
- Leading conversations on research in progress and early findings
- Presenting pre-published works for commentary and refinement
- Sharing experiences and knowledge sketched onto posters and outlines
- Building personal insights in diverse dialogues about systems

Featured plenary speakers:

Rafael Ramirez, Director, Oxford Scenarios Programme; Fellow in Strategy at the Saïd Business School and Green-Templeton College; James Martin Senior Fellow at the Oxford Martin School;

Jim Spohrer, Director of Global University Programs, IBM;

Garry Peterson, Professor in Environmental Studies, Stockholm Resilience Centre;

Timothy F. H. Allen, Professor Emeritus of Botany and Environmental Studies, University of Wisconsin Madison;

Stuart Umpleby, Director of the Research Program in Social and Organizational Learning, George Washington University;

Minna Takala, Researcher and Project Manager, Business Innovation Technology Research Center, Aalto University School of Science;

John J. Kineman, Senior Research Scientist, Cooperative Institute for Research into Environmental Sciences, University of Colorado at Boulder;

Discussants invited from the ISSS community

Cumulative synthesis by Gary S. Metcalf (President of the International Federation for Systems Research, and President of Interconnections LLC; and Pamela Buckle Henning, Associate Professor at Adelphi University

Featured "Systems Basics" session leaders:

"Roots of the Systems Movement", led by Debora Hammond, Professor of Interdisciplinary Studies, Hutchins School of Liberal Studies, Sonoma State University, and Past-President (2005-2006) of the ISSS;

"Living Systems Theory", led by James R. Simms, Chair, Special Integration Group on Living Systems Science, ISSS and author of Principles of quantitative living systems science;

"Ecological Resilience and Panarchy", led by Pille Bunnell, Associated Faculty, Royal Roads University, and Past President (1999-2001) of the American Society for Cybernetics;

"Organisational Cybernetics", led by Allenna Leonard, Past President (2009-2010) of the ISSS, and Past President (2002-2004) of the American Society for Cybernetics;

"Science of Generic Design", led by Jack Ring, Fellow of INCOSE (International Council on Systems Engineering), Industrial Fellow of the Stevens Institute of Technology, Co-founder of Kennen Technologies LLC;

"Soft Systems Methodology", led by Giles Hindle, Senior Lecturer at Hull University Business School and Associate Fellow at Warwick Business School;

"System Dynamics", led by Bob Cavana, Reader in Decisions Sciences at Victoria Management School, Wellington, New Zealand;

"Anticipatory Systems and the Modeling Relation", led by Judith Rosen, Rosen Enterprises;

"Language Action Perspective", led by Peter Jones, Associate Professor at OCAD University, Managing Partner at Dialogic Design International, and Managing Director at Redesign;

"Inquiring Systems", led by Ian Mitroff, Professor Emeritus at the Marshall School of Business and the Annenberg School for Communication at the University of Southern California, Los Angeles, and Past President (1992-1993) of the ISSS;

"Idealized Design and Interactive Planning", led by John Pourdehnad, Associate Director of the Ackoff Center for Advancement of Systems Approaches (ACASA), and Affiliated Faculty in the Organizational Dynamics Graduate Program at the University of Pennsylvania;

"Socio-Technical and Socio-Ecological Systems Perspectives", led by David L. Hawk, former dean of the School of Management, New Jersey Institute of Technology.

In collaboration with the Bateson Idea Group and the American Society for Cybernetics:

An evening screening of *An Ecology of Mind: A Daughter's Portrait of Gregory Bateson*, featuring an discussion with filmmaker Nora Bateson.

Venue:

San Jose State University, San Jose, California, USA

On-campus accommodations will be available from SJSU Housing Services.

Full service hotels are available as accommodation in downtown San Jose, a short walk off-campus.

Conference Schedule:

Sunday, July 15 (6 p.m.) to Friday, July 20, 2012 (1 p.m.)

Pre-conference workshops on Sunday, July 15 (10 a.m. to 5 p.m.)

Post-conference workshops on Friday, July 20 (2 p.m. to 5 p.m.)



#### Important Dates:

September 15, 2011: Abstract submissions open.

February 15, 2012: Registration opens.

March 1, 2012: The deadline for panel, workshop and stream proposals.

May 10, 2012: The end of early, discounted registration.

June 15, 2012: The deadline for full papers to be included in online proceedings.

June 15, 2012: The deadline for abstracts and posters to be streamed into the conference program.

#### Platinum Sponsors:

IBM

#### Exchange Affiliates:

Systems Dynamics Society

American Society for Cybernetics

INCOSE: The International Council on Systems Engineering

#### Conference Host:

San Jose State University

Papers submitted to the ISSS meeting are published in proceedings at [journals.issss.org](http://journals.issss.org), with the permission of author(s) under a Creative Commons license. Abstracts on discussion papers reflecting systems research in progress are welcomed.

#### Social Programs

There will be a welcome reception on Sunday evening, July 17. The conference banquet will be held on Thursday, July 21.

#### Registration Rates

Registration fees are listed on the website.

The registration fee includes: The program/abstract book, Reception on Sunday July 17, ISSS membership fees for 2012. The registration fee also includes tea/coffee breaks and lunches from Monday to Friday.

The registration fee does not cover accommodation or transportation expenses to and from the conference site.

For further details please check the website at [www.issss.org/world](http://www.issss.org/world) or contact [isssoffice@dsl.pipex.com](mailto:isssoffice@dsl.pipex.com)

**2012 International HSSS Scientific & Professional Conference**

**Hellenic Society for Systemic Studies (HSSS)**

**8th. HSSS National & International Conference**

**in cooperation with**

**Department of Applied Informatics, University of Macedonia**

**Thessaloniki, Greece.**

**05 - 07 July, 2012**

**Systems Approach to Strategic Management**

**<http://www.2012.hsss.eu>**

**System Dynamics Stream at EURO XXV Conference**

**8-11 July 2012**

A stream on "System Dynamics Modelling and Simulation" will contribute to the EURO XXV conference, to be held from 8 - 11 July 2012, in Vilnius, Lithuania. This is the 25th European Conference on Operational Research. The Conference theme - OR connecting sciences – emphasizes the inter- and even transdisciplinary nature of Operations Research.

Information can be found under: <http://www.euro-2012.it/> <<http://www.euro-2012.it/>> .

The general purpose of the System Dynamics stream is to bring together works about the modelling and simulation of complex dynamic systems, based on the System Dynamics methodology. Contributions from the fields of organization and management, engineering, economics, sociology, and ecology are particularly welcome. Abstracts can be submitted to [Markus.Schwaninger@unig.ch](mailto:Markus.Schwaninger@unig.ch) or [Markus.Schwenke@unig.ch](mailto:Markus.Schwenke@unig.ch) <<mailto:Markus.Schwenke@unig.ch>> until February 29, 2012.

**22nd INCOSE Annual International Symposium**

**Registration Now Open**

**9th through 12th July 2012**

**Rome, Italy**

Join us for the 22nd Annual INCOSE International Symposium. This highly anticipated symposium is the world's premier event for systems engineers.

[Click here to open your invitation](#)

Abstract submission Deadline: May 15, 2012

**5th Complex Systems Modelling and Simulation Workshop (CoSMoS 2012)**

**University of Orléans, France**

**3rd September 2012**

**<http://www.cosmos-research.org/workshops/cosmos-workshop-2012>**

**[cosmos-2012@cs.york.ac.uk](mailto:cosmos-2012@cs.york.ac.uk)**

The 5th workshop on Complex Systems Modelling and Simulation (CoSMoS2012) will take place as a 1-day satellite workshop of the Unconventional Computation and Natural Computation conference

(<http://www.univ-orleans.fr/lifo/events/UCNC2012/index.php>) at the University of Orléans, France.

The CoSMoS workshops series provides a forum for research examining all aspects of the modelling and simulation of complex systems. This year, we will place a special focus on how complex systems simulations can be used to simulate unconventional and natural computation.

Constructing models and simulations of complex systems is a challenging and interdisciplinary task. Elements might include choice of modelling tools and techniques, simulation infrastructures, concurrency, the process of moving from models to simulations, arguing validity of simulations, and the identification of reusable engineering techniques such as patterns. The CoSMoS workshop series continues an initiative, based at the Universities of York and Kent, UK, to develop a framework and infrastructure for the construction of complex systems simulations.

Submitted papers will undergo a rigorous peer-review process and accepted papers will appear in the workshop proceedings published by Luniver Press. Proceedings of the previous CoSMoS workshop are available: <http://www.cosmos-research.org/publications/proceedings>

#### AREAS OF INTEREST

We are seeking submissions that explore aspects of complex systems modelling and simulation, with a special focus on how complex systems simulations can be used to simulate unconventional and natural computation. Areas of interest include, but are not limited to:

- \* Complex systems simulation case-studies
- \* Modelling tools and techniques
- \* Simulation infrastructures
- \* Arguing validity of simulations
- \* Concurrency and distribution techniques
- \* Identification of reusable engineering techniques
- \* Working across scientific disciplines

#### SUBMISSIONS

We are accepting both full papers (to be presented orally) and abstracts (to be presented via a poster). Both full papers and abstracts will appear in the workshop proceedings.

For submission via abstract, please submit an abstract not longer than

2 pages of LNCS format that summarises the content of the poster you wish to present. Full papers can be of any length up to a maximum of

25 pages of LNCS format. If you wish to exceed the page limit, or have any other queries, then please email [cosmos-2012@cs.york.ac.uk](mailto:cosmos-2012@cs.york.ac.uk) in advance of submission.

LNCS formatting details can be found here:

<http://www.springer.com/computer/lncs?SGWID=0-164-7-72376-0>

Papers should be submitted via EasyChair here:

<https://www.easychair.org/conferences/?conf=cosmos2012>

#### IMPORTANT DATES

- \* Paper Submission: 13 May 2012
- \* Notification of acceptance: 10 June 2012
- \* Camera ready copies: 1 July 2012
- \* CoSMoS Workshop: 3 September 2012

## WORKSHOP CHAIRS

\* Paul Andrews, Department of Computer Science and York Centre for Complex Systems Analysis, University of York, UK

\* Fiona Polack, Department of Computer Science and York Centre for Complex Systems Analysis, University of York, UK

\* Mark Read, Department of Electronics and York Centre for Complex Systems Analysis, University of York, UK

\* Susan Stepney, Department of Computer Science and York Centre for Complex Systems Analysis, University of York, UK

## **Action Learning, Action Research Association Inc Australasian Conference 2012**

### **Achieving Sustainable Outcomes through Dialogue and Engagement The Best from Action Learning and Action Research**

**2 to 5 September 2012**

**Sydney Australia**

The Conference is a two-day high-level networking and initiative generation event. It will include opportunities for practitioners, theorists, clients and funding bodies of all persuasions to meet, pitch ideas and services, and explore real action possibilities. A draft program will be available in the next few weeks. In addition to presentations that invite and provoke discussion, there will be panels to discuss future directions in action learning and action research in areas such as:

Education

Influencing Governance or Inquiry into Practice

Action Research for Sustainable Development in a Turbulent World, with the authors of this recently released book. The Conference has three Pre-conference Workshops and one Post-conference Workshop (priced separately):

Introduction to Action Learning and Action Research (Bob Dick)

Discovering Creative Approaches to Sustainability using Soft Systems Methodology (John Molineux)

Influencing Policy Makers' Understanding of Action Research (Susan Goff and Ross Colliver)

Life as Action Research (Yoland Wadsworth)

There will be opportunities for micro-meetings amongst delegates to discuss planned or already implemented AL / AR strategies and areas of concern experienced with AL / AR. There will also be a book launch cocktail party for the book Action Research for Sustainable Development in a Turbulent World, sponsored by Emerald Publishing.

To register, please go to the ALARA website - [www.alara.net.au](http://www.alara.net.au) <<http://www.alara.net.au/>> .

Registration Fees Early Bird (closes 2 July)

More information: [www.alara.net.au](http://www.alara.net.au) <<http://www.alara.net.au/>> or see our Brochure <[http://www.alara.net.au/files/ALARA\\_Conference.pdf](http://www.alara.net.au/files/ALARA_Conference.pdf)>

**European Conference on Complex Systems**  
<<http://eccs2012.eu/>>  
**Université Libre de Bruxelles <<http://www.ulb.ac.be/>>** ,  
**3 to 7 September 2012**

This annual event is sponsored by the Complex Systems Society <<http://www.complexsociety.eu/>> .

Abstract submission is now open.

The program of ECCS 2012 <<http://eccs2012.eu/program.php>> extends over three days (Monday 3, Tuesday 4 and Friday 7 September). The two remaining days (Wednesday 5 and Thursday 6 September) are reserved for satellite events.

In addition to the Sunday 2 September opening lecture <[http://eccs2012.eu/keynote\\_speakers.php](http://eccs2012.eu/keynote_speakers.php)> and the 8 keynote lectures <[http://eccs2012.eu/keynote\\_speakers.php](http://eccs2012.eu/keynote_speakers.php)> , the main conference will feature 13 invited plenary talks and a total of 108 oral contributions taking place in 6 parallel sessions which will be structured around the six main Tracks <[http://eccs2012.eu/tracks\\_program.php](http://eccs2012.eu/tracks_program.php)> . An additional 200 posters will be displayed in three poster sessions.

Authors are invited to submit an abstract through the conference website <[http://eccs2012.eu/call\\_for\\_abstracts.php](http://eccs2012.eu/call_for_abstracts.php)> . Abstracts should consist of 2 to 6 pages (from 7,500 to 20,000 characters) written in English, and should provide a summary of the main results, include background and methods, as well as relevant references. The subject should draw on material that is either unpublished, whether submitted to a peer-reviewed Journal or not, or published not earlier than January 2011.

Abstracts are submitted via the easychair website <<http://www.easychair.org/conferences/?conf=eccs2012>> . Authors who do not have an easychair account should sign up for an account (for identification purposes, make sure to use the same email address as the one used for the conference registration). Abstracts are submitted to one of the six conference main tracks. Submissions will be reviewed by independent track committees <<http://eccs2012.eu/committees.php>> which form the program committee. Accepted abstracts will be selected either for oral communication or poster presentation. The most representative among the abstracts selected for oral presentations will be proposed for plenary sessions.

The deadline for submission of abstracts is 30 March 2012. Corresponding authors will be informed of the outcome of the review and selection process by 1 June 2012.

All the accepted abstracts will be published in the online repository of the Complex Systems Society proceedings. Authors of accepted abstracts may submit full papers for inclusion in the online proceedings. Full paper submission is optional. The deadline for full paper submission is 21 September 2012.

Online registration <<http://eccs2012.eu/registration.php>> to the European Conference on Complex Systems 2012 will open soon. Please visit our website for further information, including registration fees.

For further information, please email us at [info@eccs2012.eu](mailto:info@eccs2012.eu).

**20th International Conference  
Interdisciplinary Information Management Talks  
IDIMT website: <http://www.idimt.org/>  
September 12 - 14th, 2012  
Jindrichuv Hradec, Czech Republic**

**IMPORTANT DATES:**

Draft paper from regular authors due: May 13, 2012 (aprox. 3+ page A4, excluding referencing)

Notification of acceptance: May 19, 2012 (with comments of reviewers)

Full-paper drafts due: June 9, 2012

Deadline for the 2nd peer-reviews: June 20, 2012 Camera ready copies: July 7, 2012

**Planned Sessions**

\* Session A: ICT Support for Disaster Management Keynote speaker: Gerhard Chroust – <gerhard.chroust@jku.at>

Session organiser: Karin Rainer – <karin.rainer@inset-advisory.com>

\* Session B: Reliance on Cyber-Physical Systems: „Systems-of-Systems“ Challenges Keynote speaker: Erwin Schoitsch – <erwin.schoitsch@ait.ac.at>

Session organiser: Gerhard Chroust – <gerhard.chroust@jku.at>

\* Session C: Impact of ICT on Economy

Keynote speaker: Ota Novotný, Jakub Fischer – <novotnyo@vse.cz>

Session organiser: Milos Maryska – <maryskam@vse.cz>

\* Session D: Human Initiatives and Innovations in ICT Keynote speaker: Petr Doucek, Josef Basl – <doucek@vse.cz>

Session organiser: Jaromír Veber – <jveber@hotmail.cz>

\* Session E: Realization of Social Responsibility Keynote speaker: Matjaž Mulej – <mulej@uni-mb.si> Session organisers: Vesna Cančer – <vesna.cancer@uni-mb.si> Simona Šarotar Žižek – <zizek@uni-mb.si>

\* Session F: Social Computing for Cooperation Keynote speaker: Konrad Klöckner – <konrad.kloeckner@uni-bonn.de>

Session organiser: Tom Gross – <tom.gross@uni-bamberg.de>

\* Session G: Sustainable Economic Growth through Enterprise

Networking: Ideas and Approaches

Keynote speaker: Radoslav Delina – <radoslav.delina@tuke.sk>

Session organiser: Jan Janke – <frantisek.janke@tuke.sk>

\* Session H: 20 Years of IDIMT – a Retrospective Keynote speaker: Gerhard Chroust – <gerhard.chroust@jku.at> Keynote speaker: Petr Doucek – <doucek@vse.cz>

Keynote speaker: Christian Loesch – <CWL0001@gmail.com>

## **Complexity Science and Social Science At the Interface to the Real World**

### **Call for Papers and Conference Participation**

**24th and 25th September 2012**

Venue: Chicheley Hall, Royal Society International Centre, Newport

Pagnell, UK. <http://bit.ly/ieya3m>

Coping with the global-scale challenges of financial instability, food security, climate change, sustainability, demographic change and migration, pervasive web technology, transnational governance and security, among others, will involve dealing with large-scale complex systems made up of many parts interacting and adapting in sometimes subtle ways. People are critically important components of them all, which makes studying such systems a topic for social science as well as for natural science and engineering. However, the issues transcend disciplinary boundaries and making progress will require a significant interdisciplinary effort.

Much of the research that is required to address these issues is taking place at a new interface, where collaboration between economists, demographers, sociologists, etc., is supported and catalysed by tools and concepts from the physical sciences, mathematics, computer science and engineering. In the same way that research at the life and physical sciences interface has revolutionised biology and medicine since the turn of the century, research at the social sciences interface has the potential to transform our ability to answer questions about social, socio-economic, socio-ecological and socio-technological systems.

Contributions in the form of papers of 2500 - 8000 words reporting work that straddles the interface between complexity science and social science are invited. The intention is that a collection of papers will be published after the conference as a special issue of a prestigious journal. Papers describing applications are especially welcomed. There will also be an opportunity to present posters.

To Attend: Follow the link to a page with further information and to submit an abstract or expression of interest to attend through the online form.

<http://www.csrw.ac.uk/events-hosted/complex-interface-conference-2012>

Deadline: 1st June 2012. Places will be confirmed by 1st August 2012.

Queries to Prof. Nigel Gilbert [n.gilbert@surrey.ac.uk](mailto:n.gilbert@surrey.ac.uk) and Alison Cooper

(network coordinator) [Alison.Cooper@surrey.ac.uk](mailto:Alison.Cooper@surrey.ac.uk) <<mailto:Alison.coper@surrey.ac.uk>>

### **BECC in Sacramento**

**November 12-14, 2012**

Opening reception on the evening of November 11

Call for Abstracts closes April 15, 2012

Call For Abstracts Now Open

The Behavior, Energy and Climate Change (BECC) Conference 2012 - now in its sixth year - is the premier event focused on understanding individual and organizational behavior and decision-making in the realms of energy usage, greenhouse gas emissions, climate change, and sustainability. BECC 2012 will build on the overwhelming success of previous BECC conferences, at which more than 650 participants discussed innovative policy and program strategies, shared important research findings, and engaged in building dynamic new networks and collaborations.

Ultimately, we seek to answer the question, how can we most effectively encourage low-carbon behavior?

No single field encompasses all facets of behavior change, so BECC brings together a wide range of top academics, practitioners and policy-makers to provide the latest and most relevant behavioral research findings, best practices and measured results.

The organizers especially value abstracts from diverse perspectives/disciplines (social sciences, behavioral economics, communications/marketing/entertainment, public health, cognitive sciences and others) and issue sectors, including residential and commercial buildings, transportation, urban design, and sustainable consumption (including food). Policies and programs that have demonstrated results in changing behavior

are of particular interest, as well as thoughtful discussions of transformative ideas in the areas of emerging policies, program design, and behavioral research methods.

To submit your abstract and learn more about BECC. <http://becconference.org>

Lightning Presentations will be recorded and featured on the BECC Youtube page.

The BECC LinkedIn Group now has 450 members to get you connected and in the conversation.

PowerPoint slides are requested to post online, helping to increase the visibility and reach of BECC researchers. Visit the BECC 2011 Conference page for last year's slides.

## **The 13th International Symposium on Knowledge and Systems Science**

**November 17 – 18, 2012**

**Japan Advanced Institute of Science and Technology**

The following is the official homepage of the symposium:

<http://www.jaist.ac.jp/KSS/KSS2012.htm>

This includes a call for papers. But, there are some undetermined items such as the registration method and fee; they will be decided soon. Please ask your colleagues to submit papers within the deadline. Also, please distribute this URL information to you friends. If you have any questions please do not hesitate to contact me. Y. Nakamori Email:[nakamori@jaist.ac.jp](mailto:nakamori@jaist.ac.jp)

## **III WCSA CONFERENCE**

**WCSA World Complexity Science Academy [www.wcsaglobal.org](http://www.wcsaglobal.org) IIIConference**

**MAPPING SYSTEMIC KNOWLEDGE**

**November 18th-19th, 2012**

**Vienna, Austria Hotel Am Konzerthaus Am Heumarkt 35-37, 1030 Vienna**

Which is a great chance for us all to map and connect our different streams and working styles inside the systemic approach. The focus of this conference is on the epistemological, theoretical, methodological, technical and practical contributions that the systemic approach has made to disciplinary and interdisciplinary perspectives (sociology, management, engineering, biology, economics, mathematics, statistics, etc.), which are rooted in the systemic approach itself, and which have developed theories and methods and which concern the complexity of these perspectives.

the cfp is available at:

<http://www.wcsaglobal.org/images/iicall.pdf>

I wish and think this conference will be wonderful for its magic venue and its cosmopolitan spirit whose most precious treasure are your submissions and proposal.

I wish to meet you all there and i will also be grateful to you if you facilitate the diffusion of this announcement worldwide.

The conference is divided into four panels:

- I Systemic Theories
- II Systemic Paradigms
- III Systemic Methodologies and Techniques
- IV Systemic Applied Research and Case Studies

Conference Proceedings:

Submission of an abstract with a minimum of 300 and maximum of 500 words



Abstract submission Deadline: May 15, 2012

Feedback on abstract from the CPC: June 5, 2012

Announcement of the Official Conference Program: before July 31, 2012

Speakers registration by payment of Conference Registration Fee: before October 10, 2012

Abstract must be sent by email to [profpitasi@gmail.com](mailto:profpitasi@gmail.com), and the subject of the email must be: WCSA 2012

**International Conference**  
**Social Pathologies of Contemporary Civilisation**  
**September 13th & 14th, 2012**  
**University of Hull, UK.**

This conference focuses on the social pathologies of contemporary civilisation, i.e. on the ways in which contemporary malaises, diseases, illnesses, anxieties and psycho-somatic syndromes are related to cultural pathologies of the social body, how disorders of the collective esprit de corps of contemporary society manifest at the level of individual bodies, and how the social body and bodies politic are related to the hegemony of reductive biomedical and individual-psychological perspectives.

The central research hypothesis guiding the conference is that many contemporary problems of health and well-being are to be understood in the light of radical changes of social structures and institutions, extending to deep crises in our civilisation as a whole. A particular focus of the conference is the role of humanities and social sciences, particularly sociology, philosophy and anthropology, in helping to understand the connection between individual and collective experiences of social transformations and of health and well-being.

Now in its third year, the thematic scope of the conference enables insight into unfolding social, political and cultural processes across disciplinary boundaries, extending from the experience of the individual to a global scale. Following successful conferences at Aalborg (2010) and Cork (2011), this year the conference is hosted by the University of Hull.

We invite abstracts of not more than 300 words related to any of the above themes to be submitted not later than June 10th to the email address below. We are currently negotiating to arrange for the publication of selected papers from the conference in a special edited edition of a peer-reviewed academic journal and/or as a book with a well-known academic publisher. All abstracts will be subject to peer-review and should be sent to the conference organisers at: [socialpathologies@hull.ac.uk](mailto:socialpathologies@hull.ac.uk)

Agreed keynote speakers:

Arpad Szakolczai (Professor of Sociology, University College, Cork)

Bulent Diken (Reader in Social and Cultural Theory, University of Lancaster)

Chris Shilling (Professor of Sociology, University of Kent)

Margaret Holloway (Professor of Social Work, University of Hull)

Monica Magadi (Reader in Social Research Methods, City University)

Nick Ellison (Professor of Sociology and Social Policy, University of Leeds)

Professor Jae Ryong Song (Department of Sociology, Kyung Hee University, Korea)

Further details of conference at:

<http://www2.hull.ac.uk/fass/socsci/research/social-pathologies-conf-2012.aspx>

Organizers: University of Hull Dept of Social Sciences, University of Aalborg, University College Cork.

## **Modes of Explanation Conference**

**May 22-24, 2013**

**Paris France**

Three days to discuss and learn about our use of modes of explanation. A look at how our mode of explanation affects our affordances for action.

American University of Paris May 22-24, 2013 See <http://modesofexplanation.org>

Speakers include: Nancy Nersessian, Paul Thagard, David Snowden, Rukmini Bhaya Nair, Kevin Kelly, Hugo Letiche, and Timothy Allen

<<http://isce.edu>> and please see <http://resilientcoherence.com/>

# SECTION THREE: ISSS BUSINESS

## NOTICE OF UPCOMING ISSS MEETINGS

The annual membership, council and board meetings will be held during the annual conference at San Jose State University, July 15-20, 2012.

### Call for Nominations

Nominations are requested from all members for offices below, as per processes stated in the ISSS Bylaws below, for the positions of:

1. President-Elect (3 year position on the board beginning for one year as President-Elect, one year as President, and one year as past President) (July 2012-2015).
2. VP for Research and Publications (2 year position July 2012-2014).
3. Secretary and VP Protocol (2 year position July 2012-2014)
4. VP for Administration (5 year position July 2012-2017).
5. Nominations are also requested for the one-year position of VP for Membership and Conferences, to be forwarded to the Council during the Annual Meeting in July 2012, where election to this position is voted on by the Council.
6. Nominations from all members of the Board of Trustees are hereby requested for the office of Board of Trustees Representative to the Board.

Current holders of these positions may also be nominated for re-election.

Please email or mail nominations to the ISSS Office (email: [issoffice@dsl.pipex.com](mailto:issoffice@dsl.pipex.com)) by February 15, 2012.

## Minutes of 2011 ISSS Board of Directors Meeting

Hull, UK, July 18, 2011

### Present:

Jennifer Wilby	President
David Ing	President-Elect
Alexander Laszlo	President-Elect (nominee)
Debora Hammond	Board of Trustees Representative
Allenna Leonard	Past President
Ockie Bosch	VP Systems Education and Communication
Louis Klein	VP Membership and Conferences
Mary Edson	VP Membership and Conferences (nominee)
Janet Singer	VP Research and Publications
Pamela Henning	Secretary/VP Protocol

### Absent

Todd Bowers	VP Funds and Treasurer
Doreen Gibbs	VP Administration

## Agenda

Jennifer called the meeting to order at 7:00pm.

### 1. Ratify Elections

Jennifer Wilby reported that 44 ballots were received voting for the proposed slate of Board members:

Alexander Laszlo – President-Elect

Jennifer Wilby – VP Administration

Ockie Bosch – VP Communications and Systems Education

The Board discussed an error on ballot (indicating that Ockie Bosch was being put forth for the VP Research and Publications). The Board voted to ratify his nomination for the corrected Communications and Systems Education role.

### 2. Presentation of Proposed Society Budget for 2011/2012

Jennifer Wilby presented a proposed budget for the 2011-2012 year, comprised of the same categories as last year, providing a worked example. Among the issues pointed out was that the Society's only fixed expenses are the internet/server. As in years past, a variable conference budget was proposed. Board members discussed membership numbers and their implications for the Society's budget. The possibility of online membership purchases and automatic renewals was also discussed.

### 3. Complete vote on 2013 Location

At the time of the meeting, the Society had interest expressed from two countries wishing to host the 2013 meeting: (1) Vietnam, and (2) Tokyo/Jim Kyjima in coordination INCOSE. It was explained that the earthquake and tsunami had changed INCOSE's wish to meet in Japan, therefore the Tokyo proposal was withdrawn for 2013. Ockie Bosch and Alexander Laszlo (2013 President-Elect) have discussed the possibilities involved in meeting in Vietnam. Alexander described various international groups with which he's connected but none of those options appeared as strong as the Vietnam proposal. Board members discussed travel costs to southeast Asia and the impact of location on conference attendance.

### 4. 2011 Conference Update

Jennifer Wilby reported that 172 people had signed up (including speakers) for the Hull conference. There was a larger number of students than in past years. She noted that the conference organizers had secured sponsorship from the International Centre for Complex Project Management to pay for speakers. Further, 3 publishers paid for their advertising flyers to be placed in the conference attendee kits.

### 5. 2012 Conference Plans - July 15-20

David Ing reported that San Jose has been selected for the 2012 conference for its proximity to IBM Research facility, sponsorship possibilities, and other conferences (i.e. the first ever Human Side of Service Engineering conference will be happening the following week near same location; the Service Research Innovation Institute meeting is being held in San Jose the same week as the ISSS meeting). The INCOSE San Francisco Bay area chapter is in discussion with David regarding program design to attract area systems engineers. David's vision is to have only 4 plenary speakers, discussants from natural/service systems, and break-out meetings with SIG groups after each plenary for discussion. He mentioned also the possibility of holding master classes on systems theory foundations. Jennifer Wilby has been in contact with San Jose State University regarding room requirements.

### 6. Proposed nomination of VP for Membership/Conferences 2011/2012

David Ing proposed that Mary Edson be ratified for the VP Membership/Conferences position. No discussion.

### 7. SIGs status, disbanded, ratified

Jennifer Wilby reported there are no specific SIGs to be disbanded due to inactivity. Ockie Bosch reported integrations happening among SIG presentations in Education, Mental Health, and Organisational Transformation SIGs at the current meeting. Janet Singer reported that at the workshops on Relational Science,

members from various SIGs participated actively together at that workshop. Alexander Laszlo suggested SIGs be required to regularly co-host paper sessions with other SIGs. Various alternatives were discussed to differentiate and integrate SIGs and explore ways to increase conversations within and among them.

#### 8. SIG Change of Name Request

Members of the What is Life and Living? SIG have requested that their name be changed to the Relational Science SIG to better reflect the interests and activities of the SIG's members. No discussion.

#### 9. New Logo

Jennifer Wilby offered thanks to Pile Bunnell who created the new ISSS logo. The new logo is up on website.

#### 10. Web Administration Report/Issues

Pamela Henning requested that ISSS take responsibility to ensure internet information on ISSS (i.e. on places like Wikipedia) is as complete and accurate as possible. Janet Singer agreed to address this. Jennifer Wilby spoke of other systems societies' websites as part of a discussion regarding revising the ISSS website.

#### 11. Publications

Janet Singer reported having worked with Judith Rosen on getting Robert Rosen's work formatted as e-books.

#### 12. Systems Education

Ockie Bosch reported work on formal systems education and informal education/systems thinking capacity building. He discussed a Pernegg-inspired conversation of an initiative proposing a world network of systems educators. He is working on establishing this venture that could include faculty exchanges, formal agreements between universities, executive education in corporations, etc.. He reported that there is great demand for the consulting work currently done by the University of Queensland in systems education; there are requests by more countries that he can accommodate with his Learning Labs. He feels that if they ran training courses for systems scientists, they can better meet this demand. Ockie also reported that he is promoting systems work in UNESCO.

Meeting adjourned at 9:00.

#### Motions

1. Jennifer Wilby moved acceptance of corrected slate of nominees for Board positions. Debora Hammond seconded. Motion passed.
2. Jennifer Wilby moved the proposed 2011-2012 budget be accepted. Ockie Bosch seconded. Motion passed.
3. Pamela Henning moved acceptance of the Vietnam proposal for the 2013 membership meeting. Debora Hammond seconded. Motion passed.
4. David Ing proposed that Mary Edson be ratified as VP Conferences/Membership. Louis Klein seconded. Motion passed.
5. Jennifer Wilby moved that the SIG formerly titled What is Life and Living? be renamed the Relational Science SIG. Allenna Leonard seconded. Motion passed.

## Minutes of 2011 ISSS Council Meeting

Hull, UK, July 20, 2011

Jennifer Wilby called the meeting to order at 7:00pm.

Present

Jennifer Wilby	President
David Ing	President-Elect
Tim Allen	Past President
Allenna Leonard	Past President
Len Toncale	Past President
Gary Metcalf	Past President
Debora Hammond	Past President
Alexander Laszlo	President-Elect/SIG Chair – Evolutionary Development
Mary Edson	VP Membership/Conferences
Shankar Sankaran	SIG Chair – Human Systems Inquiry
Thomas Wong	SIG Chair – Health and Systems Thinking
Tamar Zohar Harel	SIG Chair – Mental Health Systems
Louis Klein	SIG Chair – Systems Applications in Business & Industry
John Kineman	SIG Chair – Relational Science
James Simms	SIG Chair – Living Systems Analysis
Dennis Finlayson	SIG Chair – Systemic Approaches to Conflict and Crises
Vincent Westerly	Acting SIG Chair – Research Towards a General Theory of Systems
Yiheyis Maru	SIG Chair for proposed new SIG: Systemic Approaches to Poverty and Disadvantage
Joanne Tippett	Guest – Ketso Facilitator
Judith Rosen	Guest – Rosen Enterprises
Pamela Henning	Secretary/VP Protocol

Agenda

Approval of Meeting Minutes

The Council approved the minutes of the 2010 Council Meeting minutes, and the minutes of the Virtual Board meeting held in early 2011.

### 1. Ratification of the Budget

Jennifer Wilby presented a proposed 2012-2013 budget accepted by the board at its July 18 meeting. The budget structure is the same as the prior fiscal year. Members discussed the ways SIGs are/could be funded. Jennifer explained that SIG chairs can request funds for SIG activities from members' SIG contributions. Members discussed membership/conference fee categories and assumptions regarding who/which people are sponsored by their institutions to come to the annual conferences. Gary Metcalf suggested research into where the Society's resources are coming from. Dennis Finlayson proposed a task force to research this matter.

### 2. Ratification of New Board Members

Jennifer presented the slate of proposed new Board Members, who had received unanimous votes (44 votes of 189 sent out):

Alexander Laszlo – President-Elect

Ockie Bosch – VP Communications/Systems Education

Jennifer Wilby – VP Administration

Ockie Bosch's proposed position was incorrectly listed (as VP Publications/Research) on the ballot; the Council members voted to ratify his nomination for the corrected role.

### 3. Election of VP Membership/Conferences

Jennifer Wilby reported that Board proposed Mary Edson be named VP Membership/Conferences for the 2011/2012 year. Mary accepted the nomination.

### 5. Site for 2012 Conference

Jennifer Wilby reported the Board approved the location for the 2012 meeting as San Jose State University, USA July 15-20, 2012.

### 6. Site for 2013 Conference

Jennifer Wilby reported that the Board voted on July 18 to accept the invitation for the 2013 conference be held in Hai Phong City, Vietnam. Len Troncale requested an analysis of the geographical location of the membership as information to be considered when making location decisions for upcoming conferences.

### 4. SIGS -

Jennifer Wilby reported that during the Virtual meeting the Board discussed that a proposed new SIG be created: Systemic Approaches to Poverty and Disadvantage.

She reported that the Board had voted to support members of the What is Life and Living? SIG in their request to rename the SIG Relational Science. John Kineman explained how the focus of the What is Life SIG had evolved since it began and the SIG members' view that the name Relational Science SIG would be more appropriate.

### 7. Supporting Funding of CSUP Systems Archive Project

Jennifer Wilby reported the Board voted for Len Troncale to be funded up to \$500 to catalogue and digitize a collection of General Systems Yearbooks, Bulletins, Proceedings, and other noted systems documents, and to investigate online access options for making the collection widely available. Funds would go to pay a portion of the costs of students doing this cataloguing/digitizing work. Len reported that the library at CSUP (California State University, Pomona) is ample for current system materials with room for more.

### 8. New Business/Discussion

Janet Singer noted encouraging examples of cross-SIG cooperation and active discussions at the Hull conference's INCOSE workshop of combining SIGs. Pamela Henning noted plans under discussion among the Mental Health/Education/Organisational Transformation SIGs to co-host paper presentation stream in 2012. John Kineman expressed the wish that SIGs become well defined in their own right AND ALSO encourage/specify thematic combinations. Dennis Finlayson noted that the Conflict & Crises SIG has run both paper presentation streams and themed workshops after the normal SIG stream time in the day and had attracted entirely different audience of conference participants. Gary Metcalf asked if members feel that presentation time or discussion time within/among SIGs is missing, wondering if papers could be shared before or after the conference. John Kineman suggested that video taped talks could potentially be made available to share the valuable spontaneous discussions that emerge.

David Ing commented on these issues of time management within conference planning/scheduling, and ways of incorporating plenary speakers within discussion/discussant time for the 2012 conference, also ways of integrating meeting time with INCOSE. John Kineman shared his experience with a conference wherein papers were scheduled based on thematic similarity (based on the abstracts that were submitted).

Jim Simms questioned the declining membership numbers over time, querying what is the value of the Society now in comparison from when it was formed, what has it accomplished, and how it has been promoted. Janet Singer suggested each SIG could determine what it would teach as fundamentals and could offer workshops. Tim Allen talked about the inability of people to afford to attend international meetings as a contributing factor to decreased attention over the years. Yehis Maru reflected that he would have liked to have known about the Society earlier, as it would have attracted him years ago. He recommended widely advertising the conference plenary speakers; Pamela Henning suggested that the community in which each conference is held could be invited to purchase tickets to attend plenary talks. Louis Klein drew from his consulting practice in suggesting that a physical meeting first between people is crucial, and that electronic meetings/relationships follow; he advocated much more dialogue during the meetings – to him, the key is in real dialogue with those you meet in face-to-face meetings, and he cited the SABI SIG format as an important one for growing the ISSS community. Alexander Laszlo noted that the Evolutionary Development SIG eschews formal paper presentations as well in favour of greater dialogue.

Jim Simms asked what is the value of the ISSS to society and to individuals. David Ing spoke of INCOSE's acceptance of a formal relationship with ISSS as an external measure of our Society's value. Shankar Sankaran wondered if the scheduling of INCOSE and ISSS meetings successively might deter people from coming. Thomas Wong spoke about the specialness of this organization, in particular for the dialogue and idea exchange that occurs in between paper sessions. This year he asked members of his SIG why they came here. The responses included: for ideas; to search for answers to questions and the opportunity to ask their questions to people in widely varying fields of specialty. His SIG attendees felt that this Society is more welcoming of new ideas because of the diversity of fields represented at ISSS meetings; that more creativity and ideas are sparked here than at other conferences. Alexander Laszlo spoke of how this Society is the world's premier systems society, and how ISSS is the carrier of a legacy/history perspective on the contribution of the systems sciences to humanity, although he agreed with Jim Simms that we don't advertise it enough. He said that ISSS is the only organization that has the history and student/legacy focus, making it a special organization in ways that other systems organizations simply are not. Jim Simms urged the Society to evaluate what we've done, where we are, and what we need to do the same or differently. Alexander Laszlo commented that the role of students at the conference could be greatly increased/enhanced. Students tend to be very involved in the current literature and are coming with fresh eyes. He advocated that ISSS invite them to reflect back to Society their perspectives about what the systems community is doing/could do.

Joanne Tippett observed that good publicity is very difficult for a volunteer organization - a full time job. She did suggest that Len Troncale's systems archive warrants an excellent press release. Tamar Zohar Harel suggested the 2013 conference flier include a listing of the SIGs as a way of luring people to submit abstracts. She described her initiative underway to promote inter-SIG collaboration and attract people to the 2012 conference by putting together one paper presentation stream and one paper presentation/roundtable with SIG members interested in Mental Health/Organizational Transformation/and Systems Education. Louis Klein urged SIG chairs to encourage people to write to the conference theme. Allenna Leonard chose special issue papers for Systems Research Behavioral Science that focused on the theme for her year's conference - this could be publicized to encourage people to write to the theme (Jennifer Wilby noted that a single theme for the special issue of that journal isn't required but can be done at the guest editor's prerogative.) It was agreed by all that early contact/advertising for the conference meetings each year is critical for people to be able to prepare well in advance to secure funding, time off, etc.

The meeting was adjourned at 21:30.

#### Motions

1. Dennis Finlayson moved acceptance of the proposed budget for 2011/2012. Jim Simms seconded. Motion passed.
2. Debora Hammond moved ratification of the proposed slate of members to Board positions. Allenna seconded. Alexander Laszlo and Jennifer Wilby abstained. Motion passed.
3. Pamela Henning moved that Mary Edson be ratified to the role of VP Membership/Conferences. Louis Klein seconded. Mary abstained. Motion passed.
4. Debora Hammond moved that the council ratify the proposed new SIG on Systemic Approaches to Poverty and Disadvantage. Jim Simms seconded. Motion passed.
5. Jim Simms proposed that the What is Life and Living? SIG be renamed to the Relational Science SIG. Tim Allen seconded. Judith Rosen and John Kineman abstained. Motion passed.
6. Jim Simms moved that San Jose State University be the location for the 2012 annual meeting. Shankar ankanan seconded. Motion passed.
7. Gary Metcalf moved that Vietnam be the location for the 2013 annual meeting. Debora Hammond seconded. Len Troncale abstained. Motion passed.
8. Pamela Henning moved that the Council ratify funds for the CSUP Archive Project. Jim Simms seconded. Motion passed.



## **Minutes of 2011 ISSS Membership Meeting**

**Hull, UK, July 22, 2011**

Jennifer Wilby called the meeting to order at 12:30.

Jennifer Wilby made the following reports:

She described the state of the Society's Finances, indicating that it had a cash balance of \$52,790 USD at end of 2010.

At present, ISSS has 196 members from 27 developing countries, including 18 Past Presidents, 96 regular members, 25 retired members, and 30 students.

She indicated that the ISSS Board and Council have ratified the budget for the upcoming 2011-2012 year, and have ratified the elections for the following Board positions: (Alexander Laszlo President-Elect, Ockie Bosch VP Communications and Systems Education, Jennifer Wilby VP Administration, and Mary Edson VP Membership and Conferences.

She reported that ISSS now has formal linkages with the Systems Dynamics Society and the International Council on Systems Engineering. Informally, ISSS works also with American Society for Cybernetics and the International Council on Complex Project Management.

ISSS now has a new logo, thanks to the efforts of Pille Bunnell who modernized and improved the quality of the previous logo.

There were two SIG changes to report: the new SIG on Systemic Approaches to Persistent Poverty and Disadvantage; and the SIG previously known as What is Life and Living? has changed its name to the Relational Science SIG.

Upcoming conferences will be held in San Jose, USA (in 2012) and in Hai Phong City, Vietnam (2013).

She reported that Len Troncale will be funded \$500 USD to help establish a systems science document archive at the California State University at Pomona in that university's Library. Scanning is underway of complete set of General Systems Yearbook, and some proceedings that were paper based.

In two weeks, Jennifer Wilby will be meeting with ISSS's Meeting internet provider in London to develop the capacity to take new memberships and renewed memberships online.

### **Other Business/Discussion**

Leone Solomon inquired about the profitability of the Annual Meeting/Conference. Jennifer Wilby explained that the budget for annual conferences is usually around \$60,000 USD (assuming that audio-visual equipment and meeting rooms are donated). She reported that last year's conference in Waterloo, Canada achieved a \$560 profit, and this year's conference in Hull, UK would hopefully break even. She explained that conferences are always intended to break even.

On behalf of all present, Debora Hammond thanked Jennifer for the Hull conference.

Meeting adjourned at 12:40.

**CASH ACCOUNTS ISSS**  
**Financial Year 2011 (January - December) (US Dollars)**

Beginning January 1 2011			\$52,438.08
Income			
Memberships	14,143.21		
Conf. Memberships	11,450.00		
SIG contributions	640.00		
		26,233.21	\$78,671.29
Expenses			
Conference Loss	2,041.98		
Journals	10,614.84		
Bulletin	5,078.37		
Phone calls	1,232.25		
Postage	768.59		
Office costs	801.89		
Office stipend	5,272.70		
IFSR	139.08		
Internet/Computing/Web Costs	546.47		
Tennessee	26.38		
Bank charges	1,459.14		
		27,981.69	
Ending December 31 2011			\$50,689.60
Bank Account Balances			
US Checking		18,296.35	
Worldpay Holding		0.00	
UK Sterling		904.60	
UK Dollar		31,488.65	
Ending December 31 2011			\$50,689.60

**ISSS2011 University of Hull Conference Accounts**  
**Within financial year 2011 (Jan-Dec) (US Dollar)**

<b>DEPOSITS / REFUNDS</b>			
Hull Registration Fee	51,344.00		
Office registration fees	2,773.80		
Memberships 2012	11,450.00		
CDs	320.00		
SIGs	640.00		
<b>TOTAL DEPOSIT/REFUNDS:</b>		<b>\$ 66,527.80</b>	
<b>DISBURSEMENTS</b>			
ISSS Memberships	11,450.00		
SIG Contributions	640.00		
Printing Program	1,326.80		
CDROM Proceedings	3,402.70		
Catering and Facilities Hull	34,410.26		
Speaker Costs paid by Office	8,732.67		
M/C, Visa Service Charge	5,440.83		
Vickers award and plaque	810.00		
Office materials, bags, lanyards	1,970.42		
	386.10		
<b>TOTAL DISBURSEMENTS:</b>		<b>\$ 68,569.78</b>	
<b>NET PROFIT/LOSS:</b>		<b>\$ -2,041.98</b>	

## **SIG ANNUAL REPORTS: List of Active SIGs and (Report Received)**

Agent- based Social Systems (NO)  
Aging Systems (NO)  
Balancing Individualism and Collectivism (NO)  
Critical Systems Theory and Practice (NO)  
Designing Educational Systems (NO)  
Evolutionary Development (NO)  
Health and Systems Thinking (NO)  
Hierarchy Theory (NO)  
Human Systems Inquiry (NO)  
Information Systems Design and Information Technology (NO)  
ISSS Roundtable (NO)  
Living Systems Analysis (NO)  
Organizational Transformation and Social Change (NO)  
Research Towards a General Theory of Systems (NO)  
Socio-ecological Systems (NO)  
Spirituality and Systems (NO)  
Student SIG (NO)  
Systemic Approaches to Conflict and Crises (YES)  
Systems Applications in Business Industry (NO)  
Systems Biology and Evolution (NO)  
Systems and Mental Health (NO)  
Systems Pathology (NO)  
What is Life and Living (NO)

### **Systemic Approaches to Conflict and Crises**

**Dennis Finlayson**

SIG Report on responses to Crises and Conflicts and a report on the Workshop on Soft Power and Soft Systems held at Hull in July 2011.

The SIG has been experience a period of change stemming in part from the change of name. In addition, two of the leading members have experienced changes in their personal and professional circumstances so now there are vacancies for two co-chairs of the SIG. To some extent their roles have been filled by Gerhard Chroust who organised a series of workshop sessions on 'first responders' at the Hull ISSS Conference. These will be reported on at a later time.

Another workshop at the same conference ask the question: "Could Soft Systems assist in promoting the effectiveness of effective use of Soft Power to enable peaceful transitions in evolving societies in the 21st century in an analogous matter to the role played by Hard Systems in assisting the effectiveness of Hard Power in the latter part of the 20th"?

The term 'soft power' has recently become prominent in the debate about how to enable transitions to more people responsive government in areas, such as North Africa and the Middle East, where there has been a recent history of repressive regimes. Many of these societies now seem to be impatient for change but the decision making processes in these countries are generally underdeveloped compared to some other areas of the world which otherwise enjoy similar levels of development. The questions posed then is: " could soft systems that engage stakeholders more widely in decision making at all level of society play a role in assisting such societies in making more effective, less painful transitions and how could the groundwork for such engagement be promoted?"

Many societies in Africa, Asia, Latin America and even Europe have been dominated by cultures from others parts of the world especially since the age of colonialism dominated by the West but also parts of Asia and Africa where the local cultures have had religions and cultural practices imposed on them, such as those based on Islamic believes, for even longer periods. Re-establishing the previous cultures as legitimate and valuable can be difficult even when conditions seem quite favourable as in Indonesia and parts of Latin America, for example, where areas of indigenous culture have survived until modern times.

Education of young people about their unique origins is certainly an obvious requirement, but legitimacy probably requires more! Certainly, in the modern, open, information technology rich context there are the ways and means to engage and inform, stimulate and enrich young people and others not only about their own particular cultures but also, perhaps equally importantly in this context, the past, present and potential futures of other cultures. These other cultures should include those that are quite similar though distinct from their own as well as those that are quite different. These points suggest that studying archaeology and anthropology would be essential ingredients to such an approach, even before 'modern' subjects such as science or politics?

To gather legitimacy, however, the roots of modern science and politics both within and outside of mainstream society need to be addressed especially as they pertain to everyday life in fields like health, agriculture and so on. On the more social science side histories of international orientated and more closed societies could be explored from a comparative viewpoint and particularly, perhaps, comparative religion where countries or regions have been dominated by Catholicism, Islam, Buddhism and so on.

At the level of Art and Culture there main need furthermore to be a deliberate attempt to emphasise the role played by women, older people, minorities and so on especially when these have utilised local languages, forms and materials that are peculiar to particular locations e.g. Aboriginal Art in Australia. Exchanges and linkages within and between groups in diverse societies might be one of the most effective means of implementation.

All of these avenues may not be enough if currently dominant groups are bypassed however. Ways of reaching professionals in the military and other powerful sectors most also be facilitated. In one African country this was achieved by 'briefing' a particularly resistant level of society about the workshops being delivered for 'others', so that they would know what was going-on and hence not be threatened by it. Before and after 'briefings' explaining what had taken place were acceptable, even though 'they had no need' to attend the workshops themselves. Alternatively a process like 'cascading' could be utilised to involve or at least gain legitimacy across the wider society including elite groups who might otherwise remain aloof or be inclined to be sceptical of other approaches to opinion and information gathering. Where there's a will, there's a way.\*

In the recent developments many commentators (including myself) have complained that the Arab Spring events have lacked a narrative or common purpose. In the light of these continuing movements however, I am inclined to ask whether post modern societies any longer need such widely accepted causes or sense or purpose? Can they have many coexisting causes, each fighting their own small battles for recognition, better treatment, the righting of past wrongs and so on? Could it be that the 21st century will see the emergence of many faceted grouping each pursuing their own limited, relatively short lived modes of living with each coexisting alongside many others with parallel modes perhaps even at different levels or stages of development?

In inner cities in the UK at present this could well be one interpretation of what is seen on the ground. And, though there are occasional outbreaks of discontent and even violent protest as witnessed in variety of English cities in August 2011, for the most part these distinctive groupings seem to get along O.K. and evolve side by side!

Events have moved on almost every week of late, so that ideas aimed at capturing the current state already seem dated a month or so on. So certainly there is an intention to hold further workshops next year in San Jose and then in Vietnam in 2013! There may even be an earlier opportunity to gather in Austria at Easter 2012? In the meantime any ideas and/or questions are welcome.

# Soft Power may need to be redefined following the events and western responses, especially that of the USA, to the 'Arab Spring'. Perhaps it is the means rather than the ends that should now be the focus? "Enabling soft power" might be defined as the ability to facilitate others achieving 'what they want' in a manner approved by the wider world community which can then be sustained without adversely impacting on others including future generations.

\*The environmental movement has clearly been a recent successful example of 'soft power' on operation as the recent statements coming from the Chinese leadership attests. Another more recent example might be the "Fairtrade" movement which is now influencing major chocolate producers, for example. I am currently involved at my local level in the latter and for a much longer time was active in the green movement though I now leave this to the younger generation, for the most part. Nonetheless, I did engage in a debate at the new Eco-centre in Wirksworth, near Matlock where I have lived since 1985.

How the 'soft power' of an originally small number of individuals contributed to changing values with respect to the environment: I first got involved in Green Issues almost 40 years ago when a group of us in West Yorkshire supported a former Liberal Party candidate to stand against Thatcher's guru, Keith Joseph. At that time most of the on-the-ground support came from Transport 2000, whose members were hoping for policies that would seem quite reasonable now to many people and that only 10 years late! While then they were considered revolutionary as were most of our ideas.

The point being that things have moved on a long way since then and many of the interventions (I might say 'systemic' interventions) are now widely accepted and not just here in Western Europe but globally. For an intervention to be successfully accepted in a liberal society, I believe, requires three components: first, there needs to be a language for expressing the principle concepts, such as 'sustainability'; second, there needs to be structures and/or processes for spreading these ideas and implementing them, such as green pressure groups and parties, global conferences and so on; and, finally, there must be operating examples of good practice at the level of individual projects, communities, regional and national plans and so on. At present the 'transition towns' movement is possibly one of the better examples?

So far so good you might say, perhaps, but what of the future? Where, what and when do we do next? Some suggest that later will be better, as we should be better able to afford to adjust as we ought to be richer! At present that assumption may not be as widely accepted as it might have been a couple of years ago, but even on that premise it begs the question when? 'If not now, then when?' was the title of a song a few years back, I recall. Because whenever we are richer, we can always become richer and 'in the long run we are all dead', as Lord Keynes reportedly said, and in this case that would literally be so!

So sooner is better than later. So at the Global level the UK and indeed Europe should aspire to be 'Transition Regions' and set an example of good practice for the 'Tigers' to follow and, given the nature of their societies, the great majority of their populations can be expected to follow their elites once we set the real example in practice; do we have any other way forward?

Methods: below I outline some soft approaches or techniques that might be utilised when engaging particular groups or collections of their representatives. I have deliberately chosen methods that I personally have developed or advocated in the past leaving others to promote their own preferred techniques. Community Diagramming; Community Character Assessment; R,S,P approaches to Ethics, leading to discussion about 'mythology, rituals and taboos as well as intergenerational and gender relationships; Rich Pictures as utilised in Checkland's methodology for Past, Present and Future of religious, social and political scenarios; Progress packages as in John Friend et al's SCA methodology.

References:

Soft Power – the means to success in world politics, J.S. Nye, 2004, Public Affairs, USA

Africa – a biography of a continent, John Reader, 1998, Penguin Books, England

#### **Some words/notes from the Friday pm session at ISSS Hull 2011:**

Dynamic conservatism or resistance to change

Re-solution as in chemical not maths!

Slack and redundancy as providing 'resilience' in projects

Extended(ing)

Water supply affected by cracking shale for gas

Input output used by first responders to indicate extent and scale of disasters

5x5 the 10x10 repeated by arriving sector experts

Military intervention

Disobey the law?

Clearing culverts problem \_ a community project

Participants suggested issues:

Immigration

Phosphorous

Bees

De-forestation

Currency

Black-out

Information

No USA budget

Flu pandemic

Ideas developed on 'bees': collective ignorance!

Constructive\* responses to natural disasters: a systemic approach?

\*(Some societies are 'fatalistic' and this could be considered a systemic response but not, in my view, a constructive one.)

Every day for the last year or so there seems to be a report of a flood or similar 'natural' disaster somewhere around the world and frequently more than one. In Australia specifically forest fires have raged on one side of the country at the same time as flooding in other areas. Pakistan, Sri Lanka and Brazil have also recently experienced deadly floods caused by unprecedentedly rains. Looking at the literature on responses to such events it is noticeable how rarely the term 'systemic' appears though the word comprehensive is more evident. Nonetheless, it is true to say, that commentators do use phrases containing the term systemic much more often than might have been the case even 10 years ago. So the question I wish to ask is "what might constitute a systemic response"?

Some years ago I used to run a course for first responders such as fire-fighters etc. at the University of Lincoln in England which was part of a broader programme on 'Trauma Management'. My task was to acquaint the students with the causes and responses to natural disasters such as floods, earthquakes, droughts and so on. The literature then available appeared to be at two levels: one aimed at primary school pupils and the other aimed at policy makers in local and federal governments as well as international organisations operating in the relieve field. I used all of these as well as 'disaster movies' to provoke discussion and each course participant presented a report on a topic chosen individually that either interested them and/or of which they had personal experience. The quality varied, of course, but generally all of the participants grasped the need for a 'systemic approach' that involved the communities affected directly, surrounding areas and the wide range of responsible professionals, voluntary agencies, governments and so on. Last year in Canada at ISSS 2010 (see below) I presented a suggested response for the host country to the Earthquake in Haiti: my intention here is to generalise that approach.

Natural disasters like other crisis events have varying levels of impact or, if you prefer occupy different levels in a hierarchy. Some events are personal or only affect a family as might be the case of with the death of a baby or very young child. At the next level might be the death of an adult that affects the extended family, neighbours, colleagues and so on. A major accident might impact a whole local community or even a region as in the case of a recent oil explosion in the sea off the South East Coast of the USA and the earthquakes and tidal waves in Japan. Furthermore, one large event is commonly followed by several after shocks which can also have devastating impacts. At a further level such as the tsunami in South East Asia a wide region of several countries may be affected as well as, in that case, other parts of the globe as many international tourists were involved. In the past volcanic eruptions have, apparently, had global effects and this is now the anticipated affect of global warming, which some suggest may event have a terminal affect on humans? (Some reports have even suggested that Amazon drought occurring twice in less than 10 years may have signalled that this is already happening!).

At the same time events such as the floods in New Orleans have demonstrated that even, apparently, developed societies can be overstretched by events as socio-political failures, more commonly associated with less developed societies, such as Bangladesh for example, can undermine responses to disasters even when an adequate technology to respond is well developed. Technology can also extend risk, as in the case of our ever greater dependence in IT systems, as well as increasing the ability to respond quickly and appropriately to disasters.

'Resilience' has become the buzz word for authorities, at least here in the UK, in discussions about crisis response recently. Comparisons between the relative impacts of similar level earthquakes in Chile and Haiti in the last few years demonstrate that societies' ability to cope do vary considerably. Though the world wide impact of recent events in USA and Japan may require some of our past thinking to be reconsidered e.g. Germany deciding to reconsider its nuclear power programme. Sectors also vary within countries as was the case in Uganda in the period of dictatorship when the modern industrial sector almost totally disappeared while the traditional small agricultural sector reportedly declined by less than 10 percent of previously levels of production. #

I was at one time an economic adviser in various countries around the globe including for a short while Uganda as well as working in several regions of Britain in similar roles.

Key words: \* responses; natural disasters; technology; societies.

Suggested preparatory reading: "Facing the Unexpected" Kathleen J. Tierney et al, Joseph Henry press, Washington, 2101

### **Paper 2010: Enabling Resilient Governance: Canada's role in Haiti?**

Canada has already been playing a role in the re-emergence of Haiti from the recent earthquake by convening the Montreal Conference to obtain aid pledges for the reconstruction and, perhaps, symbolically, by agreeing to assist the rebuilding of the Haitian Government Headquarters. So, we ask: "how might the enabling of resilient governance continue?"

First, it might be appropriate to offer some context on the past history on Haiti, on why Canadian intervention might be appropriate, and on the relevance of countries neighbouring situations. Cuba and Jamaica each face their own challenges so a retraining programme for their leading civil servants could perhaps be offered. There are also smaller islands that could also be included some of which are French speaking.

'Hands-off leadership' as part of a wider approach of 'enabling effective engagement' formed the core of my approach to tutoring 'systemic approaches to conflicts and crises (including natural disaster)' for my last few years at Lincoln University. Essentially, the approach suggests three levels of intervention: beginning with a set of interviews with the target population utilising John Friend's 'Mutual Consulting (though I prefer Conferring) Approach' combined with 'cascading' as set out in my own contribution to the ISSS Conference Proceeding in 2000; then the use of a set of Checkland's 'Rich Pictures' to generate past, present and future scenarios and narratives for the study area, i.e. Haiti; and, finally, a Friend's 'commitment matrix' for interventions at various points in time which also identifies who the agents of the intervention might be.

In this case, I have labelled the latter as Canadian Communities: Ca; Fr; and Is. These communities would engage in 'linkages' with elements of Haitian Society that would complement efforts by Government Agencies at Canada's Federal and Province levels to revisit Haiti's governance structures and procedures. Such linkages might involve economic activity groups such as fishing and farming communities, as well as civic activities by professionals alongside volunteers in fields like education, health, sport, culture and local governance. The advantage of having a high level and broad ranging level of engagement from one country in the western hemisphere is that there would be greater continuity and coordination than currently being delivered by a wide range of NGO and government efforts from many different international groups. Canada is not the USA, not the ex-colonial power and yet is a rich, developed country with French as an official language and many migrants from the Caribbean area as well as many island communities.

### **Restoring cultural identity to countries and regions long dominated by dominant invasive cultures: a challenge for the 21st?**

Many societies in Africa, Asia, Latin America and even Europe have been dominated by cultures from other parts of the world. This has been especially the case since the age of colonialism dominated by the West, but also in parts of Asia and Africa where the local cultures have had religions and cultural practices imposed on them, such as those based on Islamic beliefs, for even longer periods. Re-establishing the previous cultures as legitimate and valuable can be difficult even when conditions seem quite favourable as in Indonesia and parts of Latin America, for example, where areas of indigenous culture have survived until modern times.

Education of young people about their unique origins is certainly an obvious requirement, but legitimacy probably requires more! Certainly, in the modern, open, information technology rich context there are the ways and means to engage and inform, stimulate and enrich young people and others not only about their own particular cultures but also, perhaps equally importantly in this context, the past, present and potential futures of other cultures. These other cultures should include those that are quite similar though distinct from their own as well as those that are quite different. These points suggest that studying archaeology and anthropology would be essential ingredients to such an approach, even before 'modern' subjects such as science or politics?

To gather legitimacy, however, the roots of modern science and politics both within and outside of mainstream society need to be addressed especially as they pertain to everyday life in fields like health, agriculture and so on. On the more social science side histories international orientated and more closed societies could be explored from a comparative viewpoint and particularly, perhaps, comparative religion where countries or regions have been dominated by Catholicism, Islam, Buddhism and so on.

At the level of Art and Culture there main need furthermore to be a deliberate attempt to emphasise the role played by women, older people, minorities and so on especially when these have utilised local languages, forms and materials that are peculiar to particular locations e.g. Aboriginal Art in Australia. Exchanges and linkages within and between groups in diverse societies might be one of the most effective means of implementation.

All of these avenues may not be enough if currently dominant groups are by-passed however. Ways of reaching professionals in the military and other powerful sectors must also be facilitated. In one African country this was achieved by 'briefing' a particularly resistant level of society about the workshops being delivered for 'others'; so that they would know what was going-on and hence not be threatened by it. Before and after 'briefings' explaining what had taken place were acceptable, even though 'they had no need' to attend the workshops themselves! Where there's a will, there's a way.

## **ANNOUNCING THE FIRST INTERNATIONAL**

### **ISSS ARCHIVE**

#### **DESCRIPTION and CALL FOR CONTRIBUTION OF MISSING ITEMS**

Objectives: (i) collect, in one place, ALL past ISSS Bulletins, Annual Proceedings, Annual Programs, and Yearbooks including miscellaneous publications and recordings; (ii) increase availability and usability of ISSS products by scholars; (iii) promote official library cataloging so the public can use established search engines to find specific ISSS works; (iv) provide an overview assessment of productivity during the 56-year history of the Society across all of its names and manifestations; (v) encourage derivative publications of systems collections on specific general systems topics.

Location: Special Collections Division, California State Polytechnic University Library, 3801 W. Temple Ave., Pomona, California, 91768

Summary of Current Holdings: For the following citations: (i) all data are only to-date holdings so do not include the missing items listed below; (ii) the number of authors is an inflated number because there was no attempt to eliminate redundancies, that is, multiple authorships across the various publications or years; (iii) there was no attempt to determine the number of authors for the General Systems Bulletins as attributions were often missing.

#### **GENERAL SYSTEMS BULLETINS (Volumes I to XXXX inclusive)**

- 64 Bulletin Issues (103 copies total; we have multiple copies for some GSB's)
- 319 Bulletin Reports on State of the Society at various organizational levels
- 48 Bulletin Articles
- 70 Bulletin Editorials
- 29 Bulletin Reviews of Articles and Books
- 270 Bulletin Abstracts of Articles and Books
- 293 Bulletin Publication Citations of Articles and Books
- 3,297 Bulletin Pages

#### **GENERAL SYSTEMS YEARBOOKS (Volumes I to XXXII)**

- 32 Yearbooks (130 copies; we have multiple copies for many Yearbooks)
- 561 Yearbook Articles
- 599 Authors
- 7,080 Yearbook Pages



## GENERAL SYSTEMS PROCEEDINGS (A mix of Years with significant gaps)

- 48 Proceeding Volumes (59 copies; for some Proc Years we have multiples)
- 32 Proceeding Years
- 3,441 Proceedings Articles
- 4,969 Authors
- 34,900 Proceedings Pages

## GENERAL SYSTEMS VIDEO/AUDIO RECORDINGS

- The Archives have an irregular series of audiotapes of sessions from selected annual conferences and videotapes of interviews of systems greats such as Nobel Laureates Herbert Simon, Wassily Leontief, and Ilya Prigogine as well as many of our early and current leaders.

## TOTAL PRODUCTIVITY across nearly six decades of research of this society, and TOTAL OF CURRENT ARCHIVE HOLDINGS

- 144 Systems Publications
- 4,050 Systems Research Articles
- 5,568 Systems Authors (recall this includes redundancies)
- 45,277 Pages of Systems Discourse

Missing Items – Your Help Please: Analysis of the above collections indicates that we cannot achieve a complete and comprehensive coverage of ALL ISSS Publications unless copies of the following are found and donated to the Archive.

### General Systems Proceedings [the greatest need is in this category]

- Were there any Proceedings published before 1969? We have nothing from 1956, the initiation of the SGSR, until 1969. Many of these years were associated with SGSR meetings with the AAAS.
- We do not have Proceedings for these years ... 1970, 1971, 1972, 1973, 1974, 1976, 1988, 1995, 1997, 1998, 1999, 2003, and 2010.

### General Systems Bulletins [our second greatest need is in this category]

- There is mention of “newsletters” that were issued before the publication of the first GSB Vol I:No1 in 1969. Does anyone have copies of these early newsletters?
- It is not clear that all Volumes actually published No.'s 1, 2, and 3. But if so we are missing (years are approximate due to season issued): Volume III, No3 ('71); Volume IV, No3 ('73); Volume V, No1 ('75); Volume IX, No3 ('79); Volume's XII & XIII, No,'s 2 & 3 ('81 & '82)
- There is no Volume XV at all (circa 1985) so Volume XVI to Volume XXII seem to have only published 1 issue or at most 2 issues per year. Any clarification from members would be appreciated.
- There are no Volumes or No.'s for XXVII (1998), XXIX (2000), XXXI (2002), XXXVI (2008), XXXVIII (2009), XXXIX (2010)

### General Systems Yearbook [we have only one copy of Volume One]

## PLEASE CHECK YOUR LIBRARIES & COLLECTIONS FOR THESE ITEMS

\*\*\*If you have any of these, or any other items that would be useful to include in this Archive, please send to ISSS Archives, Dr. Len Troncale, Dept. of Biology and Institute for Advanced Systems Studies, Cal Poly University, 3801 W. Temple Ave., Pomona, California 91711. The source of all donations will be noted and written on the donated item.

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Capsule History: This collection began during the two-term Managing Directorship and three-year cycle of the Presidency of Troncale, ~1981 to 1990. Subsequently, the family of long-time ISGSR-ISSS member, Frederick B. Wood Sr., donated his entire collection to this core, in memoriam, after his passing on March 29, 2006. Later, long-time member Helmut Burkhardt donated his personal holdings as well as his curation of Anatol Rapoport's holdings to the collection. We propose naming the collection the Burkhardt--Wood--Troncale Memorial Collection and, more simply, the ISSS International Archive, once all donors have passed away.

### **Relational Science has a New Website!**

There is a new website for discussion of Relational Science. The site is at <http://relationalscience.org/>

For further details contact John Kineman at [john.kineman@coloradoedu](mailto:john.kineman@coloradoedu)

# SECTION FOUR: MEMBERS' BULLETIN BOARD

## NEW BOOKS

### **Avoiding Policy Failure: A Workable Approach**

Steven E. Wallis

ISBN: 9780984216505 (125 pages)

Emergent Publications

[http://emergentpublications.com/catalog\\_detail.aspx?Value=85](http://emergentpublications.com/catalog_detail.aspx?Value=85) <[http://emergentpublications.com/catalog\\_detail.aspx?Value=85](http://emergentpublications.com/catalog_detail.aspx?Value=85)>

SOFTBACK: \$14.95; ELECTRONIC: \$9.95

Why do policies fail? How can we objectively choose the best policy from two (or more) competing alternatives? How can we create better policies? To answer these critical questions this book presents an innovative yet workable approach. Avoiding Policy Failure uses emerging metapolicy methodologies in case studies that compare successful policies with ones that have failed. Those studies investigate the systemic nature of each policy text to gain new insights into why policies fail.

In addition to providing intriguing directions for research, this book also suggests a bold new standard for evaluating policies. While this method is broadly generalizable, specific examples are provided showing how to develop better Economic Policy, Military Policy, and Constitutional Organizations. This book shows scholars, researchers, and policy analysts how to develop more effective policies so that we may achieve our highest aspirations and avoid the horrendous failures of the past.

### **Design and Diagnosis for Sustainable Organizations: The Viable System Method**

José Pérez Ríos

Springer

ISBN-13: 978-3642223174

Link: [http://www.amazon.com/Design-Diagnosis-Sustainable-Organizations-Viable/dp/3642223176/ref=pd\\_rhf\\_gw\\_p\\_t\\_1](http://www.amazon.com/Design-Diagnosis-Sustainable-Organizations-Viable/dp/3642223176/ref=pd_rhf_gw_p_t_1)

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