International Federation For Systems Research

Proceedings of the

Fourteenth Fuschl Conversation

G. Chroust (ed.)

March 29 -April 3, 2008
Fuschl am See (Austria)

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Welcome to the Fuschl Conversation 2008!

Both 2005 (the First IFSR-Congress in Kobe, Japan) and the Fuschl Conversation 2006 created a new vision for IFSR position and goals in a continually more complex, more interdependent and more collision-bound world. The IFSR accepted this challenge. And thus it was quite natural also to employ the well-established bi-annual Fuschl Conversations to help the IFSR to achieve the new goals and challenges. As a consequence the topics chosen were more selected for their practicability and usability for the Systems Movement at large and for IFSR as one of the key players.
This volume summarizes the findings of the Fuschl Conversation 2008.
After a short introduction to the history of the Fuschl Conversations leading to 2006 the four team reports are presented.
Some overall information about IFSR concludes the volume.

The proceedings can also be read and downloaded via the IFSR's new homepage at http://www.ifsr.org. Many pictures of the Conversation, showing both the hard work and the ambience can also be found there.

Looking at these proceedings I am proud that we can show that IFSR – with the help of the Fuschl Conversation 2006 - will be able to even better serve the systems community and thus promote systems thinking.

Gerhard Chroust (Austria)
Secretary General IFSR
Jan. 2009

Looking back at Fuschl 2008

Gary Metcalf (USA), Gerhard Chroust (Austria)

28 years is a long time for a small conference/workshop to survive. We can be proud that the Fuschl Conversations still exist and show their usefulness. .
When looking back on the history several phases can be distinguished[1] :

- The initial phase (1980 – 1994) which could be mainly seen as a *personal experience phase.* Participants attended the conversation without any attempt to disseminate afterwards their results to the outside world in a formal way. These conversations were driven by the charismatic personality of Bela H. Banathy. Topic centered on the general area of social design. The participants profited from Fuschl mostly themselves (Ch. Francois: "*When you leave Fuschl, you are a different person*").
- By 1996 it was decided to give the Fuschl Conversation a little more structure and transparency. A formal Call-for-Participation and a participant selection procedure was introduced, accepting around 28 participants in 5 to 6 teams, still discussing various aspects of social design. A short version of the results was published soon after in the IFSR Newsletter, a more detailed report together with accompanying 'think papers' was published as proceedings. We may call it the *dissemination phase.*
- When Bela was unable to join us in Fuschl from 1998 onwards, his spirit kept the Conversations going but gradually the ideas got somewhat diluted, and we reached a 'diversification *phase'.* Social Design was not the only focus any more. Also many participants discussed topics which were not really 'theirs'. At the closing of the Fuschl 2004 Conversation a certain feeling of uneasiness about the validity and the relevance of the Conversation was felt.
- 2005: This development coincided with another change to the IFSR. Initiated by IFSR's then President Jifa Gu, the IFSR Board decided to hold its first Congress in Kobe, Japan, in November 2005, together with our new Japanese member, the International Society of Knowledge and Systems Science (ISKSS)[2]. This congress will be remembered as a turning point in the history of the IFSR: For the first time IFSR was willing to really take a lead in the Systems Movement, we entered the *integration phase* for the Fuschl Conversations.
  - 2006: The vision of the IFSR's new role could only be realized by achieving a consensus between our members and by an evaluation of the situation of the systems movement. This gave a new challenging purpose to the Fuschl Conversation: to provide a platform for representatives of our member societies and other prominent scientists to evaluate the state of affair in systems, make some conclusions for the future and to give guidance and direction to the IFSR and its members.
We decided that the Conversation-style was the right tool and Fuschl the right environment to achieve our goal. For 2006 we choose topics which were relevant and strategic to the systems movement at large and to the IFSR in particular. We invited representatives of member organizations to suggest participants. The Fuschl Conversation brought numerous suggestions, ideas and actions plans for the future work of the IFSR. The findings and suggestions of Fuschl 2006 can be found in the proceedings[3].
- One major impetus was the recognition that IFSR needs a much more interactive and comprehensive Web-site. As a consequence – after some deliberations – Gerhard Chroust, the Secretary General, agreed to renovate website, using a different technology (DRUPAL) and on this basis provide a dynamic communication means for our member societies and for the Systems Movement in general. By November 2007 this new website (http://www.ifsr.org) became operational and is under constant improvement since. One of the major advantages of the new website is the accessibility of much of the information (all Newsletters, Fuschl Proceedings, pictures, etc.) to the general public in a central repository. But we all agreed that this 2006 Conversation was to be a singular event, not to be repeated the next time.
- With 2008 we went a middle ground: We choose (finally) four topics which seemed to be in the center of concern for the systems movement in general but also to the participants. All topics were concerned with enabling the IFSR to perform better. We kept the traditional Conversation style. Again the Conversation was characterized by a strong involvement of all participants. In the Conversation we

[1] Metcalf, G. and Chroust, G., Fuschl 2006 - Aims and Objectives, in Metcalf, G. and Chroust, G.: Proceedings of the Thirteenth Fuschl Conversation, April 22-27, 2006, Inst. f. Systems Engineering and Automation, Kepler Univ. Linz, 2006, SEA-SR-13}, ISBN 3-902457-13-9, pp. 6-9
[2] Gu, J. and Chroust, G., IFSR 2005 - The New Roles of Systems Sciences for a Knowledge-based Society, Kobe 2005, JAIST Press 2005, Japan - CDROM, ISBN 4-903092-02-X.
[3] Metcalf, G. and Chroust, G.: Proceedings of the Thirteenth Fuschl Conversation, April 22-27, 2006, Inst. f. Systems Engineering and Automation, Kepler Univ. Linz, 2006, SEA-SR-13, ISBN 3-902457-13-9, pp. 65

tried to enhance the panel discussions and the cross-team interactions, encouraging participants to join as ‘guests’ other teams.

Fuschl 2008 showed considerable difference to the 2006 Conversation. In 2008 operational and practical problems were in the foreground: “How can we achieve…”, while 2006 was more concerned with long range strategic visions. Both Conversations however, established the IFSR as a high-level coordinative player in the Systems Movement and were very helpful in deciding on future directions. But we also recognized that we need more changes to keep the Fuschl Conversations sufficiently useful to justify their existence and the associated expenditure in time and money.
Bela Banathy envisioned that the preparation for a Conversation ideally begins as an outgrowth of a previous Conversation – or at least with many months of advance thinking and preparation. A topic is chosen by a team; individual input papers are prepared and distributed to allow the team members to further refine questions and to arrive at some shared understanding of the ideas and viewpoints of other team members. By the time the team arrives at the formal, in-person, face-to-face Conversation, a great deal of familiarity and background should already be established and the team simply moves into an intensive phase of work that has begun.
In reality in today’s environment that kind of collaboration between professionals at great geographic dispersion and with much tighter schedules is difficult to achieve. Those difficulties were part of what had brought the Fuschl Conversations to a critical junction, and became magnified in many ways during the 2006 and 2008 Conversations – a reality that should be instructive for us going into the future. Modern ICT might be helpful, but not enough.

With these proceedings we try to convey a realistic and largely un-edited record of the Fuschl Conversation 2008. The style and the level of detail differ depending on the type of group. The reports in these proceedings should be considered as ‘work-in-progress’.

List of Participants

Due do some unexpected illnesses finally only 23 participants from 11 countries were able to attend.

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Topic 2: The trajectory of systems research and practice

Reporter: David Ing (CDN) Allenna Leonard (CDN) Gary Metcalf	Leonie Solomons (UK) Jennifer Wilby (UK)

For this Fuschl meeting in March 2008, a group was formed based on a call for individuals with experiences in both (a) systems research and practice, and (b) applications in industry, academia and/or public policy. All of the participants in Team 2 have exercised systems thinking applied in the social sciences, both in research/educational contexts and in applied/practice contexts. In the discussion, we shared a rich base of collective experiences working in multiple countries across four continents.

In retrospect, the conversation drew out insights in three areas:

- 1. Where does systems knowledge figure into the practice of social science practitioners?
- 2. How is systems knowledge applied with domain-specific knowledge?
- 3. When are domain-specific issues providing entry points into which systems knowledge becomes valuable?
- 4. How is the nature of systems knowledge coevolving with institutions (public, private, not-for-profit) and technology (wikis, blogs, voice over Internet)?

This report concludes with a reflection on the conversation process itself, in the setting of Fuschl.

1. Where does systems knowledge figure into the practice of social science practitioners?

Systems knowledge may be neither necessary nor sufficient for success in social sciences. The individuals participating in this conversation, however, found it sufficiently rewarding to dedicate the better part of a week to shared learning. In the discussion, five different trajectories were described, centering on an understanding of systems.

1.1 A systems perspective can help in understanding how individuals and organizations do and don't change

One participant consults with individuals and organizations, often in situations where people are caught, and are seeking an alternative path out. A systems perspective is helpful as an internal mental model, to sort out how people and organizations are able and disabled in changing themselves. The internal mental model may not be specifically externalized to those receiving the advice, as they may or may not have the interest or capacity to appreciate detailed insights into how their world works. For this practitioner, systems knowledge tends to lean more towards understanding, and less towards named systems methods

1.2 A systems approach can be applied for problem-solving, in moving from current practices

A second participant took a more pragmatic stance, applying systems concepts and language as a way of bridging people, tools, and the world. A systems approach is used as a complement to a theory of practice combining reflexive sociology (i.e. Pierre Bourdieu) and phenomenology (i.e. Hubert Dreyfus' reading of Martin Heidegger). In contrast to an idealized approach (i.e. future state <-- current state) often used in business organizations (in the style of Russell Ackoff), this practitioner has found that roadmaps (i.e. current state --> future state) are more helpful in enabling progress. Concepts and language consistent with a systems understanding are used with laymen, with more theoretical and philosophical explanations brought to bear offline with the very few individuals interested in the "why" in addition to the "how".

1.3 Systems theory can be a foundation for finding patterns that may be reapplied elsewhere

A third participant orients towards a more theoretical view of systems, as a way of seeing a bigger picture, with interconnections and inter-relationships between parts. Patterns within one domain can potentially be lifted and reapplied in another context. This participant deals less in active interventions, and more in educational settings. Systems theory tends to be more explicit in a pedagogical setting, as knowledge is being transferred both to potential future educators as well as practitioners.

1.4 Systems thinking can aid in formation of a desired end, with reflexivity into premises

A fourth participant applies systems in the interest of getting things done, and a method for deciding what to do. The joint future state of the group being facilitated is a discontinuous change from the current course and speed that exposes the varying interests of multiple parties. Joint learning leads to the parties -- at least those open to reflection -- examining and re-examinating underlying premises and assumptions. This participants is most interested in moving the group towards a better future state as a primary concern, de-emphasizing the explicit analysis of motivations and "why" each party is coming to the agreement.

1.5 Systems relations can enable integrating multiple perspectives

The fifth participant works in advocacy, making regulations actual (i.e. enforced) rather than just espoused. This requires understanding the backgrounds and interests of multiple parties, with a standpoint that none of these views can or should be invalidated. Establishing policies is an art where individuals are guided towards doing what's right, rather than pursuing courses of action in complete opposition towards ultimate purposes that the group seeks to achieve. Within these contexts, a de-emphasis on the parts and a focus on the relationships calls for a systems perspective, in which connections are sometimes evident and direct, and sometimes complicated and indirect.

1.6 Across social science practitioners, systems theory may or may not appear explicitly

The sharing across the varied backgrounds of this group of social science practitioners led to a discission about how explicitly systems theory should be invoked in different situations. It was generally agreed that people undergoing change may only require a implicit common understanding. That common understanding may be supported by a boundary object (e.g. a written agreement), to which each party may give a different interpretation when asked to explain its content. Within each personal understanding, some individuals may have developed a more systemic appreciation of the circumstances than others. Simpler and superficial familarity with an agreed path forward takes the common language at face value, and action can proceed without a perceived need to pursue additional details.

Systems theory provides a language and set of concepts that can ensure rigour and clarity amongst those immersed in the field. Practitioners can be competent in naturally exercising systems principles at the same time as they are inarticulate about how and why they have chosen specific actions. If the practitioner is articulate in systems language and context, the appropriateness of sharing that language depends greatly on the situation. To one layman, systems language may descriptive and enlightening; to the next layman, it can be confounding and threatening. Systems thinking may therefore be obvious or inobvious to outside observers, as well as those directly involved within an intervention.

2. How is systems knowledge applied with domain-specific knowledge?

At regular periods during the four day meeting, the Fuschl conversation teams came together to each debrief others on progress and ideas that they were discussing. A presentation of Topic 1: "Basic Concepts of Systems Sciences" led to a matrix that that team eventually de-emphasized, but we reinterpreted with great applicability for our subject. While their focus was on "basic concepts", our orientation towards applications by practitioners led to findings on explicitness and roles.

2.1 When integrated with domain knowledge, systems knowledge can be categorized in levels of explicitness

The roles and paths of individuals into systems thinking come from two paths:

- (a) individuals whose interests are primarily in a domain, applying systems knowledge as a means to cross disciplines; and
- (b) individuals whose core interests are in systems, e.g. looking for isomorphisms applicable in an interdisciplinary or transdisciplinary frame.

Our conversation centered on the former. The explicitness of systems knowledge is reflected in the sharpness of concepts and language in these practitioners, at three levels.

- (1) systems knowledge use for sense-making and applied implicitly, with a low degree of rigour in systems definitions and language, e.g. "emergence" has meaning in common language not entirely inconsistent with systems definitions;
- (2) systems knowledge applied practically in the situational sense, e.g. "coproduction" has a meaning in the Hollywood film industry that makes the use of the systems term problematic; and
- (3) systems knowledge mastery, where the practitioner uses systems concepts and language explicitly within the discipline, e.g. "purpose" used in a business workshop, completely consistent with the systems definition.

Crossing these two dimension modified the matrix developed by Team1, and led to conversations in Team 2 about "A1", "A2" and "A3" contexts and roles.

	Explicitness of systems knowledge -->		
	1. Systems knowledge implicitly applied in sense-making	2. Systems knowledge explicitly applied practically	3. Systems knowledge mastery, at theoretical depths
A. Systems knowledge integrated with domain knowledge (i.e. multidisciplinary)	A1. Systems concepts applied within a domain by a practitioner, possibly without a systems vocabulary	A2. Systems concepts applied within a domain by a practitioner, with the explicit use of systems vocabulary, possibly adapted to disciplinary language	A3. Development of new systems concepts and language driven by practice within a domain
B. General systems knowledge, developed in a pure sense (i.e. interdisciplinary / transdisciplinary)	B1. (not developed within Team 2's conversation)	B2. (not developed within Team 2's conversation)	B3. (not developed within Team 2's conversation)

While the participants in Team 1 generally focused on increasing the level of expertise and systems knowledge (i.e. moving towards the right in the matrix), our discussion saw an appropriateness for applied levels (i.e. towards the left). While it is important to have masters who can continue to develop theory, widespread application of systems knowledge in practical situations requires adoption of language and concepts amongst a larger population.

2.2 The appropriateness of articulating systems knowledge can vary by the role played in engagement

The range from theoretical mastery to implicit sense-making was evident in the our contextual histories. The domains of business (i.e. information technology consulting) and peace negotiations (i.e. conflict in Sri Lanka) served as concrete examples to illustrate the matrix.

An example consistent with the above distinctions parallels roles assigned in the design and delivery of engagements, within IBM Global Services

- A1: a *consultant* takes accountability for producing work products and deliverables to specification, e.g. a "business direction" artifact predefined as a work product, rather than a "strategy" artifact where the purest definition of strategy can include deception, which isn't helpful in constructing information systems;
- A2: a *methodology exponent* takes accountability to assist joint teams of clients and consultants with the selection of appropriate modules for execution within an engagement, excluding other work as out of scope so that engagements goals can be achieved within budgets; and
- A3. a *methodology author* takes accountability to develop reusable -- rather than situational -- engagement models including work products and technique papers, as modules within an enterprise system of methods.

The economics of delivering consulting engagements and the practicality of training practitioners to varying levels of expertise -- across multiple domains of knowledge -- means that a desirable target depth of systems knowledge can be specified.

- An *A3 expert* seeking generality across multiple engagements can conflict with an A1 practitioner's goal to satisfy the immediate desires of the client at hand.
- An *A2 exponent* increasing rigour in a consulting engagement can be counterproductive to A1 practitioners, introducing questions that slow down the immediate progress on work at hand.
- An *A1 practitioner* producing one-of-a-kind deliverables inconsistent with the larger knowledge system undermines easily replicability, with the downstream impact of increasing the cost of replication in future engagements..

These distinctions led to questions about the appropriate depth of systems knowledge for facilitators and participants in the context of peace and conflict talks.

- Do the *front-line negotiators* meeting face to face need an A1 depth or A2 depth of systems knowledge?
- For *leaders responsible for forming negotiation teams*, can a set of A2 essential systems concepts or principles be developed?
- For an *expert in the peace and conflict domain* with a mastery level of systems knowledge, which systems concepts have already been developed, and where would greater articulation be helpful?

Systems knowledge can be consistent across all of the roles, but the tensions between rigour and relevance may manifest in varying vocabularies and behaviours in systems practice.

3. When are domain-specific issues providing entry points into which systems knowledge becomes valuable?

While the participants in this conversation clearly possess systems knowledge, its applicability is situational. In many cases, disciplinary knowledge is appropriate and sufficient. When expertise or concepts beyond disciplinary boundaries seems inadequate, an entry point for systems knowledge opens. Experiences with applications of system thinking were discussed in four domains:

- systems studies through a history of science approach (i.e. systems of system concepts and systems researchers);
- graduate-level education (i.e. master's programs in management and engineering);
- peace and conflict situations (i.e. negotiation as alternatives to civil war and struggles between ethnic groups); and
- system envisioning of future state business organizational and technology alternatives and options (i.e. business architectures)

These domains each have large bodies of disciplinary knowledge commonly used by practitioners within their fields. Ways in which systemic foundations complement disciplinary knowledge were discussed.

3.1 Continuing professional development of systems knowledge was difficult from a conceptual entry point, and easier as history of science

Four of five participants of this Fuschl Conversation had previously participated in an ongoing, open-ended research project called the *Systems Sciences Connections Conversation*. This series of meetings was initiated by senior members of the ISSS, with the goal of improving an appreciation of systems science content at postgraduate levels. These meetings have a specific agenda to develop systems knowledge amongst ISSS officers, to the exclusion of planning and operating society matters that can be conducted in other settings.

In preparation for this initiative, a survey of books collecting systems articles was posted on the ISSS web site. In the inaugural two-day meeting of this group in October 2007, the group attempted to coalesce around a set of systems concepts. Frustration ensued as the discussion became too diffuse, flitting from one topic to another. As illustrated in the *International Encyclopedia of Systems and Cybernetics* (Charles Francois, editor), the systems movement has had the benefit and burden of open exchanges of ideas and definitions. An entry point of "relevant" systems concepts proved to be too situational when faced with the extended history of thinking that has made up systems movement.

Subsequent conversations has been more successful with history of science as an entry point. While libraries and booksellers provide access to the writings of specific authors in the systems movement, many of these luminaries developed their bodies of work contemporaneously with each other. In a very few cases, archives may contain letter or communciations between these systems figures, but the understanding of convergences and divergences in viewpoints is underdeveloped. This project had adopted the view that -- at a postgraduate level of understanding -- the ideas and work of systems scientists can not be separated from the people and personalities. The approach recognizes that systems of ideas are transferred in different ways, with many ideas transferred in conversations -- often at the bar, after formal meetings of the day have been completed.

3.2 Developing a curriculum for a new science of services systems leans on systems science as an entry point apart from existing disciplines

One participant has been developing a base of knowledge in response to a call by IBM Research to develop a science of service systems, through an initiative known as Services Science, Management and Engineering. Others from the group had participated in a workshops in Tokyo, at the Shibaura Institute of Technology in August 2007, and at the Tokyo Institute of Technology in March 2008.

The challenge was to develop a master's level seminar for management and/or engineering students, based on an emerging science of service systems. In the absence of a clearly accepted and defined body of work, systems science was proposed as a foundation for systems science. An outline of ten topics -- appropriate for a 10-week or 13-week course -- was described and developed. In this case, the opportunity to be "on the ground floor" of a new science of service systems presents an entry point for graduate students to make systems knowledge relevant. The draft ideas from this discussion were further developed, and presented as a paper at the ISSS Madison 2008 meeting.

3.3 Facilitating multi-faction negotiations on regional ethnic confict has presented systems models as an entry point for sustainable resolution

One of the participants has been working on an approach / method / process by which multiple factions (i.e. more than two) parties will engage in negotiations. Within Sri Lanka, there is conflict between the Sinhalese and Tamil Tigers, and identifying Tamil Tigers (alleged terrorists) amongst the general Tamil population is not obvious. The parties temporarily stop aggression during periods of negotiation, but talks break down and ensuing battles result in a lot of people die.

At the level of research, the systemic perspective of the Viable Systems Model has been applied to develop an approach for a sustainable resolution to the conflict. There is no question that this systems knowledge provides insight for the expert. Effective change requires, however, more widespread application of associated principles and techniques. Thus, the practical question as to appropriate depth of knowledge for on-the-ground facilitators -- as well as the negotiating parties themselves -- remains outstanding.

3.4 The development of skills and methods for analytical business professionals uses systems as an entry point to bridge hard and soft approaches

Amongst professionals working in information technology, there is ongoing development of a role of business architects. Definition of this role has been prominent within the Business Architecture Working Group of The Open Group, the Business Architect Working Group of the Open Management Group, and within IBM Global Services. Individuals espousing the role of business architect generally possess both business and technical skills, and may play roles in consulting services, services delivery and/or sales.

The combination of designing both human systems and technological systems presents an entry point for systems knowledge. Many business architects come from prior experiences as IT architects, and are thus practitioners of systems emphasizing in the technology domain. While many with technical training may personally broaden their knowledge into the business domain through parallel training (e.g. MBA programs), there is an opportunity to enter through a common foundational level of systems science. In IBM, systems thinking has been named as a specific competency for the role, and training materials are available at a very high conceptual level. (Educational artifacts may date as far back as the early 1980s).

Within the standards groups, specification of business architecture skills continue to develop. In parallel, research into developing appropriate modeling tools is promising. The general spirit is to enable business architects with computer-based tools that ease the creation of diagrams and sketches with high precision and low detail. From this initial abductive representation, more rigourous modeling tools (e.g. for business process modeling, and/or architectural/technology modeling in Unified Modeling Language) used by technical professionals could be deduced and detailed.

4. How is the nature of systems knowledge coevolving with institutions (public, private, not-for-profit) and technology (wikis, blogs, voice over Internet)?

The systems movement has -- at least -- a continuing legacy of 50 years of developing knowledge. While many of its ideas undoubtedly have durability, the relevance and presentation of systems knowledge needs to evolve with the times.

Reiterating "classic works" in systems theory is one way of educating the non-informed, but a purely academic pedagogy is not the only approach. Parallels can be drawn to the development of jazz musicians. Truly gifted musicians require little guidance, and can become virtuousi even without learning to read sheet music. A large number of musicians in college-level jazz programs come, however, from a long tradition of classical training. An approach that extends that training works from transcriptions of the works of great jazz musicians, and first mimicking them. The result is often classical musicians who are capable of playing jazz with the right rhythms, but really aren't natural in the genre.

An alternative approach to training jazz players is to break from theoretical knowledge (i.e. reading music). Instead, the feel of jazz is emphasized. The first lessons are on backbeat (i.e. playing on 2 and 4, instead of on 1 and 3). From that foundational intution, students follow a more experiential approach to learning, neither denying or requiring classical foundations such as harmony and counterpoint.

In a parallel way, much of the writing in systems theory -- from the 1950s through 1980s -- should be revisited in the light of the contemporary world. Some ideas may be found obsolete, but other ideas may be reinforced and reintroduced to greater relevance.

4.1 Messy social-economic-political issues are an opportunity for continuing development of systems knowledge

Around the world, people are finding the pace of change in their lives to be challenging, if not overwhelming. Climate change is front page news. Jet travel, lowered national boundaries and ubiquitous information and communication technologies have made the world smaller. Simultaneously, there is pressure on resources as fossil fuels escalate in price, and systems providing of food and water are stressed.

In the search for alternative approaches to solving problems, studies such as *Limits to Growth* are being resurfaced. Many of their trends have come to fruition, illustrating a time lag longer than initial readers were prepared to accept. While all of us would prefer a world where these problems did not exist, they are circumstances where the "big thinking" of systemicists may be appropriate and helpful.

4.2. Presenting systems knowledge to a new generation of thinkers represents a potential for another rebirth of the systems movement

Technology changes -- particularly in Internet-based collaborative environments -- have led to a new generation of young adults who are more connected globally, yet are not engaged in the traditions of systems research. These are people who are probably not opposed to systems knowledge. They probably just don't know about it, and/or haven't found a need to apply it.

Internet technologies enable rapid and real-time communications that enables systems researchers to share and exchange ideas globally. The long history and breadth of systems research provides a wealth of theory available to practitioners, but those practitioners may have neither the motivation nor entry point into the literature for today's fast-paced world of people with short attention spans.

Mature systems researchers should find ways to bring these new ways into their practices, as opportunities to move the systems movement forward. Young adults and teenagers immersed in the global world of interconnected communications may be drawn into the systems movement by making systems research relevant to their contexts. The obsolete mindsets of long-time academics is annually compared with the mindsets of entering college students in the annual Beloit College Mindset List.

For novices in the system movement, relevance defines the entry point into which systems practice and system research can enter. Three levels are suggested:

- 1. Systems concepts applied implicitly within a domain, using neither explicit systems vocabulary nor formal systems concepts.
- 2. Systems vocabulary explicitly applied in the domain, with additional meaning overloaded by a disciplinary context.
- 3. Systems foundations applied rigourously within a domain, by systems experts with a depth of understanding both in the domain at hand, and in the general isomorphisms across multiple disciplines.

Failure to make the systems movement relevant can be seen as a fault within the community, rather than a fault in the rest of the world who have never considered the difference that a systems view can bring.

Epilogue: Our appreciation to the IFSR and the continuing Fuschl conversation

With all of the preceding points on a changed world, these participants of Fuschl Team 2 acknowledge the continuing value of the Fuschl conversation, and its sponsorship by the IFSR. The Fuschl conversation, both in its setting and its style, represents an enduring institution in the continuing development of systems research.

As the world becomes faster, face-to-face communications in a loosely structured agenda has proven to be effective for post-graduate learning -- both at the level of individuals and in groups -- in an unstructured / emergent way. A large degree of diversity in participants is helpful in evolving ongoing work, and generating new directions and collaborations

In addition, artifacts of prior conversations are helpful as references for ongoing research. Ideas from a conversation in 2000 (i.e. on aporetic conflict) resurfaced in 2008, and are being revisited in current research. The path from idea generation to initial documentation to published research to application is ambiguous in its direction and duration. The combination of easily-accessible proceedings and in-person availability of prior participants improves the transmission of knowledge.

Interactions within small teams, with periodic reports and visits to other teams, represents an effective inquiring system where new ideas can be combined with an emerging network of ideas that continues to regenerate and refresh the systems movement.

Appendix: What is the IFSR?

The History

A good half a century ago, right after the end of the dreadful period from 1914 to 1945 comprising World War I, the World Economic crisis, and World War II, scientists such as Ludwig von Bertalanffy, Norbert Wiener and their colleagues found a response to the terrible events that killed tens of millions of people: holistic rather than fragmented thinking, decision-making and acting. They established two sciences to support humankind in the effort of meeting this end, which is a promising alternative to the worldwide and local crises. These sciences were *Systems Theory* and *Cybernetics*. System was and is the word entitled to represent the whole. One fights one-sidedness in order to survive. Nevertheless every human must be specialized in a fragment of the immense huge knowledge humankind possesses today. Thus, one-sidedness is unavoidable and beneficial, too. But networking of many one-sided insights can help all of us overcome the weak sides of a narrow specialization. Thus, we all need a narrow professional capacity and add to it systemic / holistic thinking.

From this combination most modern equipment resulted, most modern knowledge in all spheres of human activity, solutions to environmental problems, etc. Most of the remaining problems can be ascribed to a lack of this combination, and there are many around that can hardly be solved without systems thinking and creative co-operation of diverse specialists.

Our responsibility for the future obliges us to try to improve the current situation and not to leave an excessive burden to future generation. The Founding of the IFSR

Since a system, in its general abstract definition, is more than its parts as well more than the sum of its parts, it was decided to interlink groups of system thinkers around the world and to try to find answers to some of the pressing problems of the world.

On March 12, 1980 during the 5th EMCSR-Congress in Vienna the three important societies in the area of systems research, the *Österreichische Studiengesellschaft für Kybernetik*, the *Systemgroup Nederland*, and the *Society for General System Research* founded the *International Federation for Systems Research* The key persons were: Robert Trappl, George J. Klir, Gerard de Zeeuw. They became the first officers of the IFSR.

Strong support came from the then Austrian Ministry of Science and Research in the person of Norbert Rozsenich providing some financial support and Paul F de. P. Hanika, taking the responsibility of Editor in chief of the Newsletter of the IFSR.

Aims and Goals of the IFSR

The constitution of the Federation states:

The aims of the Federation are to stimulate all activities associated with the scientific study of systems and to co-ordinate such activities at the international level by:

- co-coordinating systems research activities of private persons and/or organizations;
- organizing international meetings, courses, workshops, and the like;
- promoting international publications in the area of systems research;
- promoting systems education;
- maintaining standards and competence in systems research and education; and
- any other means … [to] serve the aims of the members.

The first Board Meeting (June 1980) defined the Federation's goals:

- **Social Learning Goal**: Strengthen the programs of member societies by their involvement in the program and network of IFSR.
- **Membership Development Goal:** Facilitate (encourage) the development of Systems science in countries in which such programs do not yet exist or are now developing.
- **Synergetic Goal:** Develop – implement – evaluate IFSR-level programs to meet the purposes of IFSR to advance systems science.
- **Resource Development Goal:** Identify an inventory of system science relevant resources, acquire those and make them accessible to member societies.
- **Global Mission:** Make contribution to the larger (global) scientific community, be of service to improve the (global) human condition, and enrich the quality of life of all. The Growth of the IFSR

Many prominent system scientists have been officers of the IFSR since 1980

starting	***President***	***Vice-President(s)***	***Secretary/Treasurer***
1980	George J. Klir	Robert Trappl	Gerard de Zeeuw
1984	Robert Trappl	Bela H. Banathy	Gerard de Zeeuw
1988	Gerrit Broekstra	Franz Pichler	Bela Banathy
1992	Gerard de Zeeuw	J.D.R. De Raadt	Gerhard Chroust
1994	Bela H. Banathy	Michael C. Jackson	Gerhard Chroust
1998	Michael C. Jackson	Yong Pil Rhee	Gerhard Chroust
2000	Yong Pil Rhee	Michael C. Jackson	Gerhard Chroust
2002	Jifa Gu	Matjaz Mulej, Gary S. Metcalf Jifa Gu	Gerhard Chroust
2006	Matjaz Mulej	Gary S. Metcalf Yoshiteru Nakamori	Gerhard Chroust
2008	Matjaz Mulej	Gary S. Metcalf	Gerhard Chroust

In the 25 years of its existence, the IFSR has shown a healthy growth. It now counts 36 members, representing scientists from 25 countries on most continents.
The most recent list can be found on **http://ifsr.ocg.at/world/node/3**

IFSR Activities

The IFSR pursues successfully numerous activities:

- *Systems Research and Behavioural Science (*ISSN 1092-7026), the official scientific journal of the IFSR, edited by Michael C. Jackson, published since 1984
- *International Series on Systems Science and Engineering*, IFSR's book series, established in 1985, edited by George J. Klir, now published by Springer, New York
- the yearly *IFSR Newsletter*, the informal newsletter of the IFSR (paper : ISSN 1818-0809, online: ISSN 1818-0817**),** published since 1981, edited by Gerhard Chroust
- The I*FSR* web-site (http://www.ifsr.org) informing the world about the Federation's activities
- *the IFSR Fuschl-conversations,* taking place every other year since 1982 in Fuschl near Salzburg, Austria, discussing issues of social learning
- Support for other events (e.g. the EMCSR-conference in Vienna every second year)
- Sponsoring a bi-annual Ashby-lecture at the European Meeting on Cybernetics and Systems Research (EMCSR)

Future Plans

More than ever Systems Sciences are seen as a basis for balancing the divergent needs and interests between individuals and society worldwide, between ecology and economy, between nations of various levels of development and between differing worldviews.
The IFSR commits itself to increase its contributions answering the needs as expressed in its original aims and goals. Some new activities, in line with the needs and the challenges, have already been started:

- The *Bertalanffy Library*: In cooperation with the Bertalanffy Center for the Study of Systems Science (led by W. Hofkirchner) the IFSR will both help to preserve, revive and disseminate systems concepts and knowledge in general and L. v. Bertalanffy's ideas and work on General Systems Theory in particular.
- *ESCO - The International Encyclopaedia of Systems and Cybernetics b*ased on Charles Francois' seminal International Encyclopedia of Systems and Cybernetics. This work will be continued, supplemented electronically as an attempt clarify and reduce inconsistent terminology and semantics in the field.
- The *International Academy of Systems and Cybernetics* (led by M. Mulej) as a forum for persons professionally excelling in System and Cybernetics Research
- *Supporting our member associations* in organizing conferences and workshops

Current Officers of the IFSR

President	Vicepresident	Vicepresident	Secreatry General
Prof. Dr. Matjaz MULEJ	Prof. Yoshiteru Nakamori	Dr. Gary S. METCALF	Prof. Dr. Gerhard CHROUST
University of Maribor, Slovenia	JAIST - Japan Adv.Inst. of Science and Tech., Japan	InterConnections LLC, USA	Kepler University Linz, Austria
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The aim of the Fourteenth Fuschl Conversation in 2008 was to continue the tradition that had been established, but with a renewed focus on coordination between the participating teams. The overarching theme for the conversation was systems research and education, and each individual team conversation fed into this. (This helped to overcome some of the diversity of topics, and the resulting difficulties in sharing of information that had developed over the years.) Importantly, this built on the ongoing work within many of the member organizations of the IFSR, e.g. the production of systems journals and archives, and the development of educational programs and courses. The outcomes of this conversation, while at a high conceptual level, supported further practical applications through individual member activities.

The Conversations basically followed the scheme used in earlier Fuschl Conversations as devised by Bela H. Banathy. 23 renowned systems scientists and systems practitioners from 12 countries took part in this 5-day conversation.
The outcome of the conversation is summarized in 4 team reports plus several contributed papers.

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