

**IEEE Systems Council  
Meeting May 12 & 13, 2006  
Orlando Florida  
Minutes**

**DRAFT**

The meeting was called to order at 8:30 AM Friday May 13, 2006, at the Renaissance Hotel, Orlando Florida. Meeting attendees are listed in **Appendix A**. Current Systems Council officers and appointed committees are listed **Appendix B**.

**Opening Remarks, Introductions**

President Bob Rassa opened the meeting by welcoming all the attendees. The meeting agenda was reviewed, and Systems Council Members were introduced. Bob provided an overview of what the council is trying to accomplish. He stressed that the goal of the Systems Council is to focus on larger and more comprehensive systems. He also stressed that the purpose of the Systems Council is to promote synergism among the IEEE societies. The need to collaborate with other engineering societies outside the IEEE was also discussed. Mark Montrose gave a nice Quote: *“Every man takes the limits of his own field of vision for the limits of the world.” Arthur Schopenhauer, 1992/12/07.*

Bob emphasized that this was a strategy meeting, and the council needed to focus on the following issues:

- Identify focus/theme of the first Systems conference as well as the Systems Journal
- Finalize the Systems Council Logo
- Develop strategies for Systems Engineering certification and accreditation

Bob emphasized that the Conference and the Systems Journal content should be prioritized in order to provide an additional opportunity for our member Societies to expand their influence. **Appendix C** - Systems Council Strategic Plan and Priorities summarizes the various discussions and break out sessions that took place to set these priorities.

The council's intentions are to allow co-operation opportunities with member Society publication and conferences in selecting topics of mutual interest and/or where the Society FoI overlaps. The council and its products & tasks will be primarily application focused for the engineering practitioner, which is the main thing that a recent IEEE member poll indicated that the members wanted. Bob indicated and the council agreed that we are on the right track and encouraged all the member Societies to identify via their representatives to the Council their desires and interests, so that the Council can better serve the Societies and the IEEE.

Highlights of the discussions on these three topics are provided below. Other topics discussed, actions items, and motions proposed are also described.

**Systems Council Conference** –The goal is to create a forum for the advancement of the practice of system design, development, and management, across the multiple disciplines and specialty areas associated with the engineering of systems. The conference will also provide a venue for systems engineering practitioners, managers, researchers, and educators to exchange innovative concepts, ideas, applications, and lessons learned.

The technical content of the conference will focus on the engineering of complex integrated systems and systems-of-systems, and the implications for systems engineering, systems integration, and systems thinking. The first Systems Council Conference was decided to take place in April 2007 Honolulu. The overall conference arrangements will be coordinated by Bob Rassa. The Technical Program Chair was identified as Paul Croll and a Co-Chair Theodora Saunders. An estimate of 200-300 expected conference attendees. Paul agreed to send out a call for papers notice with the conference dates, and the paper submission deadlines. Paul Croll indicated that the call for papers will clearly indicate that we want papers of multiple topics, and that we want both systems engineering topics in the SoS environment as well as applications, and systems engineering research.

**IEEE Systems Journal** –The Journal will publish technical or non-technical application-focused articles on systems of national as well as global significance. Papers published in this journal will have a wider inter-society appeal among the Council’s family of societies. TAB approval of the Systems Journal is expected in July. The finalized “New Periodical Proposal Approval Phase Two Form” is included in **Appendix D** of these minutes.

**Systems Council Logo** – The council had previously voted on the preferred design. The selected Systems Council Logo was presented and the council proposed additional minor modifications. The Logo was finalized. Bob did an excellent job in coordinating the logo development. The final Systems Council Logo will also be used for our Web Site. The log can be used as stand alone or with the IEEE Logo.

### **Systems Engineering Curriculum, Certification and accreditation**

Bob Rassa opened the discussion by emphasizing the strategic importance of IEEE to be the leading society in curriculum accreditation. Discussions regarding systems engineering curriculum, certification and accreditation concluded with the consensus that IEEE should be a leading organization for this activity. It was also recognized that strategically the council has an important role to play because of the synergistic focus on systems.

The need for developing a systems engineering curriculum at both the undergraduate and graduate level was discussed. Other certification programs such as the INCOSE certification program were compared. The INCOSE test is based upon the INCOSE book of knowledge based on EIA/IS 632 with primarily a DoD focus. Bob Rassa said that Raytheon looked at the INCOSE certification program and in his opinion it doesn’t include domain-specific knowledge. INCOSE makes \$400 for the course so it is a

money maker. The IEEE Systems Engineering certification will focus and better address the depth of specific domain knowledge. PMI was identified as one of the most successful developers of a professional certification programs. Stephanie White indicated that the Computer Society also looked at this and decided to do this.

Bob indicated that there are 35 Sys Eng programs in the US with only one accredited graduate program. There are 11 accredited undergraduate programs in Systems Engineering; however, the program criteria are almost not defined. IEEE is already supplying the “program visitors” for these Systems Engineering programs. These programs are reviewed at least every 6 years. The criteria are broad...such as # hours of math needed. The program criteria vary from very detailed “proscriptive” criteria to very broad. Key program criteria include the curriculum, quality of faculty, and faculty student ratio. Industrial Engineering was also identified as another professional society that we could collaborate for the certification. Therefore, strategically we need to move fast and secure a leading role. Some examples of lost opportunities were discussed including the IEEE giving away lead society status of biomedical to Biomedical Eng Society.

Dr. Orr gave a very informative presentation on ABET accreditation. The main accreditation objective is to assure that graduates of an accredited program are adequately prepared to enter and continue the practice of engineering. Other objectives include stimulating the improvement of engineering education, while encouraging new and innovative approaches to engineering education *and* its assessment. Dr. Orr also discussed the structure and responsibilities of the Committee on Engineering Accreditation Activities (CEAA). The primary CEAA responsibilities include: Selection and training of program evaluators, Coordinating assignment of evaluators to programs, Reviewing evaluator reports and assuring consistency in evaluations, Reviewing evaluator performance (based on report, team chair, program head), Reviewing Program Criteria. In addition, the CEAA provides input to IEEE/EAB and the ABET/EAC on changes in General Criteria and procedures. Dr Orr indicated that that IEEE has the most votes on ABET. Suggestions were made to collaborate with the Institute Of Industrial Engineers as a co-operating Society, with IEEE (Systems Council) as the lead society. There is a “Lead Society” and a “Cooperating Society”. The Lead Society proposes program criteria, selects and trains program evaluators, assigns program evaluators, reviews evaluator reports, manages final action on visits, pays fees to ABET for the programs for which it is lead.

Dr. Brown of UVA indicated that SE is growing rapidly at undergraduate level even though many are not being accredited.

### **Special Guest - Dev Banerjee, Boeing – Integrated Defense Systems**

Dev gave an overview of how Boeing defines Systems Engineering including the Systems Engineering execution model and infrastructure, training, process maturity and certification. Boeing emphasis on the graduate level study in systems engineering was also discussed.

Extractions from Boeing 2016 Vision was presented: “*detailed customer knowledge; large scale integration; lean and efficient*”. Boeing recognizes that Large Scale

Integration requires SE skills in managing large complex project. The Boeing Engineering Process Council authorized a Systems Engineering graduate education initiative with partnership with USC and UMR. The program has been a great success and is maturing (approx. 200 grads and 300 currently enrolled). In addition, most Boeing sites work with local universities. Several universities have proposed SE programs and requested Boeing support, guidance, and input. Boeing focuses on development/content of graduate-level SE programs with various universities. Emphasis on practical experience within one's specific engineering discipline before taking on the role of Systems Engineer/Integrator (Software, Structural, Electrical, etc.).

### **Budget & Finance**

Pubs projected to be losing money for 3 years until we get IEEE pubs ISPP income.

| Year | Pages | Income |
|------|-------|--------|
| 2007 |       | -\$16k |
| 2008 |       | -\$18k |
| 2009 | 500   | -\$20k |

Some total positive for 2007 with conferences and education workshops rolled in.  
Society annual dues income = \$70k

Once in the black we will reduce society dues to ~\$2,000/yr.

Bob says to use other-than-IEEE publishing such as E-Journal, Allen Press, Manhattan Press.

*Bob to provide input I was not in the side discussion*

### **Other Discussions**

- Very good discussions and ideas were generated with respect to collaborating with other societies within the IEEE as well as outside IEEE. Joint meetings and formation of joint chapters was discussed.

### **Action Items**

1. Society representatives to work with their societies to identify articles for publication and potential and co-sponsored events. (AI-0011)
2. Bob Rassa to arrange a teleconference with Dr. Kam to formulate an approach for IEEE to be the leading society for the SE accreditation. (AI-0012)

### **Motions**

1. Paul Gartz made the motion for the Systems Engineering Council to be part of the ICEO. (M-0005)

## **Appendix A - Meeting Attendees**

Bob Rassa, I&M  
Brown, Don, UVA  
Orr, John EAB  
Paul Croll, CS  
Mark Montrose  
Wade Shaw, EMS  
Clyde Chittister, I&M  
Paul Gartz, AES  
Theo Saunders, AES  
Robert Lyons, AES  
Alicia Casals, RA  
Wai-Chi Fang, CAS  
White, Stephanie

Special Guest: Dev Banerjee, from Boeing

## Appendix B - Current Council Officers

| President                                   | Bob Rassa   |
|---|---|
| President – Elect                           | Paul Gartz  |
| Vice-President, Technical Operations        | Paul Croll  |
| Vice-President, Conferences                 | Jim Barbera                                       |
| Vice –President, Publications               | Wade Shaw   |
| Vice-President, Finance                     | Clyde Chittister                                  |
| Secretary                                   | Theodora Saunders                                 |
| Treasurer                                   | Ian Hiskens                                       |
| <b>Appointed &amp; Automatic Committees</b> |   |
| Meetings                                    | Paul Croll  |
| Publications                                | Wade Shaw, Chair; Mo Jamshidi,<br>Marcello Simoes |
| Nominations & Appointments                  | TBD   |
| Constitutions & ByLaws                      | Mark Montrose                                     |
| Fellows                                     | Steve Adam  |
| Standards                                   | Steve Adam  |
| Finance                                     | Clyde Chittister                                  |
| Liaison & Transnational                     | Wai-Chi Fang                                      |

### Other Appointments

Don Brown has taken on Committee Chair for Education, Training and Mentoring  
Wai-chi has taken the responsibilities for Chapters and International Chair  
Theodora Saunders - Conference Technical Program Co-chair  
Bob Lyons, Alicia White and Wai-Chi are Tech Committee members  
Wai-chi will also assist with the Conference Publications

## Appendix C - Systems Council Strategic Plan and Priorities

### Strategy Session Goals to Develop:

- a) Field of Interest
- b) Systems Council Vision and Mission Statements
- c) Domains Definition: SoSs and Disciplines
- d) Suggested Priorities for Initial Focus
  - Pubs – done
  - Conferences
  - Education, Training and Mentoring
  - Standards
- e) Funding needed?
- f) Issues to Address

### Field of Interest – Official

*“This Council integrates IEEE activities regarding aspects of multiple disciplines and specialty areas associated with the engineering of systems. This Council covers, but is not limited to the following:*

- *Systems engineering, education, standards, processes and methodologies*
- *Modeling, simulation and integration related to design, testing, production and support*
- *Design aspects for robust design, human factors, safety, security and usability*
- *Transition of products from design to production, deployment and use*
- *Quality control and system management*
- *Program/product/project management interactions*
- *Risk Management*
- *Systems Architecture”*

### Systems Council Vision Statement

Increase the total effectiveness of complex integrated systems of national and global significance.

### Systems Council Mission

Promote and integrate system thinking  
Bring together government, industry and academia  
Bridge research, education, application and operational domains  
Bridge disciplines and organizations

### Systems Council Scope – Unique Elements

Engineering and Operations  
Living systems  
Business  
Politics  
Markets

### Funding to Address

Need resources to financially cover the cost of Sys C pubs

## **Field of Interest Dimensions**

The Systems Council organizes its field of interest into two key dimensions: complex systems/systems-of-systems (SoS) and the multiple disciplines needed to develop and operate these.

### **○ Systems Council Systems/Systems-of-Systems Domains**

- Autonomous Vehicles and Systems SoS
- Disaster Response SoS
- Energy SoS
- Environmental Monitoring and Control SoS
- Exploratory Exploration SoSs
  - Space
  - Terrestrial
  - Underwater
- Financial – Insurance SoS
- Food Chain SoS (growth to consumption)
- Global Earth Observation & Prediction SoS
- Human Health and Life Science SoS
- Intermodal Transportation Systems SoS
- Logistics SoS
- National Defenses Security SoS
- Organizational Internal SoS
- Privacy SoS
- Security SoS
- Social/Political Systems
- Socio-economic (including trade, banking, etc. systems)

### **○ Systems Council Disciplines, Processes, Skills Domain**

- Automation
- Control, Decision Making and Optimization
- Management of Large-scale Systems
- Manufacturing
- Mission Assurance
- Modeling and Simulation
- Nano-technology
- Product Life Cycle
- Regulatory Compliance
- Reliability, Availability, Safety, Maintainability, Quality
- Risk Management
- Scholarship of Systems Eng
- Systems Engineering Processes Systems-of-Systems
- 

### **○ Systems Council Products and Service (P&S) Areas**

- Conferences/Workshops/Symposia
- Educational Training and Mentoring
  - Accreditation

- Books
- Certification
- Systems Engineering Curricula (formal education)
- Tutorials in Education and Training (continuing education)
- 
- Publications
  - Journal
  - Magazine?
- Standards

○ **Domain of Sys C Member Societies:**

*Major Systems and Subsystems that are Part of Systems-of-Systems;*

- Aerospace-based Transportation Systems
- Biological and Life Sciences Systems
- Communication Systems
- Computing including software and IT Systems
- Distributed Information Networks Systems
- Electrical Power Systems
- Robotic Systems
- Terrestrial Transportation Systems
- Water-based Transportation Systems

**Systems Council Key Questions to Address**

Comment: Our Systems Council job is to address issues in new ways that are not solvable in the domains of the existing IEEE or other societies or global organizations. These do not fit hierarchical boundaries. E.g., Katrina is not solvable by pure engineering solutions. We need to think about changing the paradigm.

**Questions System Council is Trying to Address**

***So what are these problems of national and global significance that fit this description?***

- ???

***What are the Systems Council’s approach to surfacing these problems and leading/facilitating global dialogs and solutions?***

- ????? Above List?

***How does Systems Council deliver value to our “customers” and who are they?***

Member Societies?

How to increase their members, esp practitioners  
Don’t take their revenue base.

IEEE at Large

Global

## Other Misc Notes

### Breakout Session on Strategy

- Develop core knowledge of SE
- 1<sup>st</sup> Step = Workshop with industry, academia and IEEE Societies
- Bob Lyons advocates a separate track for the futures and another for academia and another for industry with same
- Separate “SE Education” from “SE Training”
- SE R&D for the future workshop with both academics and industry together
- Gus says we need the top 5-10 people.
- Bob’s answer: Mark Wilson, George Friedman and Stan Settles, Donna Rhoades, Wade Charles,
- Comment that the Systems engineering Program leaders do get together 2x/yr. UVA accredited since 1975.

## Appendix D

### NEW PERIODICAL PROPOSAL APPROVAL PHASE TWO FORM

5/12/06

**PERIODICAL TITLE:**

IEEE SYSTEMS JOURNAL (ISJ)

**LAUNCH YEAR:**

2007

**FINAL PERIODICAL CO-SPONSORS:**

IEEE Systems Council

**FINALIZED PERIODICAL SCOPE:**

This publication is created to provide a systems-level, focused forum for application-oriented manuscripts that address complex systems and system-of-systems of national and global significance. It is intended to encourage and facilitate cooperation and interaction among IEEE Societies with systems-level and systems engineering interest.

Our Systems Council job is to address issues in new ways that are not solvable in the domains of the existing IEEE or other societies or global organizations. These problems do not fit within traditional hierarchical boundaries. For example, Hurricane Katrina is not solvable by pure engineering solutions. We need to think about changing and enlarging the paradigm to include systems issues.

**PERIODICAL NEED:**

**Provide the explanation of why this periodical is needed.**

- The journal will stimulate awareness, appreciation and utilization of systems thinking in key application domains using supporting systems engineering disciplines, processes, and skills. Themes that will be addressed include complexity, integration, inter-operability, dynamics, communication, effectiveness, ethics, and completeness. This publication fills a void unaddressed by most other journals, both within and outside the IEEE.
- The Systems Council organizes its field of interest into two key dimensions that influence the construction of the proposed journal. First, domains of systems and systems-of-systems (SoS) are identified that are not currently addressed well by existing IEEE publications. Second, the disciplines, processes and skills associated with the Systems Council establish the technology applied across the domains.

#### **1. Systems Council Systems/Systems-of-Systems Domains**

- Autonomous Vehicles and Systems SoS
- Disaster Response SoS
- Energy SoS
- Environmental Monitoring and Control SoS
- Exploratory Exploration SoSs
  - ✓ Space
  - ✓ Terrestrial
  - ✓ Underwater
- Global Earth Observation & Prediction SoS
- Human Health and Life Science SoS
- Intermodal Transportation Systems SoS
- Logistics SoS
- National Defenses Security SoS
- Organizational Internal SoS

- Privacy SoS
- Security SoS
- Social/Political Systems
- Socio-economic (including trade, banking, etc. systems)

## **2. Systems Council Disciplines, Processes, Skills Domain**

- Automation
  - Control, Decision Making and Optimization
  - Management of Large-scale Systems
  - Manufacturing
  - Mission Assurance
  - Modeling and Simulation
  - Nano-technology
  - Product Life Cycle
  - Regulatory Compliance
  - Reliability, Availability, Safety, Maintainability, Quality
  - Risk Management
  - Scholarship of Systems Engineering
  - Systems Engineering Processes and Systems-of-Systems
- This journal intends to publish regular issues as well as special issues (SIs) and joint issues (JIs) collaboratively with Council member's publications. We wish to target professionals from industry not yet addressed by the IEEE with the goal to increase IEEE and Society membership. Issues of the journal as well as SI and JI would focus on our domains identified above and embrace the Societies' technical profiles. Our goal is to disseminate industrial application of systems thinking. To achieve collaboration with our sponsoring Societies, the ISJ's Advisory and Review Boards will include members from those societies. We can insure that our focus is maintained with minimal overlap with existing IEEE publications by consulting current and former editors and current or former Society officers.
  - Surveys completed by the IEEE indicate a need for practical articles. This journal targets the industrial community and solicits articles from practitioners. The journal welcomes the academic community and supports the need to advance theory.

### **OVERLAP WITH EXISTING IEEE PERIODICALS:**

We have examined journals that may overlap with our proposed publication carefully. Discussions with Society representatives lead us to believe that our systems domains provide a journal focus that does not tread on existing journal scopes or areas of interest. While systems issues, disciplines, processes, and skills are widely used and deployed in Society fields of interest, we target the larger domains where the emphasis of existing journals is not sufficient to fully address the challenge. We indicate below the IEEE publications with potential overlap and in parenthesis indicate those journals' specific focus.

#### IEEE Transactions & Journals:

- T-CAS: I and II (*focused on circuit analysis and design*)
- T-SMC: A (*focused on systems engineering and human machine systems*)
- T-SMC: C (*focused on application papers concerning systems engineering, human machine systems, and cybernetics*)
- T-Automatic Control (*focused on theory of control systems*)
- T- Control Systems Technology (*focused on control applications*)
- T-Aerospace and Electronic Systems (*focused on aerospace engineering systems*)
- T-Power Systems (*focused on theory and applications of power systems*)
- T-Reliability (*focused on a single system feature*)
- T-Robotics (*focused on an interdisciplinary area of a specific technology*)
- T- Automation Science and Engineering. (*Focused on automation and surrounding science*)
- T-Engineering Management (*focused on engineering enterprise*)

NON-IEEE Publications:

*IFAC Journal Automatica* (focused on control systems theory)

*INCOSE: Systems Engineering* (focused on engineering aspects of systems)

Correspondence between the Presidents of IEEE and INCOSE have indicated a desire to establish a close professional working relationship. Letter expressing mutual support and a willingness to collaborate between INCOSE and the IEEE Systems Council have been .

*IBM Systems Journal* (focused on an IBM business and technology)

NOTE:

Through the emphasis on application-focused, large-scale systems on one hand, and Special Issues and Joint Issues with Member Societies Publications on the other; we will not only minimize overlap with other publications, but will actually serve its 15 IEEE member Societies in accordance with the premise that the Systems Council was originally established. We can sustain a channel of collaboration and communication between the Council and its member Societies.

**VISUAL LANDSCAPE:**

**The Systems Council was created to enhance systems thinking among multiple IEEE Societies. This journal will be a channel to bring systems thinking and systems issues to the attention of global community. We believe that this channel promotes modern engineering and will attract new faces to the IEEE and IEEE Societies.**

**ALTERNATIVE PUBLISHING MECHANISMS:**

**The Systems Council is brand new and part of its strategic plan upon formation was to publish a Systems Journal and conduct a Systems Conference. There are now new "considerations" being levied upon us after our formation relative to the viability of a new Journal. A Council has no individual members, so its financial viability is basically journal & conference based. Since Systems in our context is not being thoroughly addressed by IEEE, and our main function is to address the topic of systems (including system-of-systems and systems engineering) synergistically with our member Societies, and from the application-focused side which is addressed only minimally now by IEEE, we clearly saw the need for a synergistic, applications-focused journal as proposed. We considered no other alternative since some income is one of the critical factors to Council health, and the technical and synergistic rationale for such a Journal was clearly evident.**

**PAPER SOURCE CHANNELS:**

We envision a multiple paths for paper solicitation. The Council's own conference planned for mid-2007 provides an preliminary look at papers in early 2007 that may be enlarged to meet the need of the journal. We have an existing inventory of papers that can be edited to meet the needs of ISJ. Our system-of-systems (SoS) domain priority for 2007 is as follows:

1. Global Earth Observation & Prediction SoS
2. Creation/Distribution/Utilization of Energy SoS
3. Intermodal Transportation Systems and Logistics SoS

Sources of papers include:

- Authors of conference papers
  1. IEEE Systems Council Conference (1st one is planned in 2007)
  2. Sponsoring societies' conferences
- Invited authors
- Joint Issues and Special Issues with Council's Member Societies
- Editors of the sponsoring Societies' publications (redirected papers)
- Calls for papers in key industrial trade magazines/conferences will be used to solicit articles of significance to ISJ's system focus
- Call-for-Papers published in Member Society Newsletters and Member Society Publications.

**PERIODICAL OVERSIGHT:**

Aside from the IEEE HQ personnel, the Journal will have an Editor at Large who works closely with the EIC (Editor-In-Chief). There will also be two boards: The 1<sup>st</sup> Board is that of Associate Editors – consisting individuals who will help the EIC process papers for review on a daily basis. The 2<sup>nd</sup> Board will be an Advisory Board, which will consist of very senior individuals around the world who will help with long-term planning and vision and direction of the journal. An approximate equal number of board members of this journal will be from industry and academia to assure that we achieve the applications focus that we desire. Also, board members will be sought that represent the interests of Council Societies so that our publication remains sensitive to the needs and desires of our sponsors. A preliminary list of Advisory Board Members is included as an addendum to this proposal.

**EDITOR SELECTION PROCESS AND ANY DEFINED TERM RESTRICTIONS:**

The EIC was nominated from peers among member societies of the Council. The Council President endorsed the nomination and at the first meeting of the Council's Board his nomination was approved. The EIC serves at the discretion of the board. We anticipate that the role of the EIC will evolve with time and that a Reviewer Board will support the EIC and provide backup leadership.

**EDITOR-IN-CHIEF IDENTIFICATION AND BACKGROUND:**

The EIC choice was made by the Systems Council AdCom at the Council's inaugural meeting in Montreal in September 2005, when Prof Mo Jamshidi was selected. Prof Jamshidi has been a member of the IEEE continuously for 40 years (IEEE Student - 66, member -71, Senior Member - 74 and Fellow - 89). He is the Founding Editor-in-Chief, *IEEE Control Systems Magazine* and was its editor from 1980 to 1984. Offices and responsibilities in IEEE include VP IEEE Student chapter, Oregon State University, 1967, Executive Committee of IEEE Control Systems Society (1980-84), Program Chair, IEEE Robotics and Automation Conference, April 1997, Vice President, IEEE Systems, Man and Cybernetics Society (2003-2005), General Chair, IEEE Systems, Man and Cybernetics Annual Conference, October 2005, and General Chair, IEEE SMC System of Systems Engineering Conference, April 2006. In addition to IEEE, EIC has established new journals for Wiley & Sons (*Intelligent and Fuzzy Systems*, now with IOS Press, Amsterdam, the Netherlands), EIC of InterSciences (*Control and Automation*) in UK; he is also currently EIC of Elsevier's (formerly Pergamon Press) *Computers in Electrical Engineering*.

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**IEEE POLICY AND PROCEDURE COMPLIANCE:**

PLEASE CHECK HERE CONFIRMING THE POLICIES AND PROCEDURES GOVERNING IEEE PERIODICALS HAVE BEEN REVIEWED AND WILL BE ABIDED BY.

**WILL MANUSCRIPT CENTRAL OR SOME OTHER MANUSCRIPT PROCESSING SYSTEM BE USED FOR MANUSCRIPT PROCESSING?**

**A customized web-based system**

- MANUSCRIPT CENTRAL  
 ANOTHER SYSTEM, if so:

**WILL ONLINE ACCESS BE SERVICED THROUGH IEEE XPLORE?**

- YES     NO

**FREQUENCY OF ONLINE POSTING:**

(When would you intend for an accepted manuscript to be made available online? For example, IEEE Publications Operation is capable of posting articles to IEEE Xplore upon approval for publication, but discussions must begin early.)

- AVAILABLE IMMEDIATELY ("RAPID-POSTING")  
 AVAILABLE WHEN THE FULL ISSUE IS COMPLETE

**WILL ONLINE ACCESS BE SERVICED THROUGH ANY OTHER WEBSITE?**

- YES     NO

If yes, please explain:

Response to IEEE Marketing Analysis

We respond here to the IEEE Marketing Report dated 27 December 2005. We appreciate the insights and cautionary perspectives presented by IEEE Marketing. However, we believe that our journal proposal represents a viable plan to launch a journal that meets a need in the marketplace. We believe that IEEE can be the leader in the area of systems and that this journal is a cornerstone of that leadership role.

We first present our marketing plan and then our responses to the IEEE report.

ISJ Marketing Plan

We plan to publish 500 pages per year with four issues. We will publish both print and electronic versions of ISJ. Electronic copy will be hosted on Xplore and made available when the print copy is completed. Our target domain for 2007 is repeated here for clarity:

1. Global Earth Observation & Prediction SoS
2. Creation, Distribution, and Utilization of Energy SoS
3. Intermodal Transportation Systems and Logistics SoS

For the Global Earth Observation & Prediction domain we target engineers and scientists with an interest in this area and specifically the industry people at Boeing, Northrop-Grumman, NASA, and Alcatel/Alenia.

For the Energy domain we target engineers and scientists with an interest in this area and specifically the industry people at DoE, oil companies, GE, Pratt-Whitney, Edison, Allen-Bradley.

For the Intermodal Transportation Systems and Logistics domain we target engineers and scientists with an interest in this area and specifically the industry people at GM, Ford, Daimler-Chrysler, Boeing, Rockwell, and Lockheed.

By 'targeting' we mean issues aimed at these domains that are attractive to these industrial readers/authors. We plan to use ads and marketing efforts in trade journals and magazines in these industries to promote ISJ and the IEEE.

Our 2007 price structure is as follows:

|                                |  |
|--------------------------------|--|
| System Council Society Members | \$6/yr electronic, \$25/yr print, \$27/yr combo  |
| IEEE Members                   | \$12/yr electronic, \$30/yr print, \$32/yr combo |
| Students                       | \$6/yr electronic                                |
| Non-Members                    | \$325  |

Details of our pricing plan and financial projections are presented in the financial spreadsheets. We prefer to not enforce page charges or over-length charges for the first two years.

Collaboration with Council Societies and the IEEE is critical the success of our journal. We presented the use of Society members on the advisory board earlier. Also, the paper solicitation paths include papers routed to ISJ that are deemed out of scope for a Society publication. ISJ can reciprocate this practice by networking with Society editors to re-route papers to them that are not appropriate to ISJ. We plan to invite selected authors/papers in the first two years to help build a relationship with sponsoring Societies. We can co-publish ads and calls-for-papers with sponsoring Society publications. ISJ can promote announcements and conferences hosted by sponsoring Societies. We presented earlier our goal to work with Societies on joint issues and special issue of ISJ. This journal can meet an unmet need in the market without detracting from existing IEEE publications.

Response to IEEE Marketing Analysis

1. *"We believe that the editorial scope is not adequately specific."*

Our proposal has been extensively modified to include domains, processes, skills, and disciplines that we envision within our scope. We identify the specific foci for the first year and a multi-channel source of papers.

2. *"The business plan is weak"*

Our proposal and financial model are much more detailed and now contains a marketing plan.

3. *"The overlap with other IEEE journals is significant."*

We respectfully disagree. Journals with potential overlap have been researched and members of the sponsoring Society contacted to discern the nature of the overlap. Our revised focus on domains of systems is intentionally crafted to minimize overlap but also provide a common-ground of interest. The major competing journal, Systems Engineering by INCOSE, was not included in the IEEE marketing analysis and this group has exchanged letters of mutual support with IEEE leadership.

4. *"Extremely poor subscription performance of IEEE journals over the last 5-10 years"*

We recognize the difficulty of marketing publications via a 'membership model'. We acknowledge the challenges of marketing to libraries with dwindling budgets. We acknowledge the sluggish member subscriptions due to company purchases of Xplore products. However, we also respectfully point out that that there will most certainly be no future subscriptions if we don't build a journal to subscribe to. We see this as a calculated risk.

5. *"We believe that ISJ represents content in an existing subject area that would be better suited to publication in existing IEEE journals."*

ISJ will publish articles with a clear practitioner focus in domains that are not served well within or outside of IEEE. ISJ integrates the efforts of Society foci and seeks to promote macro-scope views of systems applied to areas of significant importance to society at large. As such, our target reader/author pool is larger than the IEEE. We choose to place our attention on systems architecture and system-of-systems domains on a global scale. We recognize that this concept is not readily understood nor appreciated by silos of engineering expertise. ISJ is designed to build the awareness of systems issues across and within the existing technology silos. We do not believe that the existing publications are publishing in this area or that they will promote this on their own.

6. *"Existing society funding models may be driving the creation of new and redundant journals."*

This may be true and represent rational behavior of Societies trying to remain solvent. We are a council formed by multiple, sponsoring Societies expressly to coordinate publications, conferences, and educational products that were perceived to be needed when the council was formed. A publication is a critical component to a council for it to remain alive to serve the needs of the sponsors and IEEE.

**ADDENDUM**Current Advisory Board Members of ISJ (**PARTIAL LIST**)

| <b>Name</b>   | <b>Current profession</b> | <b>IEEE Offices</b>                           | <b>IEEE Activities</b>   | <b>Plans for IEEE Systems Journal</b>                                   |
|---------------|---------------------------|---|--|---|
| Asrar, G.     | NASA HQ Chief Scientist   | Member  | None   | A special issue on Earth's global issues                                |
| Bekey, G.     | Academic                  | Former President R&A Society                  | Former EIC, IEEE R&A Transactions                                      | Interested to contribute in System of Robots for journal                |
| Borne, P.     | Academic                  | Former President IEEE SMC                     | Editor of 2 journals   | Interested to contribute in System of Manufacturing systems for journal |
| Fang, W.-C.   | NASA JPL                  | Systems Council AdCom                         |  | Space applications for ISJ  |
| Gau, V.       | Industry                  | Unknown                                       | Unknown  | Fluid applications for ISJ  |
| Gruver, W.    | Academic                  | Director-Elect, Div. X                        | Former President IEEE SMC  |   |
| Hirt, E.      | National Labs.            | Former Div. Director, R6                      | Editor, AESS Magazine - Systems  | System of Systems applications for ISJ                                  |
| Johnson, M.   | Industry                  | Sr. Member                                    | Program co-chair IEEE SoSE Conference                                  | System of Systems applications for ISJ                                  |
| Korba, P.     | Industry                  | Sr. member                                    | Unknown  | Power Systems applications for ISJ                                      |
| Luh, P.       | Academic                  | IEEE Fellow                                   | Former EIC <i>IEEE Tran Robotics</i>                                   | Current EIC <b><i>IEEE Trans. Automation</i></b>                        |
| Madni, A.     | Industry                  | Fellow  | Unknown  | MEMS applications for ISJ   |
| Maier, M.     | Industry                  | Member  | Unknown  | Aerospace applications for ISJ  |
| Marik, V.     | Academic                  | Current Editor-in-Chief                       | IEEE SMC, Part C   | System applications for ISJ   |
| Montrose, M.  | Industry                  | Past President – IEEE PSES                    |  | EMC and Product Safety Applications                                     |
| Pearlman, J.  | Industry                  | IEEE Fellow                                   | Unknown  | GOESS applications for ISJ  |
| Reckmeyer, W. | US Military               | IEEE member                                   | Unknown  | System of Systems applications for ISJ                                  |
| Sage, A.      | Former IEEE SMC President | Former IEEE SMC Transactions Editor           | Current INCOSE Journal Editor  | System of Systems applications for ISJ                                  |
| Shaw, W.      | Academic                  | IEEE Fellow<br>Current Editor-in-Chief of EMR | Former President of EMS, Former Member of Educational Activities Board | Systems Thinking in the Management of Engineering & Technology          |
| Tien, J.      | Academic                  | Former IEEE SMC Society President             | Former IEEE VP, Div. Director  | Production Systems applications for ISJ                                 |
| Walker, J.    | Industry overseas         | Unknown                                       | IEEE Fellow  | RF & Microwave Components & Subsystem Systems applications for ISJ      |
| Zoughi, R.    | Academic                  | Editor, IEEE I&M                              | Transactions   | System of Systems applications for ISJ                                  |

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**APPENDIX A: MARKETING ANALYSIS**

**APPENDIX B: CO-SPONSORSHIP AGREEMENT(S)**

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