Outside the Lines

Problems cannot be solved by thinking within the framework in which the problems were created. ~Albert Einstein

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The ISSS at Half a Century

In our last column, we announced our intent to try to generate a system safety analysis of the International System Safety Society (ISSS) at the close of its first 50 years. We analyzed the ISSS system components, which we identified from the Society's Website. We described the outputs of those components, which are intended to be benefits of membership. We invited member input to assist us with our analysis. The sole feedback we received was from U.K. member James Inge, where he admitted that he:

> "…did not have much awareness of the ISSS before I joined at the 23rd ISSC. My main expectation was of an organization that would put on a good conference, where I could learn more about the practice of system safety, and in particular the difference between American, British and other nations' approaches to the discipline."

Mr. Inge has returned twice, presenting papers of his own. While he keeps updated through the Conference and *Journal of System Safety*, researching and preparing his own Conference papers has helped with his personal development.

However, he included this specific caveat, which might well form a foundation for future Society re-development:

> "In the future, given the economic situation, I need to be able to demonstrate a strong business case for membership of the Society and participation in its activities. As an international member, this means that for events like the conferences, I need to be able to demonstrate why it is more valuable to attend an ISSC than a local conference. This requires me to be able to demonstrate a benefit either through personal development, or direct business benefits to our organisation. I think that the ISSS needs a goal relating to the international scope of its activities, perhaps to increase the level and visibility of collaboration with other related safety societies and institutions in other countries. It would be great to see a Regional Conference in Europe one year…"

The next step in our analysis was to examine the Society's Operations Manual, identify the operational subsystems addressed therein, and examine their mechanisms of operation.[1]

The manual describes four major subsystems:

- The ISSS Incorporation System
- The Membership Body Subsystem
- The Governance Subsystem
- The Chapters Subsystem

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[1] The ISSS Operations Manual is posted at the Society's Website (http://www.system-safety.org): About the Society > EC Documents > The Operations Manual > ISSS08 Operations Manual 12–08–11.docx

Each of these subsystems has one or more sub-subsystems. The various subsystems reflected in the Operations Manual are represented in Figure 1.

Both the intended and the actual operation of each subsystem must be defined in order to accomplish a valid hazard analysis. As our initial example, we analyzed the member services subsystem to identify both the specific outputs that the subsystem was intended to produce per the manual, and to identify the actual data inputs and operations needed to produce those outputs. The results are displayed in Figure 2.

Next, we attempted to analyze the data inputs specified in the Operations Manual for each operation. This turned out to be a significant challenge because the inputs we identified might originate in more than a single section. For example, adding a new individual member to the Society's membership rolls requires inputs from at least 11 different entities, and references

Table 1 — Inputs to Member Enrollment Subsystem.

Subsystem Entities Required to Provide Operations Inputs	Subsystem Reference
? (task performer unspecified)	OM 3.6
Applicant	Website
Director of Member Services	OM 3.0
Director Publicity and Media	OM 14.7
Executive Council	OM 3.3
Executive Secretary	OM 8.1
Headquarters Office Manager	OM 3.0
Membership Committee	OM 3.0, 3.3
OVP Communications	OM 14.7
Professional Development Committee	OM 3.3
Treasurer	OM 4.1.1.4
Web Council	OM 14.7.3

Description of System Elements of the
System Safety Society (dba **International System Safety Society**)

1. ISSS Legal Subsystem
  1.1 Articles of Incorporation
  1.2 Bylaws
2. Membership Body Subsystem
  2.1 Professional Member Subsystem
  2.2 Associate Member Subsystem
  2.3 Organizational Member Subsystem
3. ISSS Governance Subsystem
  3.1 Executive Council Subsystem
    3.1.1 Executive Council Election Subsystem
      3.1.1.1 Executive Secretary Balloting Subsystem
    3.1.2 Executive Council Administration Subsystem
      3.1.2.1 Society Headquarters Subsystem
  3.2 Directors Subsystem
  3.3 Member Services Subsystem
    3.3.1 Director of Member Services Subsystem
      3.3.1.1 OVP for Membership Subsystem
      3.3.1.2 OVP for Corporate Membership Subsystem
  3.4 Chapter Services Subsystem
    3.4.1 Director of Chapter Services Subsystem
      3.4.1.1 RVP for Regions I-V for Membership Subsystem
  3.5 Education and Professional Development Subsystem
    3.5.1 Director of Education and Professional Development Subsystem
      3.5.1.1 OVP for Educaiton Subsystem
      3.5.1.2 OVP for Professional Development Subsystem
      3.5.1.3 OVP for Awards Subsystem
  3.6 Publicity and Media Subsystem
    3.6.1 Director of Publicity and Media Subsystem
      3.6.1.1 OVP for Communications Subsystem
        3.6.1.1.1 Society Website Subsystem
        3.6.1.1.2 Web Council Subsystem
        3.6.1.1.3 Publications for Purchase Subsystem
        3.6.1.1.4 Society Information Package Subsystem
  3.7 Government and Intersociety Services Subsystem
    3.7.1 Director of Government and Intersociety Affairs Subsystem
      3.7.1.1 OVP for Government and Intersociety Affairs Subsystem
      3.7.1.2 Liaison Representative to Other Professional Organizations Subsystem
  3.8 Conferences Subsystem
    3.8.1 Director of Conferences Subsystem
      3.8.1.1 OVP for Conference Registration and Financial Processes Subsystem
      3.8.1.2 OVP for Conference Technical Programs and Processes Subsystem
      3.8.1.3 OVP for Conference Equipment and Facilities Subsystem
  3.9 International Development Subsystem
    3.9.1 Director of International Development Subsystem
  3.10 Mentoring Research and Development Subsystem
    3.10.1 Director of Mentoring Research and Development Subsystem
  3.11 Record Keeping Subsystem
    3.11.1 Executive Secretary Subsystem
    3.11.2 Office Manager Subsystem
4. Chapter Subsystem
  4.1 Chapter Governance Subsystem
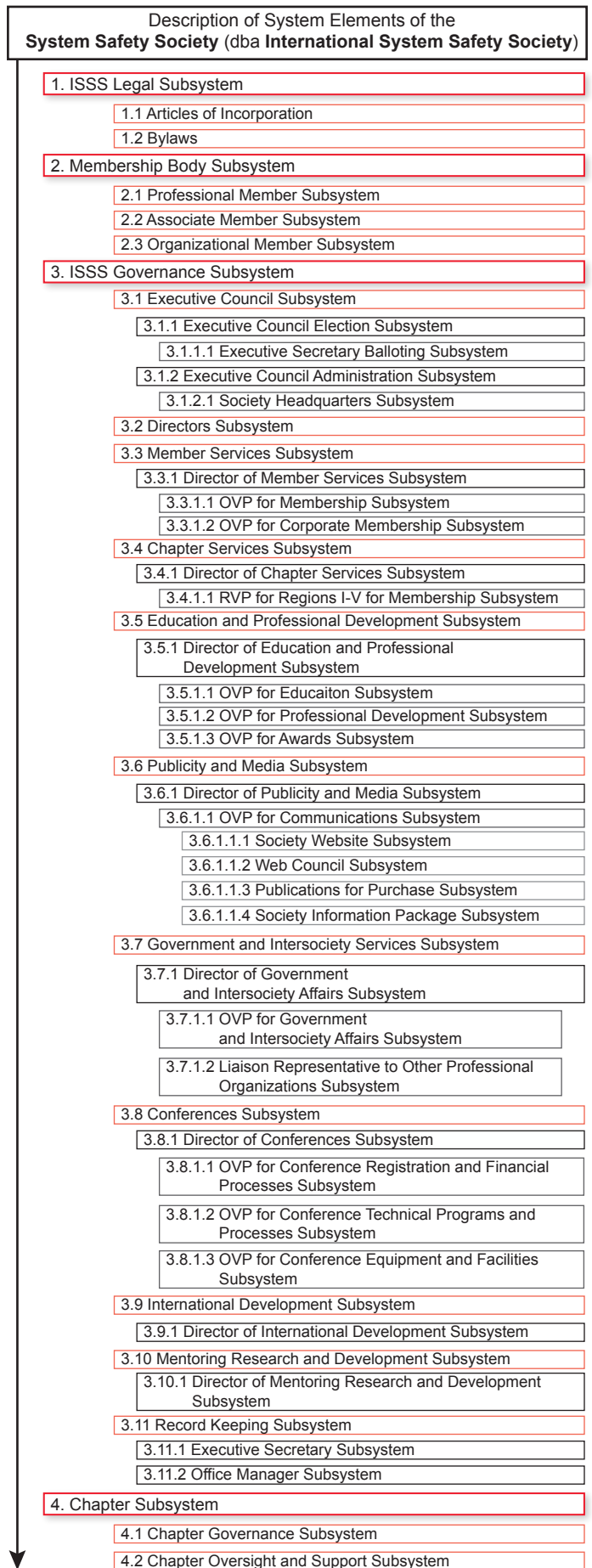 4.2 Chapter Oversight and Support Subsystem

Figure 1 — ISSS System Structural Elements.

to eight sections of the Manual. A list of the entities and Operations Manual references is shown in Table 1.

This exemplifies the kind of detailed analysis one must perform to identify the potential risks inherent in operations currently required to produce each output. We will continue our system definition initiatives in preparation for an ISSS hazard and risk identification summary that we hope to present in our next column. ◈

Figure 2 — Director of Member Services Subsystem Operation Example.

Recruit New Member Applicants	Process Individual Applications →	New Individual Members
	Maintain Individual Members →	Satisfied Members*
Recruit New Member Applicants	Process Individual Applications →	New Corporate Members
	Analyze Membership Records →	Membership Activities Review
	Membership Activities Trend Analysis →	Membership Trends Response
	Membership Activities Root Cause Anaylsis →	Membership Root Cause Response
Evaluate Membership Applications	Upgrade Membership Applicaitons →	Membership Application Forms Publication
Develop Membership Directory	Upgrade Membership Directory →	Membership Directory Distribution
Develop Membership Employment Forum	Deploy Membership Employment Forum →	Functional Membership Employment Forum
	Conduct Membership Surveys →	Membership Survey Report(s)
Coordinate Membership Brochure	Update Membership Brochure →	Membership Brochure Publication
Recruit Membership Committee Members	Organize Membership Committee →	Membership Committee Established
Identify Society Goal-Enhancing Service Needs	Create Society Goal-Enhancing Services →	Implemented Society Goal-Enhancing Services
	Update Continuity Binder →	Current Continuity Binder Delivery