What's in a Name?

The Case for a Space Architecture Technical Committee – SATC
22 August 2007

Dear AIAA Colleagues:

The AeroSpace Architecture Subcommittee of the Design Engineering Technical Committee is in the process of evolving to the level of an independent technical committee (TC). The subcommittee's history, membership activity, and viability as a TC is summarized in a PowerPoint presentation that has been distributed to many of you previously.

Much of the ensuing discussion has focused on the name of the proposed new TC. The subcommittee members (currently about 30) strongly favor the designation "Space Architecture Technical Committee" (SATC). Members of other TC's have expressed concerns regarding the clarity and focus of that name and the uniqueness (or lack thereof) of the mission that it implies. Some have suggested that the word "architecture" be dropped, replaced, or qualified with adjectives to restrict its meaning.

This document aims to address two main points: the "architecture" credentials of the proposed SATC, and its synergistic relationship with other TCs.

Architects and Architecture

In society at large, "architecture" is clearly defined by governments, academia, and accreditation boards. Most members of the proposed SATC have professionally accredited university degrees in architecture, and many are licensed for the professional practice of architecture by their state governments.

In the US and other countries, the professional degree is typically an M.Arch. – Master of Architecture – awarded on successful completion of a six-year university curriculum that includes structures, materials, heating, cooling, ventilating, mechanical and electrical systems, acoustics, fire safety, solar energy, site planning, … in addition to history, visual studies, design theory, and extensive studio exercises. Professional architectural schools are accredited by the National Architectural Accrediting Board (NAAB), founded in 1940. The NAAB "requires an accredited program to produce graduates who: are competent in a range of intellectual, spatial, technical, and interpersonal skills; understand the historical, sociocultural, and environmental context of architecture; are able to solve architectural design problems, including the integration of technical systems and health and safety requirements; and comprehend architects' roles and responsibilities in society." [http://www.naab.org/]

In each of the 50 United States, the practice of architecture is restricted by law to licensed professionals. Licensure requires a professional degree as described above, followed by an apprenticeship, followed by successful completion of a registration examination. The process is guided by the National Council of Architectural Registration Boards, founded in 1919. [http://www.ncarb.org/] The State of Illinois enacted a legal definition of architect in 1897.

It is important to note that nowhere here are the words "architect," "architecture," or "architectural" modified by restrictive adjectives. The university degrees and legal licenses are not in "human factors design" or "habitat design" or "architectural design," but simply and succinctly "architecture".

In technical circles, the term "architecture" has recently been applied to domains outside its usual scope. In these contexts, the term is modified by adjectives that identify the specific domain – for example: computer architecture, software architecture, information architecture, system architecture, logistical architecture.

Relations Between the Proposed SATC and Other AIAA Technical Committees

It is implicit in the AIAA committee structure that groupings of committees share certain common interests. Indeed, cooperation and liaison would be impossible without overlapping interests. They are the glue that binds the AIAA together. The AIAA organizes its 68 technical committees into 7 technical groups, yet there are obvious common interests even between technical committees in different groups. For example, the Life Sciences & Systems TC (in the Space and Missiles group) and the Systems Engineering TC (in the Engineering and Technology Management group) appear to share an interest in the engineering of human rated life support systems. The former focuses more on the system requirements, while the latter focuses more on the system engineering process, but the two are interdependent. A quick review of the scopes of the 68 TCs reveals many shared phrases and areas of common interest.
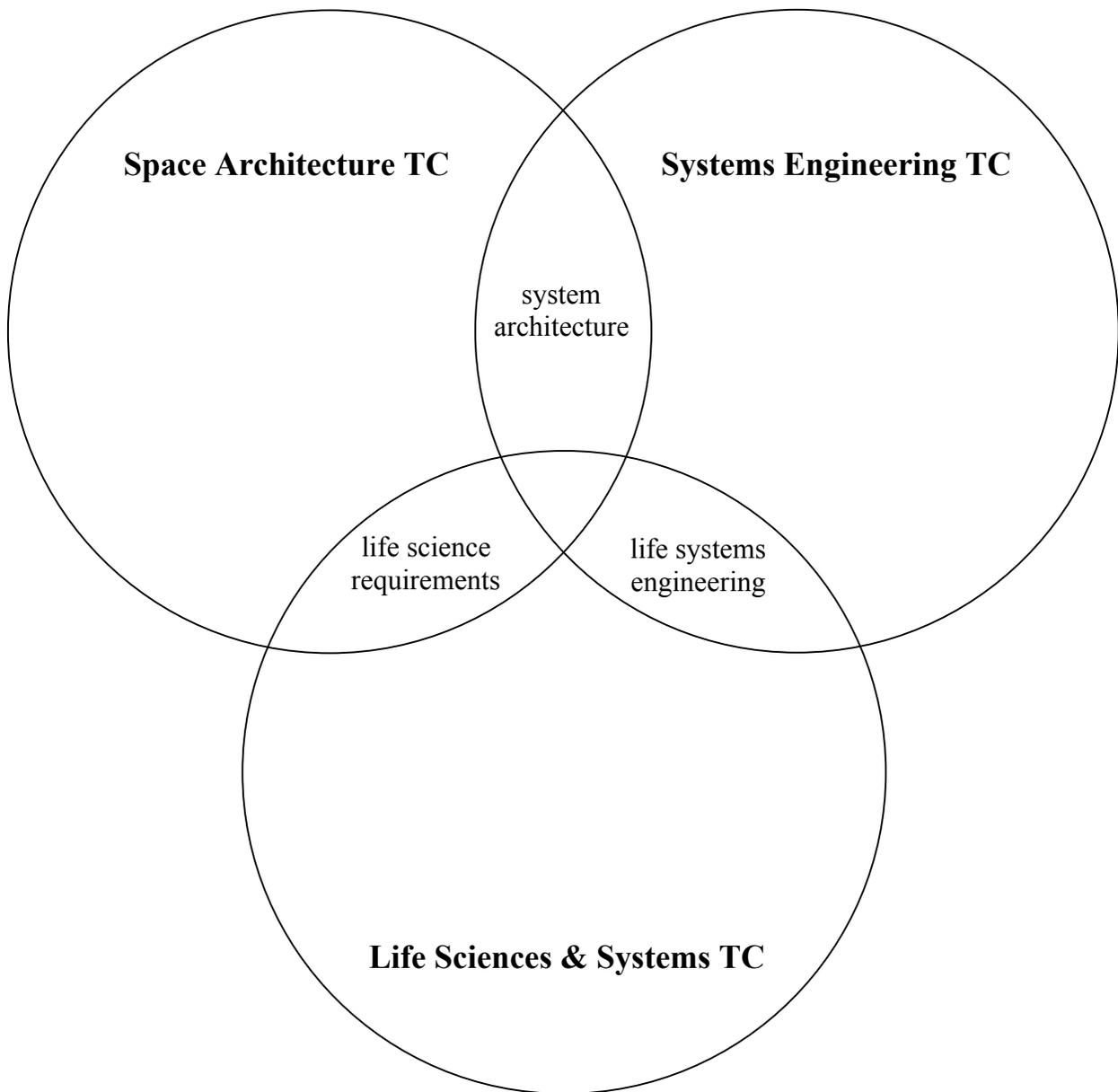
Members of the Systems Engineering TC in particular have noted their interest in "system architecture." This is distinct from "architecture" as it is commonly understood in society, as it will be applied by the proposed SATC, and should not be a cause for concern. Among the 68 TCs, none includes any variation of the word "architecture" in its name. Only two – Space Logistics, and Computer Aided Enterprise Solutions – include any variation of the word "architecture" in their scopes ("logistical architecture", "system architecture"). These are domain-specific applications that are not likely to be confused with "architecture" in its usual sense. No variation of the word "architecture" appears anywhere in the SETC AIAA website.

A Venn diagram that aims to clarify the relations between the SATC and two other AIAA technical committees appears on the following page.

Conclusion: The Name Says It All

Though other TCs may apply certain architectural principles to other domains, "architecture" does not appear to be the focus of any of them. They should not preclude the formation of a Space Architecture Technical Committee. This TC will be comprised of individuals who have devoted many years of their lives to the study and practice of architecture, in its purest sense, as evidenced by their university degrees and professional licenses.

We hope we are not mistaken in assuming that many members of the AIAA share our vision of establishing a space-faring civilization. Architecture is a defining element of all civilizations. It is our goal to bring the discipline of architecture – as commonly defined in our civilization – to the domain of space beyond the confines of Earth. This is the pursuit of the Space Architecture TC. No other name can adequately express it.

Space Architecture TC

Systems Engineering TC

system
architecture

life science
requirements

life systems
engineering

Life Sciences & Systems TC

Relations Between the Proposed Space Architecture TC and Two Other TCs (adapted from a diagram proposed by Donna Rodman, Life Sciences & Systems TC).