EAI Methodology Call To Action

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The prevailing industry "best practices" for large-scale complex systems integration have dismal track records. Various studies have pegged success rates at 2% to 30%. There is a fundamental difference in the approach needed for solving problems with well-defined boundaries and predictable behavior versus problems with non-linear solutions and chaotic behavior. EAI Methodology is a discipline that is fundamentally different from traditional Systems Development Life Cycle (SDLC) approaches yet the prevailing approach is to use techniques that work well for simple problems and to apply them to complex problems.

The EAI Industry Consortium is seeking interested parties to formalize the work it has started in the areas of EAI Laws and Methodology Principles. Following are highlights of the work in progress.

EAI (Enterprise Application Integration) is the process of integrating multiple computer applications that were independently developed, use incompatible technology, and remain independently managed. **Methodology** is the systematic organization of the rationale, principles and processes which guide the discipline. The EAI Methodology is concerned with not just building quality solutions, but also sustaining them over a long period of time. An **EAI Methodology** comes into play for application solutions that have the characteristics of "***complex adaptive systems***".

Computer software can be used to solve problems that range from simple to complex. At the simple end of the continuum we find problems that are well defined, predictable and deterministic. Solutions at this end of the spectrum are often implemented in hardware. As we move along the complexity continuum we begin adding layers of functionality that link together components that have been developed independently and increasingly deal with more dynamic and uncontrollable real-world issues (people, politics, competition, etc.). EAI methodology is focused at solving problems at the this end of the spectrum.

Complex systems are ones that involve operations at multiple levels, where dependencies *between* component applications are at least as essential as the applications themselves, and where the behavior of the system is not entirely predictable. ***Adaptive*** refers to the perpetual process of variation and selection and a constantly evolving design.

For an EAI Methodology to be effective, it must take into account a set of fundamental "laws".

1) The whole is greater than the sum of its parts.
The notion of "process decomposition" is deeply ingrained in modern SDLC methodologies. It is based on the presumption that there are natural boundaries along which to divide a complex system into smaller components for integration. Most methodologies fail to realize that the essence of an end-to-end system cannot be captured by studying its individual components and they fail to deal effectively with the holistic solution.

2) There is no end-state.
Organizational entities split, merge and morph into new structures. Political motivations and boundaries change. Technology evolves. Any effective EAI methodology must consider the full life-cycle of a system and be based on best practices that recognize the adaptive nature of complex systems. The focus must change from "build to last" to one of "build to change".

3) There are no universal standards.
"The great thing about software and standards is that there are so many to choose from". An EAI methodology must deal with the reality that many forces—including competition, the "not invented here" syndrome, and evolving technologies—will result in many different standards for the foreseeable future.

4) Information adapts to meet local needs.
The Information Engineering movement of the early 1990's was based on the notion that an enterprise can have a single consistent data model. The formula (Information = data + context) demonstrates that same data across different domains may have different meanings. An EAI Methodology must embrace informational diversity, recognizing that variations exist, and use techniques to compensate for them.

5) All details are relevant.
The effectiveness of an abstract model is inversely proportional to the complexity of the context, because no details can be safely ignored. The cost of developing and maintaining abstract models of the integrated system can become an economic black hole. A successful EAI Methodology must decompose the problem, yet maintain a view of the entire picture.

For a complete copy of the EAI Methodology Paper, write to information@eaiindustry.com.