Enterprise Architecture: Some Thoughts…

National Airspace System – Enterprise Architecture Conference (June 23, 2009)

Dr. Dinesh Verma
Dean and Professor of Systems Engineering
School of Systems and Enterprises
Stevens Institute of Technology, USA

SSE School of Systems&Enterprises

What is an Enterprise Architecture?

- To some, "enterprise architecture" refers either to the *structure of a business, or the documents and diagrams that describe that structure…*

- *To others, "enterprise architecture" refers to the business methods that seek to understand and document that structure.*

- **It is often said that the architecture of an enterprise exists, whether it is described explicitly or not. This makes sense if you regard the architecture as existing in the system itself, rather than in a description of it.**

(wikipedia, June 23, 2009)

SSE School of Systems&Enterprises

Origins…

- Today's Enterprise Architectures (EA) originate from the seminal work of John Zachman
- Zachman envisioned a device that would integrate two kinds of perspectives – *levels* and *views*
- Thus, for example, the enterprise of building a house would have *levels* such as owner, builder and occupier
- By the same token, the *views* would include geometry, function and materials
- Today the Zachman framework is the basis for EA in *systems* e.g. DoDAF and *enterprises* e.g. TEAF and FEAF

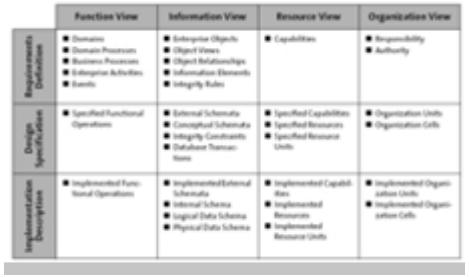
It represents "Reductionism" and "Holism" at the same time...

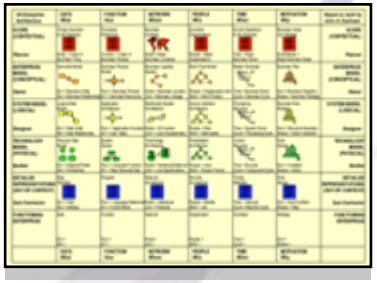
EA Utility

- An EA is created by developing information models at the intersection of specific perspectives – *view* and *level*
- The purpose of an EA is to demonstrate the *relationships* between these information models, as *parts*, thereby creating a holistic version of the *whole* enterprise
- An EA puts everyone on the same page; ensuring increased **rationale** for decision making – across the *views* for example, and greater cooperation and collaboration among stakeholders, throughout the *levels*
- Increased cohesion and shared understanding among stakeholders enhances prospects for improving the enterprise's *productivity, agility, resilience* and *governance*

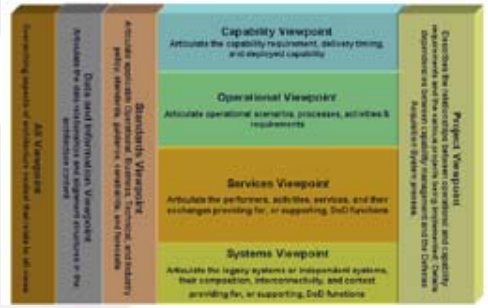
Enterprise Architecture

- Many Frameworks





- Many Views



- Many Techniques
  - UML, IDEF, BPMN, RAD, EPC, PowerPoint and many, many others…

School of Systems&Enterprises

"The objective of the enterprise architecture is not so much to achieve a particular end state as to serve as a blueprint for the company's direction."

– J. Ross, P. Weil; and D. Robertson, HBS Press, 2006

Apple Pie

What's not to like about:

- Defining enterprise strategy
- Determining core business and operational capabilities,
- Specifying desired operational model,
- Digitizing capabilities critical to strategy, and
- Implementing the required standardization of processes, data and technology.

No Silver Bullet

"Companies get the systems that they deserve. A company's systems estate is a result of its culture, organizational history, and its funding structures."

- Jim Crookes, Chief Architect at BT

CAUTION…

- The EA is a model, and like all models needs to be held in tension with the evident realities of enterprise behaviors, dynamics and **culture**

- The EA is *scaffolding*; the enterprise itself is the *building*. Scaffolding helps in exploring, understanding and possibly improving the building. But where it does not, the building itself must take priority. The enterprise is greater than the EA!

- *Stakeholders* are perfectly capable of sincerely volunteering 'correct' data for the information models in the EA whilst at the same time acting disingenuously when taking executive action in the enterprises itself

EA Failure Comes in Many Forms

- **Lack of Vision & Strategy**
  - There is no foundation upon which to guide and base the EA
- **Unclear Organization / Organizational Impedance**
  - SCANIA TRUCKS, VOLVO CARS, and NUCLEAR SUBMARINES!!!
- **IT Organization is Tactically Goaled:**
  - When reward (punishment) metrics are based on the short-term, don't expect much risk taking for the strategic good
- **Lack of Architectural Skills:**
  - The EA becomes a documentation of the current implementation
  - IMPLICIT VERSUS EXPLICIT ARCHITECTURES (ARCHITECTURAL PRINCIPLES)
- **All of the above:**
  - The EA is used as a means to thwart any future innovation and change

- There is no doubt about the realized and yet to be realized potential of EA.
- How do we ensure and assess the synthesis of enterprise architecting principles that allow us to architect an enterprise that:
  - Enables distributed governance in a mission critical environment?
  - Allows the enterprise to be resilient and adaptive?
  - Facilitates the necessary change in current state culture?
  - Recognizes our evolution from a contemplative generation to an interactive generation?