A Proposed ACM SIG in Enterprise Architecture

The Focus of the Proposed SIG

Business leaders operate in the realm of confounding uncertainties and astounding complexities. These lead to incomplete and often non-actionable information that makes business decisions increasingly speculative. The advent and diffusion of Enterprise Architecture (EA) as a meta-discipline provides organizations and business leaders the means to address the twin challenges of business dynamism and complexity. Enterprise Architecture (EA) is the analysis and design of an enterprise in its current and future states from a strategy, organizational, and technology perspective. The goal of Enterprise Architecture is to improve organizational performance by delivering business-aligned enterprise systems. In today's globally competitive, economically challenged environment, the need for Enterprise Architecture is steadily increasing in organizations of all types and sizes. Indeed, the discipline of enterprise architecture is growing at a rapid pace as organizations strive for greater efficiency, effectiveness, and agility. In addition, the increased importance of cost optimization efforts means that EA teams often must recast their initiatives in light of changing enterprise priorities.

As seen in Figure 1, Enterprise Architecture applies architecture principles related to the "orderly arrangement of parts" to analyze the components, the structure and connectivity of business architecture, data architecture, application architecture and technology architecture and identify their relationships to each other and to the strategy of the organization. EA provides a holistic set of descriptions about the enterprise (and ***extended enterprise***) over time.

An EA process that delivers business value to the enterprise produces several things:

- An articulation of the strategic requirements of the enterprise
- Models of the future state, which illustrate what the enterprise should look like across all EA viewpoints in support of the business strategy
- A road map of the change initiatives required to reach that future state
- The requirements, principles, standards and guidelines that will steer the implementation of change initiatives

The primary purpose of describing the architecture of an enterprise is to improve the effectiveness, efficiency, and agility of the business. This includes innovations in the structure of an organization, the centralization or federation of business processes, the quality and timeliness of business information, or ensuring that money spent on information technology can be justified.

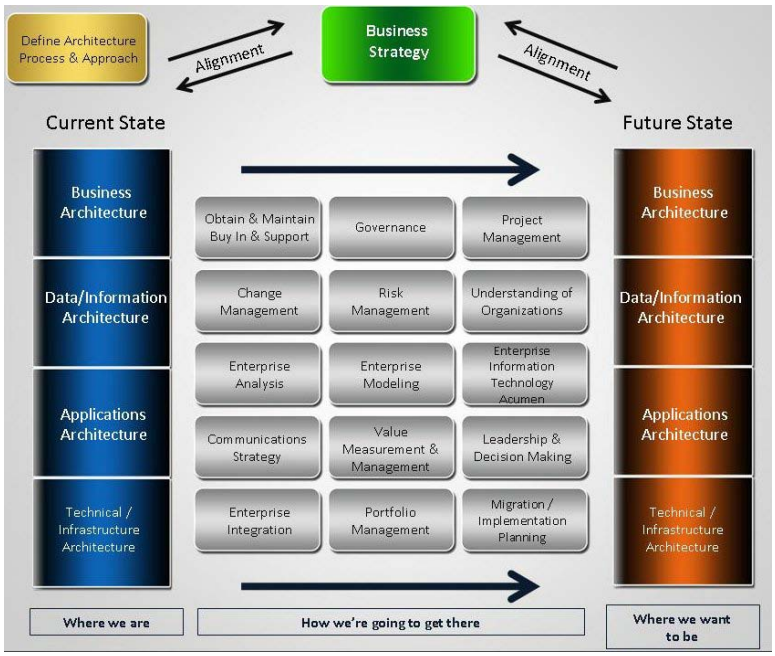

Figure 1: The Enterprise Architecture Process and Major Areas of Focus

The role of enterprise architecture team is to align the enterprise information systems and technology with business goals to enable the most effective use of enterprise information technology to both support and grow an organization. This unique combination of skills and perspectives positions the professional for a wide variety of leadership roles within the enterprise. Not surprisingly, such professionals are in high demand in industry, government, and non-profit organizations. However, the supply of professionals with the appropriate expertise in both enterprise technology and business is scarce.

Unfortunately, the term "enterprise architecture" is often incorrectly used for software and/or systems development/architecture (please see the enclosed article: "IT Architecture is not Enterprise Architecture"). The scope of enterprise architecture is the architecture of the enterprise as a whole, which is broader than the use of EA to mean an enterprise-wide architecture for the enterprise's information technology (IT) assets. The latter architecture is sometimes referred to as enterprise information technology architecture (EITA) or enterprise information systems architecture (EISA). There are several enterprise frameworks and methodologies that have been developed for the EITA (or EISA) and are targeted at the alignment of IT assets and capabilities with the enterprise's mission and strategy. There is growing interest in the application of this architectural thinking to enterprise domains other than IT.

Normally, enterprise architecture takes the form of a comprehensive set of integrated models that describe the structure and the functions of an enterprise. Important uses of it are in systematic IT planning and architecting, and in enhanced decision making. The individual models in an EA are arranged in a logical manner, and this provides an ever-increasing level of detail about the enterprise, including:

- Its objectives and goals
- Its processes and organization
- Its systems and data
- The technology used

Industry research organizations such as Gartner, Forrester, and others, as well as the scant academic research, often stress that the definition of enterprise architecture should be action-oriented, that is, focus on the "verb" and we concur with this perspective, because we feel it is important to emphasize the fact that enterprise architecture is a process. This is important because we find that often, when people focus on the outputs ("the noun") rather than the process, they tend to be more concerned about producing a predefined set of deliverables than they are about meeting the strategic imperatives of the enterprise.

Many enterprise architecture frameworks break down the practice of developing and using EA artifacts into four practice areas. This allows the enterprise to be described from four important viewpoints. By taking this approach, enterprise architects can assure their business stakeholders that they have provided sufficient information for effective decision making.

While these four areas are the traditional breakdowns for analysis, they imply that business understanding is approximately one quarter of the process or one quarter of the importance. These four practice areas are useful for conducting enterprise analysis but EA needs to be treated as a business issue, not a technology issue. The primary purpose of describing the architecture of an enterprise is to improve the effectiveness or efficiency of the business itself. This includes innovations in the structure of an organization, the centralization or federation of business processes, the quality and timeliness of business information, or ensuring that money spent on information technology (IT) can be justified.

Motivation for the Proposed SIG in Enterprise Architecture

EA is an evolving discipline currently in the midst of immense interest both from the organizations and individuals alike. According to Gartner and others, there is a shortage of EA professionals today and this shortage is projected to increase in the future. The field of enterprise architecture is rapidly evolving but the field is largely unrecognized by academia. There is a strong and ever growing need for professionals with a solid understanding of organizations, enterprise information technology, and alignment with strategy. Enterprise Architecture pairs the study of (1) enterprise information technology, business knowledge, and an understanding of organizations with (2) an understanding of how to operationalize alignment with organizational strategy through the design, development, and implementation of enterprise architecture. While this is a growing field of study, ACM currently does not have a SIG that addresses this evolving discipline.

The emerging trends in enterprise architecture stems from key misconceptions that are currently evidenced. Authors *Gary Doucet, John Gotze, Pallab Saha and Scott Bernard* provide the first glimpse of the imminent mega-trends in EA in their book. This has been followed by research reports by Gartner, the two notable ones being *Introducing Hybrid Thinking for Transformation, Innovation and Strategy* and *From Hierarchy to Panarchy–Hybrid Thinking's Resilient Network of Renewal.* Additionally, Gartner's *Hype Cycle for Government Transformation 2009 and Hype Cycle for Enterprise Architecture 2010* provide partial insights. Presented below are the trends and characteristics, which are transforming the discipline and practice of EA which the SIG would like to investigate and contribute to:

1. The transition from EA being equated to the Enterprise IT Architecture to the "architecture of enterprise" demands that it be viewed as a complete holistic meta-discipline that has the potential to link other management discipline and bring in business model innovation. The next generation of EA will form the backbone of all successful organizations, and the misconception that organizations do not have architecture until they initiate a formal project and a team tasked with managing the project will start to fade. The underlying principle that every functioning organization has architecture will take hold.

2. The emphasis of architecture development will shift from designing the various architectural views and viewpoints to designing the inter-connections between various views and viewpoints so as to achieve organizational coherence. *Doucet* et. al have identified the dimensions of organizational coherence which are: (a) designed; (b) organized; (c) consistent; (d) connected; and (e) institutionalized.

3. Organizations are *complex adaptive systems* and success in the contemporary operating environment requires innovative ways of thinking about business problems and organizations. There will be an increased drive to integrate strategic (systems) thinking as a core capability within enterprise architecture. As organizations become more hyper-connected and as the wider environment (political, economic, social and technological) becomes uncertain and unpredictable, the ability of organizations to sense and respond will become as important as the ability to plan and execute. In such a changing scenario, open-loop (straight-line) thinking to business issues will be inadequate to address them. Closed-loop (systems) thinking will allow organizations the ability to think about the whole, wherein holistic synthesis takes precedence over fractional analysis.

Goals of the Proposed SIG

1. To establish and further the discipline of EA, across the academia and industry.

2. To influence the adoption EA as the primary meta-discipline in organizations.

3. To be the leading collaborative group with a global footprint that brings together EA ideas, practices, innovations in a cohesive manner.

Primary Audiences for the Proposed SIG

Primary audiences for the proposed Enterprise Architecture SIG would be (1) Academia and (2) Industry Practitioners. As the international composition of the contributors to this document demonstrates, this is a topic that has increasing global interest. As seen from the large number of organizations involved in the Center for Enterprise Architecture at Penn State (see http://ea.ist.psu.edu/advisory.php), enterprise architecture is a topic that is of great importance to government, non-profit, and private sector organizations from all industries.

Initial Activities for the Proposed SIG

Initial activities for the proposed Enterprise Architecture SIG include:

1. Phase 1 (Year 1)

    - Establish an international community for the discussion and exploration of EA related research and educational initiatives.
    - Establish working groups to explore topics of common interest

2. Phase II (Year 2)

    - Development of an EA research publication
    - Development of an EA academic / practioner conference

Potential Overlap Issues with other ACM SIGS

While there is no direct overlap with existing ACM SIGS, there are possible touch points to many of the current ACM SIGS such as:

SIGAPP - Applied Computing
SIGCOMM - Data Communication
SIGCSE - Computer Science Education
SIGDOC - Design of Communication
SIGecom - Electronic Commerce
SIGHIT - Health Informatics
SIGIR - Information Retrieval
SIGITE - Information Technology Education
SIGMETRICS - Measurement and Evaluation
SIGMIS - Management Information Systems
SIGMOD - Management of Data
SIGSOFT - Software Engineering

Listing of Core Group Volunteer Leaders

Academic Core Group Members

1. Brian H. Cameron, PhD, Executive Director, Center for Enterprise Architecture, Pennsylvania State University
2. Con Kenney, Senior Research Fellow, National Defense University
3. Pallab Saha, PhD, Evangelist, Enterprise Architecture Practice, National University of Singapore, Institute of Systems Science
4. Alta van der Merwe, PhD, Principal Researcher, Meraka Institute, CSIR and Professor Extraordinary, University of South Africa, Pretoria
5. Dr. Erik Proper, Public Research Centre - Henri Tudor, Luxembourg
6. João Paulo A. Almeida, Ph.D., Federal University of Espírito Santo, Brazil
7. Pontus Johnson, Ph. D, Professor, Industrial Information and Control Systems, KTH - Royal Institute of Technology, Stockholm, Sweden
8. Raymond Slot PhD, Professor Architecture of Digital Information Systems, Utrecht University of Applied Sciences, The Netherlands
9. Prof. Dr. Stephan Aier, Assistant Professor of Information Management, Chair of Prof. Dr. R. Winter Competence Center Integration Factory, Institute of Information Management, University of St. Gallen, St. Gallen, Switzerland

Corporate Core Group Members

1. Gennaro Avvento, Senior Fellow, Lockheed Martin Information Systems and Global Solutions
2. James Kennedy, Vice President, Computer Sciences Corporation
3. Rolf Siegers, Fellow, Raytheon Corporation
4. Joe Atkinson, Partner, PricewaterhouseCoopers
5. John Sweitzer, IBM Distinguished Engineer, IBM Corporation
6. Scott Bittler, Vice President, Gartner Research
7. Jeff Scott, Senior Analyst, Forrester Research
8. James Lapalme, Senior Enterprise Architect, National Bank of Canada Financial Group

Government/Nonprofit Core Group Members

1. Randy Hite, Director, IT Architecture & Systems, *U.S.* Government Accountability Office
2. Ira Grossman, Chief Enterprise Architect, Federal Emergency Management Agency (FEMA)
3. Len Fehskens, Vice President, The Association for Open Group Enterprise Architects
4. Eric Sweden, President, The National Association of State CIO's (NASCIO)
5. David Twaddell, Vice President, The British Computer Society
6. Richard Martin, Vice President, ISO (International Organization for Standardization)