2.2 – Component Architecture Framework – An Approach to the Enterprise Architecture Development in a Risk Environment

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1.0 PRIMARY GOALS OF PROCESS INTEGRATION AND SYSTEMS ENGINEERING DISCIPLINE

Primary goals of process integration must directly support missions that are planned and owned by Business Planners and Owners:

- To assist Business Process (BP) Planners and Owners to understand, describe and continuously develop their business processes independently on application, IT infrastructure and physical environment.

- To protect BP Planners and Owners interests against risks by the way that guarantees continuous and measurable quality improvements.

The first primary goal corresponds to the Army Force management and Force Development (AFMP, FDP) structure which encapsulates a lot of hierarchically organized business processes.

The second primary goal corresponds to the Information Technology Landscape that supports AFMP/FDP structure and which is exposed to threats.

Systems Engineering (SE) received increased attention as ways are sought to reverse the trend of increasing project failure, particularly in large information systems which are exposed to internal and external disturbances.

SE engineering discipline distinguishes a lot of SE processes; four of them are the most critical for a development of systems supporting AFMP and FDP:

- Architectural Design Process (ADP);

- Risk Management Process (RMP);

- Information Management Process (IMP); and

- Security Management Process (SMP).

These processes are usually applied inconsistently and result that outcomes are available to BP Planners and Owners as stove pipe solutions. To overcome these serious limitations we have developed new approach – Component Architecture Framework (CAF) that integrates all four SE processes, support them with appropriate architecture frameworks and modeling methods.

2.0 ARCHITECTURE DESIGN PROCESS (ADP)

ADP combines TOGAF, Zachman and C4ISR frameworks. TOGAF is applied for architecture development; architectural products are stored in Zachman matrix that also includes mappings to the C4ISR views and products.

3.0   RISK MANAGEMENT PROCESS (RMP)

CAF associates outcomes of this process with a risk driven strategic concept that can be structured in accordance with enterprise strategy using profiles like ISO/IEC 17799, NATO Risk profile and others.

4.0   INFORMATION MANAGEMENT PROCESS (IMP)

CAF supports particular ITIL (Information Technology Infrastructure Library) modules, primarily Service Level Management, Availability Management, and Continuity Planning.

5.0   SECURITY MANAGEMENT PROCESS (SMP)

Risk driven strategic concept synthesized as a result of the RMP includes two large groups of countermeasures – security mechanisms and security operating procedures. SMP allows keeping a control over security mechanism implementation and over security responsibility (various stakeholders that have a set of security operating procedures included in their job description).

6.0   CONCLUSION

CAF approach includes also tools that support all four SE processes mentioned above with common graphical interface and integrated dictionary (CAF database). This approach was successfully applied in a development of Human Resource and TOE systems.