One World Information System

Getting to Green

Improving Performance Results and Enterprise Management Maturity (EMM)™

by using the

General Enterprise Management (GEM)™ Methodology and Knowledge Base

What is the General Enterprise Management (GEM) methodology? GEM provides an integrated and continuously evolving "Table of Contents" and "Index" to your enterprise, as it is, was, and is intended to be.

Why use GEM? How many organizational Executives, Senior Managers, Managers, Workers, Staff, etc., wouldn't like the right information they need to do their jobs well and make good decisions, to be provided to them in the way it is need, when it is needed. GEM can help your enterprise, whether Government, Commercial, Non-Profit, Community, or Individual, to attain just that capability.

GEM applies a proven "management solution" framework that is the basis for consistent solution design and implementation.

GEM has been proven by over two decades of day to day practical use, including: 1) re-justifying and reorganizing a 16,000 person U.S. Army command assigned to NATO; 2) mapping together job functions, positions, skill sets, IT requirements, organization units, facilities, training, and budgets for organizational productivity improvements and IT acquisitions based on enterprise-wide business patterns; 3) modeling and building an application to provide wartime and contingency operational scenario generation, event release for execution, and performance tracking; 4) modeling and managing the garrison IT architecture for a 300,000 person Theater Army; 5) managing IT requirements in conformance with that enterprise architecture; 6) IT planning, programming, and budgeting for that Theater Army; 7) adoption of that methodology, and the application that applied it, as a candidate standard army management system for managing IT architecture, plans, and execution; 8) inclusion of the management methodology's knowledge schema in a standard DoD application combining SQL, GIS, and CAD functions for IT architecture, infrastructure, and systems planning and topological display; 9) serving as the management methodology supporting engineering management for the DoD Common Operating Environment (COE) and Global Command and Control System (GCCS); 10) providing the operational model and analytical schema to identify the traffic and usage patterns of the DoD Joint Operations Planning and Execution System (JOPES) for use in its redesign.

GEM is a generalization and integration of several processes present in all enterprise functions, and in all enterprise management, and is an improvement of processes that have been used for centuries. Through this integration, GEM provides a consistent method for analysis and integration of enterprise business, management, systems, value, and other subjects. The documentation of these analyses and integrations can be loaded into a multi-purpose knowledge-base which is part of the GEM design. The implementation of this integration results in knowledge-based value-chain workflow applications that reach across functional and enterprise boundaries.

For example, in supporting the U.S. Federal Government, GEM provides a single mechanism to simultaneously conduct A-76 (i.e., Competitive Sourcing) studies, reorganization/realignment/relocation planning, functional and enterprise knowledge management (e.g., thereby leveraging Human Capital), enterprise architecture design and planning, performance management of strategic plans/portfolios and budgets/projects, business process reengineering (BPR), and business process maturation (similar to CMM/CMMI/ISO9000).

The concepts behind GEM date back over 35 years to an early "connection model" extension to the popular "systems model". The connection model was subsequently renamed a "generalized object model". This early object model is comparable to today's industry standard Object Metaschema defined jointly by the OpenGroup and Object Management Group (OMG) as the foundation for the structure and management of many modern information technologies. The GEM methodology, repository, and application design has been developed over the past 21 years as information technology has evolved over that period.

GEM is designed as a method for simultaneously attaining enterprise management process and operation maturity, customer focus and value, continuous quality improvement, situational awareness, enterprise architecture, portfolio management, vulnerability management, etc., without all of the overhead required by each of these individual efforts. It is comparable to CMM for Software Engineering, and CMMI for System/Software Engineering and Acquisition Management, but for all organization functions, programs, projects, and processes.

GEM For Performance Management

One World Information System

U.S. Office of Management and Budget on Federal Agency Scorecards

> *"Good intentions and good beginnings are not the measure of success. What matters in the end is completion: performance and results. Not just making promises, but making good on promises.*
>
> *In order to ensure accountability for performance and results, the Administration is using an Executive Branch Management Scorecard. The Administration will use this scorecard to track how well departments and agencies are executing the management initiatives, and where they stand at a given point in time against the overall standards for success.*
>
> *The scorecard employs a simple 'traffic light' grading system common today in well run businesses: green for success, yellow for mixed results, and red for unsatisfactory."*

Using the GEM time-phased process enables Federal organizations in "Getting to Green" and satisfying the President's Management Agenda.

Any "management" problem can be solved, or management requirement satisfied, through application of the GEM methodology and appropriate technologies. This includes satisfying the management requirements put forth in the US President's Management Agenda of 2001, as measured by a "green" rating on the Office and Management and Budget's (OMB) Performance Scorecard.

An "enterprise architecture" (EA) is built through a consistent method of analysis of the enterprise business, performance, data, application and technology elements and their relationships, thus providing the structure and knowledge for governance of infrastructure and systems/software development. At a higher level, the GEM methodology provides a consistent method of analysis of the enterprise as a whole, going beyond the elements of enterprise architecture, resulting in a knowledge-base of the structure and governance of the full-enterprise within its larger environment and value chain. This provides the foundation for integrated applications, knowledge management, real-time enterprise, situational awareness, command and control, and mission-aligned and integrated operations.

The owner of the GEM methodology, One World Information System (OWIS) has released the EA portions of the GEM methodology through the Creative Commons Attributed-NonCommercial-ShareAlike public license, thus making that portion of GEM free for non-commercial use. See http://one-world-is.com/beam.

The Enterprise Management Maturity (EMM) process provides a staged approach for applying the GEM methodology, supported by a variety of vendor-neutral and open-standard Model Driven Enterprise Management (MDEM) technologies used to create GEM-based modeling tools, the GEM knowledge repository, and GEM-based business applications. GEM provides integrated capabilities in Enterprise Architecture, Performance Management, Concurrent Strategic Management, Enterprise Maturation, Portfolio/Program/Project Management, Intelligence Management, Operations Management, etc.

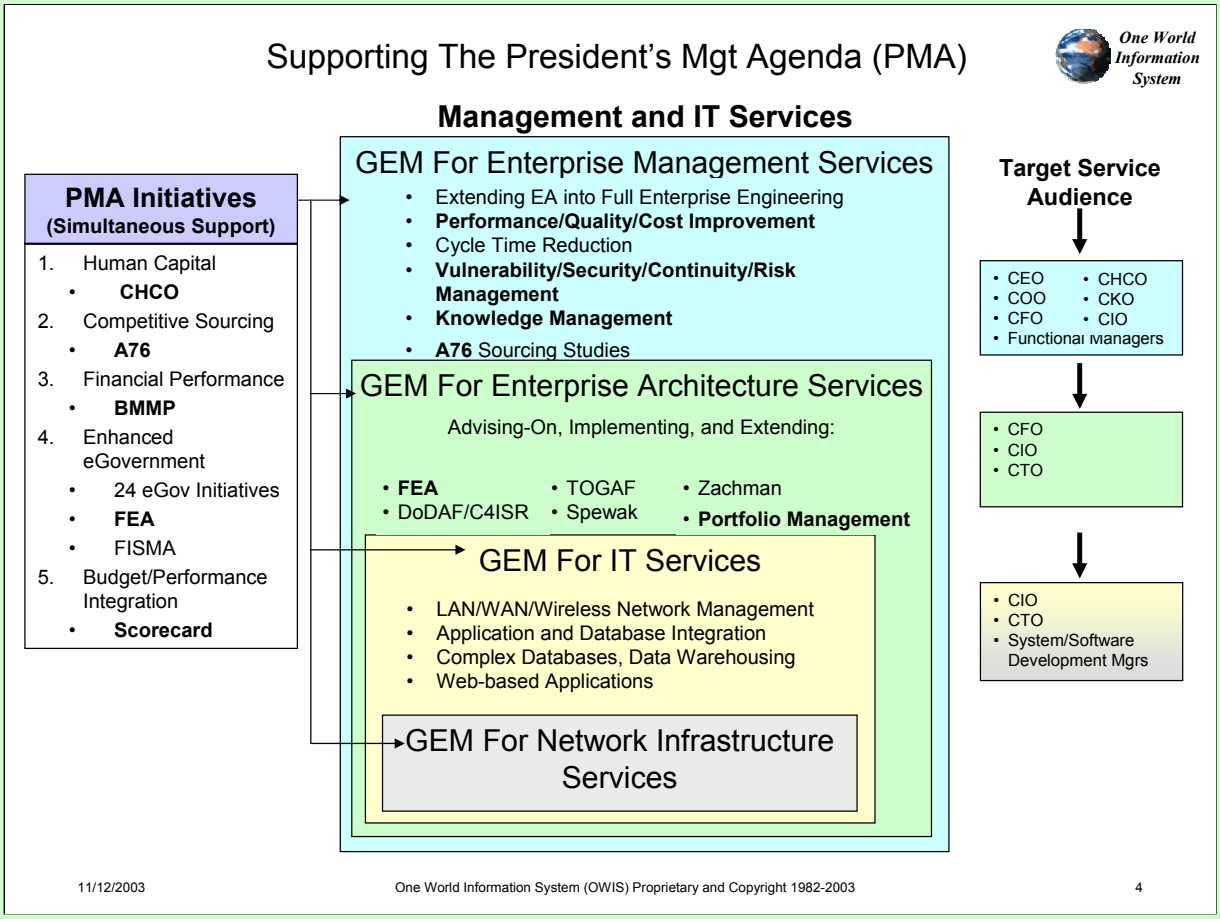
Executive Branch Performance Scorecard
(Where's the Green? GEM Can Help!)

One World Information System

2002 FEDERAL BASELINE PERFORMANCE EVALUATION					
AGENCIES	HUMAN CAPITAL INITIATIVE	COMPETITIVE SOURCING INITIATIVE	FINANCIAL PERFORMANCE INITIATIVE	ENHANCED E-GOVERNMENT INITIATIVE	BUDGET/ PERFORMANCE INTEGRATION INITIATIVE
AGRICULTURE					
COMMERCE					
DEFENSE					
EDUCATION					
ENERGY					
HHS					
HOMELAND					
HUD					
INTERIOR					
JUSTICE					
LABOR					
STATE					
TRANSPORTATION					
TREASURY					
VA					
OMB					
OPM					
SSA					
Legend:	Unsatisfactory		Mixed Results		Satisfactory

The GEM methodology provides a detailed procedure for managing any enterprise, as a whole or in part, at any scale, encompassing all its Functions, Processes, and Resources, distributed across all of its Locations, Organizations, and office, team, position, and role Organization Units. It enables identification and tracking of gaps, overlaps, and inconsistencies in these enterprise elements.

GEM, as a detailed procedure, extends the early "business systems planning/information strategy planning" of IBM's Dewey Walker, the later 1987 Enterprise Architecture Framework of IBM's John Zachman, and the later 1992 Enterprise Architecture Planning methodology of Steven Spewak.



Through internal capabilities and teaming and/or GEM licensing arrangements with best of breed management and technology service providers, TranTech provides a full spectrum of Services for managing an organization and its enterprise. In supporting you, we are willing and able to team with your existing contractors in all categories of service, or to license GEM to you or them.

1. We provide Enterprise Management Services and Support using our GEM methodology, implemented in value-producing phases using our Enterprise Management Maturity model.

2. GEM inherently provides a methodology, supported by appropriate technology, for developing enterprise architectures, within its larger methodology for managing the intelligence and intelligence-based operations of any enterprise. GEM is much like cartography and surveying. Cartographic maps, and the surveys that define them, can be of new territory, or of currently populated territory. These cartographic maps, as do GEM maps, provide the basis for government, organizational, and property treaties, boundaries, and interfaces, and for simpler navigation across this terrain.

GEM provides the map or "blueprint" of the enterprise components and their interfaces, as does a basic enterprise architecture. But GEM also provides the "inventory" of enterprise resources/assets at their various life cycle stages, maps those resources to the "architecture" of processes, functions, organization units, organization, and locations relevant to the enterprise, and then provides the intelligence management and operations management mechanisms to operate the enterprise as a single "system", within its identified value-chain and environment influences. In doing this, GEM provides an Enterprise Architecture that goes far beyond those provided by FEA/FEAF, DoDAF/C4ISR, TOGAF, Zachman, Spewak, etc.

Through use of the more comprehensive and structured GEM methodology, we provide Enterprise Architecture services and support, having the ability and readiness to work with:

EA frameworks (e.g., Zachman, DoDAF/C4ISR, FEA, TOGAF, etc.) and EA methodologies (e.g., Spewak),

data, application, and architecture modeling tools (e.g., Computas Metis, Agilense Web Modeler, Popkin System Architect, Rational Rose, Ptech, Poseidon UML, Oracle Designer, Microsoft Visio for Enterprise Architects),

metadata (model) repositories

Open Standard (MOF, Agilense EA Repository, Netbeans MDR, DSTC),

Proprietary (Metis, CA/Platinum ModelMart, ASG Rochade, Cyrano, Softlab Enabler, Oracle, Microsoft, Rational ClearCase, ISC E-GEN/MAP, Sybase Metaworks)

middleware products (workflow, metadata management, metadata integration, ETL, etc.)

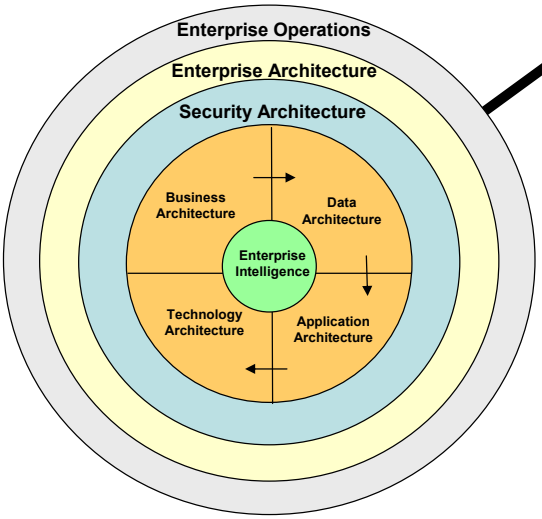
3. We provide full life cycle support for system and software capabilities through our award-winning IT service capabilities, and by teaming with other high quality companies.

4. We provide network infrastructure services, such as data and voice telecommunication services and support, through our teaming with high quality network service providers.

Getting to a Green Performance Scorecard

One World Information System

GEM Methodology Structure



President's Management Agenda Hierarchy	PART Rating	GEM Methodology Functions						
		EO	EA					EI
			SA	BA	DA	AA	TA	
Government Performance and Results Act (GPRA) (1993)		X		X				X
President's Goals (2001)		X		X				X
President's Mgt Agenda		X		X				X
Five Government-Wide Initiatives (Scorecard Items)		X	X	X				X
1. Human Capital	●	X	X	X	X	X	X	X
2. Competitive Sourcing	●	X	X	X	X	X	X	X
3. Financial Performance	●	X	X	X	X	X	X	X
4. Enhanced eGovernment	●	X	X	X	X	X	X	X
• 24 eGov Initiatives		X	X	X	X	X	X	X
• FEA in support of Clinger Cohen Act		X	X	X	X	X	X	X
• Federal Information Security Mgt Act		X	X	X				X
5. Budget/Performance	●	X	X	X	X	X	X	X
• OMB PART Scorecard		X	X	X				X

EO = Enterprise Operations
EI = Enterprise Intelligence
EA = Enterprise Architecture
SA = Security Architecture
BA = Business Architecture (FEA BRM/PRM and DoDAF OV Conformant)
DA = Data Architecture (FEA DRM and DoDAF OV Conformant)
AA = Application Architecture (FEA SRM and DoDAF OV Conformant)
TA = Technology Architecture (FEA TRM and DoDAF TV Conformant)
PART = Performance Assessment and Rating Tool

The owner of the GEM methodology, One World Information System (OWIS) has released the EA portions of the GEM methodology through the Creative Commons Attributed-NonCommercial-ShareAlike public license, thus making that portion of GEM free for non-commercial use. See http://one-world-is.com/beam.

The GEM Methodology can be directly applied to help achieve the expected results of the President's Management Agenda, as shown in this diagram. GEM, as a "management solution framework" provides a consistent analysis, goal-seeking, and performance measuring mechanism, enabled by appropriate enterprise knowledge and data. GEM enables any executive, manager, or worker to achieve their mission, vision, goals, objectives, and strategies through those strategies' recurring operations and initiative programs/projects.

At the heart of the GEM support for the PMA initiatives is a FEA and DoDAF conformant enterprise architecture built using the GEM Enterprise Intelligence (EI) design, satisfying the EA portion of the "Expanding eGovernment" PMA initiative. In the same way that a GEM-based approach can satisfy the EA requirement, GEM can also be used as the basis for the variety of other current and future eGov initiatives.

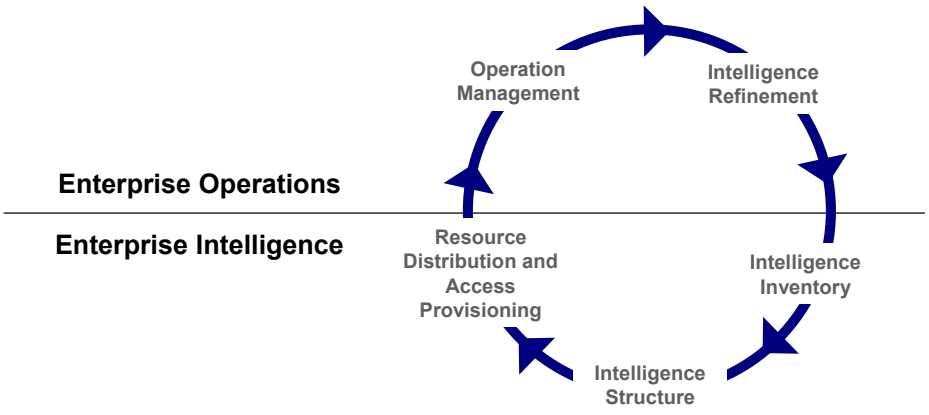
To build the EA, the GEM EI Knowledge Base (KB) efforts collect and organize the Business, Data, Application, Technology, and Security Architectures. The GEM EI-KB and EA provide the basis for effectively, efficiently, and securely managing enterprise operations and developing enterprise applications, because they in effect provide detailed and integrated requirement and system analysis for all enterprise functions.

With the EI KB and EA in place, the management solution for the other PMA initiatives, and other management initiatives, is greatly simplified. The EI-based Business Architecture, often in conjunction with the Security Architecture, is the most commonly used area of the Enterprise Architecture. They provide the detailed system and requirement analyses used in defining the data, application, and technology architectures and in implementing subsequent information system capabilities.

What Is GEM?

One World Information System

- A closed loop methodology (i.e., a detailed, self-refining procedure) for managing an enterprise



- A way of perceiving the enterprise as a single thing within its larger environment
- An executable model of a general enterprise, adaptable to any specific enterprise
- A design for an intelligence and operations management system, that can support management at any scale from individual to universal

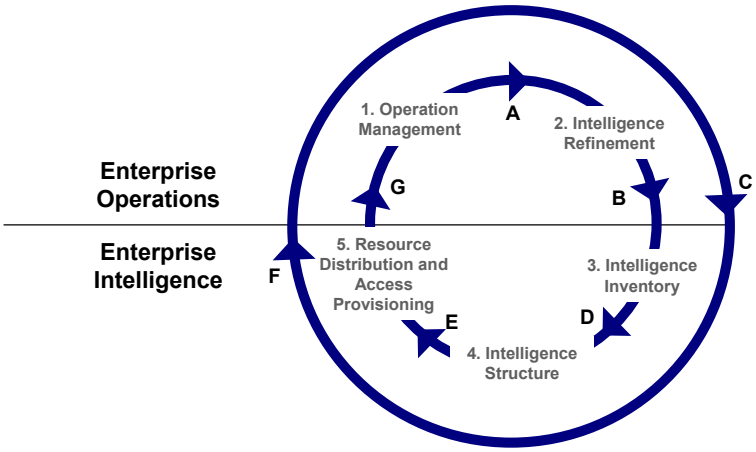
The generalized management capabilities of GEM are designed, as an executable model, to enable the enterprise and its participants to ask and answer questions of any complexity about its larger endeavor and its component endeavors, and the environment surrounding them, in a very simple and intuitive way.

Every thing of interest to the enterprise can be managed using GEM, with GEM implementation providing a comprehensive and coherent base of knowledge for each and every enterprise operation.

A GEM-based system provides automated support for management, from the general to the specific. Following the open-standards-based GEM methodology, and using the GEM open-standards distributed repository, enables any enterprise to quickly resolve its toughest problems.

What Are GEM's Functions and Products?

One World Information System



GEM Functions

1. Conduct operations under access control
2. Learn from operations intelligence management functions
3. Inventory intelligence (metadata and data)
4. Organize intelligence (Knowledge Management)
5. Implement resource distribution, access control, and security architecture

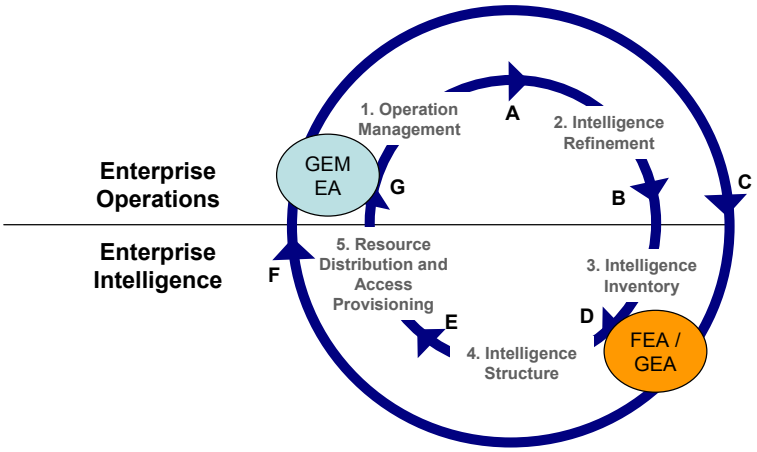
GEM Products

A. Operational experience
B. Operational/analytical results and data
C. Vulnerability Assessment
D. Extracted intelligence, managed metadata and data, intelligence integration
E. Management intelligence, EA, and asset access and distribution requirements
F. Vulnerability Identification
G. Intelligence distribution for operations, analysis, and decisions

In the broadest terms, GEM provides the mechanism to turn experience into improved intelligence, and intelligence into improved experience. The GEM products are available to any organization that goes through the GEM methodology's process.

What Are GEM's Functions and Products?

One World Information System



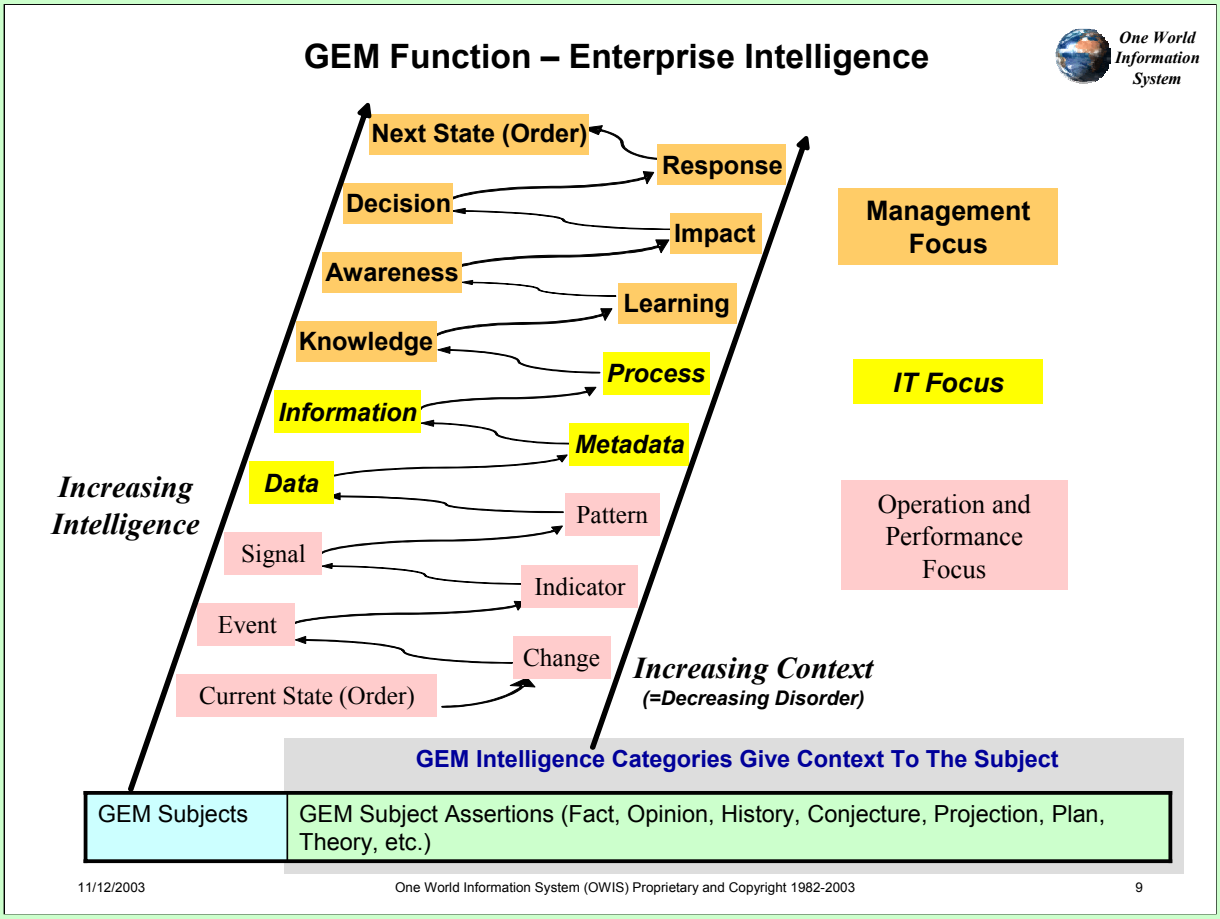
GEM Functions

1. Conduct operations under access control
2. Learn from operations intelligence management functions
3. Inventory intelligence (metadata and data)
4. Organize intelligence (Knowledge Management)
5. Implement resource distribution, access control, and security architecture

GEM Products

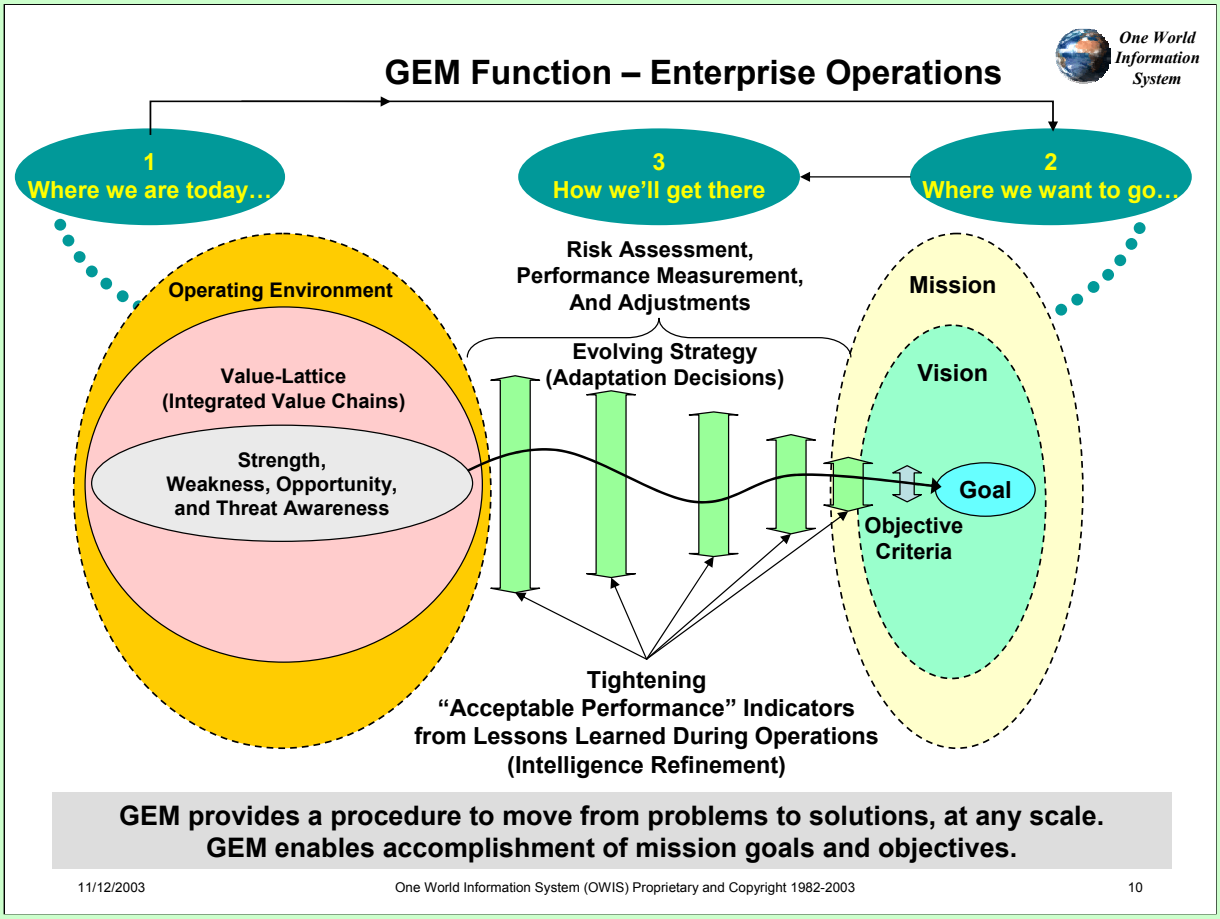
A. Operational experience
B. Operational/analytical results and data
C. Vulnerability Assessment
D. Extracted intelligence, managed metadata and data, FEA/C4ISR conformant EA, intelligence integration
E. Management intelligence, and asset access and distribution requirements
F. Vulnerability Identification
G. Intelligence distribution and GEM EA for operations, analysis, and decisions

In the broadest terms, GEM provides the mechanism to turn experience into improved intelligence, and intelligence into improved experience. The GEM products are available to any organization that goes through the GEM methodology's process. A FEA conformant, and possible common-ground Government Enterprise Architecture (GEA) would result from performing a portion of the GEM Intelligence Inventory, providing a mechanism for governance of that FEA/GEA at multiple levels of the government types (national, state, local) and their internal hierarchies..



In GEM, Enterprise Intelligence is a collection of those sensed, perceived, and recorded things, treated as resources, that guide enterprise decisions for in responding to changes in monitored situations. These intelligence resources are best managed as a whole, thus providing integrated assertions (e.g., facts, opinions, contingencies, requirements) for decisions and response.

GEM categorizes and structures its intelligence in terms of the basic human questions and answers of: where, who, what, why, how, when, how many, how often, for how long, of what quality, at what stage, etc. The intelligence categories of GEM are named: Location, Organization, Organization Unit, Function, Process, Resource, and Requirement. GEM is used to collect, identify, describe, relate, control, and disseminate information about subjects in these categories.



Management: The purposeful resolution of complexity, inconsistency, and chaos in science, society, and perception into a dynamic system of relative controlled order. The movement from Current Problem to Solved Problem.

Stated again, GEM is a "management solution" framework. Any "management" problem can be solved, or management requirement satisfied, through application of the GEM methodology and appropriate technologies.

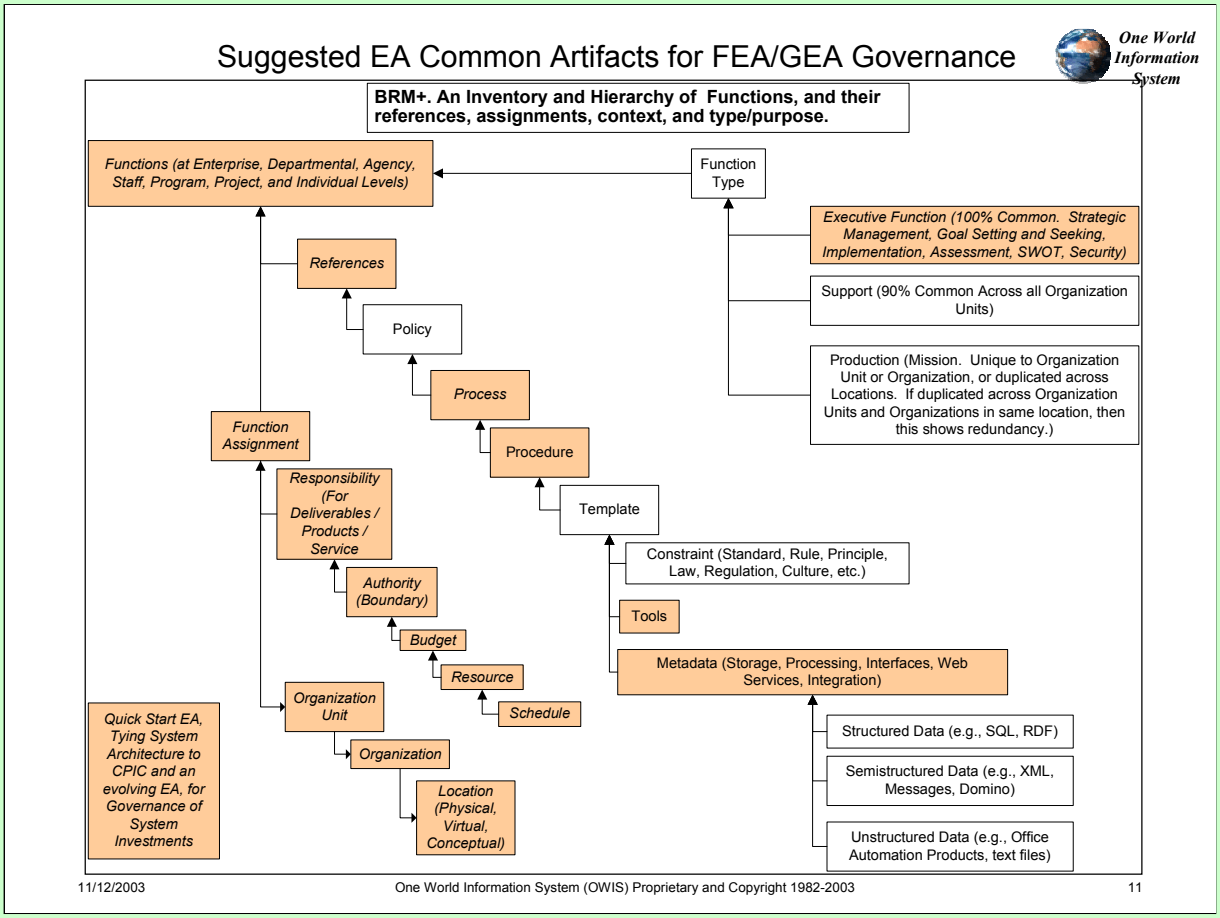
For GEM, an enterprise is a "purposeful endeavor", and thus can include the purposeful (e.g., goal-oriented) endeavors of nations, collections of nations, organizations, chains of formally and informally linked organizations, markets, communities, groups, and/or individuals. GEM supports endeavors at these scales with a single methodology that fits them all. This single generalized methodology also enables very rapid integration and interoperability of these endeavors, providing support for mergers, realignments, reorganizations, alignment on mission and vision, concurrent planning, task-force or contingency organizations, matrix and network organizations, reengineering, enterprise architectures, real-time enterprise operations, etc.

GEM fits these various types of endeavors because any endeavor is about "getting from here to there" in a purposeful way. Other names for endeavor approaches are: "transitioning from AsIs to ToBe"; Strategic Management (e.g., mission/vision, goals, objectives, performance indicators, strategies); problem solving (i.e., getting from a problem to a solved problem); "management" (i.e., resolving the problems of complexity and inconsistency in science, society, and perception into the solution of a dynamic system of controlled order); "change management", etc.

All of these entail knowing: 1) where you are, 2) where you want to go, 3) what path and pace you want to follow, 4) how you're progressing on the path and pace, and 5) what adjustments are needed to these. Items 1 through 3 in the preceding list are called "planning", item 4 is "doing" and "checking", and item 5 is "adjusting", or "PDCA" in quality-management terms. These activities seek to reduce the cycle-time required for any endeavor operation or decision, and thus the endeavor cost, risk and vulnerability. These activities frame the Project Manager's Institute Body of Knowledge (PMIBOK).

This goal-seeking approach resembles, and is a superset of, the operations-planning approach used by many organizations. It supports and can enable automation of large enterprise management controls such as compliance with the U.S. Government Performance and Results Act (GPRA) and Information Technology Management Reform Act (ITMRA, also known as Clinger-Cohen Act – CCA), and automation of management endeavors such as the 2001 U.S. President's Management Agenda with its five key government-wide initiatives (Strategic Management of Human Capital, Competitive Sourcing, Improved Financial Performance, Expanded Electronic Government, Budget and Performance Integration).

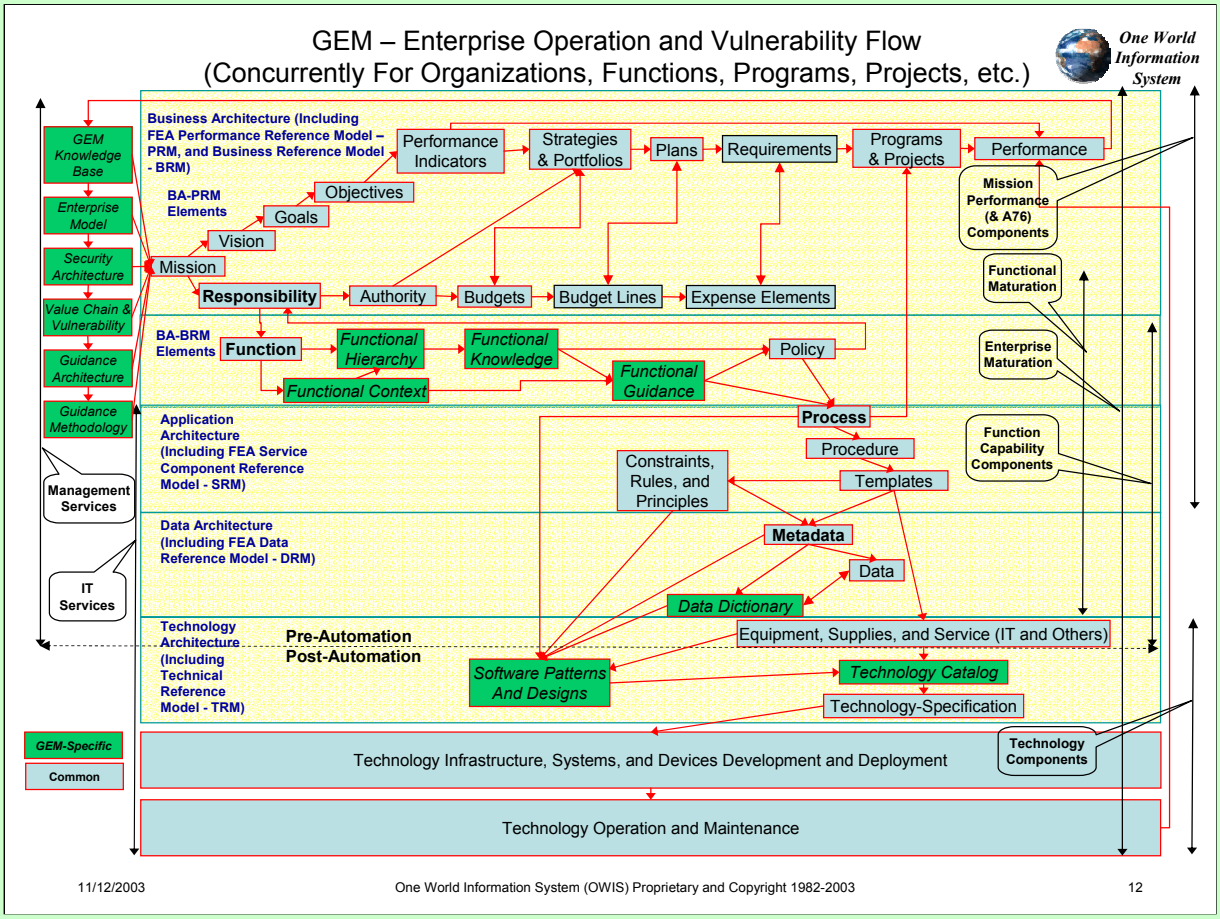
GEM can provide an integrated mechanism to replace or subsume management tools such as the U.S. OMB Performance Assessment and Rating Tool (PART) and can directly support the Federal Enterprise Architecture (FEA).



To provide a consistent base for EA for the FEA and any eventual US or International Government EA (GEA), the business management artifacts in the diagram above, representing a subset of the GEM schema, are offered as the core GEA schema. These business artifacts represent tailored simplifications of the artifacts found in the ISO standards for Enterprise Modeling and Reference Architectures. The presence of these artifacts is a clear indication of maturity in the relevant business function or enterprise. The procedure to collect and organize these artifacts provides a formal methodology for EA that extends the existing Zachman, C4ISR/DODAF, TOGAF, etc. EA frameworks, and the existing Spewak EAP methodology.

The Quick Start artifacts identified in this diagram will provide the necessary data to link the various enterprise, department, agency, staff, program and project system initiatives, with their internal system high level architecture, to the CPIC process of those organizations. This consistent structure of EA business management artifacts provides the metadata and data foundation to provide rollup and comparison of the various system initiatives across these organizational levels, providing the mechanism for governing the architectural composition of the systems and their replacements, and the ranking and prioritization of these system initiatives from the top downward.

Collection of these business management artifacts in support of EA provides a strong foundation for future enterprise management capabilities using the full GEM functionality.



This diagram illustrates the closed-loop operational flow of an organization using the GEM methodology's Spiral Life Cycle. It enables refinement of enterprise knowledge throughout each operational activity, and shared learning and awareness.

This diagram also illustrates the operational flow elements of the GEM methodology's Spiral Life Cycle overlaid on the top-level OMB FEA Model with its PRM, BRM, SRM, DRM, and TRM elements, shown as yellow frames. The light blue boxes represent operational activities common to most organizations, whether accomplished formally or informally. The procedures for developing a basic enterprise architecture compliant with FEA are available at no cost to government using the Public Licensed "Basic Enterprise Architecture Methodology – BEAM) of One World Information System (See http://www.one-world-is.com/beam/default.htm) The darker green boxes, with italic text, identifies the additional activities accomplished through the use of the commercial GEM methodology, with an evolving GEM repository, and evolving GEM-repository-based or repository-integrated functional applications.

Note that while an "enterprise architecture", shown here as the FEA model, has elements in common across all organizations, GEM extends the organization's enterprise architecture to support the larger enterprise management process of secure organizational operations management from managed organizational intelligence. GEM extends the FEA, Zachman Framework, C4ISR/DoDAF, TOGAF, TEAF, and other EA frameworks, and glues these EA efforts together with the operational efforts, melding them into a full enterprise management (EM) solution framework. GEM, as a methodology, repository, and repository-based and repository-integrated applications, provides a dynamic federated interoperability model for communities of interest (COI) within the enterprise, and a comprehensive EA and EM management approach.

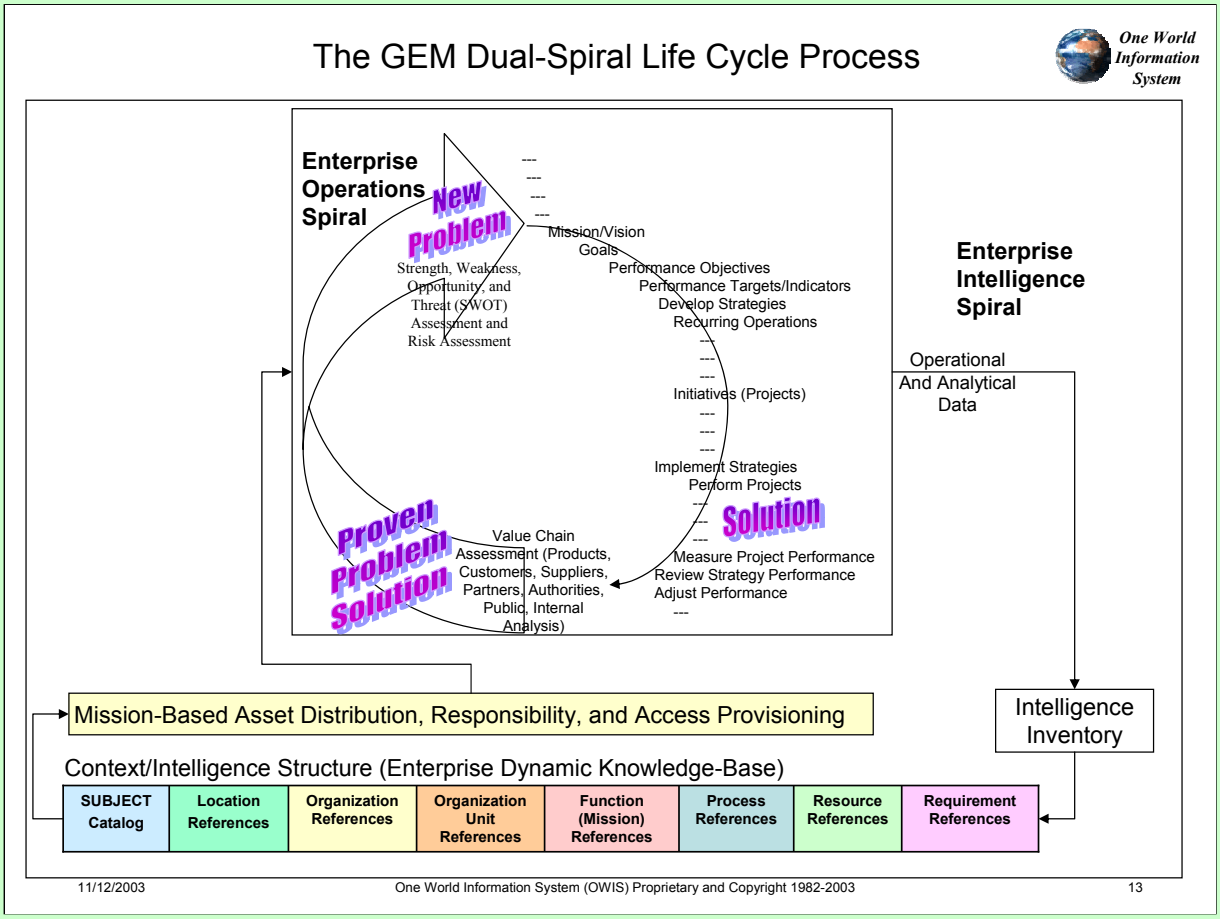
This supports our contention that the FEA is not really new. It's largely repackaging of what most who have taken an "enterprise view", or a "system view of the organization" have done all along.

The EA and FEA are not ends in themselves, but are a means to gain control over technology expenditures, primarily IT expenditures. IT spending has shown the trend of suboptimization - spending on localized views of need for assigned or assumed functions, not prioritized enterprise requirements. This control over technology spending and the reduction of suboptimization directly supports the alignment of the Executive Branch and its operations with the President's Management Agenda, in pursuit of Performance Management and compliance with the Government Performance and Results Act (GPRA).

If these common operational artifacts are reviewed by those outside of the EA and IT communities, then most will acknowledge that their organization performs the activities yielding enterprise-wide common operational artifacts roughly matching the PRM and BMR. Fewer will have enterprise-wide common operational artifacts matching the SRM, while even fewer will have enterprise-wide common operational artifacts matching the DRM and TRM.

To make this a closed loop, and thus self-refining, and environmentally adaptive system, we submit that the organizations must also perform those enterprise-wide management activities that produce the GEM-specific operational artifacts shown in green blocks. These are the glue that tie the operations together into a single enterprise-wide process flow.

The need for a closed loop operational process thus drives the need for a shared, distributed, common, enterprise-wide repository for this process. Without such a shared repository, an "enterprise brain", every activity in this flow that is not shared breaks that activity and its subsequent activities out of the "enterprise-wide" view and makes it a locally suboptimized activity. If an activity and its artifacts are not in the shared repository, they are hidden from the enterprise view and enterprise accountability. This takes local operational autonomy too far in the direction of wildness and away from the controlled order needed by any organization to survive and thrive. It's like a wild mutation, or worse, like cancer. Most wild mutations are not beneficial to the organization/organism, and cancer is never beneficial. A closed-loop, self-referencing, environmentally adaptive, self-healing management process is needed.



General Enterprise Management (GEM) enables the enterprise to resolve many of its toughest problems through the implementation of a comprehensive spiral life cycle enterprise-integrating procedure, and with supporting open-standard technology, a GEM knowledge-management repository. This GEM repository provides a capability similar to an electronic book's integrated "Table of Contents", "Index", and "Concordance", but in this case, the "book" is the operating enterprise and all of its ongoing scheduled and ad-hoc activities. GEM provides a means to "record" what the enterprise is doing, has done, and intends to do, in a single decision-supporting knowledge base.

GEM helps the organization achieve the goals of eBusiness / eCommerce / eGovernment / Real Time Enterprise by leveraging and moving beyond the capabilities provided by such fragmented and incomplete approaches such as Enterprise Architecture, CMM/CMMI, ISO 9000, Business Process Reengineering, Total Quality Management, Knowledge Management, Performance Management, Management by Objectives, Balanced Scorecard, Strategic Management, Portfolio Management, Continuity Management, etc.

This diagram illustrates the major components of a GEM-supported environment, as a closed dual-loop system. It provides methods for inventorying and organizing the intelligence of the enterprise, for managing that intelligence to enable contextual situational awareness and resource-access-provisioning for enterprise participants, and for managing the enterprise's mission performance operations.

GEM Mapped to Other Management and Architecture Frameworks and Methodologies

One World Information System

As of: 8/21/2003 — Supports GEM: Yes / Partial / No

Rough Mapping of GEM Spiral Life Cycle Activites to Other Notable Frameworks, Methodologies, and Life Cycles

GEM Enterprise Management Methodology Activities, Using Model Driven Enterprise Management (MDEM) Technologies	Zachman IT Framework Perspectives (1987-99) [PMA - eGov]	Spewak Enterprise Architecture Planning (EAP) Methodology (1992) [PMA - eGov]	OpenGroup TOGAF8 (1995) [PMA - eGov]	DoDAF / C4ISR (1996) [PMA - eGov]	CMM, CMMI, ISO 9000 Mapping [PMA - eGov]	CIO Council FEAF (1998) [PMA - eGov]	OMB FEA (2002) [PMA - eGov]	OMG MDA [PMA - eGov]	Defense Management Engineering [PMA - Human Capital, Competitive Sourcing (A76), Financial Improvement, Budget/Performance Integration]	Balanced Scorecard [PMA - Human Capital, Competitive Sourcing (A76), Financial Improvement, Budget/Performance Integration, eGov]	
1. Enterprise Concurrent Capability Intelligence											Each Row to the left represents a phase of a common "Executive" capability for Enterprise, Function, Program, and Project Management. Note that no methodologies other than GEM provide full coverage of the enterprise management dual spiral life cycle operations and intelligence process. This causes ineffective and inefficient activities in the other frameworks, methodologies, and life cycles in comparison to GEM
1.1 Enterprise Functional Capability Inventory											
1.1.1 Functional Knowledge Bases											
1.2 GEM Intelligence Base											
1.2.1 Enterprise Architecture											
1.2.1.1 Enterprise Initial Business Architecture											
1.2.1.1.1 Business Security Architecture											
1.2.1.2 Enterprise Full Business Architecture											
1.2.1.2.1 Business Security Architecture											
1.2.1.3 Data Architecture											
1.2.1.3.1 Data Security Architecture											
1.2.1.4 Application Architecture											
1.2.1.4.1 Application Security Architecture											
1.2.1.5 Technology Architecture											
1.2.1.5.1 Technical Security Architecture											
1.3. Enterprise Role-based Asset Distribution and Access Control											
2. Enterprise Concurrent Capability Operations											
2.1 Aligned Enterprise and Functional Missions (Executive Function)											
2.1.1 Aligned Enterprise and Functional Visions of Perfect Performance											
2.1.1.1 Integrated Measurable Goals											
2.1.1.1.1 Integrated Attainable Objectives											
2.1.1.1.1.1 Integrated Concurrent Operation Strategies											
2.1.1.1.1.1.1 Strategy Initiative/Project Management											
2.1.1.1.1.1.1.1 Preliminary Design of Capability and Security											
2.1.1.1.1.1.1.2 Detail Design of Functional Capability and Security											
2.1.1.1.1.1.1.3 Capability System Implementation Plans											
2.1.1.1.1.1.1.4 Capability Component Implementation Plans											
2.1.1.1.1.1.2 Strategy Recurring Operations Management											
2.1.1.1.1.2.1 Capability Operation and Maintenance											
2.1.1.1.1.2.1.1 Operational Intelligence Input and Processing (Operational Data Processing)											
2.1.1.1.1.2.1.2 Operational Intelligence Analysis and Reporting (Business Intelligence)											
2.1.1.1.2 Integrated Concurrent Operation Performance Review											
2.1.1.1.3 Integrated Concurrent Operation Performance Assessment											
2.1.1.1.2 Integrated Concurrent Value-Chain Assessment											
2.1.1.1.3 Integrated Concurrent Vulnerability (Strength, Weakness, Opportunity, Threat, Risk) Assessment											
	Each column above represents $Billions of services/labor/materiel expense for fragmented, partial, and suboptimal results in enterprise management, improvement, engineering, security, and situational awareness. When an enterprise follows the GEM methodology life cycle shown at the left, it can accomplish all that these more fragmented approaches can attain, but with more integration, less cost, more responsiveness, and more accountability.										

GEM operates from the principle of a “spiral life cycle”, also known as a “closed loop system”. The results of one cycle are fed into the next cycle, providing part of the basis for adjusting that subsequent cycle. In GEM, management information products, such as reports, documents, data, etc., are “recycled” by the enterprise to refine its intelligence about its internal operations and arrangements, and about its larger environment and value chain. Because GEM is “generalized”, it can be applied to perform specific operations, such as enterprise architecture in all its varieties.

Each column to the right of the GEM methodology dual-spiral life cycle management outline above represents $Billions of services/labor/materiel expense for fragmented, partial, and suboptimal results in enterprise management, improvement, engineering, security, and situational awareness. When an enterprise follows the GEM methodology life cycle shown at the left, it can achieve all that these more fragmented approaches can attain, and much more, but with more integration, less cost, more responsiveness, and more accountability. All of the products, capabilities, maturity, quality, consistency, etc. that these varied approaches seek to deliver to the enterprise can be provided through implementation of the one GEM process.

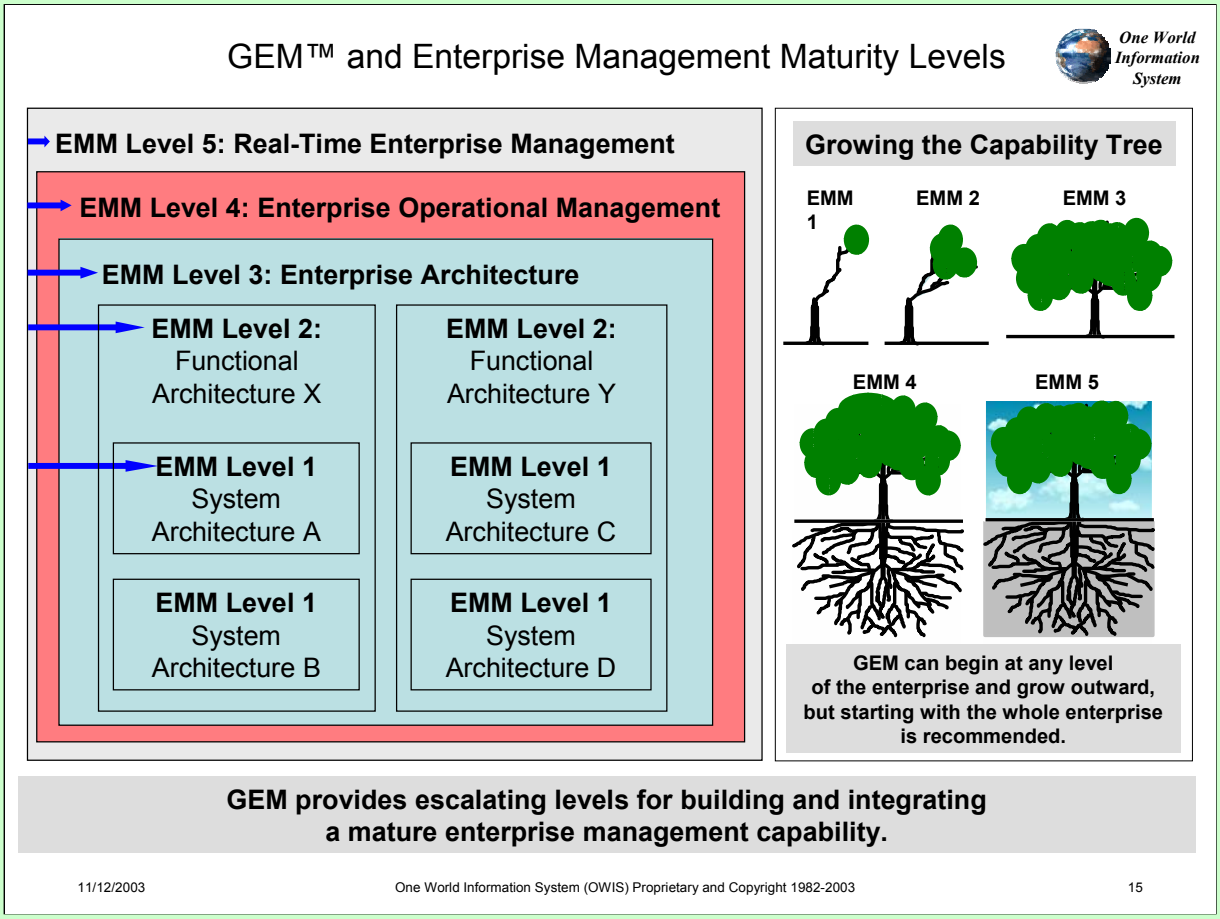
Each Row of the diagram above represents a phase of a common "Executive" capability for Enterprise, Function, Program, and Project Management, expressed as the GEM methodology dual-spiral life cycle. Note that no methodologies other than GEM provide full coverage of this complete enterprise management process. This causes ineffective and inefficient activities in the other frameworks, methodologies, and life cycles in comparison to GEM.

GEM seems to be a BIG process, and yet is actually quite small, consistent and understandable in design. It is BIG in operation, but small in structure, considering all that it delivers through the use of modern open-standard technology as open-source and/or commercial products.

Because of the multi-functional breadth of GEM and its technical functional depth, it is often recognizable in part, but not always as a whole. It can be recognized by different people as strategic management, functional/program management, project management, knowledge management, resource management, security management, business intelligence, customer relations management, supply chain management, system/software engineering management, etc. GEM is all of these things, packaged together as a single whole-enterprise management process, which can also serve as the design for a whole-enterprise management system.

The variety of management concepts, technology concepts, and technologies supporting GEM implementation has recently reached common awareness (e.g., hyperlinks, object models, value-chains, enterprise architecture, process/capability maturity). The technology to support whole-enterprise management with GEM are now based on open standards, and GEM can be economically and quickly implemented in a variety of ways with combinations of open-source and commercial products.

By applying GEM, an organization and its value-chain can leverage all of the prior management improvement work, rolling the results and methods of those efforts into a comprehensive management life cycle – GEM.



The EMM process has five levels for deploying the capabilities enabled by the General Enterprise Management (GEM) methodology. The GEM methodology is used for defining and fulfilling capability requirements at the system, functional, and enterprise levels, and for integrating those capabilities into larger enterprise operations, and for automating those collected enterprise operations. Use of this methodology also identifies gaps, overlaps, and unwanted inconsistencies in enterprise capability, enabling enterprise-wide development and implementation of migration plans from a given capability to the next generation of that capability.

As illustrated here, the GEM methodology can be applied at multiple levels of the enterprise. However, as analogy, it's easier to grow a living tree of enterprise capability from a GEM seed, reaching outward to subsume existing capabilities, or to develop new capabilities, thus taking the required enterprise form, than to graft separate parts of many sub-enterprise management trees together into an enterprise pattern, in an attempt to give it the dynamics of life.

GEM is applicable at all levels of the enterprise capability (e.g., from isolated system to "living" enterprise), but the enterprise gains the most value, in the shortest overall time, at the lowest overall cost and complexity, by pursuing EMM 5 first.

An analogy to help understand the EMM levels of GEM comes from medicine. EMM Level 1 is equivalent to the anatomy and function of a human's finger. EMM Level 2 is equivalent to the anatomy and function of a human's arm. EMM Level 3 is equivalent to the anatomy and function of a human body. EMM Level 4 is equivalent to the physiology and mechanical operations of a human body, which both apply the anatomy. EMM Level 5 is equivalent to the psychology and awareness, the intelligence, of the human, which applies the body's anatomy, physiology, and mechanics.

Stretching that same analogy a bit further, EMM Level 3, an enterprise architecture capable organization is basically an anatomically modeled organization, much like a cadaver serves as a model of a human. EMM Level 4 is much like a human in a coma – operating but not aware, proactive, or reactive. EMM Level 5 is much like an aware and active human operating in their dynamic environment.

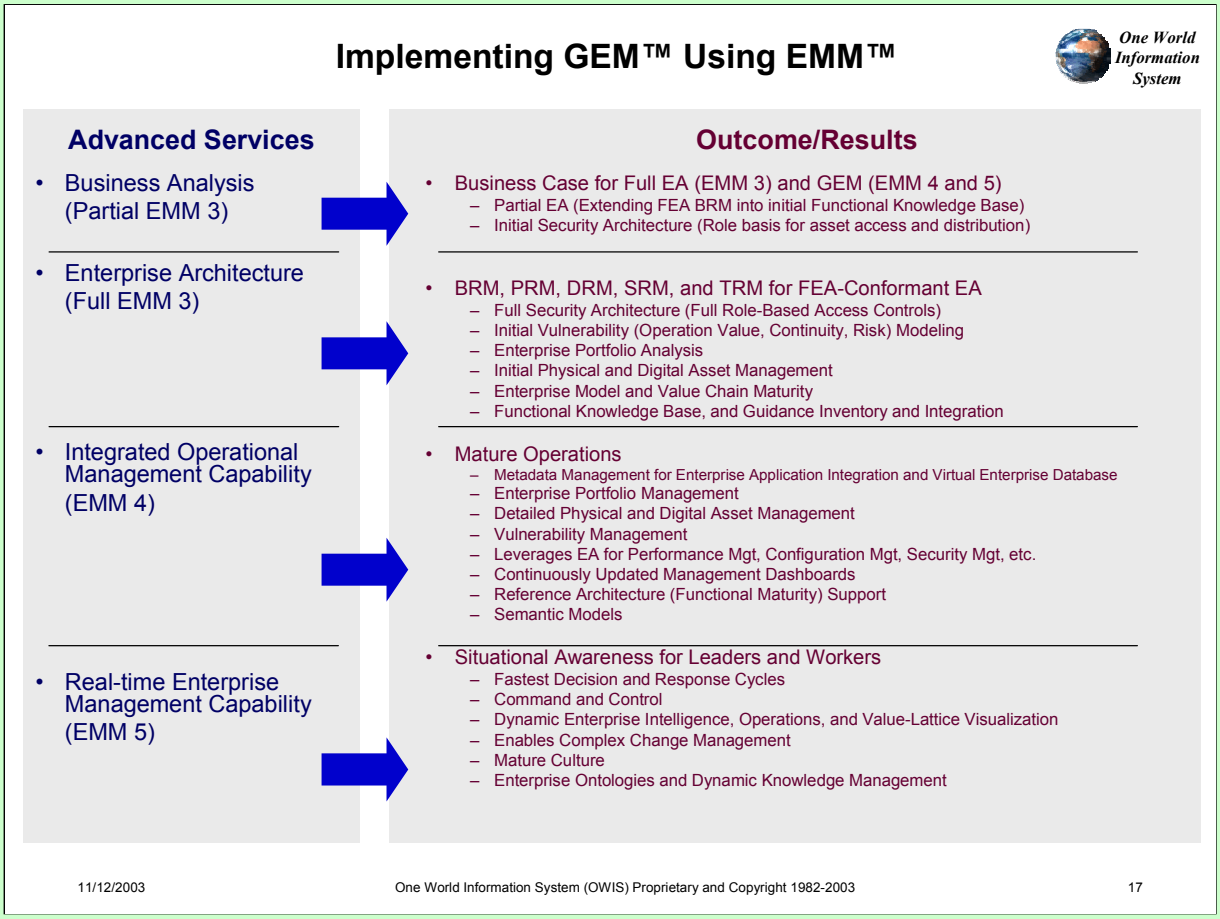
The PMA and EMM Levels

One World Information System

President's Management Agenda	EMM Levels				
PMA Five Government-Wide Initiatives (Scorecard Items)	EMM1	EMM 2	EMM 3 (BEAM)	EMM 4	EMM 5
1. Human Capital (OPM)				√	√
2. Competitive Sourcing (A76)				√	
3. Financial Performance				√	√
4. Enhanced eGovernment	√	√	√	√	√
• 24 eGov Initiatives	√	√			
• FEA in support of Clinger Cohen Act			√	√	√
• Federal Information Security Mgt Act				√	√
5. Budget/Performance				√	√
• OMB PART Scorecard				√	

GEM provides escalating enterprise maturity levels for achieving the performance required by the President's Management Agenda.

This diagram illustrates that an enterprise architecture provides a consistent foundation for all of the PMA Government-Wide initiatives.



TranTech is prepared to support your organization and your contractors in applying the GEM methodology to your enterprise management operation and reporting requirements.

What are EMM/GEM durations (for most Federal Departments/Agencies, State and Local Government Departments, and medium to large commercial organizations)?

GEM operates in spiral management life cycles, with each subsequent cycle operating from the refined results of the previous cycle.

A GEM/EMM Site Survey takes approximately 2 weeks. It provides the necessary information to establish the scale of the GEM/EMM effort, the technologies, methods, models, and notations currently in place, and the organizational context of the GEM/EMM effort to help establish the parameters for the Change Management (i.e., communication plan, etc.) process that runs in parallel with the GEM/EMM implementation activities. The Site Survey helps to determine the costs of the EMM efforts within the estimated timeframes below.

EMM Level 1 services take approximately 2 months per system. Note that multiple Level 1 services within a single function would never yield the same benefit as a Level 2 service for that function.

EMM Level 2 services take approximately 4 months. Note that multiple Level 2 services within a single enterprise would never yield the same benefit as a Level 3.3 service for that enterprise.

EMM Level 3.1 – Initial Business Architecture services take approximately 3 months, yielding a portion of GEM functionality.

EMM Level 3.2 – Full Business Architecture services take approximately 5 months, yielding a portion of GEM functionality.

EMM Level 3.3 –Enterprise Architecture services take approximately 9 months, yielding a portion of GEM functionality with FEA and C4ISR/DoDAF conformance.

EMM Level 4.1 – Operational Enterprise Architecture services take approximately 12 months, yielding a portion of GEM functionality.

EMM Level 4.2 – Dynamic Enterprise Management services take approximately 15 months, yielding a portion of GEM functionality.

EMM Level 5 – Intelligent Enterprise Management services take approximately 24 months, yielding the full GEM functionality.

Who can benefit from EMM/GEM? Any organizational executive, manager, workforce members, singly or in groups, and their customers, suppliers, authorities, partners, and the relevant public constituency.

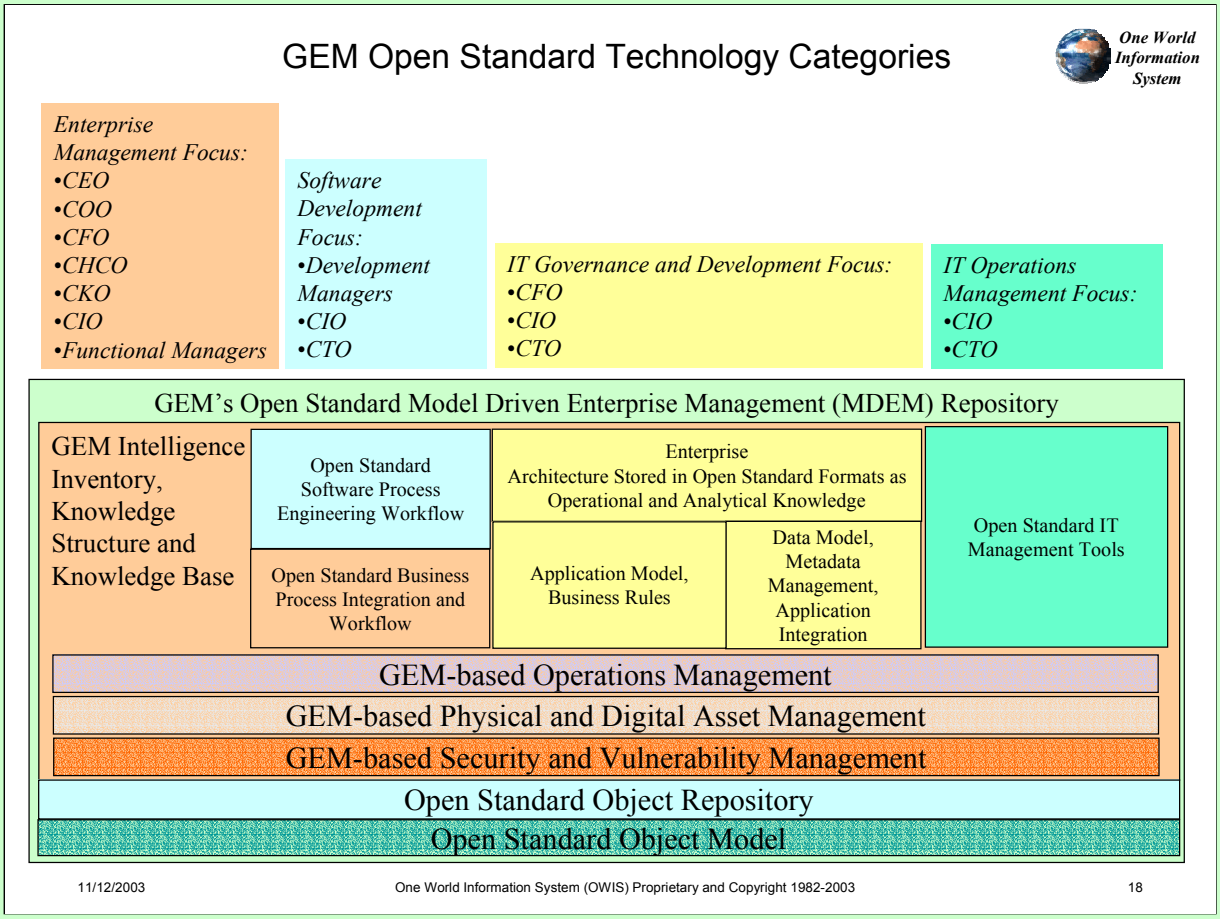
What are the benefits of EMM/GEM? Shared and maintained knowledge based on common terminology, meaning, and understanding, as appropriate by the attained EMM Level. Increased operational capability, effectiveness, efficiency, adaptability, and responsiveness.

What is the cost of EMM/GEM? Cost of infrastructure to support GEM (network, repository platform, repository software, client platform, client software, training on these, maintenance of these). Cost of initial and ongoing organizational and functional analysis. Cost of interfacing organizational and functional knowledge with legacy information systems, Web, Semantic Web, and Web Services.

Where is EMM/GEM performed? GEM would operate using a technical platform distributed over the organization's intranet, private networks, and Internet.

When is EMM/GEM performed? GEM is performed continuously once begun, operating as a core process within its adopted organizations.

What is the EMM/GEM frequency? An EMM Level, once reached, would require consistent use and maintenance to sustain its value and capability. GEM Use would be by your organization's personnel and/or its TranTech support team. The EMM/GEM maintenance could be performed by TranTech and/or by your personnel trained in the EMM/GEM techniques and tools.



The GEM Repository Structure, showing enterprise management, enterprise architecture, and IT operation management components.

EMM 3 – Extended Enterprise Architecture (EA) +

One World Information System

Enterprise Capability Documentation

**** Enterprise Architecture is NOT about information technology.*

**** IT management benefits from EA, as does everyone in the enterprise, their customers, their partners,their authorities, their suppliers, and the public.*

(Italic Underlines show IT-Specific EA Elements, with drivers from OMB FEA, Clinger-Cohen Act, OMB A-130 and A11, Investment Budget, etc.)

Enterprise Architecture Elements			Results	Controls
Security Architecture (SA) (FISMA)	Business Architecture (BA) (FEA BRM and PRM) (DoDAF OV)	Initial Business Architecture (IBA)	• Information for EA, System, and Functional **Business Cases** • Basis for **Role-Based Access Control** – RBAC to physical and *digital* assets • Information for **Organization and Functions Management** (e.g., Task Organization, Realignment, Reorganization, Merger/Acquisition)	*FEA and DoDAF/C4ISR Conformant EA*
		Full Business Architecture (FBA)	• Information for Physical and *Digital* **Asset Management** • Information for Process Modeling and Management (**Workflow and Asset Distribution**) • Information for Role-based *Push/Pull of information* for **Situational Awareness and C2** • Information for **Knowledge Base**	
	Data Architecture (DA) (FEA DRM) (OV)		• *Metadata and Data Management* • Basis for **Data Classification** (Privacy, Confidentiality, Secrecy, Need to Know, etc.)	
	Application Architecture (AA) (FEA SRM)(OV)		• Capability Package (Business *Component*) • Basis for Physical and *Digital* Asset **Access Rules and Methods**	
	Technology Architecture (TA) (FEA TRM) (DoDAF TV)		• Mechanisms for *Asset Distribution* and ***Access Control*** of Physical and *Digital* Assets	
	Functional Technology Types		• Personnel Management Technology	Enterprise Operation, Asset, Vulnerability, and Configuration Management (DoDAF AV)
			• *Information Management Technology (TV)*	
			• Funds Management Technology	
			• Skills Management Technology	
			• Materiel Management Technology –Equipment (e.g., vehicles, factories, *IT hardware/software*, furniture –Supplies (e.g., food, fuel, office supplies, *IT supplies*	
			• Facilities Management Technology	
			• Services Management Technology –e.g., personnel services, cleaning services, *IT services*, food services	
Certification & Accreditation (FISMA)	Dynamic Executables Architecture (DoDAF SV)		Technology Development	
			Functional Operations with Technology	

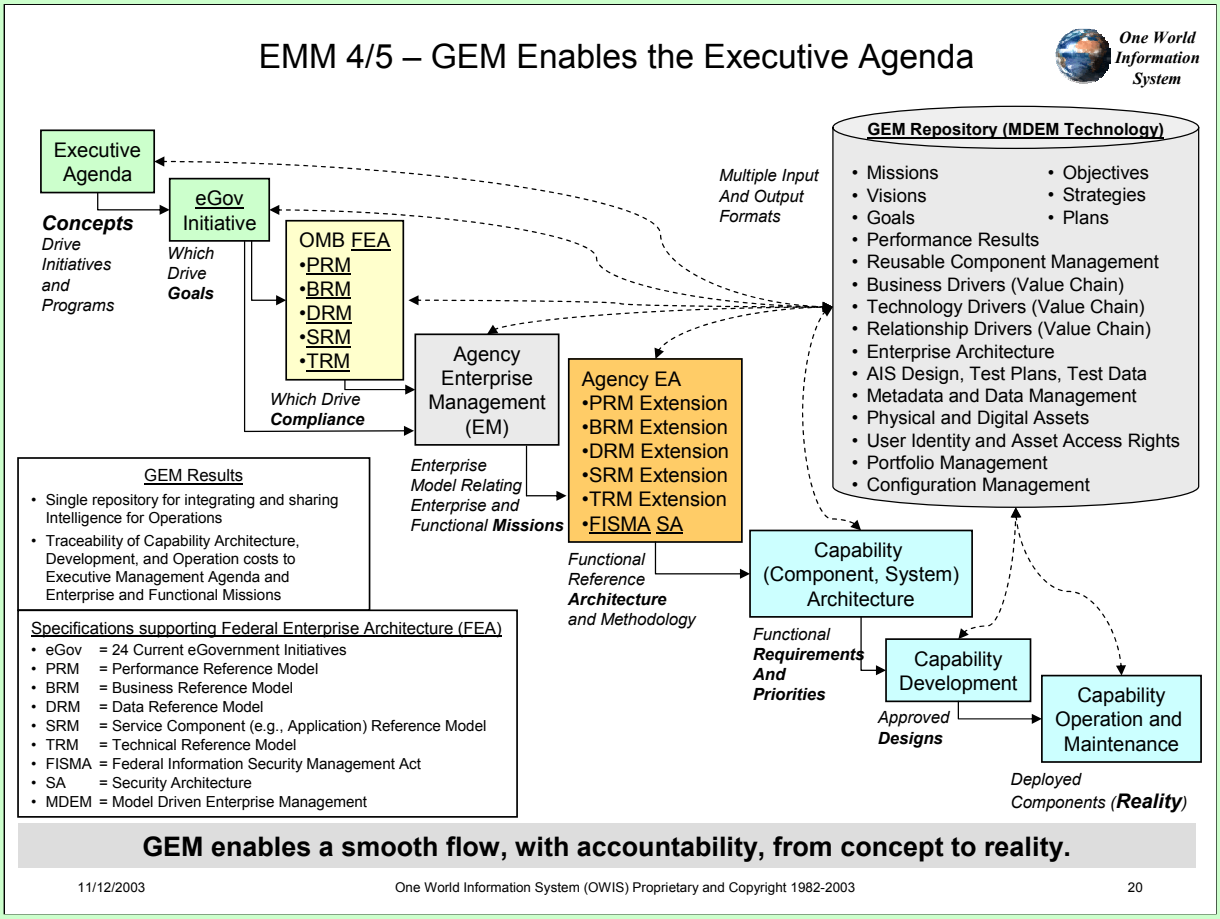
GEM supports the development and maintenance of the enterprise architecture, and the enterprise intelligence and operations management functions that leverage that architecture.

This slide illustrates that, of all of the elements of a full-scale enterprise architecture, only a few relate to information technology. The CIO typically has the lead in EA because IT has measurable economies and efficiencies to gain in satisfying business, legal, and regulatory requirements. But the lead can also come from a functional, program or project manager, or another executive such as the CTO, CKO, CHCO, CSO, CFO, COO, CEO, or President.

However, the enterprise executive with the authority to implement the full enterprise architecture, operational enterprise architecture, and intelligent-enterprise management is usually the organization CEO, President, Director, or Commanding General, as an Executive Management Agenda initiative.

GEM extends the early "business systems planning/information strategy planning" (BSP/ISP) of IBM's Dewey Walker, the later 1987 Enterprise Architecture Framework of IBM's John Zachman, and the later 1992 Enterprise Architecture Planning methodology of Steven Spewak.

While BSP/ISP, Zachman Framework, and Spewak methodology are highly useful and parallel, and can substitute for, much of the initial phases of the GEM approach, they provide only a subset of the capabilities provided by GEM. Part of this is because of the basic model applied by these earlier EA efforts and by GEM. The early efforts are patterned on a "relational" or "matrix" model, while GEM is patterned on an "object" model, which has the inherent capability of working with more "dimensions" of information than the relational model. The organizations which have used BSP/ISP, Zachman Framework (or its derivatives of FEA/FEAF/TEAF, DoDAF/C4ISR, CADM, DIAD, TOGAF, NASCIO, etc.), or the Spewak Methodology (for pursuing the initial elements of the Zachman Framework) can apply the results of those efforts directly to the GEM implementation to shorten GEM implementation time.



This diagram illustrates the GEM repository, from a US Government perspective, as the mechanism for connecting business drivers, enterprise management, IT management, and IT components/assets. It can do the same for management of any category of assets.

GEM™ and EMM™ Benefits

One World Information System

GEM/EMM Characteristics	Benefit/Value
• GEM provides an approach to implementing full enterprise management agendas, by performing: – ***enterprise operations*** (EO) applying an… – ***enterprise architecture*** (EA) using… – managed ***enterprise intelligence*** (EI)	• Overcomes historical tendency to view and operate enterprise in a fragmented way: – non-aligned – sub-optimized – non-integrated – non-accountable
• GEM applies: – ***open-standard*** – ***model driven*** – ***enterprise management*** (MDEM)… technologies to support such activities as Enterprise Architecture	• Technology has now evolved to the point where holistic views can be economically supported and applied, yielding broad-reaching and deep situational awareness for leaders and workers
• EMM provides a: – ***value-producing*** – ***phased*** … GEM implementation process for maturing the full collection of enterprise capabilities	• Each phase of GEM implementation increases the organization's functional process maturity • Enhances organization's ability to achieve higher CMMI and ISO 9000 levels of process maturity and quality

GEM helps the organization achieve the goals of eBusiness/eCommerce/eGovernment and Real Time Enterprise (RTE). It does this by encompassing and moving beyond, in simple and economical steps, the capabilities provided by partial and typically-isolated approaches such as Enterprise Architecture, CMM/CMMI, ISO 9000, Business Process Reengineering, Total Quality Management, Knowledge Management, Performance Management, Management by Objectives, Balanced Scorecard, Strategic Management, Portfolio Management, Continuity Management, Realignment/Reengineering/Merging, Relocation, Supply-Chain Management, etc.

Our Preferred Teaming Partner's (TranTech) Contract Vehicles

One World Information System

Contract Name	Contract Number	Credit	
		Small Business	8(a)
DISA Encore IT Solutions	DCA200-02-D-5012	✓	✓
GSA Schedule, Group 70 IT Services	GS-35F-4382G	✓	✓
GSA Schedule, Group 36 Network Connectivity	GS-25F-0014N	✓	
GSA FAST Federal Acquisition Services for Technology	GS00K97AFD2196		✓
Department of Commerce Commerce IT Solutions (**COMMITS**)	50-CMAA-9-00067	✓	
DoT VANITS Niche 1: Business Intelligence Services	DTTS59-00-D-00614	✓	✓
DoT VANITS Niche 7: Transition/Migration/Remediation	DTTS59-00-D-00796	✓	✓

We are seeking service arrangements and/or teaming with those who can use GEM in their current endeavors, and is seeking out those who can support the GEM spiral life cycle, in whole or in part, with their integratable MDA/MDEM technologies.

Vendors and service contractors that want to include GEM in their proposals can also bring their government business opportunities to TranTech and they can help government prospects and clients gain contractual access to you and GEM through these contract vehicles.

Contact

One World Information System

Roy Roebuck
(703) 598-2351
roy@one-world-is.com
One World Information System
10675 Myrtle Oak Court
Burke, VA 22015

GEM Training and Documentation Structure (Digital and Paper Books and Presentations available).

1. GEM Concept.
    - Executive Overview (Available in this Public Release Document).
        - What are GEM and EMM and why are they valuable?
    - Technical Overview (Available in a Public Release Document).
        - What are the costs of GEM via EMM? (Roughly identified in this Public Release Document, specifically identified in coordination with your organization).
    - How does the GEM process work? #
2. GEM Procedures #@
    - How GEM works, as a detailed methodology.
3. Standards/Technology Supporting GEM. #
4. Products Supporting GEM. #
5. GEM Implementation Project Plan Samples. #
6. GEM Solution Scenarios. #

#Available with a Non-Disclosure Agreement (NDA) or GEM License.

@ Sold as part of a OWIS Service Contract.