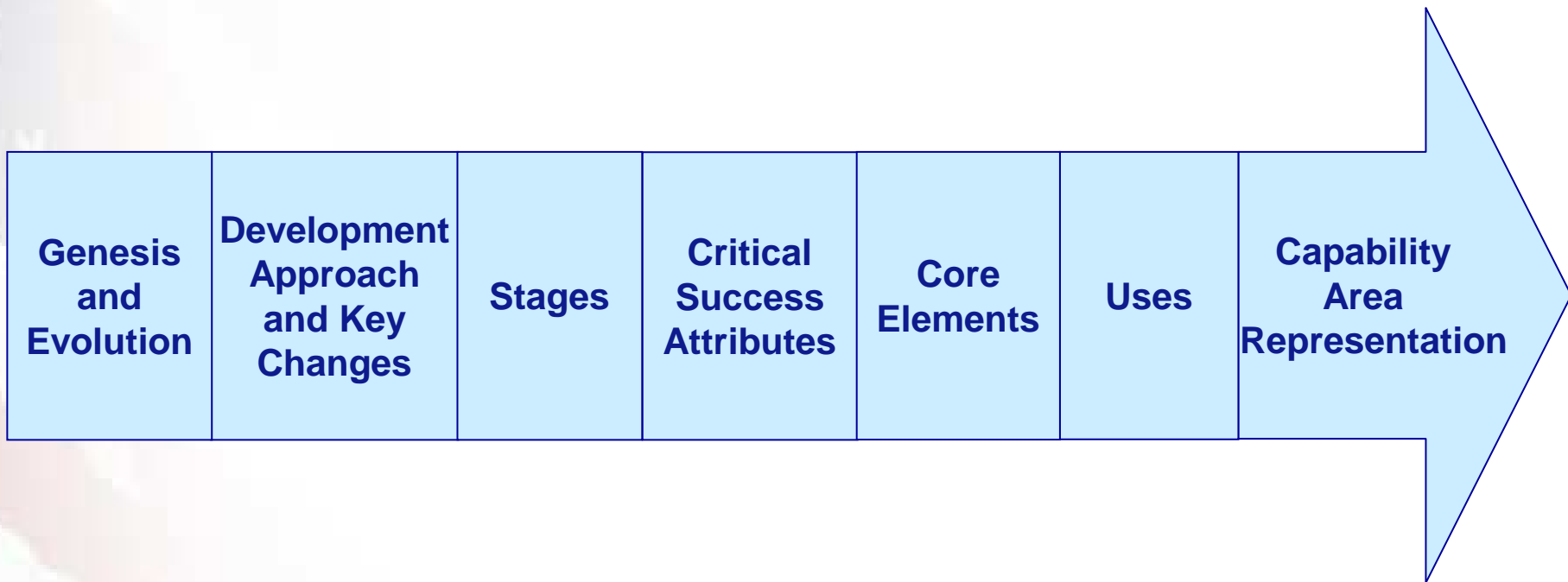

Preview of GAO's EA Management Maturity Framework v2.0

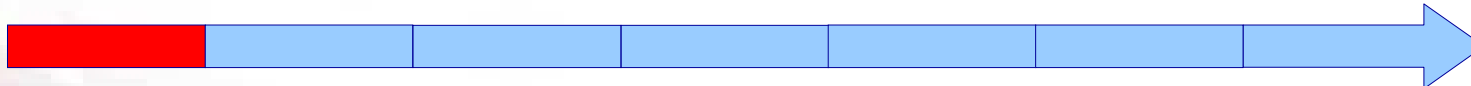
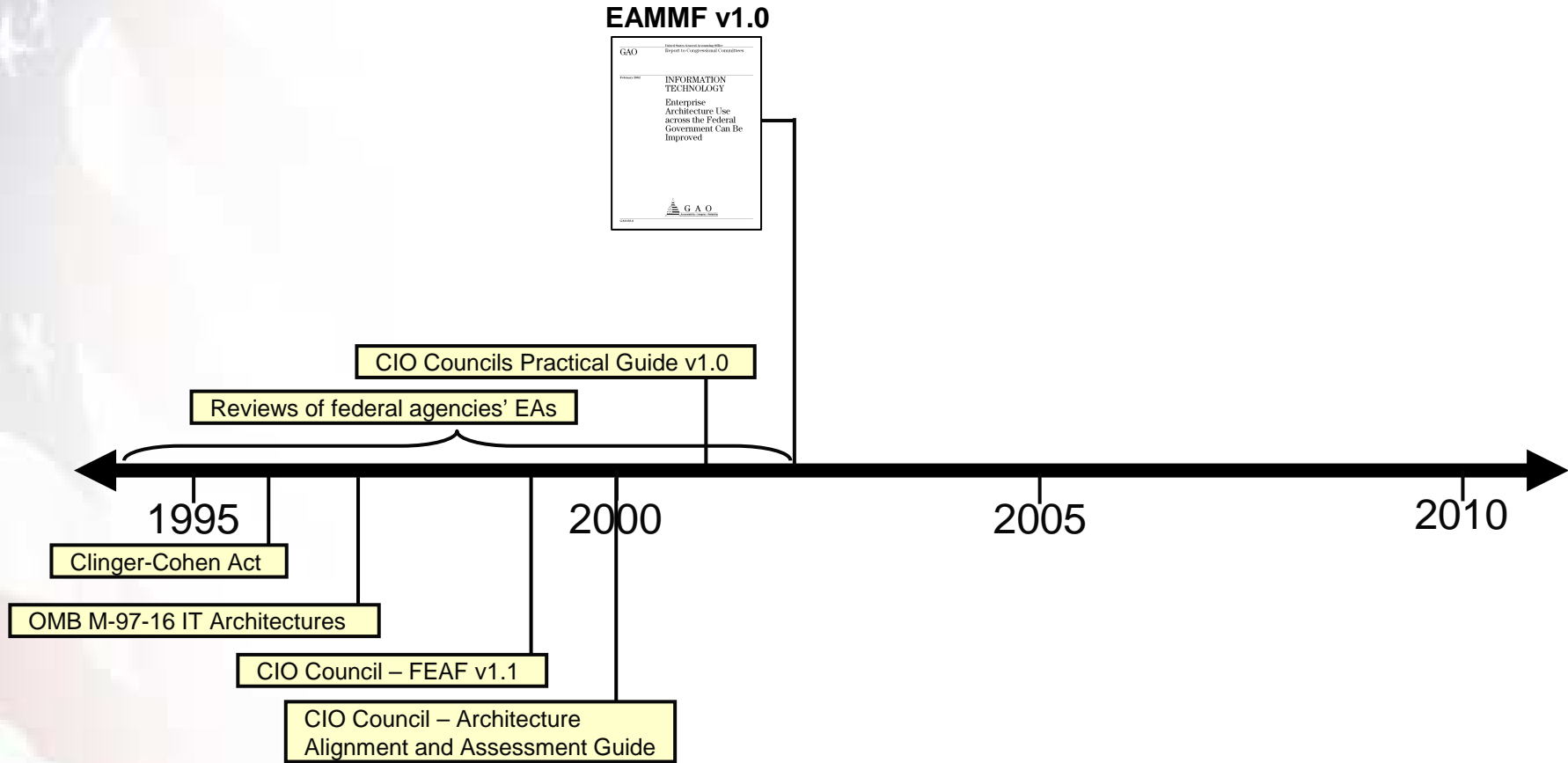
Randy Hite
Director, Information Technology
Architecture and Systems Issues
hiter@gao.gov

Digital Government Institute
Enterprise Architecture Conference
April 22, 2010

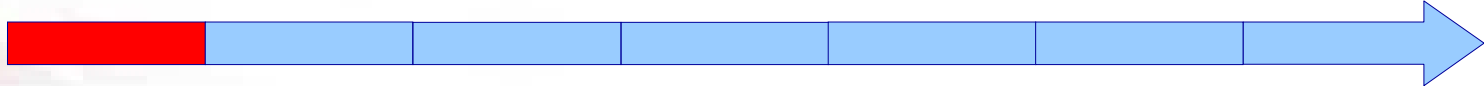
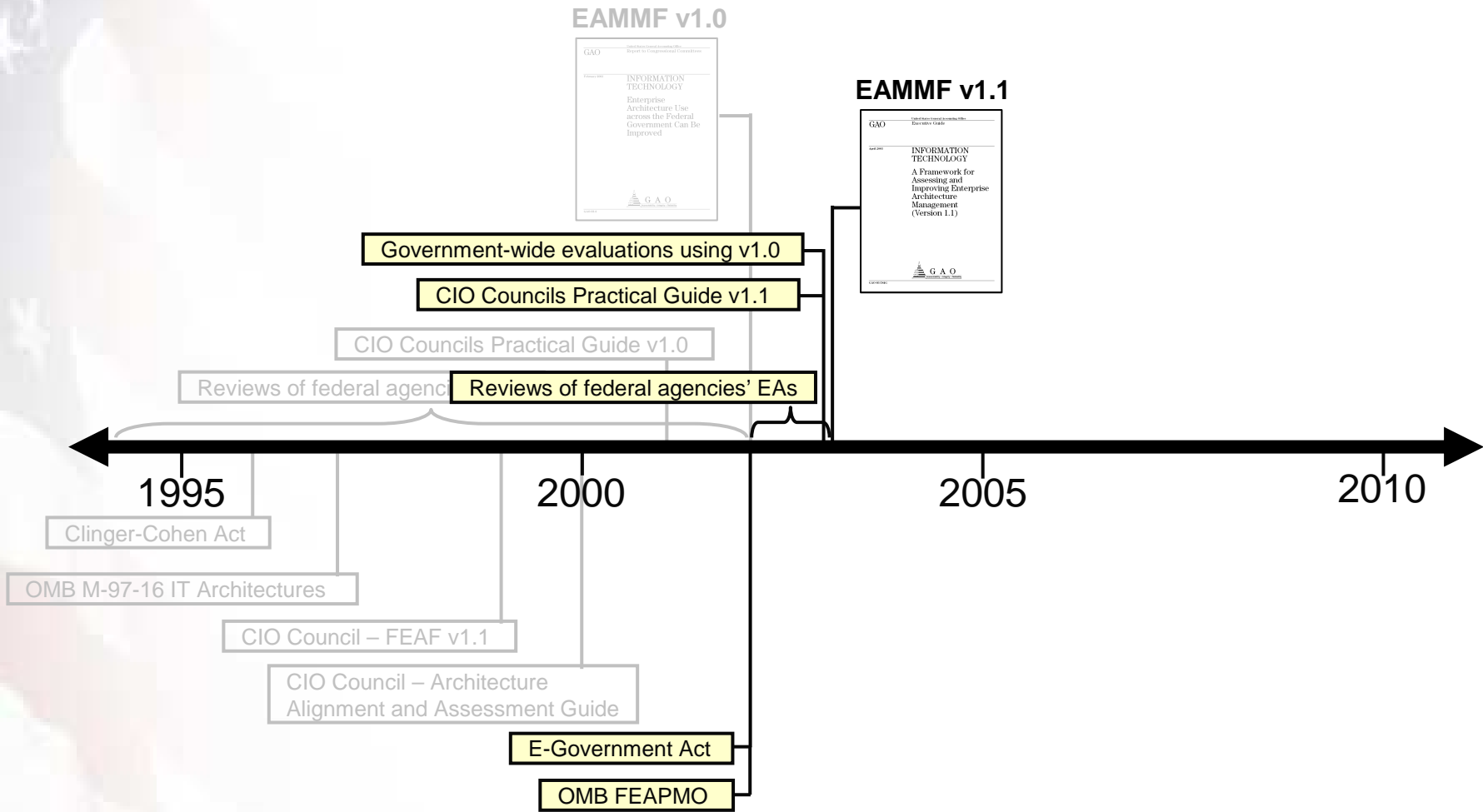
Overview of EAMMF v2.0



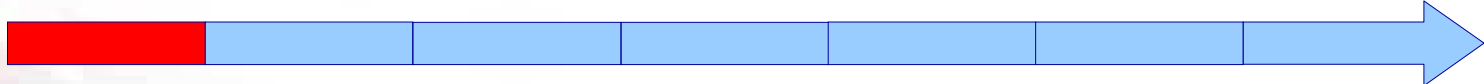
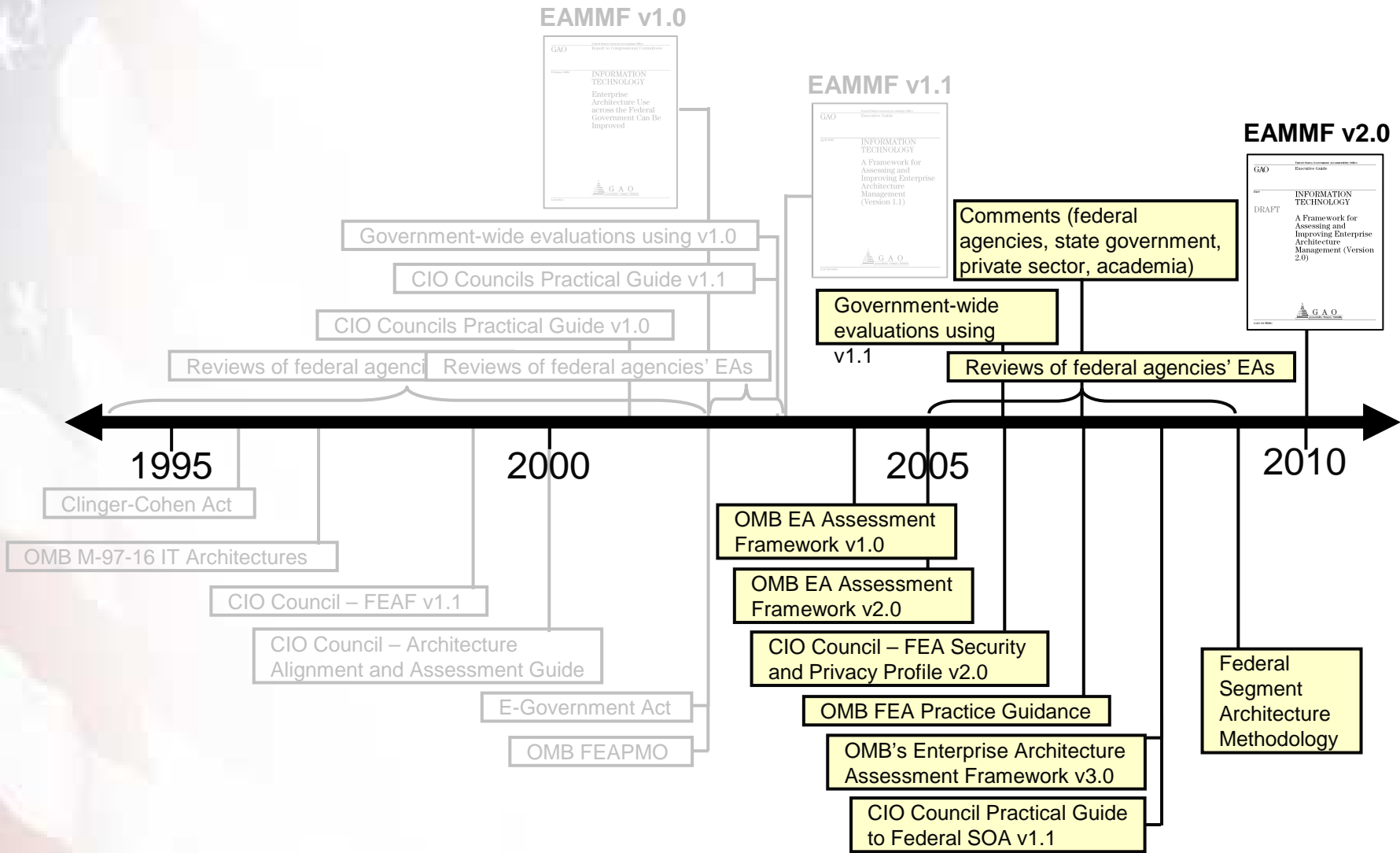
Genesis and Evolution



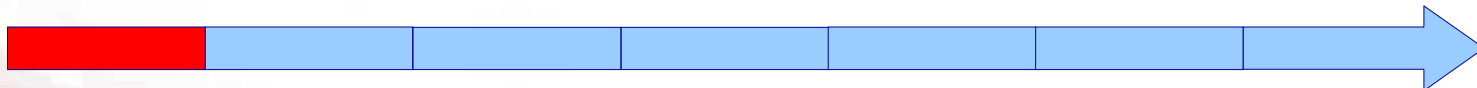
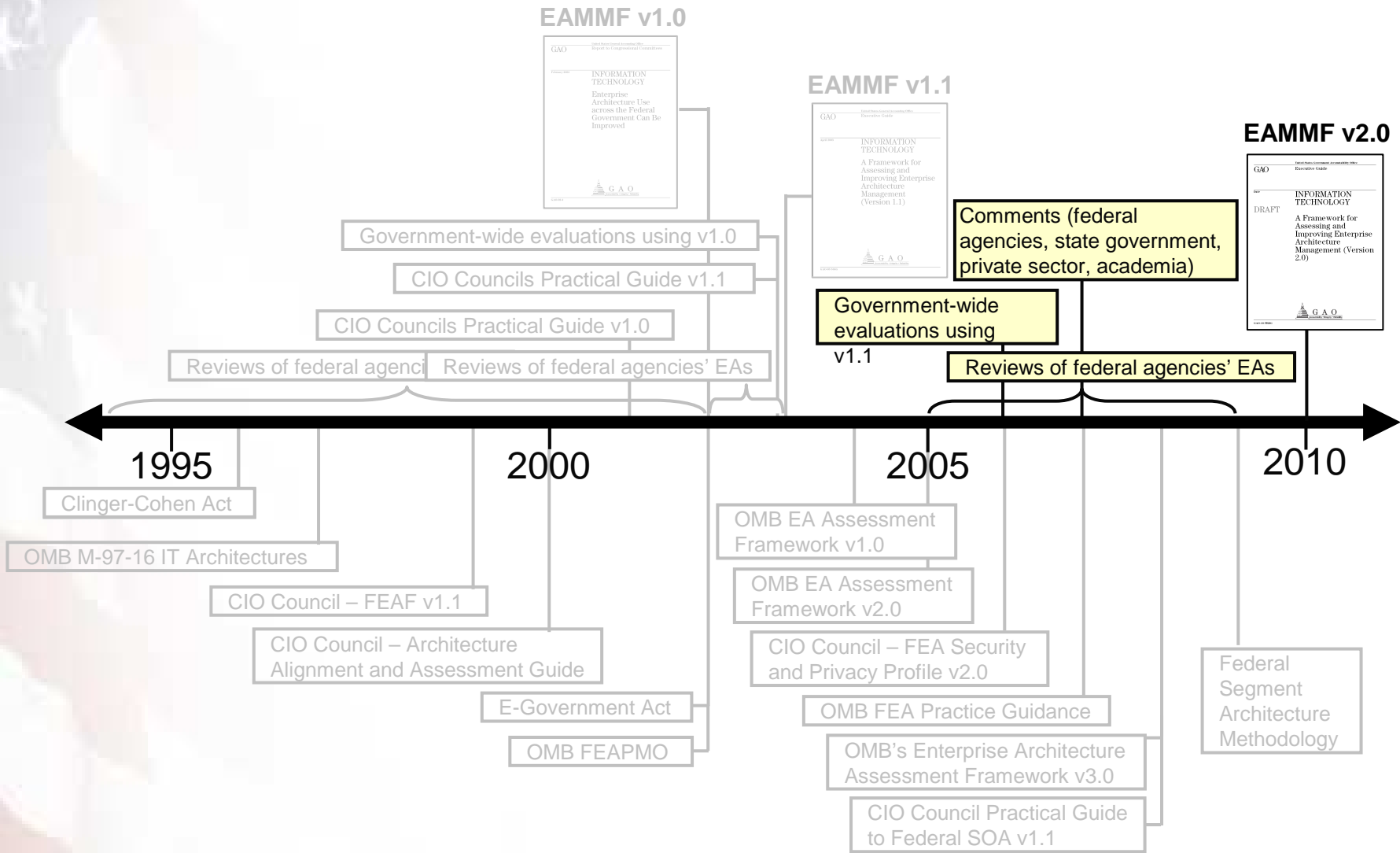
Genesis and Evolution



Genesis and Evolution

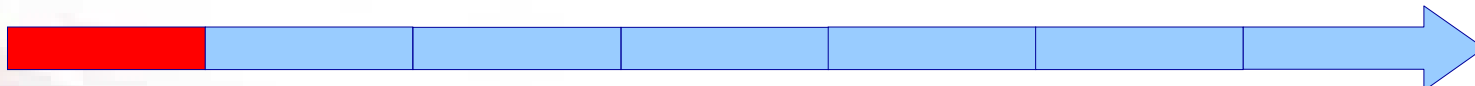


Genesis and Evolution

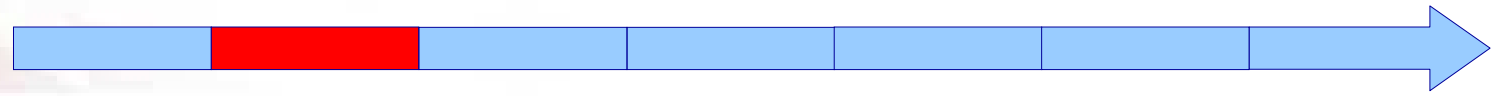
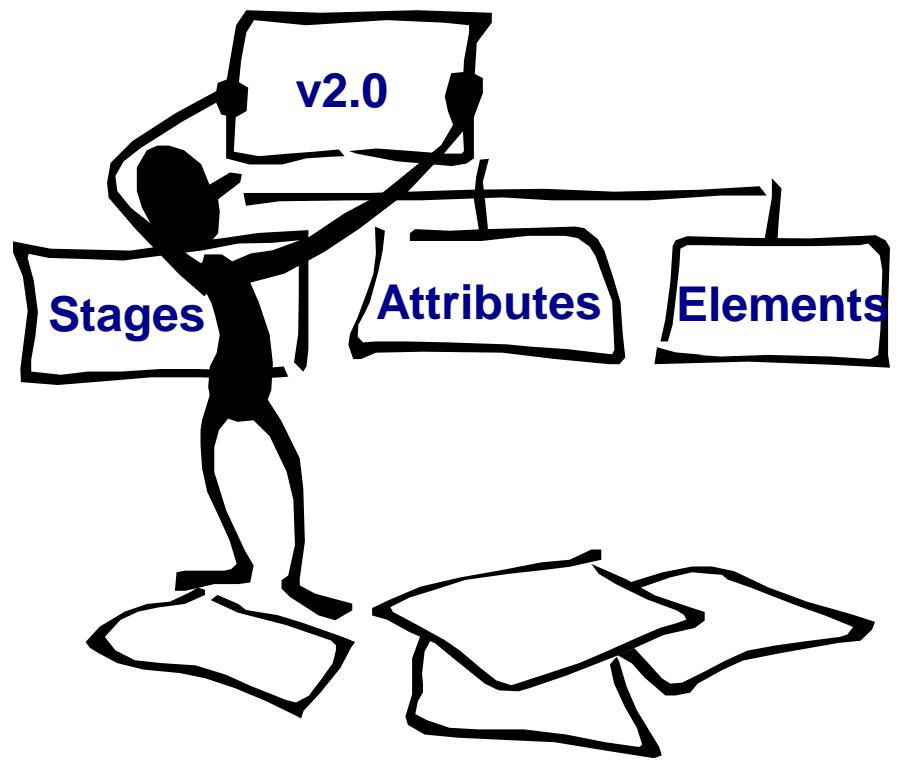


Genesis and Evolution

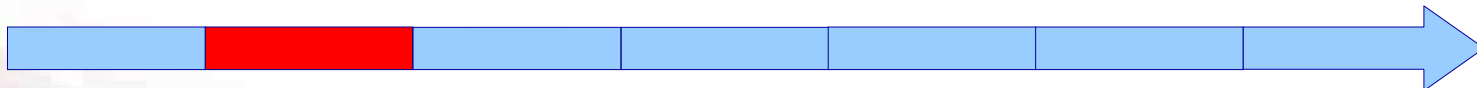
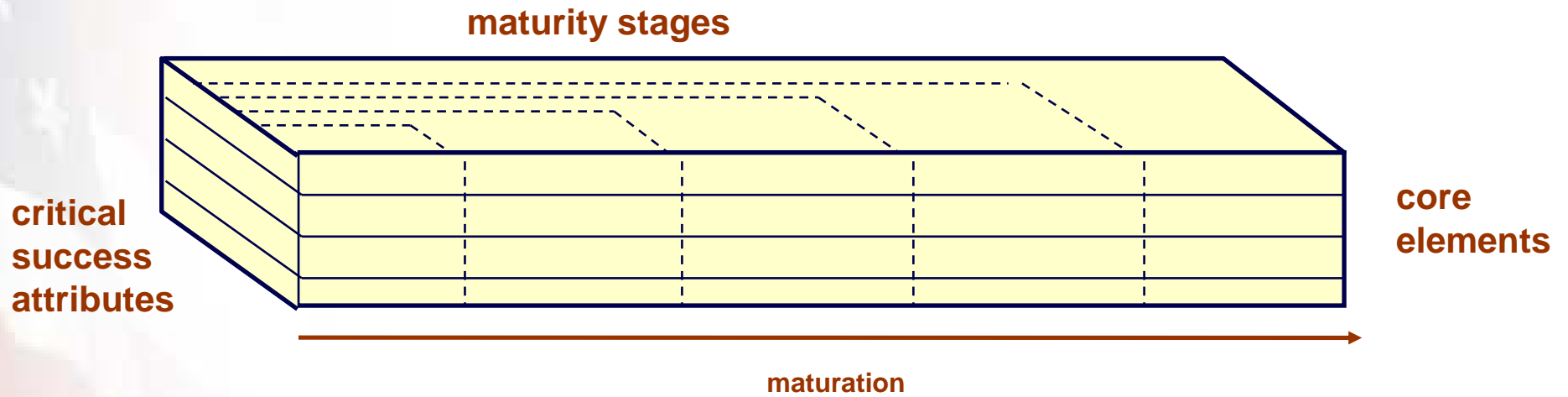
- Received about 200 comments:
 - Align with other frameworks (e.g., OMB, CMMI, ITIM)
 - Align with other EA frameworks
 - Incorporate federation, service orientation, and segmentation concepts
 - Add, modify, delete stages, attributes, core elements
 - Clarify expectations and add examples of deliverables
 - Revise scoring methodology
- Identified challenges during GAO reviews and evaluations:
 - Overcoming parochialism and cultural resistance
 - Ensuring adequate funding
 - Fostering top management understanding
 - Obtaining skilled staff



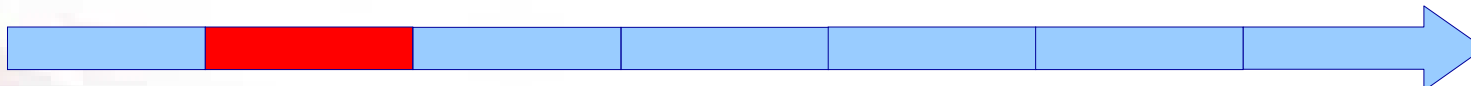
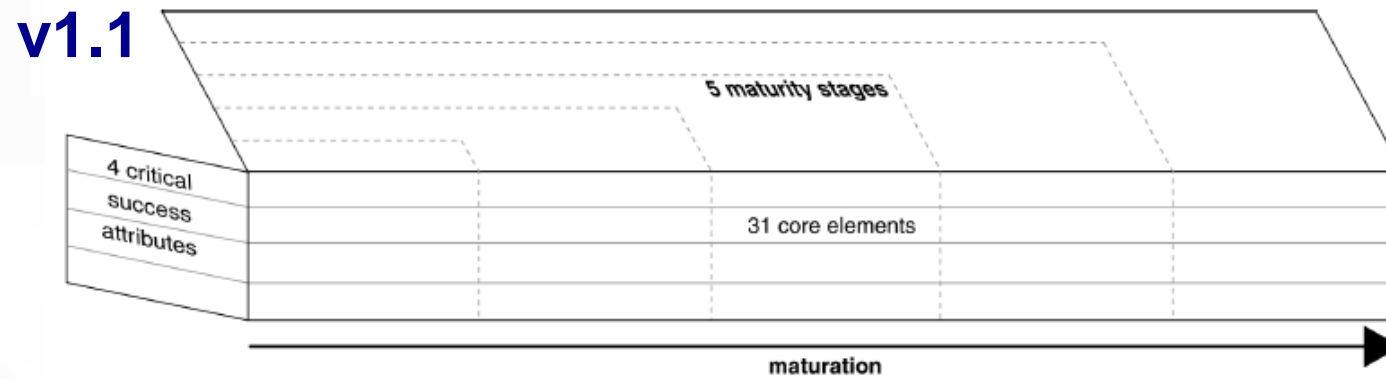
Development Approach and Key Changes



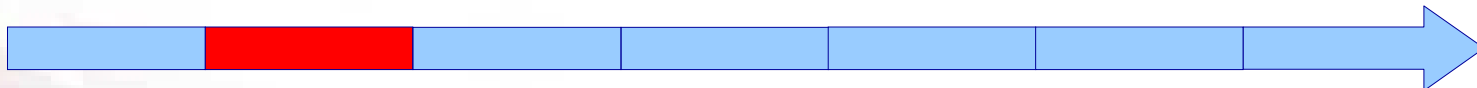
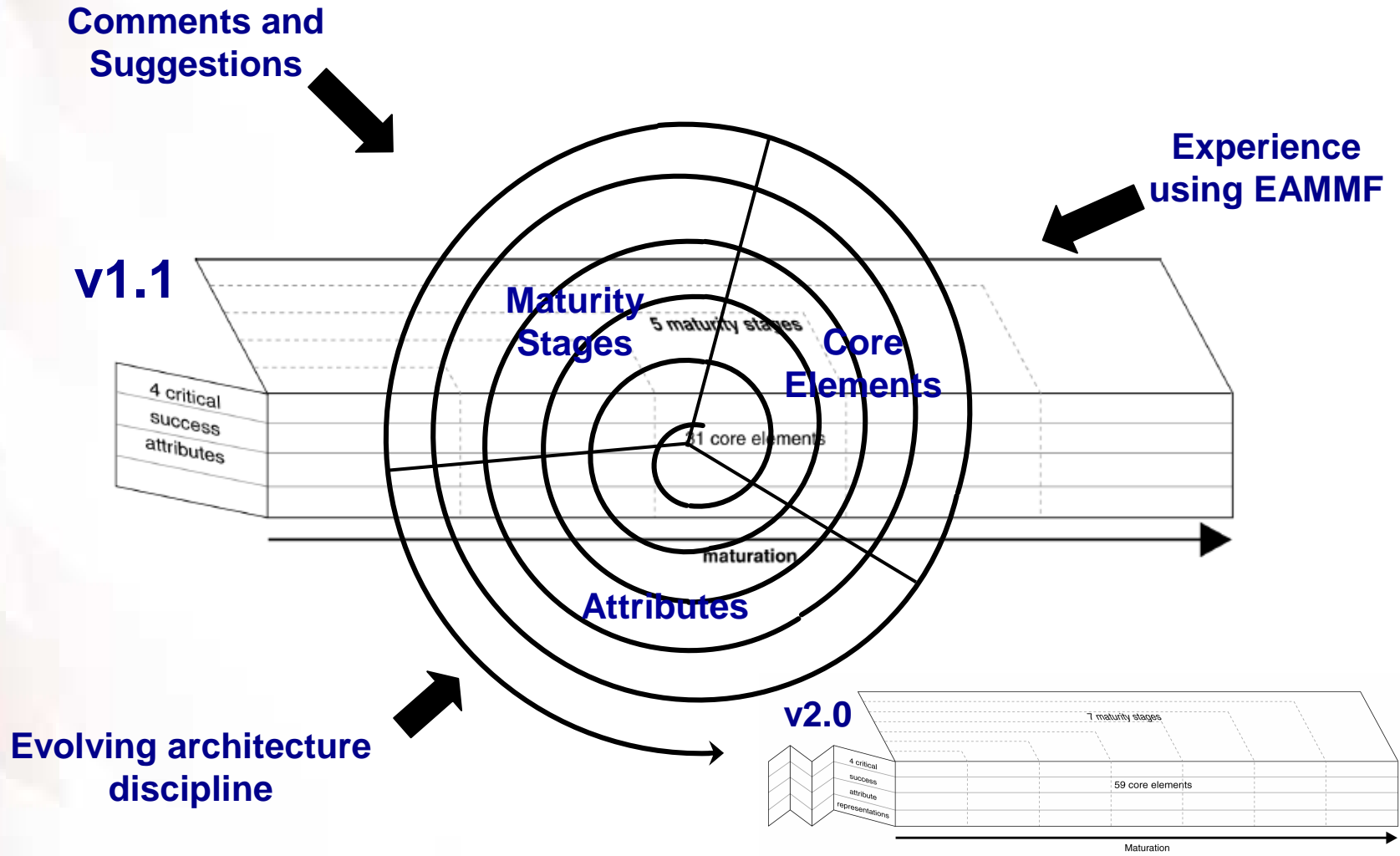
Framework Structure



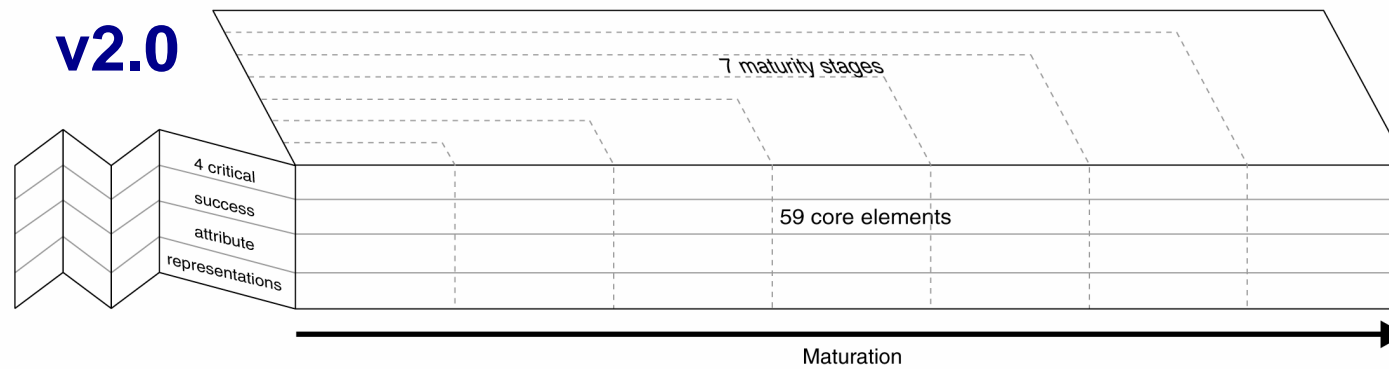
Framework Structure



EAMMF v2.0 Development Approach

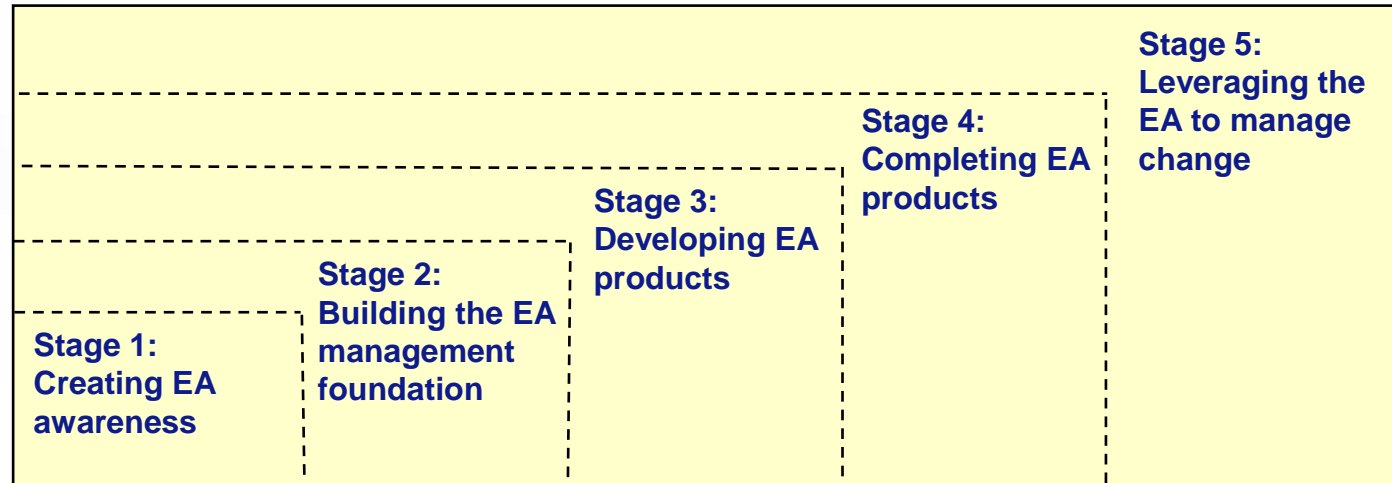


EAMMF v2.0 Development Approach

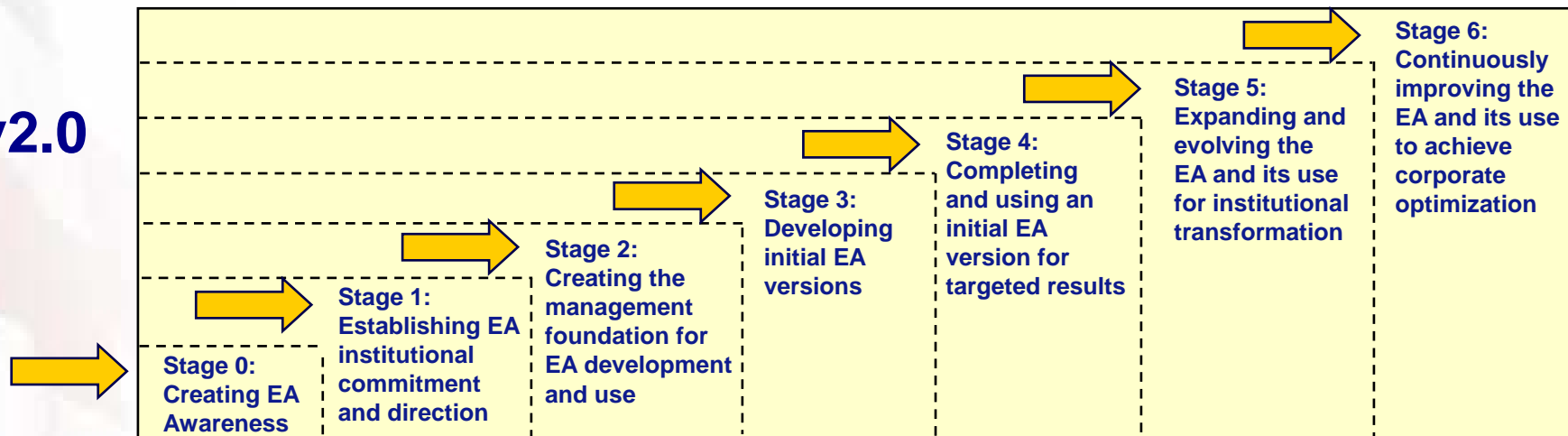


Changes to Stages

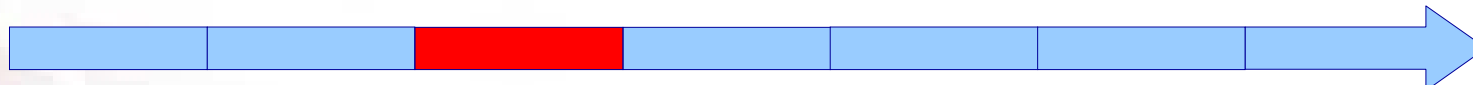
v1.1



v2.0



maturation



Changes to Critical Success Attributes

v1.1

- Demonstrates commitment
- Provides capability to meet commitment
- Demonstrates satisfaction of commitment
- Verifies satisfaction of commitment

v2.0

Traditional Representation

Core Element Grouping Representation
Governance
Content
Use
Measurement

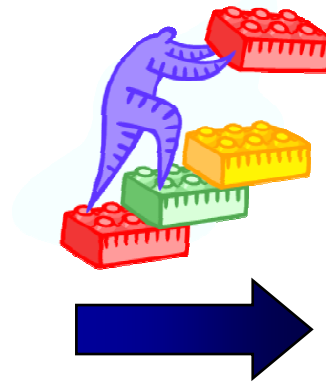
Capability Area Representation
Completion
Use
Results

Organizational Dimensions Representation
Leadership
People
Processes
Tools

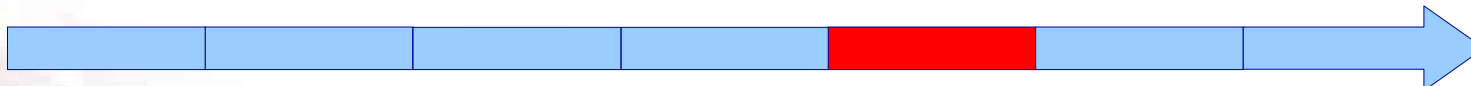


Changes to Core Elements

EAMMF v1.1
31 core elements



EAMMF v2.0
59 core elements
31 new
25 modified
3 same



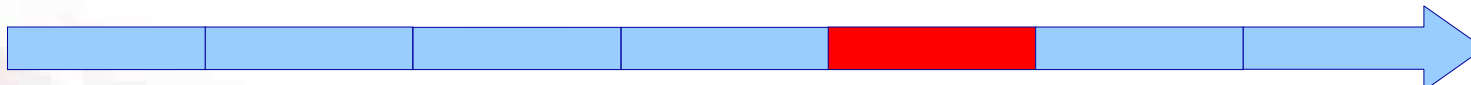
EAMMF v2.0 (Traditional)

	Stage 1: Establishing EA institutional commitment and direction	Stage 2: Creating the management foundation for EA development and use	Stage 3: Developing initial EA versions	Stage 4: Completing and using an initial EA version for targeted results	Stage 5: Expanding and evolving the EA and its use for institutional transformation	Stage 6: Continuously improving the EA and its use to achieve corporate optimization
Attribute 1: Demonstrates commitment	Written and approved organization policy exists for EA development, maintenance, and use. Executive committee representing the enterprise exists and is responsible and accountable for EA. Executive committee is taking proactive steps to address EA cultural barriers.	EA budgetary needs are justified and funded.	Organization business owner and CXO representatives are actively engaged in architecture development.	EA executive committee has approved initial version of corporate EA. Key stakeholders have approved the current version of subordinate architectures. EA is integral to execution of other institutional management disciplines.	Organization head has approved current version of corporate EA. Organization component head or segment owner has approved the current version of their respective subordinate architectures.	EA is used by executive leadership to inform organization strategic planning and policy formulation.
Attribute 2: Provides capability to meet commitment	Executive committee is trained in EA principles and concepts. Chief architect exists. EA framework(s) is adopted.	EA program office(s) exists. Key program office leadership positions are filled. Program office human capital plans exist. EA development and maintenance methodology(s) exists. Automated EA tool exists.	Program office human capital plan is being implemented. Program office contractor support needs are being met. Program staff is trained on framework, methodology, and tools. Methodologies and tools exist to determine investment compliance with corporate and subordinate architectures. Methodologies and tools exist to determine subordinate architectures alignment with corporate EA. EA-related risks are proactively identified, reported, and mitigated.	Program office(s) human capital needs are met.	Integrated repository tools and common EA framework and methodology are used across the enterprise. Corporate and subordinate architecture program offices operate as a single virtual enterprisewide office that shares resources.	EA human capital capabilities are continuously improved. EA methodology and tools are continuously improved. EA management processes are continually improved and reflect the results of external assessments.
Attribute 3: Demonstrates satisfaction of commitment	EA purpose is clearly stated.	EA program management plan exists, and reflect relationships with other management disciplines. Work breakdown structure and schedule to develop EA exists. EA segments, federation members and/or extended members have been identified and prioritized.	Initial version of corporate "as is" and "to be" EA and sequencing plan is being developed. Initial version of corporate EA describing the enterprise in terms of performance, business, data, services, technology, and security is being developed. One or more segment and/or federation member architectures are being developed. Architecture products are being developed according to EA framework(s). Architecture products are being developed according to a defined EA methodology(s). Architecture products are developed using EA tool(s).	Initial version of corporate "as is" and "to be" EA and sequencing plan exists. Initial version of corporate EA captures performance, business, data, services, technology, and security views. One or more segment and/or federation member architectures exist and are being implemented.	Corporate EA and sequencing plan are organization/enterprise wide in scope. Corporate EA and sequencing plan are aligned with corporate and subordinate architectures. All segment and/or federated architectures exist and are horizontally and vertically integrated. Corporate and subordinate architectures are extended to align with external partner architectures.	EA products are continuously improved and updated.
Attribute 4: Verifies satisfaction of commitment	EA performance and accountability framework established.	Program office readiness is measured and reported.	Architecture development progress is measured and reported.	Architecture product quality is measured and reported. EA goals, results and outcomes are measured and reported. Investment compliance with corporate and subordinate architectures is measured and reported. Subordinate architecture alignment to the corporate EA is measured and reported.	EA products and management processes subjected to independent assessment.	EA quality and results measurement methods are continually improved. EA continuous improvement efforts reflect the results of external assessments.

Source: GAO.

Note: each stage includes all elements of previous stages.

maturation →



Stage 1: Establishing EA Institutional Commitment and Direction

Stage 1: Establishing EA Institutional Commitment and Direction

Attribute 1:
Demonstrates
commitment

- Written and approved organization policy exists for EA development, maintenance, and use.
- Executive committee representing the enterprise exists and is responsible and accountable for EA.
- Executive committee is taking proactive steps to address EA cultural barriers.

Attribute 2:
Provides
capability
to meet

- Executive committee is trained in EA principles and concepts.
- Charter is accepted.

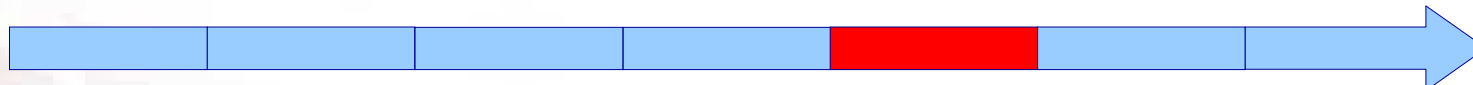
Attribute: *Demonstrates commitment*

Element: **Executive committee is taking proactive steps to address EA cultural barriers.**

Parochialism and cultural resistance to change are significant barriers to organizations having mature EA programs. Accordingly, we have previously reported on the need for sustained executive leadership to overcome these and other barriers. Among other things, this can include proactive steps by the EA executive committee to promote and reward EA related collaboration across organizational boundaries, commit component organization resources to EA activities, and encourage the disclosure and adoption of EA shared services. Federation member executive committee should also take proactive steps to address EA cultural barriers.

Verifies
satisfaction
of commitment

- EA performance and accountability framework established.



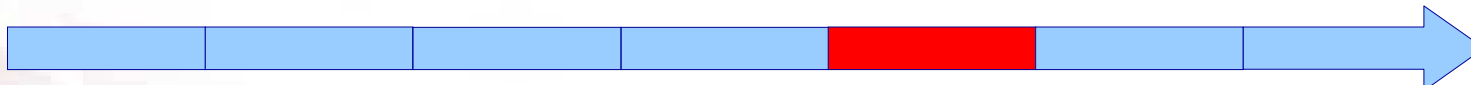
Stage 2: Creating the Management Foundation for EA Development and Use

Stage 2: Creating the Management Foundation for EA Development and Use	
Attribute 1: Demonstrates commitment	Stage 1 <ul style="list-style-type: none"> EA budgetary needs are justified and funded.
Attribute 2: Provides capability to meet commitment	<ul style="list-style-type: none"> EA program office(s) exists. Key program office leadership positions are filled. Program office human capital plans exist. EA development and maintenance methodology(s) exists. Automated EA tool exists.
Attribute 2:	management plan exists, and reflect relationships with other

Attribute: *Provides capability to meet commitment*

Element: **EA development and maintenance methodology(s) exists.**

An EA methodology defines the steps to be followed to generate and sustain the desired set of architecture artifacts, as identified in the EA framework(s). As such, the methodology(s) that corporate and subordinate program offices select and employ should address how their respective architecture products will be developed and maintained to ensure that they are, among other things, consistent, complete, aligned, integrated, and usable. The methodology(s) should also address how one or more EA approaches (e.g., federated, segmented, and/or service oriented architectures) will be implemented and how the architecture will be extended beyond the organization's own boundaries to include other stakeholder organizations. Because of its pivotal role, the methodology(s) should be documented, understood, and consistently applied, and should provide the standards, tasks, tools, techniques, and measures to be followed in developing and maintaining the architecture products. One example of an EA methodology is OMB's Federal Segment Architecture Methodology.



Stage 3: Developing Initial EA Versions

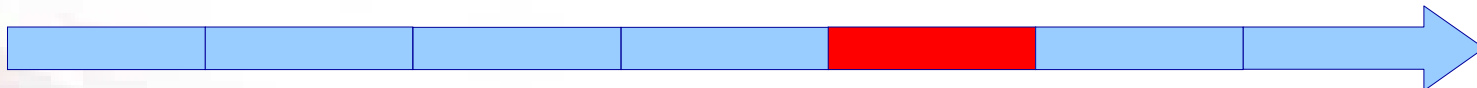
Stage 3: Developing Initial EA Versions

Attribute: *Demonstrates satisfaction of commitment*

Element: **One or more segment and/or federation member architectures are being developed.**

As we have previously reported, successful EA development for large, complex federal agencies does not involve an “all-or-nothing,” monolithic approach. Rather, EA development typically follows a “divide and conquer” approach in which the level of architectural detail needed to guide and constrain individual investments is created for distinct parts of the organization (i.e., “children”) and in a way that ensures that the distinct organizational parts are architecturally aligned with the organization’s corporate (i.e., “parent”) EA. In general, these children can be viewed as either enterprise segments or federated members. A segment architecture, as defined by OMB, is a detailed results-oriented architecture (baseline and target) and a transition strategy for a portion or segment of the enterprise. A federated member is an approach where the architecture consists of a family of coherent but distinct member architectures that conform to an overarching corporate or parent architecture. In taking one or both of these approaches, the EA is developed incrementally through segmented and/or federated architectures that are consistent and aligned with an overall corporate EA and developed according to the priorities defined in stage 2. In so doing, the level of architectural content that needs to be defined to sufficiently inform priority, near-term system investments can be established sooner, thus allowing the benefits of the EA to be realized sooner as well.

<p>Attribute 3: Demonstrates satisfaction of commitment</p>		<p>...ion of corporate EA describing the enterprise in terms of performance, business, services, technology, and security is being developed.</p> <ul style="list-style-type: none"> • One or more segment and/or federation member architectures are being developed. • Architecture products are being developed according to EA framework(s). • Architecture products are being developed according to a defined EA methodology(s). • Architecture products are developed using EA tool(s).
<p>Attribute 4: Verifies satisfaction of commitment</p>		<ul style="list-style-type: none"> • Architecture development progress is measured and reported.



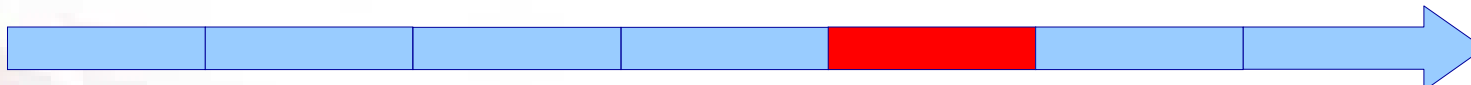
Stage 4: Completing and Using an Initial EA Version for Targeted Results

	Stage 1	Stage 2	Stage 3	Stage 4: Completing and Using an Initial EA Version for Targeted Results
Attribute 1: Demonstrates commitment				<ul style="list-style-type: none"> EA executive committee has approved initial version of corporate EA. Key stakeholders have approved the current version of subordinate architectures. EA is integral to execution of other institutional management disciplines.
Attribute 2: Provides capability to meet commitment				<ul style="list-style-type: none"> Program office(s) human capital needs are met.
Attribute 3: Demonstrates satisfaction of commitment				<ul style="list-style-type: none"> Initial version of corporate “as is” and “to be” EA and sequencing plan exists. Initial version of corporate EA captures performance, business, data, services, technology, and security views.

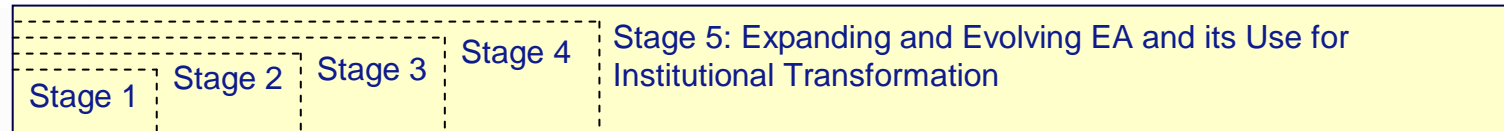
Attribute: *Provides capability to meet commitment*

Element: **Program office(s) human capital needs are met.**

Having filled its key leadership positions and developed and implemented its human capital plans, the corporate and subordinate EA program offices have now acquired, either through training, direct hiring, organizational transfer, or contracting, the people they need to execute the organization’s EA program plans and schedules. Collectively, these people possess the knowledge, skills, and abilities required to execute the functions and associated roles and responsibilities that formed the basis for the capability gap analysis in the human capital strategic plan developed during Stage 2.



Stage 5: Expanding and Evolving EA and its Use for Institutional Transformation

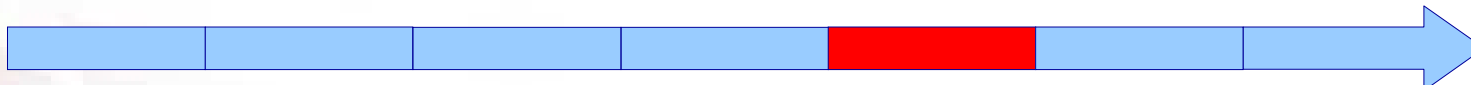


Attribute: *Demonstrates Satisfaction of Commitment*

Element: **Corporate and subordinate architectures are extended to and align with external partner architectures.**

For organizations that support or depend on external organizations to accomplish their respective missions, such as many federal agencies, it is important to be architecturally connected and aligned to their mission partners through an extended EA. In the case of some federal agencies, like the Department of Homeland Security, the number of these external organizations can be extensive and can span all levels of government. Thus, defining, understanding, and rationalizing these relationships through the discipline of EA can increase these organizations' potential for optimizing inter-organizational performance. Accordingly, their respective corporate and subordinate architectures should be extended and aligned with the organization's external partners. Such alignment can assist organizations in leveraging external systems and services and promote information sharing to the benefit of all stakeholder organizations.

		<p>horizontally and vertically integrated.</p> <ul style="list-style-type: none"> • Corporate and subordinate architectures are extended to align with external partner architectures.
<p>Attribute 4: Verifies satisfaction of commitment</p>		<ul style="list-style-type: none"> • EA products and management processes subjected to independent assessment.



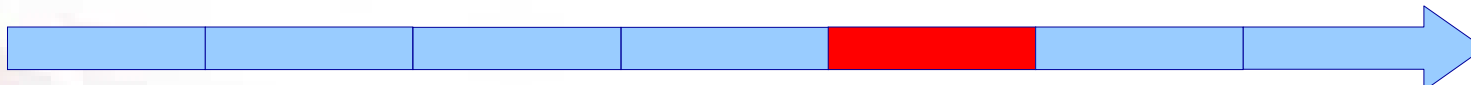
Stage 6: Continuously Improving the EA and its Use to Achieve Corporate Optimization

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6: Continuously Improving the EA and its Use to Achieve Corporate Optimization
Attribute 1: Demonstrates commitment						<ul style="list-style-type: none"> EA is used by executive leadership to inform organization strategic planning and policy formulation.
Attribute 2: Provides capability to meet commitment						<ul style="list-style-type: none"> EA human capital capabilities are continuously improved. EA methodology and tools are continuously improved. EA management processes are continually improved and reflect the results of external assessments.
Attribute 3: Demonstrates satisfaction of						<ul style="list-style-type: none"> EA products are continuously improved and updated.

Attribute: *Demonstrates satisfaction of commitment*

Element: EA products are continuously improved and updated.

An EA needs to be continuously maintained to reflect, among other things, change in legal requirements, emerging threats and opportunities, shifting priorities, and emerging technologies. Such maintenance also involves introducing changes that are aimed at increasing the EA product quality (i.e., currency, consistency, understandability, usability, accuracy, and completeness). As individual changes are made that collectively represent a significant modification to the products, these changes should be packaged as part of a new version of the corporate and subordinate architecture products. Such continuous improvement to the content of the EA and its products should be formally controlled using a formal configuration management process, as discussed earlier.



Critical Success Attributes

v1.1

Demonstrates commitment (5)

Provides capability to meet commitment (7)

Demonstrates satisfaction of commitment (14)

Verifies satisfaction of commitment (5)

v2.0

Original Representation

Demonstrates commitment (11)

Provides capability to meet commitment (20)

Demonstrates satisfaction of commitment (18)

Verifies satisfaction of commitment (10)

Core Element Grouping Representation

Governance (23)

Content (23)

Use (3)

Measurement (10)

Capability Area Representation

Completion (15)

Use (34)

Results (10)

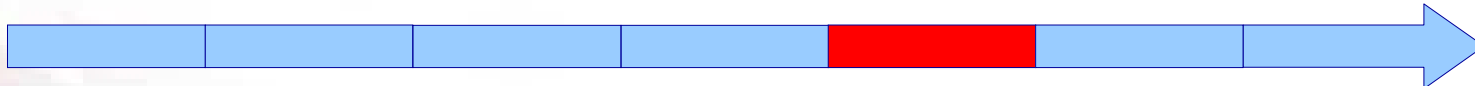
Organizational Dimensions Representation

Leadership (11)

People (10)

Processes (28)

Tools (10)



Uses of EAMMF v.2.0

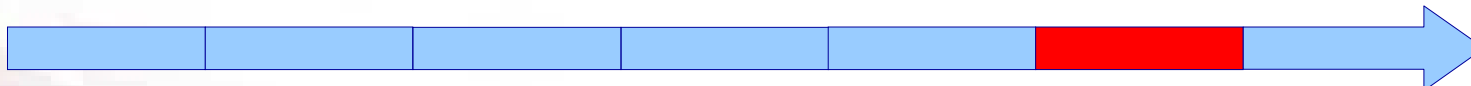
Benchmark

Roadmap



Where am I?

How do I get to my destination?



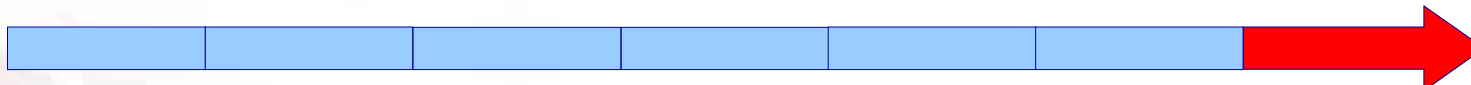
EAMMF v2.0 (Capability Area)

	Stage 1: Establishing EA institutional commitment and direction	Stage 2: Creating the management foundation for EA development and use	Stage 3: Developing initial EA versions	Stage 4: Completing and using an initial EA version for targeted results	Stage 5: Expanding and evolving the EA and its use for institutional transformation	Stage 6: Continuously improving the EA and its use to achieve corporate optimization
Attribute 1: Completion		<ul style="list-style-type: none"> EA segments, federation members and/or extended members have been identified and prioritized. 	<ul style="list-style-type: none"> Initial version of corporate "as is" and "to be" EA and sequencing plan is being developed. Initial version of corporate EA describing the enterprise in terms of performance, business, data, services, technology, and security is being developed. One or more segment and/or federation member architectures are being developed. Architecture products are being developed according to EA framework(s). Architecture products are being developed according to a defined EA methodology(s). Architecture products are developed using EA tools. 	<ul style="list-style-type: none"> Initial version of corporate "as is" and "to be" EA and sequencing plan exists. Initial version of corporate EA captures performance, business, data, services, technology, and security views. One or more segment and/or federation member architectures exist and are being implemented. 	<ul style="list-style-type: none"> Corporate EA and sequencing plan are organization/ enterprise wide in scope. Corporate EA and sequencing plan are aligned with corporate and subordinate architectures. All segment and/or federated architectures exist and are horizontally and vertically integrated. Corporate and subordinate architectures are extended to align with external partner architectures. 	<ul style="list-style-type: none"> EA products are continuously improved and updated.
Attribute 2: Use	<ul style="list-style-type: none"> Written and approved organization policy exists for EA development, maintenance, and use. Executive committee representing the enterprise exists and is responsible and accountable for EA. Executive committee is taking proactive steps to address EA cultural barriers. Executive committee is trained in EA principles and concepts. Chief architect exists. EA purpose is clearly stated. EA framework(s) adopted. 	<ul style="list-style-type: none"> EA budgetary needs are justified and funded. EA program office(s) exist. Key program office leadership positions are filled. Program office human capital plans exist. EA development and maintenance methodology(s) exist. Automated EA tool(s) exist. EA program management plan exists and reflects relationships with other management disciplines. Work breakdown structure and schedule to develop EA exists. 	<ul style="list-style-type: none"> Organization business owner and CXO representatives are actively engaged in architecture development. Program office human capital plan is being implemented. Program office contractor support needs are being met. Program staff is trained on EA framework, methodology, and tools. Methodologies and tools exist to determine investment compliance with corporate and subordinate architectures. Methodologies and tools exist to determine subordinate architecture alignment with corporate EA. EA related risks are proactively identified, reported, and mitigated. 	<ul style="list-style-type: none"> EA executive committee has approved initial versions of corporate EA. Key stakeholders have approved the current version of subordinate architectures. EA is integral to execution of other institutional management disciplines. Program office(s) human capital needs are met. 	<ul style="list-style-type: none"> Organization head has approved current version of corporate EA. Organization component head or segment owner has approved the current version of their respective subordinate architectures. Integrated repository tools and common EA framework and methodology are used across the enterprise. Corporate and subordinate architecture program offices operate as a single virtual office that shares resources enterprise wide. 	<ul style="list-style-type: none"> EA is used by executive leadership to inform organization strategic planning and policy formulation. EA human capital capabilities are continuously improved. EA methodologies and tools are continuously improved. EA management processes are continuously improved and reflect the results of external assessments.
Attribute 3: Results	<ul style="list-style-type: none"> EA performance and accountability framework established. 	<ul style="list-style-type: none"> Program office readiness is measured and reported. 	<ul style="list-style-type: none"> Architecture development progress is measured and reported. 	<ul style="list-style-type: none"> EA product quality is measured and reported. EA results and outcomes are measured and reported. Investment compliance with corporate and subordinate architectures is measured and reported. Subordinate architecture alignment to the corporate EA is measured and reported. 	<ul style="list-style-type: none"> EA products and management processes subjected to independent assessment. 	<ul style="list-style-type: none"> EA quality and results measurement methods are continuously improved. EA continuous improvement efforts reflect the results of external assessments.

Source: GAO.

Note: each stage includes all elements of previous stages.

maturity →



Closing Thoughts

“Continuous improvement is better than delayed perfection.”

-Mark Twain

Questions and Answers

