



The States and Enterprise Architecture:

How far have we come?

Findings from the
NASCIO 2005 EA Assessment

October 2005

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EA ASSESSMENT



Background

PURPOSE

In August of 2005, NASCIO conducted a survey or “census” of the U.S. states to assess the level of enterprise architecture (EA) adoption and the experience with the NASCIO EA portfolio of products. In 1999, NASCIO published “Toward National Sharing of Governmental Information” which recommended that the states adopt enterprise architecture discipline. This report kicked off NASCIO’s ongoing EA initiative. This initiative has involved active participation from state CIOs and Chief Architects in developing and reviewing all deliverables comprising the NASCIO EA portfolio of products. This activity has been carried out through the NASCIO Architecture Working Group (AWG). The membership of the AWG consists of state CIOs, state Chief Architects, federal partners, and NASCIO Corporate members.

The Bureau of Justice Assistance (BJA), Office of Justice Programs (OJP), Department of Justice (DOJ) has *fully funded* the NASCIO EA program and has continually played an active role in strategy development and participation as one of NASCIO’s federal partners. At this point in time, NASCIO and the U.S. Department of Justice are interested to know the progress made in building awareness and EA capabilities at the state level.

In addition, this survey effort supports the NASCIO program management function. That function is responsible for measuring ongoing progress and effectiveness of NASCIO programs and initiatives. The intended outcomes from conducting this assessment are as follows:

- determine the level of *adoption* of enterprise architecture
- determine the *depth and breadth* of state enterprise architecture programs
- determine the *level of awareness* of NASCIO’s portfolio of enterprise architecture products
- assess the *effectiveness* of these *products*
- assess the *effectiveness* of NASCIO’s *communication and marketing* efforts
- use this information to assess the success and progress of NASCIO’s Enterprise Architecture (EA) Program
- use this information to *plan future* NASCIO initiatives

Environmental Context: Recognition must be made to the fiscal and organizational factors facing the states at the time this survey was conducted. The states have been dealing with significant fiscal stress during period of 2001 to 2004. Although all indicators point to a recovery in 2005, this has clearly had an impact on available resources to devote to enterprise architecture. EA tends to emphasize a more strategic perspective versus direct service delivery, which has been the most recent state focus. It must also be acknowledged that the median tenure of state CIOs is twenty-two months. This factor by itself creates significant barriers to state CIOs embarking on long-term programs even though they may agree with the intent of such programs. This also creates the ongoing need to continually revisit the awareness and justification for EA to newly appointed CIOs. The states have experienced a shift in responsibility and cost from the federal government. Although this devolution provides opportunity and flexibility to states, it has caused significant burden on the states and an additional drain on limited resources.

Terminology in formal job titles and enterprise architecture operating disciplines was expected to be a challenge and must be taken into account in reviewing the results regarding the role of Chief Enterprise Architect, and the more specialized areas of enterprise architecture. There simply is no agreement on terminology across government nor across industry. And, states may not establish a formal role for the enterprise architect, or use the formal title of “Chief Enterprise Architect” and yet that role and function may still be fulfilled by one or more state employees.

In this survey initiative, NASCIO is looking for formal manifestation of the attributes of a mature enterprise architecture program. For example, establishment of a formal Chief Enterprise Architect role, a comprehensive program entailing all of the more specialized architecture areas, and formal process discipline for maintaining, and executing a state enterprise architecture. The information collected herein could form the baseline for similar surveys in the future.

This assessment constitutes a snapshot of the current state of enterprise architecture as assessed by state CIOs and Chief Enterprise Architects. This report presents the results of the assessment and provides some high level analysis in interpreting the results and making observations. A list of “calls to action” are presented as suggestions for furthering enterprise architecture efforts going forward. This report presents the survey results using graphs and summary points for ease in interpretation and further analysis.

ENTERPRISE ARCHITECTURE – THE PATH TO GOVERNMENT TRANSFORMATION

CHANGE MANAGEMENT

NASCIO has conducted this assessment to answer the question, “what is the level of adoption of enterprise architecture?” But this begs the question, “why should we care?”

Enterprise architecture is not an end in itself. Rather, it is the path to *government transformation*. And, government will need to adopt an iterative change management process in order to identify, understand, and respond to current and future increasingly *complex* demands and needs. The requirements for improved government performance, reduced spending and greater accountability to the citizens calls for smarter management - which includes the adoption of EA.

UNDERSTANDING THE ISSUES

There is an optimal path to bring state government safely through this labyrinth of issues and expectations. That path must be a disciplined approach to understanding the environment and managing organization, relationships, business processes, information and technology. That discipline must be a *management engineering* discipline. There is an established term for this that aids in communicating – *enterprise architecture*.

Enterprise architecture is an operating discipline that provides and enables a holistic, comprehensive view of the enterprise. Such a view is critical to gaining understanding and then guiding government leaders in bringing about the mission of government.

The mission of government now requires this disciplined, or *management engineering*, approach. This approach must have the proper leverage of both an engineering discipline, but also fully leverage the “art” of management. Intuition, experience, creativity, even skepticism are all necessary ingredients in developing and enabling strategy. The best engineering discipline will not guarantee a viable and successful strategy. The management engineering approach presented by NASCIO is one that is truly holistic, and comprehensive. It pulls from the “tool-box of allied disciplines” all the necessary instruments of engineering and creativity and applies them with rigor. The perspective that must be maintained is one of “continually learning”; continually examining new thought to see what can be leveraged; continually challenging past choices; and remaining objective in making future decisions.

The complexities of change:

- *citizen expectations*
- *economic development*
- *public health*
- *environmental protection*
- *integrated justice*
- *homeland security*
- *global geo-political uncertainty*
- *global economics*
- *technology*
- *inter-governmental relationships*

Government now must step up to the aforementioned challenges in a positive, proactive way in order to not only develop solutions to problems, but to also recognize and *fully harvest* the tremendous opportunities facing this federation of states.

Paradigm Shifts in the New Millennium:

- *the speed of change*
- *the complexity of change*
- *the accelerated growth of knowledge*
- *the connectedness that now exists at all levels of our global society*
- *new expectations of citizens as well as our global friends*
- *the new power, reach, ubiquity, mercilessness and insidiousness of our enemies*
- *reshuffling of global economic and technological power*
- *the need to understand the short term, and long term implications of today's decisions*

- formulating the proper responses to these impacts
- identifying the necessary capabilities to enable these responses

TRACEABILITY TO SOLUTIONS

Enterprise architecture provides the necessary traceability from business intent to enabling capabilities. This traceability is required to formulate the capabilities necessary to enable business intent. Capabilities are delivered through projects which are managed programmatically within portfolios.

Given this understanding of the breadth and depth of enterprise architecture, it should be obvious why NASCIO has invested so much in trying to reach its constituent CIOs to introduce this discipline, develop the knowledge base, provide practical consulting in implementation, and create tools to enable state enterprise architecture programs.

NASCIO has “taken the pulse” of the states to learn the adoption level and the depth of this adoption. This was accomplished by distributing a survey to NASCIO members. This information will assist in judging the effectiveness of NASCIO’s current communication, marketing and technical assistance. This information will also provide necessary information for planning future programs and projects.

NEW MANAGEMENT PRACTICE FOR A NEW MILLENNIUM

Enterprise architecture must be understood and embraced by state CIOs, governors, chiefs of staff, chief architects, policy makers and technical professionals as the science and art of governance to bring forth the resources of states in a coordinated fashion that effectively recognizes and meets the new challenges of the 21st century. These new challenges may be termed *paradigm shifts*.

THE PROCESS FOR RECOGNIZING AND DEFINING THE ISSUES

Enterprise architecture provides the path to recognize and define the issues. Enterprise architecture provides the structured process for:

- analyzing economic, and social vectors
- determining the impacts of these vectors

APPROACH

NASCIO's Architecture Working Group developed a set of survey questions that would address the intended outcomes listed at the beginning of this report. A draft set of questions was reviewed at the Architecture Working Group meeting and revised. An invitation to participate was distributed to all states, territories and the District of Columbia. A web based survey tool was used to capture responses and summarize the results. There has been no attempt to validate responses through content analysis of state resources. The online survey was completed by the state CIO, state Chief Architect, or other member of the state information technology function.

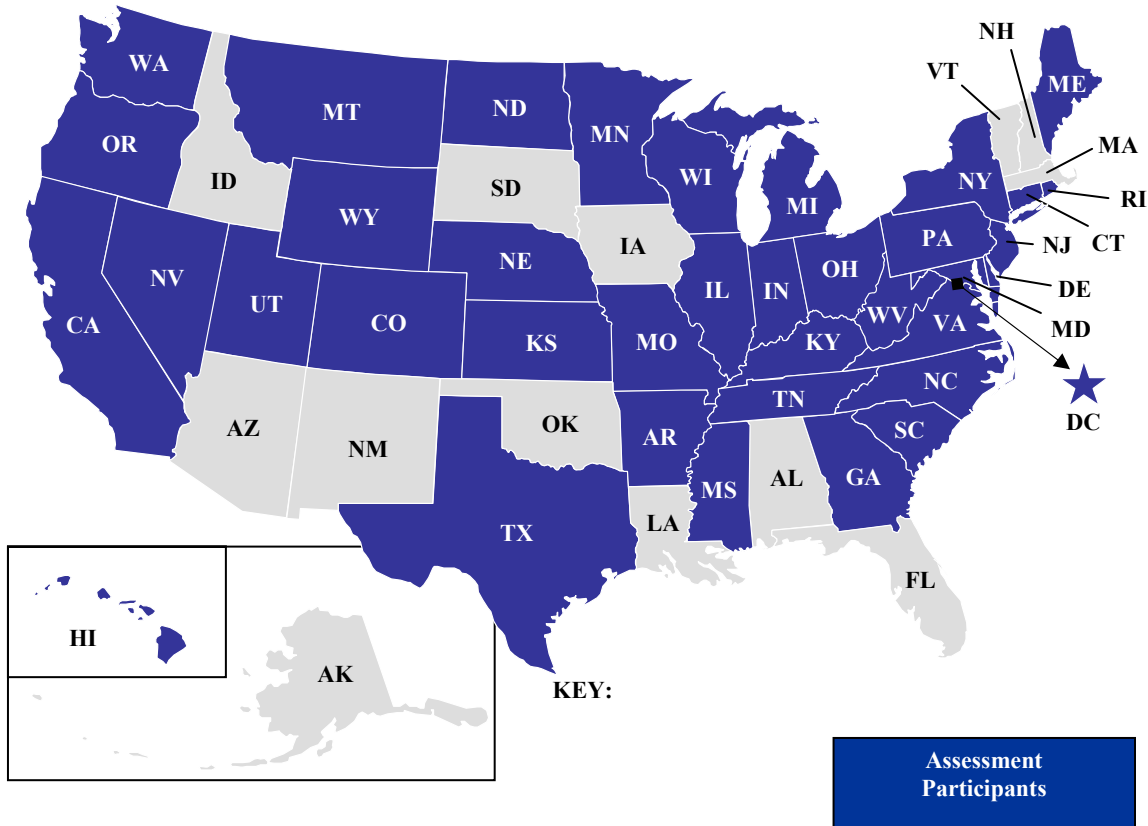
The process steps are as follows:

- Develop clear objectives for this activity
- Design a survey instrument based on these objectives
- Distribute the survey insuring wide diversity in the participants relative to geography population, and economics
- Compile the results of the survey
- Assess the results and develop observations
- Develop a set of "calls to action" based on the recommendations

ASSESSMENT PARTICIPANTS

Thirty-seven (37) states and the District of Columbia responded to the EA assessment survey.
(listed alphabetically)

<ul style="list-style-type: none"> ➤ Arkansas ➤ California ➤ Colorado ➤ Connecticut ➤ Delaware ➤ District of Columbia ➤ Georgia ➤ Hawaii ➤ Illinois ➤ Indiana ➤ Kansas ➤ Kentucky ➤ Maine 	<ul style="list-style-type: none"> ➤ Maryland ➤ Michigan ➤ Minnesota ➤ Mississippi ➤ Missouri ➤ Montana ➤ Nebraska ➤ Nevada ➤ New Jersey ➤ New York ➤ North Carolina ➤ North Dakota ➤ Ohio 	<ul style="list-style-type: none"> ➤ Oregon ➤ Pennsylvania ➤ Rhode Island ➤ South Carolina ➤ Tennessee ➤ Texas ➤ Utah ➤ Virginia ➤ Washington ➤ West Virginia ➤ Wisconsin ➤ Wyoming
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As indicated by these results, participation included a wide distribution in geography, population, and budget. The combined survey responses from the states represent over 80% of the population of the United States. Based on these results, it is concluded that the NASCIO constituency is well represented in this survey. This supports the reliability, and relevancy of this survey.



Key Survey Findings

It is clear from the results of this assessment that the states have made significant progress toward adoption of enterprise architecture discipline. The change observed since 1999 is indeed dramatic. There are a number of causal factors that have contributed toward the current level of adoption. This report does not attempt to conduct a substantive analysis of these factors nor does it attempt to identify the full array of barriers encountered by the states in moving toward a more *enterprise perspective* in their operations. This report merely takes the pulse of the states at a point in time with regard to the level of adoption of enterprise architecture discipline. This information can serve as a reference if further analysis is conducted to study causal factors.

In general, a number of observations can be made.

- **There has been a strong adoption of the enterprise architecture discipline across the states.**
- **To date, much of the emphasis is related to technology architecture.**
- **EA programs are being broadened into other architectural areas in a minority of states.** These include business architecture, performance management and process architecture. This expansion in breadth is appropriate but involves the minority of respondents. More states need to follow their lead.
- **NASCIO will need to provide more emphasis on promoting the value of the other architectural areas** such as business, process, information, and security. Other areas that need more emphasis include performance management, and change management.
- **NASCIO products have been well received where and when there is awareness of these products.** Clearly, NASCIO will need to improve the effectiveness of its communication and marketing of enterprise architecture processes and tools.
- In order to keep enterprise architecture programs moving forward, **NASCIO should continue to maintain the viability of its EA program.**

SUMMARY OF RESPONSES

The majority of respondents have adopted enterprise architecture. Most of those that have used products out of the NASCIO EA portfolio of products judged them to be good to excellent.

Adoption of Enterprise Architecture Operating Discipline – select results:

- **95%** of respondents have embraced enterprise architecture
- **71%** of respondents believe its necessary to have dedicated EA staff
- **92%** of respondents believe its necessary to have a defined process for EA

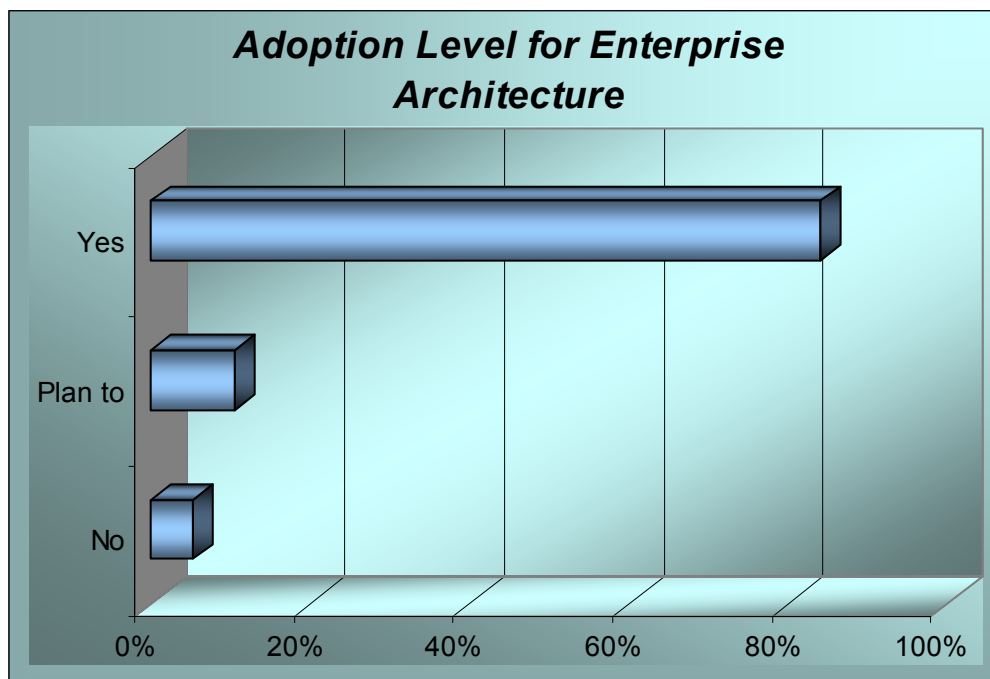
Use of NASCIO EA products and services – select results:

- **68%** of those that have used the EA videos judged them *good to excellent*
- **75%** of those that have used Tool-Kit Version 3 judged it *good to excellent*
- **85%** either currently use, or plan to use Tool-Kit Version 3
- **94%** of those who have attended EA Conference sessions judged them *good to excellent*
- **86%** of those who receive the EA Newsbriefs judged it *good to excellent*

Detailed Survey Results

The following survey results are presented in the same order as the survey instrument. The initial questions on EA are global in nature, followed by specific questions on the portfolio of NASCIO EA products and services. Analysis of each question is presented using a summary and a list of observations. At the end of this section a set of “calls to action” are developed based on the individual findings and an overall evaluation of the survey results as a whole. *Summary* highlights particular areas of interest and provides an overview of the results. *Observations* lists potential concerns and “take aways” regarding the presented results. The data is presented to allow the reader to do additional analysis. ***It is important for the reader to refer to the number of “responses” given at the bottom of each graph when interpreting the results.***

ENTERPRISE ARCHITECTURE PROGRAM



Graph 1 (38 responses)

Summary

- Responses to “Yes” and “Plan to” total 94.7% indicating that adoption of enterprise architecture has been quite successful. This is in contrast to an informal survey NASCIO conducted in 1999 where only five states had a formal EA program.
- The NASCIO EA program has certainly contributed to this adoption level. However, many other activities and events have also contributed, such as the emphasis on EA at the federal level, and within industry, and the advent of the new paradigms listed above.
- All influencers toward these results have yet to be identified.

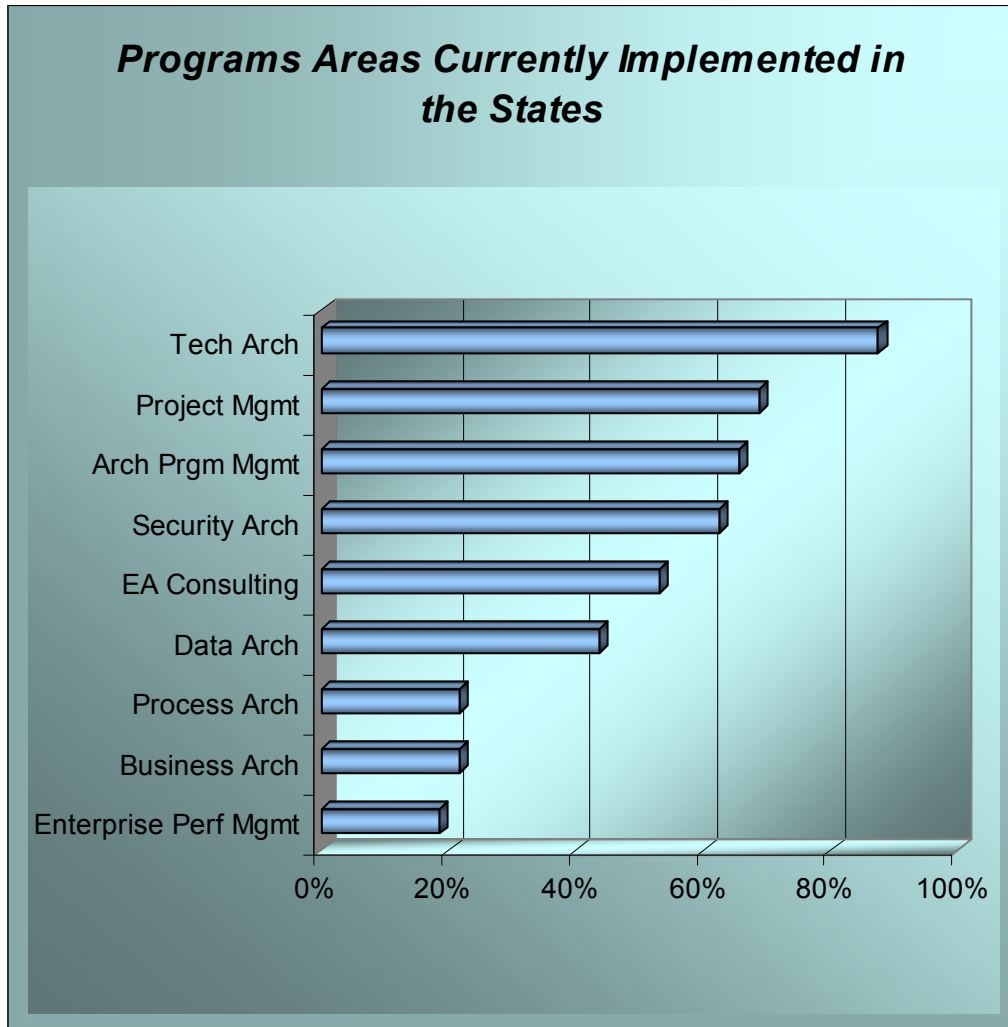
Observations

- A significant number of states have responded positively to NASCIO's promotion of state adoption of EA.

Adoption Level for Enterprise Architecture (continued)

- EA programs will remain viable by continuing to provide leadership, mentoring and enabling technical assistance.

EA PROGRAM AREAS



Graph 2 (32 responses)

Summary

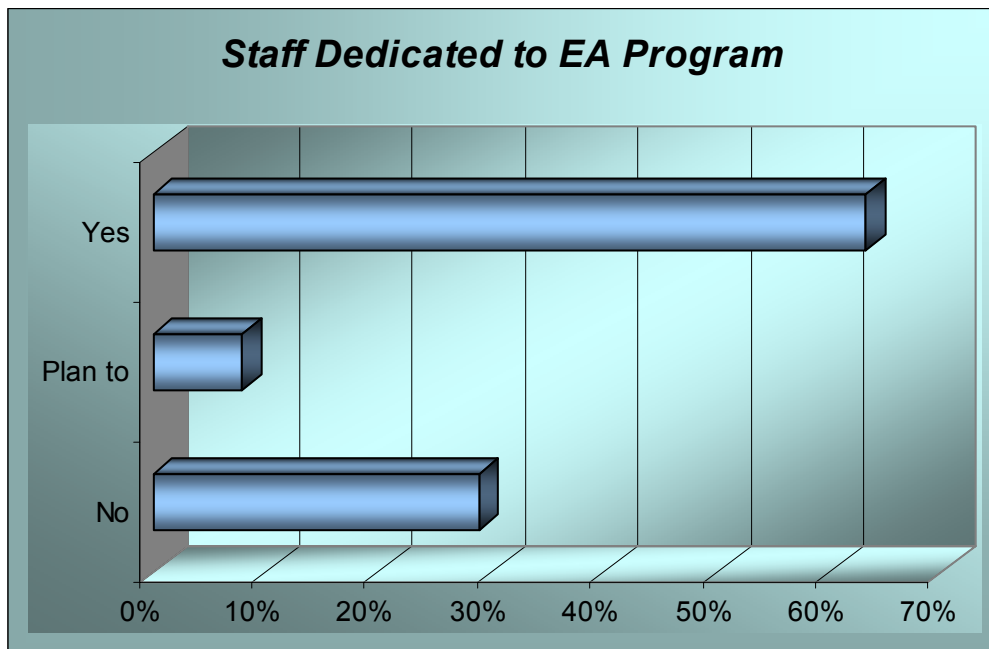
- There is significant adoption of technical architecture. This may be reflective of the success in publishing version 2.0 of the NASCIO EA Tool-Kit which emphasized this specific architectural area. Noteworthy is the fact that Version 2.0 has been available since July 2002. Version 3.0 was released in September of 2004 and includes many of the other architectural areas listed above.
- There is strong adoption of project management and enterprise architecture program management.
- There is limited adoption of data architecture (DA), process architecture (PA), business architecture (BA) and enterprise performance management (EPM).
- The low number of programs that include security architecture is rather surprising given the new emphasis on cyber security. Noteworthy is the fact that cyber security is a top priority for state CIOs. Results for security architecture match the recent results from NASCIO's 2005 Strategic Cyber Security Survey.

Program Areas Currently Implemented in the States (continued)

Observations

- The low adoption for the more specialized program areas may be reflective of the fact that the NASCIO Tool-Kit Version 3.0 is fairly recent. This latest version of the Tool-Kit addresses these architectural areas. This graph should be compared with **Graph 1** which presents the adoption level for version 3.0.
- All influencers toward these results have yet to be identified.
- There is an observable difference in the use of terms relative to EA. This may contribute to the responses relative to the specialized program areas. For example, every state has addressed security but may not have a formalized security architecture. This may be the reason only two thirds of the states responded that they have a security architecture program.

EA STAFF



Graph 3 (38 responses)

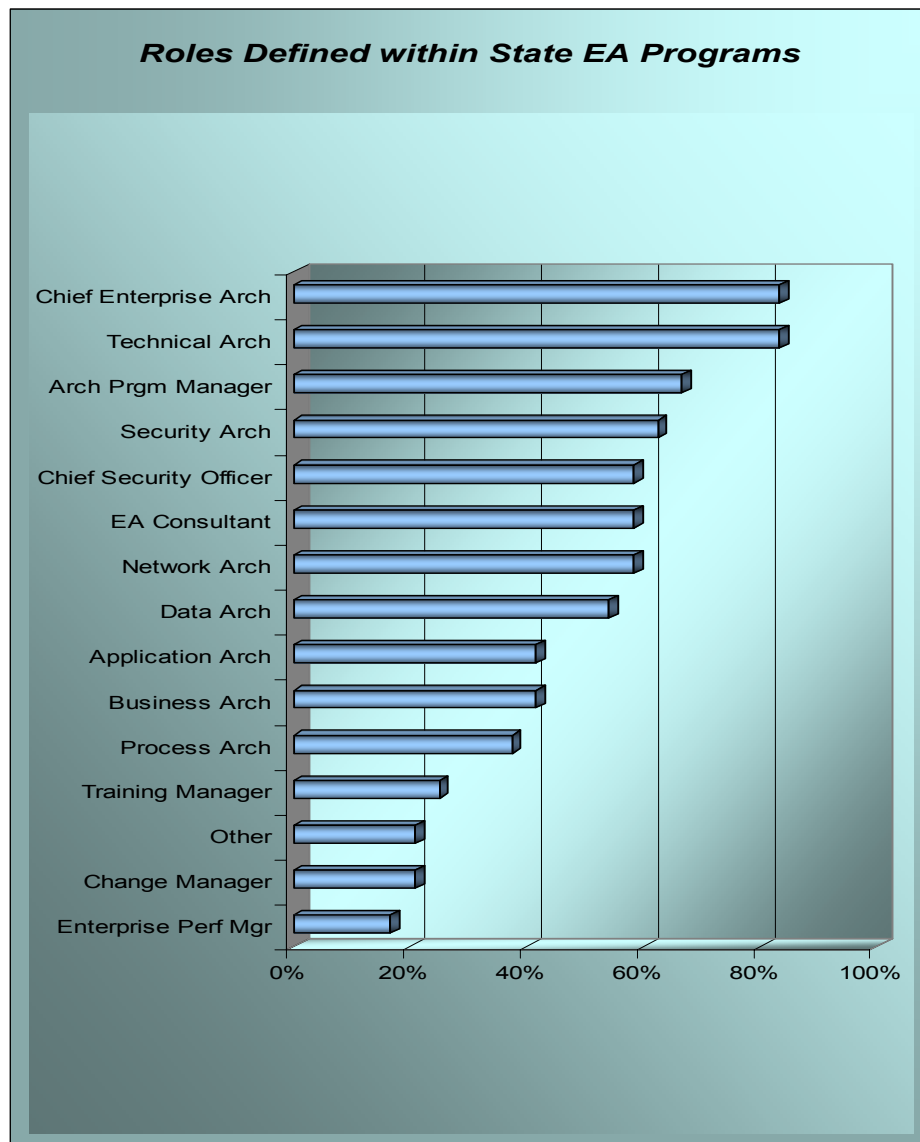
Summary

- The majority of the respondents either currently have or plan to have full time EA staff..

Observations

- From a national perspective, states are serious about developing EA programs as demonstrated by the level of resources now being applied. The effectiveness of an EA program without dedicated staff is questionable.
- Further analysis may be conducted with states that have an EA program, but no plans to have dedicated staff. Their approach to EA and their available resources should be understood. Some of these states may have solutions that can be shared with other states.

EA FUNCTIONAL ROLES



Graph 4 (38 responses)

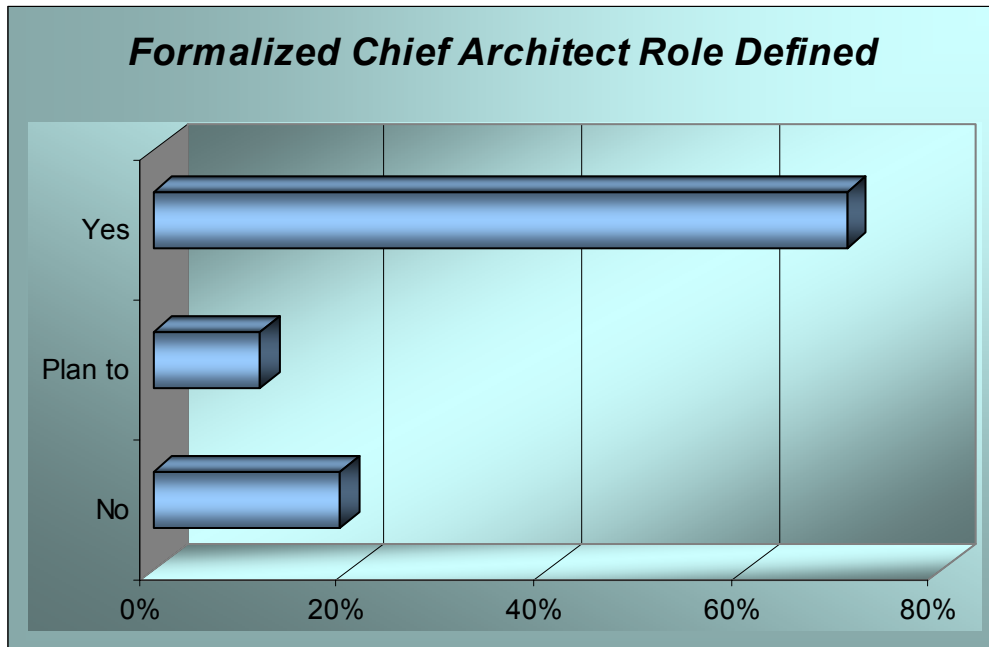
Summary

- The more traditional technical architecture roles have been embraced by the wider membership.
- Specialized roles that are more recent in definition have been established in a minority of states.

Observations

- States are beginning to establish specialized roles not heretofore seen in EA at the state level. These roles are necessary and indicate a significant growing maturity in EA operating discipline within state government. These roles include: change manager, training manager, business architect, process architect and application architect.
- States need to adopt these specialized roles as their EA program matures.
- There is no baseline for understanding how these staffing profiles are changing over time.

CHIEF ENTERPRISE ARCHITECT



Graph 5 (37 responses)

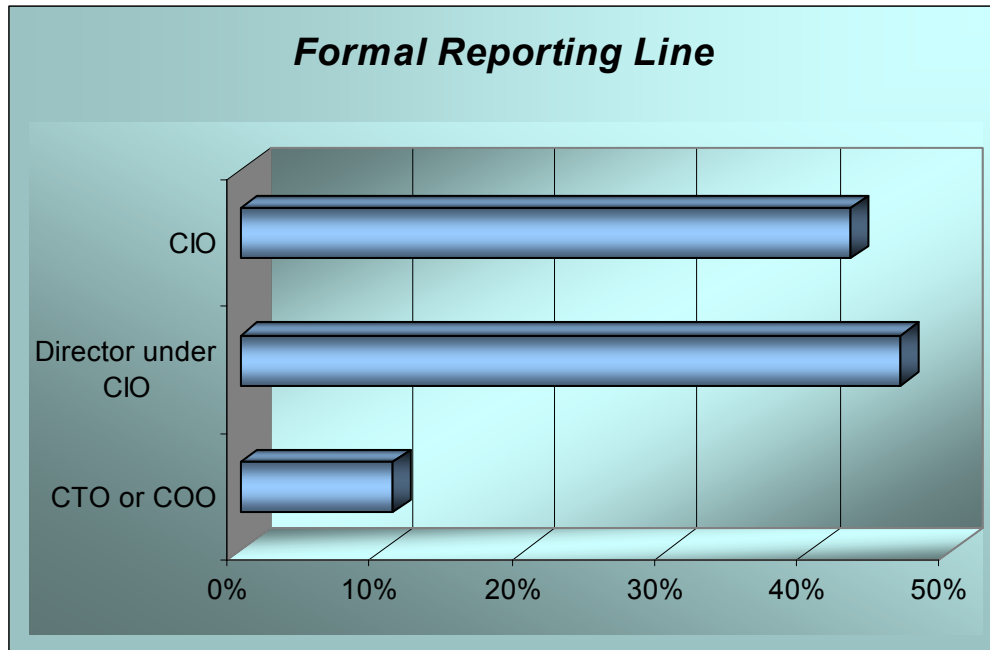
Summary

- Majority of the respondents have a designated Chief Enterprise Architect. This compares well to **Graph 1** which presents that 84% of the respondents have an EA program.
- This supports earlier findings that adoption of EA is progressing among the states.

Observations

- There is a challenge related to formal titles used in government. In some states, the role of Chief Architect is fulfilled by professionals with a variety of titles. Those states that have formalized this role with an established government title will typically be characteristic of more mature EA programs.

Chief Enterprise Architect (continued)



Graph 6 (28 responses)

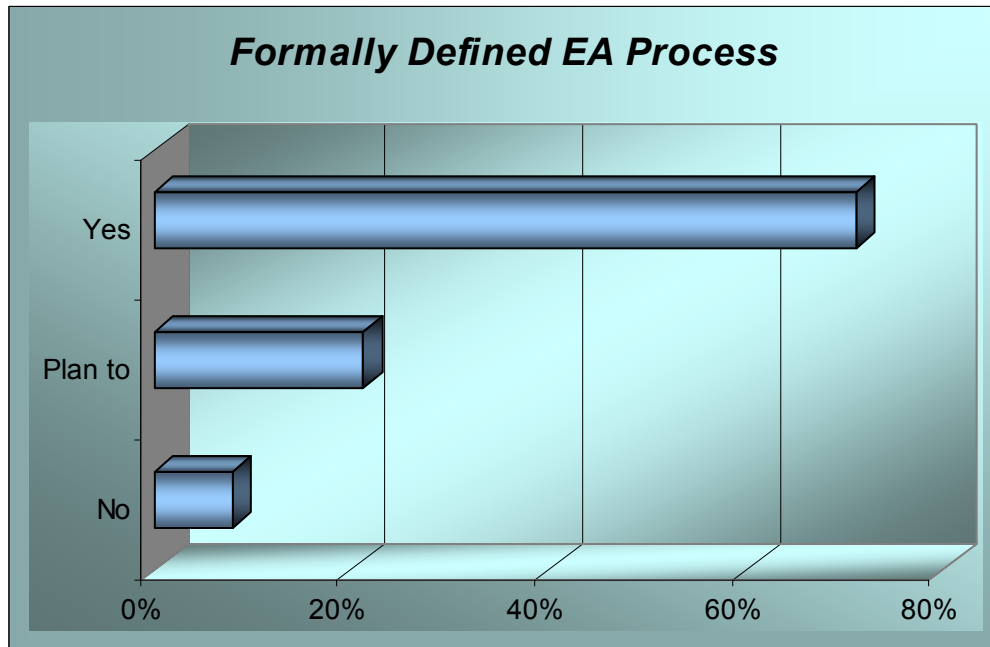
Summary

- Almost half of the respondents established direct reporting lines from the Chief Enterprise Architect to the CIO.
- A significant number of respondents reported that the Chief Enterprise Architect reports to a director level under the CIO.

Observations

- NASCIO is promoting the role of Chief Enterprise Architect as a strategic leadership role that should report directly to the CIO. However, this model has only been implemented in a little less than half of the cases that have identified the need for that role.
- Consider contacting those states that do not follow the NASCIO preferred model to learn the rationale for positioning the Chief Enterprise Architect elsewhere.
- Some states may define the role of the Chief Enterprise Architect differently. For example, in some states this may be a very technical IT role. In other states, it may be a very strategic leadership role combining business, policy and technology.
- NASCIO should consider strengthening its program to provide more communication and awareness regarding the strategic role of the Chief Enterprise Architect.

EA PROCESS



Graph 7 (38 responses)

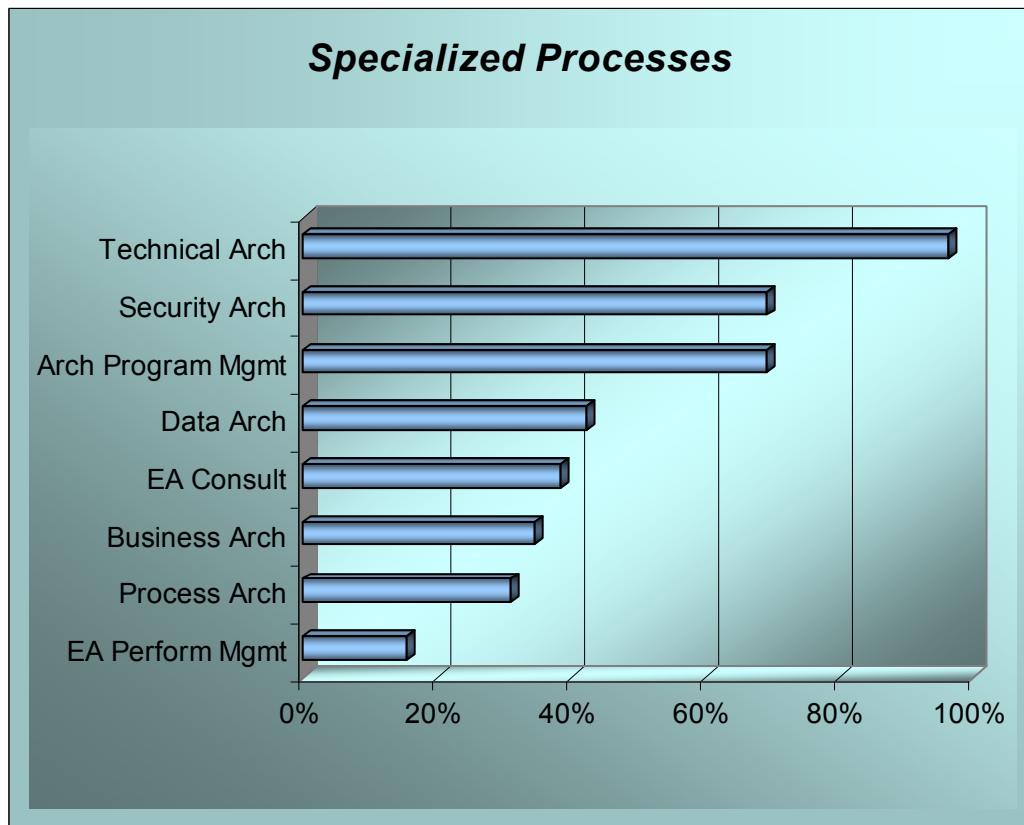
Summary

- The majority of the respondents have or will have a defined process for enterprise architecture.
- A few of the respondents have no plans to create a defined process. That result constitutes 8%, or 3 respondents. Compare this to **Graph 1** which presents that 5.3%, or 2 respondents do not have plans to create an enterprise architecture.

Observations

- There is still some progress to be made in communicating the importance of establishing a process for enterprise architecture.
- The responses to this question indicate significant success in establishing state processes for enterprise architecture. A next step would be to learn what those processes entail.
- With the advent of interest in EA processes, NASCIO should consider facilitating state to state learning regarding EA processes, and possibly establish a formal repository of best practices. Such a repository should facilitate learning by including scenarios of “what worked” and “what didn’t work.” (see NASCIO’s research brief on repositories- available at <https://www.nascio.org/nascioCommittees/ea/repositoriesIssueBrief.pdf>.)
- This graph must be analyzed in concert with **Graph 8** regarding specialized processes. **Graph 7** merely presents the existence of an EA process. **Graph 8** goes further to determine what processes are in place.

PROGRAM DEFINED PROCESSES



Graph 8 (26 responses)

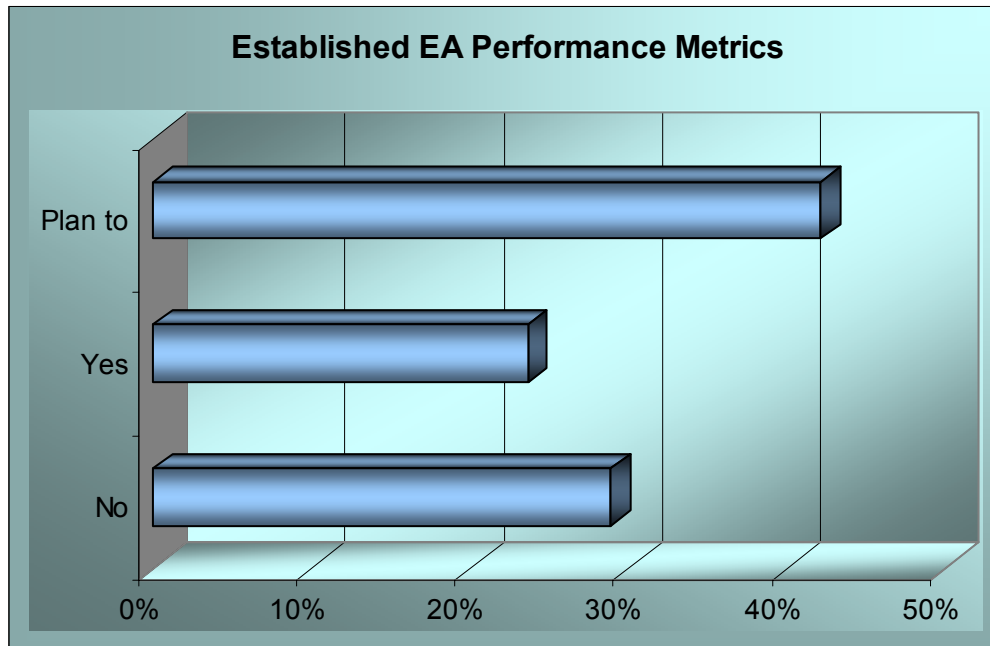
Summary

- Most of the respondents have defined processes for technical architecture, security architecture and architecture program management.
- 38% of the respondents have defined processes for EA consulting – as compared with **Graph 2** regarding EA program areas which presented that 50% of the respondents do EA consulting.

Observations

- As expected the majority of the respondents have defined processes for technical architecture. This area has received more attention than the other areas of EA. States continue to be challenged in the other areas of EA, particularly business and process architecture.
- It is surprising that only 69% of the respondents have defined processes for security architecture.
- NASCIO may consider doing further analysis to learn why specific processes for security architecture have not been defined by more respondents.
- NASCIO may consider doing further analysis to learn why other areas beyond technical architecture have not been embraced by more states.
- The results indicate where NASCIO could target future initiatives, communications, products and services to assist the states.

EA PERFORMANCE METRICS



Graph 9 (38 responses)

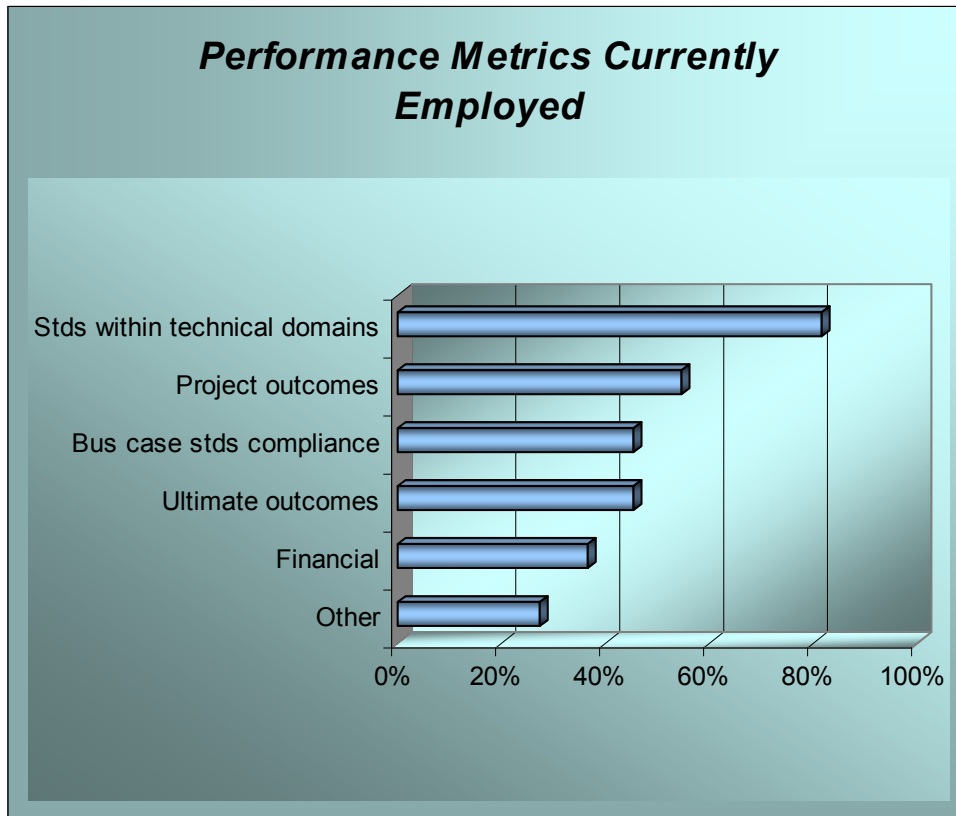
Summary

- Most of the respondents either have already established or plan to establish EA performance metrics.
- About a third of the respondents have no plans to establish EA performance metrics.

Observations

- There is a significant minority that are not addressing performance metrics.
- NASCIO may consider conducting further analysis to learn why some respondents are not pursuing the establishment of performance metrics. Based on findings, build awareness of the role and value of performance metrics.
- NASCIO should consider providing technical assistance to help states develop performance metrics.

PERFORMANCE METRICS



Graph 10 (11 responses)

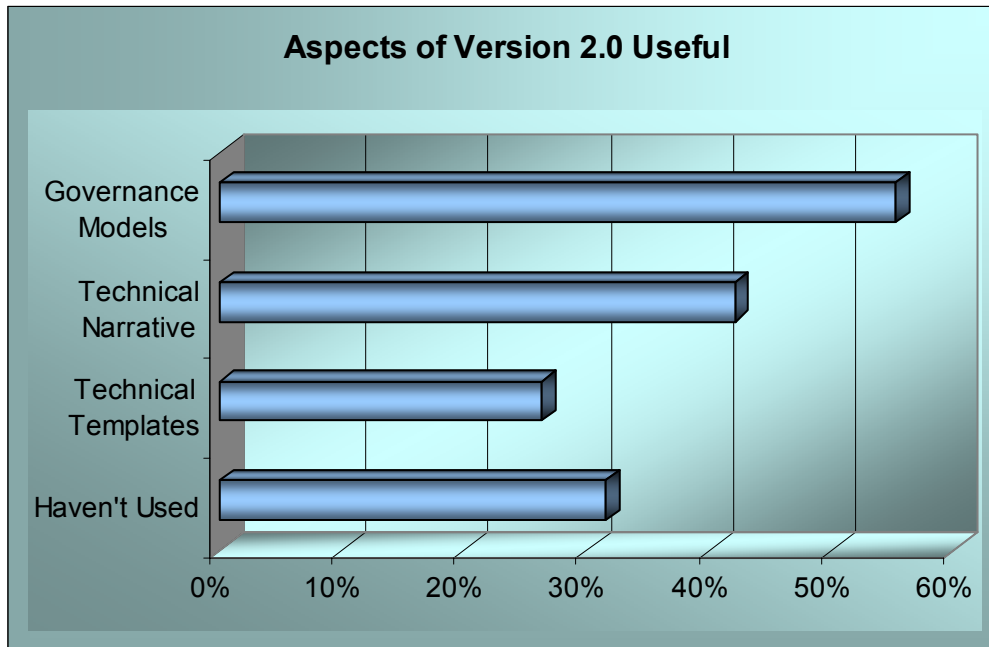
Summary

- The majority of the respondents that have defined performance metrics have concentrated on technology architecture.
- Almost half of these respondents have defined metrics for measuring ultimate outcomes *and* business case standards compliance.
- About a third of the respondents have defined financial metrics.

Observations

- The number of respondents must be taken into account when interpreting these results.
- There is much work to be done in emphasizing the value of performance metrics and there may be a need for providing technical assistance in developing such metrics at the state level.

EA TOOLKIT 2.0 CONTENT RELEVANCE



Graph 11 (38 responses)

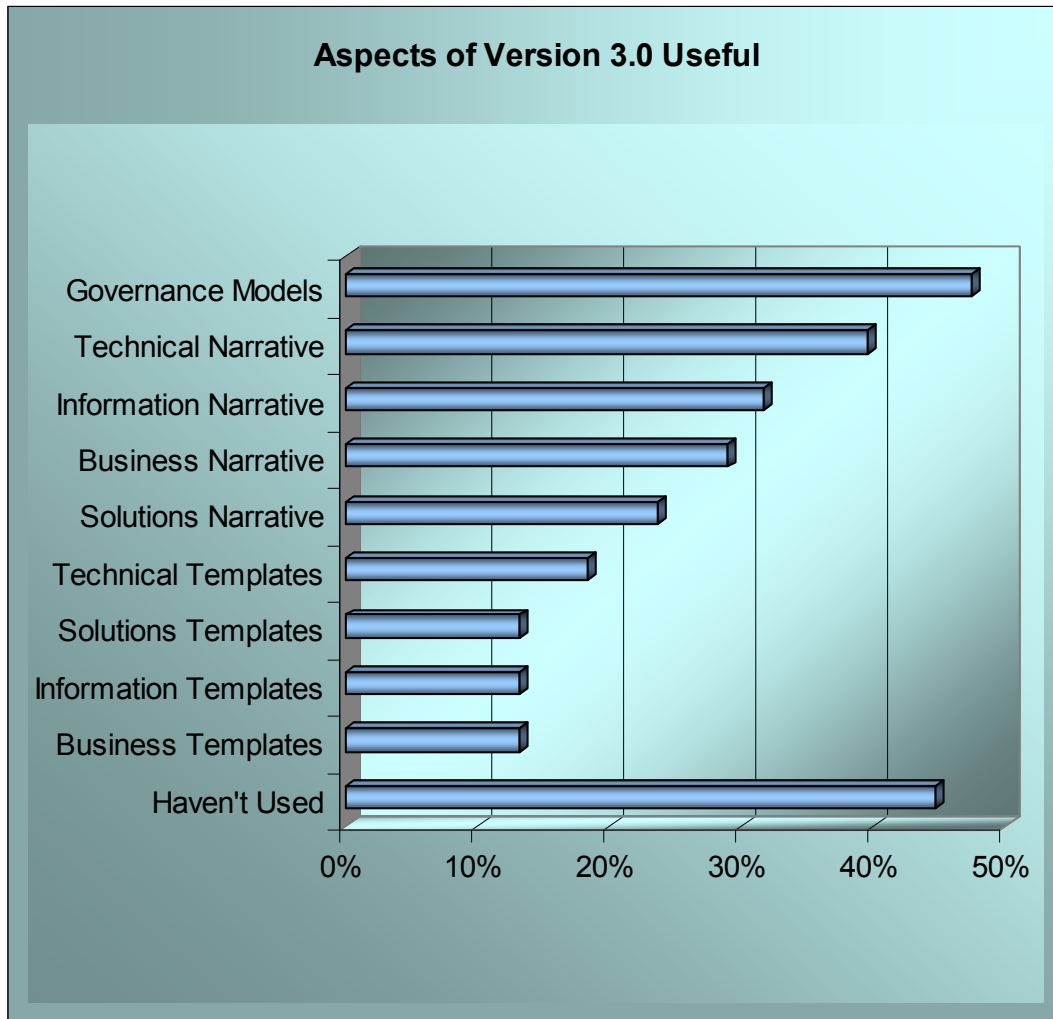
Summary

- About half of the respondents found value in the governance models and the technical narrative.

Observations

- A significant minority (32%) of the respondents have not used Version 2.0 of the Tool-Kit.
- Continue to market Version 3.0 of the Tool-Kit which has all of the content of Version 2.0 and includes additional EA areas of business, process, data and solutions architectures, and program management.
- It would be helpful to learn why such a large minority of the respondents expressed no interest in this product.

EA TOOLKIT 3.0 CONTENT RELEVANCE



Graph 12 (37 responses)

Summary

- About half of the respondents have used the governance models and technical narrative.
- About a third of the respondents have used the narratives for business architecture and information architecture narrative.

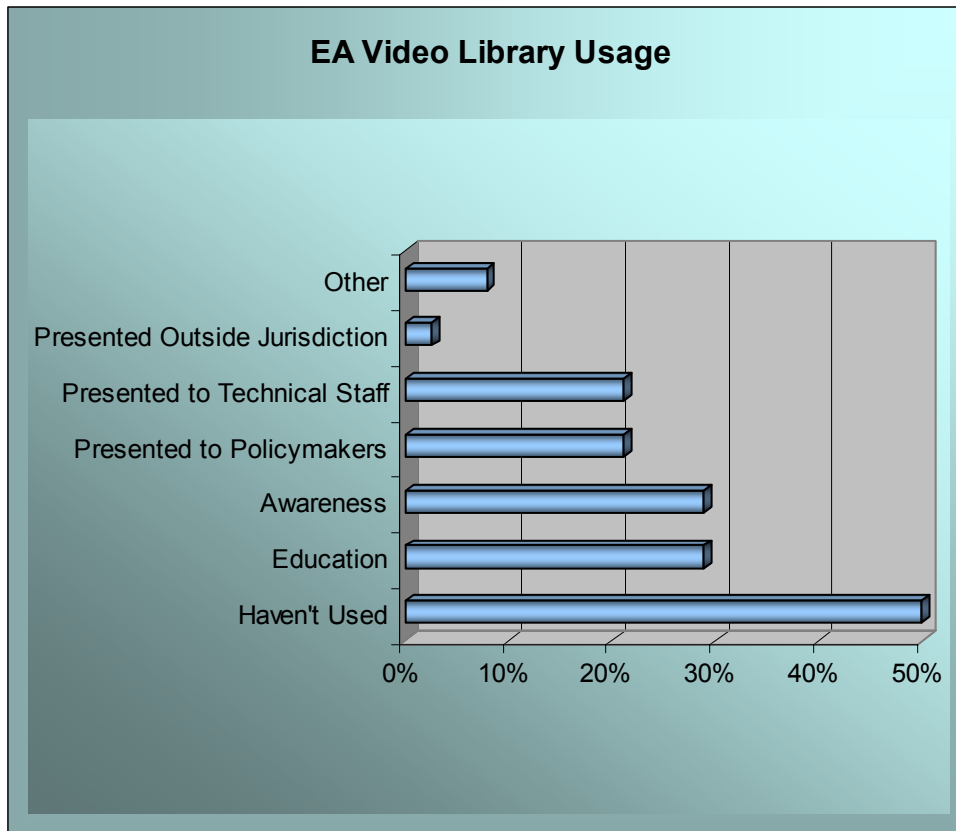
Observations

- A significant minority (45%) of the respondents have not used Version 3.0 of the Tool-Kit. These results are in line with **Graph 18** regarding Tool-Kit Version 3.0 usage (*i.e., plan-to + not-familiar + no = 39.4%*).
- It is desirable to migrate members from using Version 2.0 to the more complete set of content in Version 3.0.
- Given the significant percentage that haven't used the Tool-Kit, it may be useful to survey these particular respondents to learn why. There may be aspects of the Tool-Kit that could be improved to make it more useful to these members. Or, there may be additional resources identified that could benefit the other members.
- Continue to market Version 3.0 of the Tool-Kit.

Aspects of Version 3.0 Useful (continued)

- Develop a stronger communication program to build awareness of the value of the Tool-Kit stressing that Version 2.0 is now replaced with Version 3.0.
- Investigate to learn why such a large minority of the respondents expressed no interest in this product.
- Investigate to learn what additional content should be included in the Tool-Kit to make it more relevant and practical.
- Expand the Tool-Kit to address service oriented architecture (SOA) as this is one of the most burgeoning areas of enterprise architecture. Validate this recommendation with the Architecture Working Group.

EA VIDEO LIBRARY USAGE



Graph 13 (36 responses)

Summary

- About a fourth of the respondents have used the EA videos in presentations to policymakers and technical staff.
- About a third of the respondents have used the videos to build awareness and to educate on the subject of EA.
- Some respondents have found opportunities to use the videos outside of their jurisdiction.

Observations

- A significant minority (50%) of the respondents have not used the EA videos.
- NASCIO may need to develop a stronger communication program to increase awareness of the video library and recommendations on how to use it for a variety of target audiences.

EA Video Library Usage (continued)

- Consider doing additional analysis to learn what other communication tools would be most useful to the states.

NASCIO PRODUCT EXPERIENCE

NASCIO is very interested in understanding the experience of the *states* relative to use of the NASCIO EA portfolio of products. This information is needed by the NASCIO program management function and also fulfills NASCIO's desire to provide progress updates to BJA which has *fully funded* the NASCIO EA program to this point. The NASCIO EA portfolio of products is widely used on a global level within industry and government. However, this assessment focuses on the experience in *state government* which is the primary concern for NASCIO. A future assessment may be indicated that would draw from this much broader, global community.

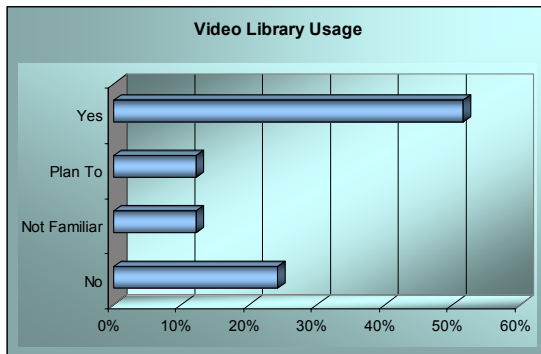
It is important to understand some of the background regarding funding for the NASCIO EA program. These grant funds have expectedly had limits. Funding was provided that would accommodate a limited level of publication, marketing and distribution. NASCIO has been very prudent in the use of these funds. Thus, NASCIO's approach to publishing and distribution has been predominantly directed toward *electronic* publishing and distribution. This approach has its associated advantages and disadvantages. Again, this report does not include a substantive analysis of causal factors. However, review of these results requires a contextual understanding of the circumstances, and limitations that have bounded the NASCIO EA initiative.

The following results refer to the awareness and effectiveness of NASCIO's EA products. Effectiveness was graded on a scale of 1 to 4 with 1 being poor, and 4 being excellent. The responses and scoring applicable to most of these questions is given below:

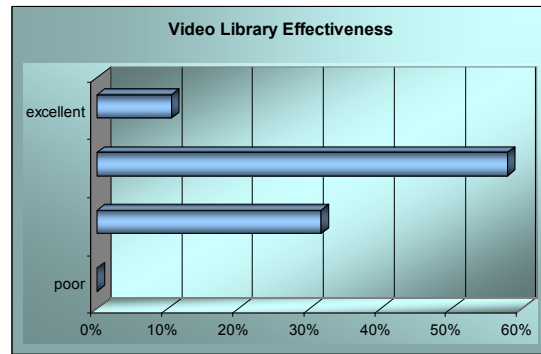
Have you used the following product?	How effective is this product
<i>Yes</i> <i>Plan To</i> <i>Not Familiar</i> <i>No</i>	<i>4 = excellent</i> <i>3 = very good</i> <i>2 = fair</i> <i>1 = poor</i>

The next series of graphs were developed from a set of two-part questions directed toward gaining feedback from the states regarding *awareness* and *effectiveness* of the EA portfolio of products. Note that the second question on effectiveness was only answered by those that have used the product. As these graphs should be reviewed together they are presented in parallel. Again, please note the number of responses to each question when interpreting the results.

EA VIDEO LIBRARY



Graph 14 (33 responses)



Graph 15 (19 responses)

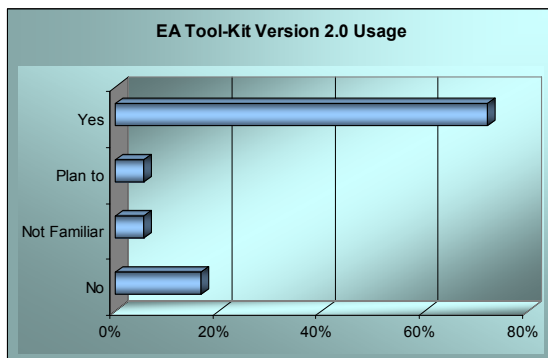
Summary

- About half of the respondents have used the EA Video Library.
- A significant minority of the respondents were not aware of this product suite.
- About two thirds of those that have used the library have found it to be effective (i.e., a score of 3 or 4).

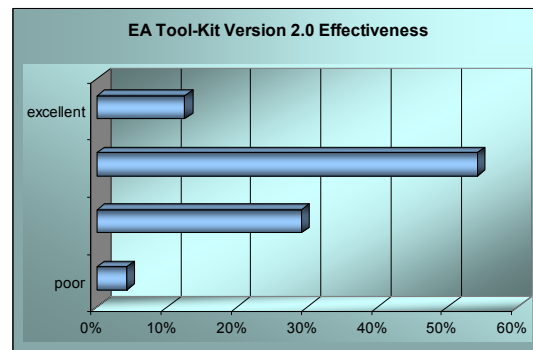
Observations

- The communications and marketing of these products has been somewhat successful. However, these results clearly indicate the need to build awareness of the availability and value of these products.
- It may be useful to learn why a third of the respondents graded the effectiveness of the videos at 2.
- The response distribution seen here for effectiveness is common across all of the products surveyed.

EA TOOLKIT VERSION 2.0



Graph 16 (36 responses)



Graph 17 (24 responses)

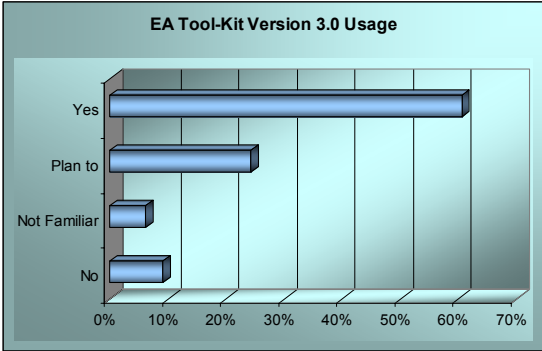
Summary

- Most of the respondents have used the EA Tool-Kit Version 2.0.
- Two thirds of the respondents that used Version 2.0 gave high marks regarding its effectiveness.

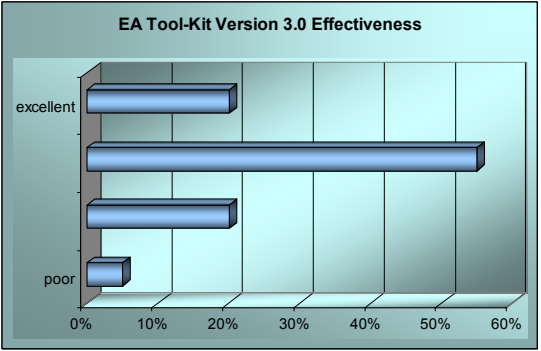
Observations

- The EA Tool-Kit Version 2.0 was effectively marketed and utilized.

EA TOOLKIT VERSION 3.0



Graph 18 (33 responses)



Graph 19 (20 responses)

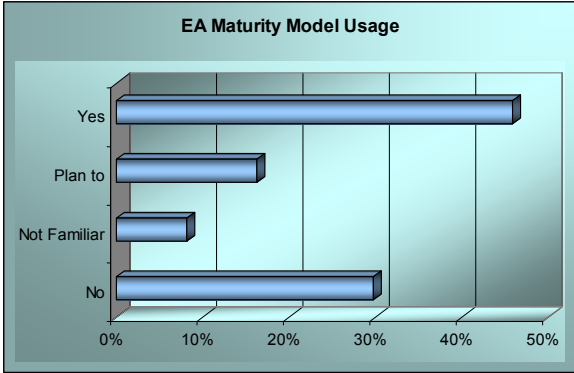
Summary

- Most of the respondents have used or plan to use the EA Tool-Kit Version 3.0.
- Two thirds of the respondents that have used Version 3.0 gave it high marks for effectiveness.
- These results are fairly close to the results regarding Version 2.0 of the Tool-Kit.
- A significant minority (24%) plan to use the EA Tool-Kit Version 3.0 in contrast to a small minority that plan to use the EA Tool-Kit Version 2.0.

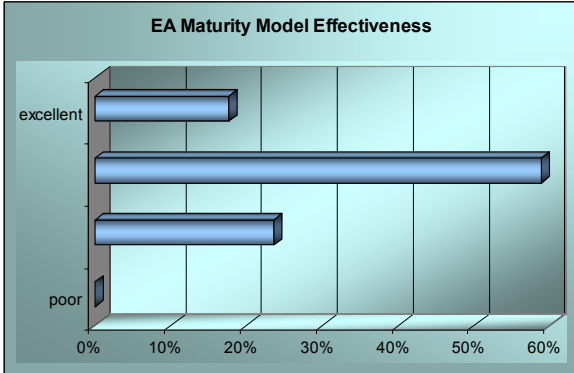
Observations

- A significant majority have used, or plan to use the Tool-Kit.
- NASCIO needs to continue to build awareness of the availability and value of the EA Tool-Kit Version 3.0. May need to re-emphasize that Version 3.0 replaces Version 2.0.

EA MATURITY MODEL



Graph 20 (37 responses)



Graph 21 (17 responses)

Summary

- Most of the respondents have used or plan to use the EA Maturity Model.
- Three quarters those that have used the EA Maturity Model gave it high marks for effectiveness.

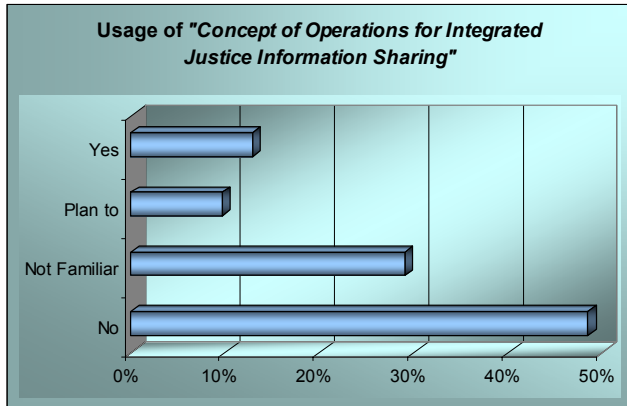
Observations

- A significant minority of the respondents have not used the Maturity Model.
- The current Maturity Model is primarily focused on governance and technical architecture. This is due to the fact that it was tightly coupled with the EA Tool-Kit Version 2.0. The effectiveness of the Maturity Model may be improved by expanding it to include all of the architectural areas included in the EA Tool-Kit Version 3.0. This may explain why the level of usage isn't higher.
- Investigate to learn if there are other maturity models being used by NASCIO members.

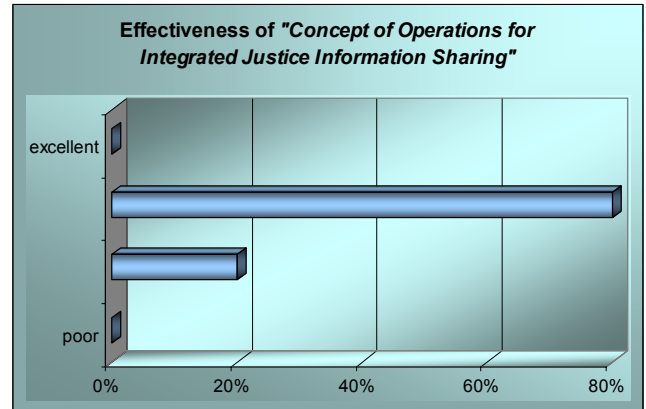
EA Maturity Model (continued)

- This particular product was not recommended for further enhancements or execution by the NASCIO Architecture Working Group. Further development should not be started unless it is identified as a priority by the Architecture Working Group.

CONCEPT OF OPERATIONS - INTEGRATED JUSTICE INFORMATION SHARING



Graph 22 (31 responses)



Graph 23 (5 responses)

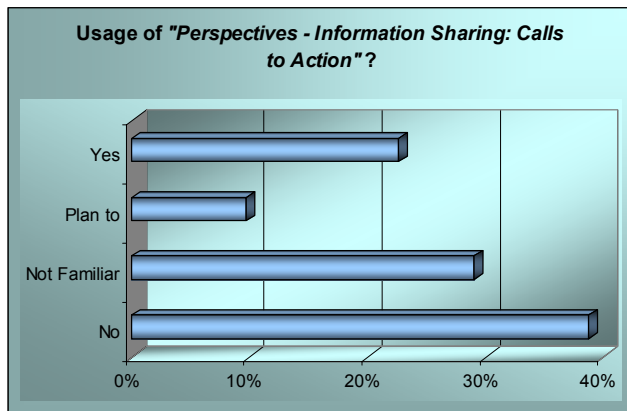
Summary

- About a third of the respondents were not familiar with this report. Consequently, its purpose was not well understood which contributed toward its *perceived* effectiveness. Note the number of responses regarding effectiveness.
- Almost half of the respondents do not plan to use this report.
- Most of those that have used this report have found it to be effective.

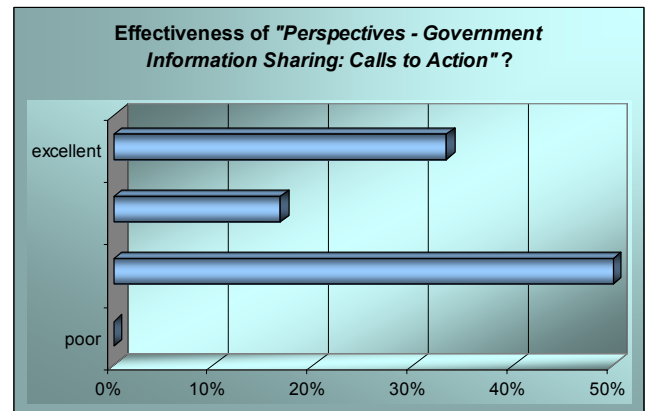
Observations

- It is obvious this report is underutilized. Part of the reason for this could be the focus within this report on integrated justice and the target audience of the justice community. The respondents to this survey represent state government which has responsibility for many other lines of business in addition to integrated justice. As with other EA publications, the distribution pattern is narrow and the reports do not receive the exposure outside the justice ranks.
- It may be useful to do additional analysis to learn why such a large percentage of respondents have not utilized this reference. This report was intended to present a scenario based approach for information exchange analysis and implementation.

PERSPECTIVES – INFORMATION SHARING: CALLS TO ACTION



Graph 24 (31 responses)



Graph 25 (6 responses)

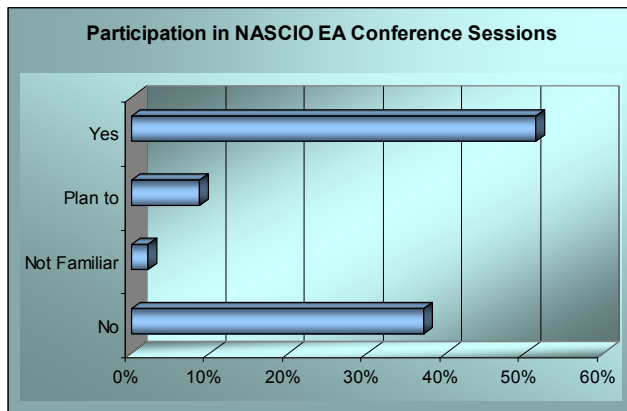
Findings

- About a third of the respondents were not familiar with this report.
- About half of those that have used it have found it to be a valuable reference.

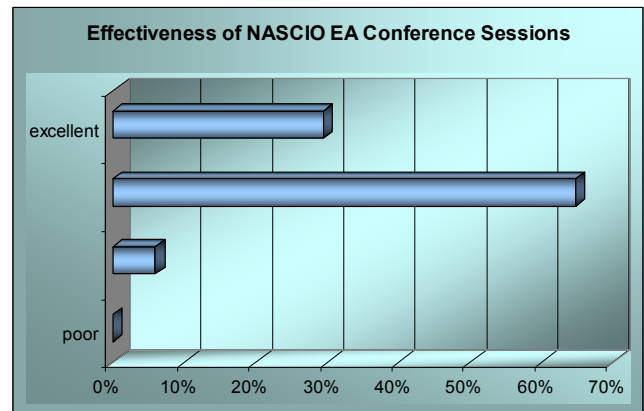
Observations

- This report may be seen as predominantly a justice related report, although one volume was dedicated to general government concerns.
- It would be useful to learn what inhibits the members from using this report and why the awareness of its availability is so low.

EA SESSIONS AT NASCIO CONFERENCES



Graph 26 (35 responses)



Graph 27 (17 responses)

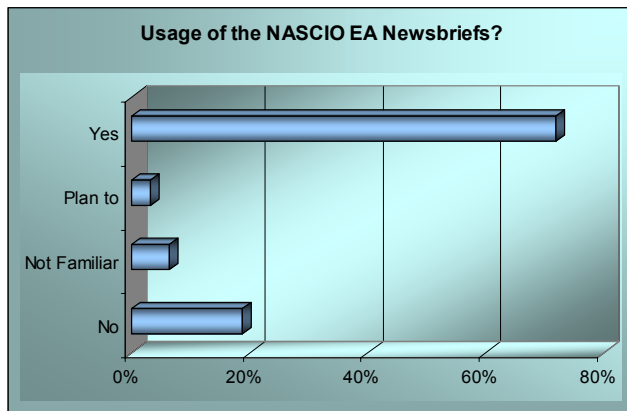
Summary

- Almost two thirds of the respondents expressed interest in the NASCIO EA conference sessions.
- Most of the respondents have found the EA conference sessions to be effective.

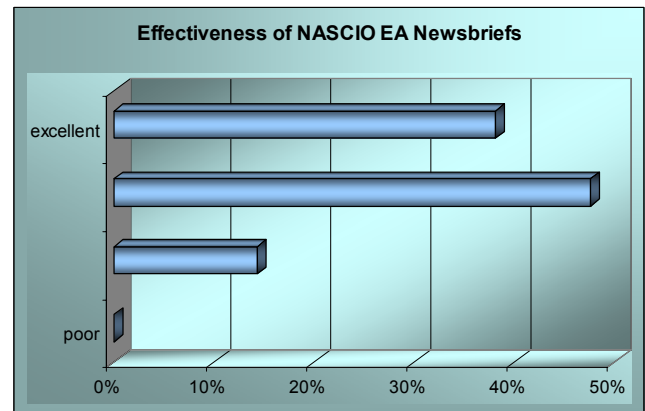
Observations

- These sessions are clearly of interest and should be continued.
- The Architecture Working Group should continue to work with the NASCIO Program Committee to plan and promote relevant EA sessions.
- It would be interesting to learn why such a large minority of the respondents have not attended these sessions. These results could be an effect of the typical CIO tenure as described earlier in this report. The short tenure of state CIOs is compounded by the fact that significant attention and effort is required of the state CIO in the first year of their appointment. Many state CIOs in the early phase of their appointment simply do not have the cycles to be able to include external events on their calendars. Without doing an exhaustive analysis of the causal effects, availability may be the reason that attendance isn't higher at the EA sessions. The explanation may also be related to scheduling such as "last day – last session." This should be correlated with information on NASCIO conference attendance in general.

EA NEWSBRIEFS



Graph 28 (32 responses)



Graph 29 (21 responses)

Summary

- Most of the respondents have used the EA Newsbriefs.
- Most of the respondents gave high scores for effectiveness.

Observations

- Consider developing a more effective communication plan to build awareness of the EA Newsbriefs.
- Consider the attributes of this product that contribute to its effectiveness and popularity. This information can be used to plan future NASCIO product offerings.



Calls to Action

Calls to action have been formulated from the learnings that came out of the survey. Based on current resources, clearly these calls to action must be evaluated and prioritized before action is taken.

NASCIO has maintained and promoted a vision for government transformation. That transformation will make government more effective, efficient and relevant to the taxpayer. The path to that transformation is enterprise architecture. As stated, NASCIO has devoted considerable resources toward developing expertise in enterprise architecture resulting in products and services intended to drive program development among its constituents. However, these products and services will only be effective if they are known to exist, are understood and embraced by the states. Additionally, NASCIO must continue to challenge its portfolio of products and services to determine if they are relevant in meeting the needs of states.

The calls to action can be summarized as follows:

Funding – establish a diversified funding stream to provision NASCIO’s EA program

Value proposition for EA – maintain visibility for EA, continue to present the value of EA

Provide Relevant Technical Assistance – provide more EA related technical assistance in building and maturing state EA programs. Develop the “what” and the “why” for specialized EA roles, and the more specialized EA disciplines. Provide assistance in building skills and knowledge of EA staff.

Performance Metrics – build awareness for the value of performance measures for EA and provide assistance in building this capability

Marketing and Communication – develop marketing strategies for building awareness of EA and the availability of NASCIO’s EA portfolio of products

FUNDING

Establish a diversified funding stream to provision NASCIO's EA program

1. Funding for the NASCIO EA program must match the priorities of the states and the federal government. Funding must encourage *and enable* the continued development and maturity of state enterprise architecture operating discipline. NASCIO should seek additional funding from other sources besides the Bureau of Justice Assistance. Other potential sources include additional federal agencies, foundations, and corporate partners. Given the importance of advancing the federal enterprise architecture, it would be sensible for federal agencies to fund EA efforts at the state and local level. To ensure alignment on national initiatives and effective program implementation, a broader understanding of EA is required at the state and local level. A more diversified federal funding stream would enable NASCIO to emphasize more government lines of business.

Benefit: This will in turn contribute toward developing a national capability for information sharing and interoperability. Funding must support closing the gaps in state EA programs. Many of those gaps are identified in this survey.

VALUE PROPOSITION FOR EA

Maintain visibility for EA, continue to present the value of EA

2. NASCIO should reach out to those states that have embraced EA in order to learn what motivated their programs.

Benefit: This information will assist in developing effective marketing and communications initiatives.

3. NASCIO should reach out to those states that have not embraced EA to learn the reason, or the barriers encountered.

Benefit: This information will assist NASCIO in identifying barriers to EA adoption and guide future communication and marketing initiatives. This information also assists in challenging the vision for EA. Much is to be learned from other perspectives on the value and necessity of formal EA programs.

4. Revisit consideration for expanding the NASCIO Enterprise Architecture Maturity Model (EAMM) to include additional dimensions for business architecture, organizational design, process architecture, data architecture, and performance metrics. Publish this expanded model in order to further develop state EA programs. This initiative was previously considered by the AWG but not supported for further development. Before any future effort is expended on this initiative, it would have to be endorsed the AWG. *ALTERNATIVE:* Find an existing maturity model that encompasses these other areas. Or, consider other means for further maturing state EA programs.

Benefit: The current EAMM describes how to move to the next level of maturity for the areas of governance and technical architecture. To enable the full scope of EA, state CIOs need the same guidance for the other areas of EA.

PROVIDE RELEVANT TECHNICAL ASSISTANCE

Provide more EA related technical assistance in building and maturing state EA programs. Develop the “what” and the “why” for specialized EA roles, and the more specialized EA disciplines. Provide assistance in building skills and knowledge of EA staff.

5. Provide technical assistance in those areas of EA that are under-emphasized or even neglected. Provide an emphasis on data architecture and hopefully provide active participation in the current development of the Federal Data Reference Model (DRM).
 - a. security architecture
 - b. business architecture
 - c. process architecture
 - d. data architecture
 - e. performance management
 - f. change management

Benefit: If we believe that EA is the path to government transformation, then state EA programs must be comprehensive in scope and effective in addressing all dimensions of the enterprise. It is obvious from the survey that few states have EA programs that have addressed the other architecture areas of business, organization, process, data, and performance metrics. The DRM is a major federal initiative currently under way. The states would not only leverage this work but influence the outcome as well.

6. Evaluate the 2005 EA Assessment results to uncover feedback that indicates opportunities for improvement. Leverage that information to enhance existing products, or plan new products that comprise the NASCIO EA portfolio of products.

Benefit: Significant information has been gathered from the states that can be used to improve the NASCIO EA program and in turn benefit the states with better EA enablers. This information can be used to continually renew NASCIO EA products.

Provide Relevant Technical Assistance (continued)

7. Establish other “model” role descriptions that comprise the EA team. Use the 2005 EA Assessment data to investigate the enablers and challenges encountered by those states that have defined these roles.
 - a. business architect
 - b. data architect
 - c. process architect
 - d. performance manager
 - e. change manager
 - f. EA project manager
 - g. portfolio manager
 - h. customer / relationship manager

Benefit: A mature EA organization requires these roles for a successful and effective implementation. NASCIO could provide a valuable service by providing role descriptions that can be adapted by the states.

8. Investigate alternative organizational structures for staffing EA. Consider providing EA expertise from NASCIO staff on a short term basis.

Benefit: Some states may not have the resources to allocate full-time staff to EA. These states must still maintain an EA capability. NASCIO could provide a valuable service by assisting these states in bridging their needs until resources are available, or until some minimal but functioning EA program is in place that can be staffed by less than full time staff.

9. Promote the role of chief enterprise architect as a necessary and recognized resource for leading state EA initiatives
 - a. present the value of this role to the members
 - b. develop roles and responsibilities
 - c. establish guidance on knowledge, skills and experiences necessary to prepare for this position
 - d. establish a curriculum for developing knowledge and skills
 - e. establish a community of practice for chief architects that facilitates collaboration

Benefit: The value of the Chief Architect role must be understood. Those states that have embraced the full view of EA have established this role with direct line of reporting to the CIO.

Provide Relevant Technical Assistance (continued)

10. Develop a CIO curriculum that is linked to a future skills inventory. This curriculum could provide a jump start for the professional development of state CIOs giving them the relevant skills necessary to ensure their success in the changing role of state CIO. This curriculum must present enterprise architecture as the umbrella under which other disciplines reside.
 - a. Transitioning *updated from current version*
 - b. Enterprise Architecture
 - c. Capital Planning
 - d. Program Management
 - e. Organizational Design
 - f. Leadership

Benefit: The role of the CIO is expanding to encompass a business emphasis. NASCIO can provision the CIO with the skills necessary for success through professional development. The CIO will see enterprise architecture as more than a technical subject, but rather as an enterprise management discipline. Such professional development must be offered that accommodates the CIO's schedule and needs.

11. Redesign the NASCIO EA website so it provides the following characteristics:
 - a. user friendliness
 - b. products are easy to find and download
 - c. business case elements are easy to search

Benefit: Survey results indicate that many state CIOs are unaware of the available EA products. Awareness must be increased through marketing and communication. Access to these products must not be a barrier to their use. As NASCIO has moved to a more self service model, offerings are predominantly electronic and available on NASCIO's website. That website must make product accessibility as simple and friendly as possible to encourage members to revisit it often.

12. Provide mentoring and technical assistance to CIOs that will enable them to cultivate a learning organization that emphasizes leadership and excellence.

Benefit: Enable the CIO with the necessary knowledge and skills to create high performance teams based on leadership, competence, trust, open communication and ongoing learning. Monitoring performance is a necessary ingredient to creating a high performance organization.

PERFORMANCE METRICS

Build awareness for the value of performance measures for EA and provide assistance in building this capability

13. Investigate to learn why some states have not implemented performance metrics.

Benefit: This information would be valuable input in developing the marketing message, and the implementation guidance for establishing state performance metrics.

14. Build awareness of the importance of performance metrics for EA through various communication channels including conference sessions, articles in the EA Newsbriefs, research papers, and webinars. Define appropriate performance metrics for EA. Participate actively in the Performance Measures Development Initiative currently under way by the Bureau of Justice Assistance. Collaborate with BJA on meaningful performance measures for CIOs, and state EA programs,

Benefit: NASCIO can provide a valuable service in assisting the states with understanding of the importance of performance metrics, and guidance on implementation. Effective implementation of EA requires establishing meaningful metrics so that performance can be properly managed. Performance metrics provide the feedback to monitor progress, demonstrate value, and initiate early intervention to avoid failures.

MARKETING AND COMMUNICATION

Develop marketing strategies for building awareness of EA and the availability of NASCIO's EA portfolio of products

15. NASCIO must develop more effective marketing and communication to ensure that NASCIO members
 - a. understand the multi-faceted purpose of EA
 - b. understand the delivery process for establishing an effective EA program.

Benefit: With greater understanding, it can be anticipated that the adoption of EA operating discipline will increase. This will in turn enable and support ongoing government transformation.

16. Establish a marketing initiative to present the value and scope of enterprise architecture to the other roles in state government:
 - a. those that support the CIO
 - b. peers to the CIO
 - c. those to whom the CIO reports

The most effective communication channels should be identified and pursued. The value of EA must be brought to other communities of practice and communities of interest that support the communication partners of the CIO. A compelling message for the scope and value of EA must also be presented.

Benefit: This effort will provide collaborative support to the CIO's marketing efforts. The most effective channel of communication may be conferences, journals, newsletters and workshops relevant to the CIOs communication partners. This effort would also contribute toward reaching those CIOs who have yet to embrace the full vision of EA.

17. Develop a stronger marketing program for building awareness and usage of the NASCIO EA portfolio of products. The marketing message should include guidance on how to use the various products and services that comprise this portfolio.
 - a. Tool-Kit
 - b. Maturity Model
 - c. Videos
 - d. Research Papers and Briefs
 - e. Technical Assistance

Benefit: The NASCIO EA portfolio of products is intended to assist states in "jump starting" their EA programs. It is anticipated that increased usage of these products will promote further adoption and maturity of state EA programs.

Marketing and Communication (continued)

18. Continue to present EA sessions at the NASCIO conferences.

Benefit: The 2005 EA Assessment results indicate these sessions are well attended and effective.

19. Team with other communities of practice to market and communicate the value of EA. Examples include:

- a. Working Council of CIOs
- b. The Open Group
- c. Federal CIO Council
- d. Federal Chief Architect Forum
- e. National Health Information Network
- f. Environmental Protection Agency
- g. Department of Transportation
- h. Department of Defense
- i. Others as they are identified

Benefit: The value of EA must be brought to other communities of practice and communities of interest that influence the CIO. The CIO needs to hear the same message from all major channels of influence in order to support and encourage further adoption of EA as the path to government transformation.

20. Market NASCIO EA products to communities of interest outside of NASCIO's membership.

Benefit: The NASCIO EA portfolio of products are well respected as valuable resources in government as well as private enterprise. NASCIO may be able to create a profit center directed at the sale of its products. This could provide a funding stream for financing future EA product development. Such an initiative could contribute toward keeping the NASCIO EA program viable, and current.



Appendix – Additional Resources

NASCIO EA Resources:

NASCIO EA Program Webpage:

<https://www.nascio.org/hotIssues/EA/>.

“Perspectives: Government Information Sharing: Calls to Action” (March 2005):

<https://www.nascio.org/publications/index.cfm#perspectives>.

“Negotiating IP on the Way to the Win-Win: NASCIO’s Intellectual Property Recommendations” (March 2005):

<https://www.nascio.org/nascioCommittees/procurement/negotiatingIP.pdf>.

“In Hot Pursuit: Achieving Interoperability Through XML” (October 2004) (*video*):

<https://www.nascio.org/publications/index.cfm#perspectives>.

“NASCIO Enterprise Architecture Development Tool-Kit, v. 3.0” (October 2004):

<https://www.nascio.org/publications/index.cfm>. [*Scroll down to view summary & download the Tool-Kit.*]

“NASCIO Enterprise Architecture Maturity Model” (December 2003):

<https://www.nascio.org/publications/index.cfm>. [*Scroll down to view summary & download the Tool-Kit.*]

Other Resources:

HUD, Benefits of EA Practice:

<http://www.hud.gov/offices/cio/ea/newea/benefits.cfm#simple>.

HUD, EA Practice Blueprints

<http://www.hud.gov/offices/cio/ea/newea/blueprints/index.cfm>

U.S. Air Force Contracting, Enterprise Architecture for Procurement (EAP):

<https://www.safaq.hq.af.mil/contracting/transformation/enterprise.html>

Commonwealth of Pennsylvania, Enterprise Architecture Governance Model:

<http://www.oit.state.pa.us/oaait/lib/oaait/EAGovModelWorkflow.ppt>

North Carolina Statewide Technical Architecture:

<http://www.ncsta.gov/>

New York State Office for Technology, Principles Governing the New York State Information Technology Enterprise Architecture:

<http://www.oft.state.ny.us/policy/P04-001/principles.htm#toc>.

Other Resources (continued)

North Dakota, Enterprise Architecture Standard on Information Technology Procurement, STD-ITD-001:

<http://www.state.nd.us/ea/standards/standards/approved/std-itd-001.rtf>.

ICH Architecture Resource Center:

http://www.ichnet.org/IAC_EA.htm

The EA Community:

<http://www.eacommunity.com/>

The Data Management Association:

<http://www.dama.org/public/pages/index.cfm?pageid=1>

The IT Service Management Forum:

<https://www.itsmf.com/>

Federal Enterprise Architecture

<http://www.whitehouse.gov/omb/egov/>

State of Arizona Enterprise Architecture

http://www.gita.state.az.us/enterprise_architecture/

State of Arkansas Shared Technology Architecture

<http://www.techarch.state.ar.us/>

State of California Enterprise Architecture and Standards

<http://www.cio.ca.gov/ITCouncil/Committees/ArchStandards.html>

State of Iowa Enterprise Technology

<http://das.ite.iowa.gov/index.html>

Commonwealth of Kentucky Architecture and Standards

<http://gotsource.ky.gov/dscgi/ds.py/View/Collection-183>

State of Michigan Department of Information Technology

<http://www.michigan.gov/dit/>

State of Missouri Adaptive Enterprise Architecture

<http://oit.mo.gov/architecture/architecture.html>

State of Minnesota Enterprise Services

<http://www.state.mn.us/portal/mn/jsp/content.do?subchannel=-536879593&id=-8484&agency=O>

Commonwealth of Virginia Enterprise Architecture

<http://www.vita.virginia.gov/cots/ea/>