MANAGING INFORMATION SYSTEMS:

A PRACTICAL ASSESSMENT TOOL

Preview Version
February 1999

By the Information Technology Resources Board

www.itrb.gov

FOREWORD

The Information Technology Resources Board (ITRB) is pleased to issue *Managing Information Systems: A Practical Assessment Tool.* This instrument is designed to assist Federal agencies in understanding how to strategically apply information technology to achieve their missions and deliver services and products.

The Assessment Tool contains a broad array of questions in nine areas from which to evaluate information technology systems: mission and vision, customers, business focus, executive direction, capital planning, project management, performance management, acquisition, and architecture. These questions reflect the ITRB members' extensive on-the-job experiences, as well as insights gained from assessments of critical information systems across the Federal government during the past several years.

This is a preview version of the Assessment Tool, which will continue to be enhanced over time. Comments or suggestions for improving it should be sent to:

Ginni Schaeffer
Interagency IT Strategies Division
1800 F Street N.W.
Room 2227
Washington, DC 20405

Additional information on the ITRB is available at www.itrb.gov

Arnold Bresnick
Chair
Information Technology Resources Board

ACKNOWLEDGEMENTS

Contents

Purpose

This Assessment Tool, which provides an evaluative framework and a checklist, has been developed by the Information Technology Resources Board (ITRB) to assist Federal government organizations in gaining a better understanding of how to strategically apply information technology to achieve their missions and deliver services and products. Mission performance and service delivery are top concerns for Federal agencies as compliance with the Clinger-Cohen and Government Performance and Results Acts requires a strong emphasis on performance improvement, accountability for achieving results, and cost efficiency. Technology is an essential enabler for these improvements.

This is an experienced-based instrument that incorporates key issues and experiences culled from ITRB assessments of major information systems and related processes. Designed for executives and other senior level members of agencies who rely on a specific IT system or an entire IT infrastructure to deliver services and products, this tool helps agency management understand how they are leveraging technology to improve mission accomplishment. The assessment can be used as an effective way to gauge perceptions of how well IT systems aid business performance.

The assessment tool was developed to focus on specific areas in need of attention. It provides value to respondents both by reading it and completing it. The assessment presents respondents with broad guidance with which to evaluate an organization from strategic, leadership and technology perspectives. Completion of an assessment will focus an organization on the key issues identified through the ITRB's experience.

This preview version of the Assessment Tool highlights the key issues identified through the ITRB's experience. Use of the instrument and feedback will further our collective knowledge in these areas.

Background

The ITRB was formalized in July 1996 by Executive Order 13011 to provide peer assessments of mission critical information systems by: identifying critical issues and findings; framing these in management and technical perspectives; and by recommending actions to mitigate risks or resolve issues. ITRB members are experienced practitioners from across the Federal government who bring broad program, technical, and acquisition management expertise to managing and developing major IT systems. The ITRB's activities promote measurable improvements in mission performance and service delivery through the strategic application of information technology.

Assessment Framework

The assessment framework includes three broad perspectives: strategy, leadership, and technology. Within the strategy section, respondents understand where an organization is going, and answer questions about mission, vision, customers, and business focus. Within the leadership section, respondents consider how an organization is guided and answer questions about executive direction, capital planning, project management, and performance management. Within the technology section, respondents assess how well an organization's systems support performance and answer questions about acquisition and architecture.

I.   Strategy
  Questions about where the organization is going.

- Mission and vision
- Customers
- Business Focus

II.   Leadership
  Questions about how the organization is guided.

- Executive Direction
- Capital Planning
- Project Management
- Performance Management

III.   Technology
  Questions about the organization's systems.

- Acquisition
- Architecture

Who Should Complete the Assessment

This assessment should be completed by Federal government executives, senior program and project managers, project management team members, as well as support contractor managers, support contractor team members, and customers (which may include internal and external customers, end-users, and stakeholders) who rely on Federal IT systems. If a question does not apply or the respondent doesn't know the answer, the question should be skipped.

DEFINITIONS

Customer: A direct or indirect beneficiary of a technology related process or program. May include internal and external customers, end-users, and stakeholders.

Top Executive: A member of executive management of a Federal agency (political or career).

Senior Manager: An official with general responsibility for a number of Federal programs or projects.

Program/Project Manager: One who is directly responsible for acquisition, service delivery, or operations.

Project Team Member: One who participates directly in the design, implementation, or maintenance of a Federal program or system.

Support Contractor Manager: One who leads a team of contractors responsible for acquisition, service delivery, or operations.

Support Contractor Team Member: A member of a contractor team who participates directly in the design, implementation or maintenance of a Federal program or system.

Respondents should answer questions for their selected role only. It is also important that for a specific assessment, all respondents answer their questions within the same context, either:

- A specific, identified IT system, or,

- The general IT infrastructure of an organization.

At various points in the assessment tool, respondents are prompted to answer certain questions *only if they influence key decisions about the use of technology in their selected respondent role.* Examples of such decisions include participation in:

- Capital investment decisions about technology

- Decisions about the acquisition strategy for technology

- A decision about whether a new technology is compliant with the agency architecture.

To increase candor, it is recommended that responses remain confidential.

Evaluating Results

Collecting, analyzing, and comparing results among respondents within an organization is highly recommended. The greatest value comes from comparing responses among all role respondents to obtain a clear picture of trends, patterns, and common themes. This provides useful insights into problem areas.

Because each agency is different, there is no single approach to ensure improvement. Issues highlighted in the assessment offer insight into the crucial steps that executives, managers, and organizations need to take to effectively address problem areas.

To understand the organizational impact of the responses, review the answers marked YES and NO on the completed assessment for each category within the three broad perspectives: strategy, leadership, and technology.

Strategy Results

If most of the responses were YES in the strategy section, this indicates that the organization has a solid grasp on how IT systems link to the agency's overall business objectives as articulated in the mission, vision, and respective management plans. This also would indicate that customers (which may include internal and external customers, end-users, and stakeholders) are well integrated into the process of determining the agency's strategic direction.

Carefully examine the topic areas where responses were NO to find those that will require additional attention. If most responses were NO, then more attention should focus on clarifying the agency mission and vision. Examine the customer communications and feedback processes to strengthen their role in mission accomplishment, and further clarify business objectives and priorities.

Leadership Results

If most of the responses were YES in the leadership section, this indicates that the organization is being guided and managed effectively in the critical areas identified. Leaders of the agency are integrating its business priorities through established processes for managing technology and technology performance.

Carefully examine the topic areas where responses were NO to find those that will require further attention. If most responses were NO, then more attention should be focused on whether agency leaders are managing the business effectiveness of information technology. Focus on capital planning and reevaluate processes for making significant technology investments that support mission achievement.

Project management and performance management processes should be examined. Agency leadership should identify issues with existing or developing performance measures to strengthen performance management systems. Agency leadership should also identify issues around how projects are chosen, whether they support the agency mission and performance goals, and whether the organization's leaders are significantly involved in choosing and monitoring projects.

Technology Results

If most of the responses were YES in the technology section, this indicates that the agency is effectively integrating its business processes and goals with its information technology architecture. In addition, acquisition and contract administration processes are playing an effective role in acquiring and managing IT systems.

Carefully examine the topic areas where responses were NO to find those that will require additional attention. If most responses were NO, take a closer look at acquisition processes to gauge whether the agency's vision is reflected in clearly defined requirements and deliverables. Examine the agency's IT architecture to discern how well it focuses on work processes, information flows, and technical standards to provide services that achieve the agency's business objectives.

Strategy

Mission and Vision

A clearly articulated mission and vision statement conveys what the agency does and for whom, and maps where or what the agency would like to be in the future. A strong vision describes how the agency will accomplish its overall mission.

DEFINITIONS

Agency: An administrative division of the government.

Business Plan: A plan developed to implement the strategic goals and objectives of a strategic plan at the business unit level of the organization.

Chief Information Officer (CIO): The executive primarily responsible for all IT concerns throughout the agency, including information resource management, IT capital planning, IT change management, and various other management and technical functions related to information technology.

Customer: A direct or indirect beneficiary of a technology-related process or program. May include internal and external customers, end-users, and stakeholders.

IT Architecture: The documentation of relationships among business and management processes and IT that ensures: 1) alignment of information requirements with the processes that support the agency's mission; 2) adequate interoperability, redundancy, and security of information systems; and 3) the application and maintenance of a collection of standards (including technical standards) by which the agency evaluates and acquires new systems.

IT Strategic Plan: A document that outlines how IT investments and initiatives support the agency's mission and business objectives.

Mission: An enduring statement of purpose, the agency's reason for existence. Describes what the agency does, who it does it for, and how it does it.

Organization: An agency component or entity that has oversight responsibility for one or more business units, each of which has purview over the activities of a number of projects.

Strategic Plan: A document that includes a comprehensive mission statement based on the agency's statutory requirements, a set of outcome-related strategic goals, and a description of how the agency intends to achieve these goals.

Vision: A view of a desirable and potentially achievable future state - where or what the agency would like to be in the future.

Questions 1 through 14 are intended for all respondents.

In the agency:

1. Is the mission clearly defined?
2. Is the vision clearly defined?
3. Is there a clearly understood strategic planning process?
4. Is there a strategic plan?
5. Is the strategic plan being implemented?
6. Does the strategic plan focus on desired outcomes?
7. Do you believe that the vision articulated is realistic?
8. Are performance goals clearly articulated in its strategic plan?

1. Yes__ No__
2. Yes__ No__
3. Yes__ No__
4. Yes__ No__
5. Yes__ No__
6. Yes__ No__
7. Yes__ No__
8. Yes__ No__

9. Do you understand the performance measures that will be used to gauge achievement of desired outcomes? | 9. Yes__ No__

10. Have customers been included in the development of the vision? | 10. Yes__ No__

11. Has your input been solicited in the strategic planning process? | 11. Yes__ No__

12. Should your input have been solicited in the strategic planning process? | 12. Yes__ No__

13. Have customers been included in the strategic planning process? | 13. Yes__ No__

14. Has implementation of the strategic plan produced tangible results? | 14. Yes__ No__

Questions 15 through 25 are intended for all top executives, senior managers, program/project managers, project team members, support contractor managers, and support contractor team members.

15. Does the organization's strategic plan focus on desired outcomes? | 15. Yes__ No__

16. Do the organization's functions contribute to the agency's desired outcomes? | 16. Yes__ No__

17. Is it clear who is responsible for implementing the functions articulated in the agency's strategic plan? | 17. Yes__ No__

18. Does the organization have performance measures to gauge achievement of desired outcomes? | 18. Yes__ No__

19. Is the organization's strategic plan defined by and linked to the agency's strategic plan? | 19. Yes__ No__

20. Does the agency have a business plan which identifies services and functions that must be performed to achieve outcomes defined in the strategic plan? | 20. Yes__ No__

21. Does the business plan reflect the agency's vision? | 21. Yes__ No__

22. Does the organization's strategic plan impact resource allocation and decision making? | 22. Yes__ No__

23. Are day-to-day decisions and resource allocations driven by the priorities of the agency's strategic and business plans? | 23. Yes__ No__

24. Does the organization have a process for responding to changing mission needs or customer requirements? | 24. Yes__ No__

25. Has implementation of the strategic plan produced tangible improvements in organizational decision-making? | 25. Yes__ No__

Questions 26 through 37 are intended for all respondents who influence key technical decisions.

26. Does the agency have an IT strategic plan? | 26. Yes__ No__

27. Is the agency's IT strategic plan linked to and guided by its strategic plan? | 27. Yes__ No__

28. Has your input been solicited in the IT strategic planning process? | 28. Yes__ No__

29. Should your input have been solicited in the IT strategic planning process? | 29. Yes__ No__

30. Have customers been included in the IT strategic planning process?   30. Yes__ No__

31. Does the agency have a CIO?   31. Yes__ No__

32. Did the CIO coordinate the development of the IT strategic plan?   32. Yes__ No__

33. Have the agency's organizations contributed to the IT strategic plan?   33. Yes__ No__

34. Do you believe that the IT strategy is realistic?   34. Yes__ No__

35. Are IT projects prioritized based on their contributions to the agency's business priorities as spelled out in the strategic plan?   35. Yes__ No__

36. Does the target IT architecture reflect the agency's strategic goals?   36. Yes__ No__

37. Has implementation of the IT strategic plan produced tangible improvements in IT practices?   37. Yes__ No__

Customers

Successful agencies recognize that customers are the driving force behind the strategic direction of the agency's future. Therefore, it is important to understand customers' needs and requirements and how programs and systems can be designed to reflect those needs. Frequent communication with customers provides a process for regular, structured feedback and provides a forum for discussing mutual expectations about the agency's future direction.

DEFINITIONS

Agency: An administrative division of the government.

Baseline: The initial collection of data which establishes a basis for comparison.

Benchmarking: An analytical process of measuring the performance of activities against the performance of similar activities in internal and external organizations considered to be the "best in class".

Customer: A direct or indirect beneficiary of a technology-related process or program. May include internal and external customers, end-users, and stakeholders.

Mission: An enduring statement of purpose, the agency's reason for existence. Describes what the agency does, who it does it for, and how it does it.

Organization: An agency component or entity that has oversight responsibility for one or more business units, each of which has purview over the activities of a number of projects.

Strategic Plan: A document that includes a comprehensive mission statement based on the agency's statutory requirements, a set of outcome-related strategic goals, and a description of how the agency intends to achieve these goals.

Vision: A view of a desirable and potentially achievable future state - where or what the agency would like to be in the future.

Questions 1 through 12 are intended for all respondents.

In the agency:

1. Is there a clear understanding of who the customers are? — 1. Yes__ No__
2. Is there a clear understanding of customers' expectations throughout its organizations? — 2. Yes__ No__
3. Does it meet customers' expectations? — 3. Yes__ No__
4. Are customers' priorities and requirements reflected in its strategic plan? — 4. Yes__ No__
5. Is there a clear process for soliciting customers' input and feedback? — 5. Yes__ No__
6. Do you believe there is a clear process for incorporating customers' input into the strategic plan? — 6. Yes__ No__
7. Does the feedback process communicate customers' unmet needs? — 7. Yes__ No__
8. Does the feedback process communicate customers' future needs? — 8. Yes__ No__
9. Do you believe customer service is embedded within the mission and vision? — 9. Yes__ No__
10. Are business objectives prioritized based on their impact upon customers? — 10. Yes__ No__
11. Is customer feedback solicited on a frequent basis? — 11. Yes__ No__
12. Are changes in strategic directions shared with customers? — 12. Yes__ No__

13. Does the agency have a plan to educate customers regarding its capabilities, expertise, and products and services?

14. Are customers represented in the strategic planning process?

15. Do you communicate the agency's mission and vision to employees and customers?

16. Are customers' priorities articulated in programmatic priorities throughout all levels of the agency?

17. Are service delivery processes changed as necessary to better and more efficiently meet customers' needs?

18. Does the organization have a process for responding to customers' changing needs?

19. Is benchmarking incorporated as a step in changing service delivery to customers?

20. Do front-line employees have access to information about customers' needs?

21. Is there a process to baseline and measure service delivery to customers?

13. Yes__ No__

14. Yes__ No__

15. Yes__ No__

16. Yes__ No__

17. Yes__ No__

18. Yes__ No__

19. Yes__ No__

20. Yes__ No__

21. Yes__ No__

Questions 22 through 26 are intended for all respondents who influence key technical decisions.

22. Do formal processes incorporate customers' requirements into projects on a periodic basis?

23. Is there a process for communicating changes, delays and new IT developments to customers?

24. Do formal processes survey user feedback on systems testing and implementation?

25. Are system developers required to understand user requirements?

26. Do development projects include the enabling technology needed to improve customer service?

22. Yes__ No__

23. Yes__ No__

24. Yes__ No__

25. Yes__ No__

26. Yes__ No__

Business Focus

Technology should emphasize business value and solutions rather than technical sophistication. While technology may drive changes in business processes, it is important that these changes are prioritized for the benefits they bring to a process, not simply because they are technically attractive.

DEFINITIONS

Agency: An administrative division of the government.

Business Plan: A plan developed to implement the strategic goals and objectives of a strategic plan at the business unit level of the organization.

Concept of Operations: A document that describes the business model, layout and relationship of systems, communications and the technical architecture, and responsibilities for implementing and managing the architecture.

Customer: A direct or indirect beneficiary of a technology-related process or program. May include internal and external customers, end-users, and stakeholders.

IT Architecture: The documentation of relationships among business and management processes and IT that ensures: 1) alignment of information requirements with the processes that support the agency's mission; 2) adequate interoperability, redundancy, and security of information systems; and 3) the application and maintenance of a collection of standards (including technical standards) by which the agency evaluates and acquires new systems.

Organization: An agency component or entity that has oversight responsibility for one or more business units, each of which has purview over the activities of a number of projects.

Questions 1 through 6 are intended for all respondents.

In the agency:

1. Have business objectives that are critical for success been prioritized?   1. Yes__ No__

2. Have you been informed of these business objectives?   2. Yes__ No__

3. Are the objectives accurately reflected in the business plan?   3. Yes__ No__

4. Do you agree with the way in which critical business objectives have been prioritized?   4. Yes__ No__

5. When requirements change, are customers told how these changes will be reflected in IT systems?   5. Yes__ No__

6. Do the IT systems usually achieve expected business results for customers?   6. Yes__ No__

Questions 7 through 11 are intended for all top executives, senior managers, program/project managers, project team members, support contractor managers, and support contractor team members.

7. Do members of the organization understand how technology meets critical business objectives?   7. Yes__ No__

8. Do high priority business requirements drive the completion of the agency's IT systems?   8. Yes__ No__

9. Are IT systems incrementally implemented?	9. Yes__ No__
10. Do solutions for satisfying business requirements routinely push the technical "bleeding edge"?	10. Yes__ No__
11. Do solutions for satisfying business requirements take advantage of reliable, road-tested options?	11. Yes__ No__

Questions 12 through 19 are intended for all respondents who influence key technical decisions.

12. Is there an agency-wide IT strategy?	12. Yes__ No__
13. Is there an organizational IT strategy?	13. Yes__ No__
14. Are IT projects defined in such a way that they support the agency's strategic direction?	14. Yes__ No__
15. Do projects have a detailed concept of operations?	15. Yes__ No__
16. Are technical requirements for projects driven by business objectives?	16. Yes__ No__
17. Do the agency's business objectives strive to implement architectures which support technical standards?	17. Yes__ No__
18. Does incremental system implementation provide usable levels of functionality to support specific business objectives?	18. Yes__ No__
19. Do project-level technical architectures ensure consistency with the overall agency IT architecture?	19. Yes__ No__

Leadership

Executive Direction

Agency executives are responsible for ensuring that the agency achieves its mission. To get results, executives must mobilize staff, manage resources, engage constituencies and customers, supervise work operations, and oversee an array of management processes. Among agency executives, the Chief Information Officer and Chief Financial Officer have important responsibilities for ensuring that the agency makes effective use of information technology. Their responsibilities converge in a number of areas, such as IT capital planning, financial transaction processing, and human resource management. Complex converging leadership responsibilities make it particularly critical for agency executives to communicate and cooperate effectively.

DEFINITIONS

Agency: An administrative division of the government.

Career Development Plan: An organization's formal system for facilitating skills acquisition and occupational advancement among its employees.

Chief Information Officer (CIO): The executive primarily responsible for all IT concerns throughout the agency, including information resource management, IT capital planning, IT change management, and various other management and technical functions related to information technology.

Chief Financial Officer (CFO): The executive primarily responsible for all fiscal concerns throughout the agency, including budgeting, financing, capital planning, accounting, transaction processing, and various management functions related to financial matters.

Independent Validation and Verification (IV&V): The task of reviewing a contractor's product, development processes, or management capacity, to ensure all requirements are met. The task is carried out by a separate contractor or other autonomous and independent entity.

Milestone: A planned event in systems development when major activities are to be completed and/or upper management is scheduled to make a set of critical decisions.

Mission: An enduring statement of purpose, the agency's reason for existence. Describes what the agency does, who it does it for, and how it does it.

Organization: An agency component or entity that has oversight responsibility for one or more business units, each of which has purview over the activities of a number of projects.

Questions 1 through 4 are intended for all respondents.

In the agency:

1.	Do top executives display ongoing involvement in systems development and acquisition?	1. Yes__ No__
2.	Do top executives set out a clear definition of what constitutes success?	2. Yes__ No__
3.	Do top executives communicate their decisions effectively to individuals outside the agency?	3. Yes__ No__
4.	Are top executives held responsible for achieving results?	4. Yes__ No__

Questions 5 through 25 are intended for all top executives, senior managers, and program/project managers, project team members, support contractor managers, and support contractor team members.

5. Does the CIO have the necessary authority and visibility to oversee all IT decisions?

    5. Yes__ No__

6. Does the CIO decide which new technologies to pursue?

    6. Yes__ No__

7. Does the CIO decide which legacy technologies to maintain?

    7. Yes__ No__

8. Do the CIO and CFO ensure that business objectives take precedence over technological advances?

    8. Yes__ No__

9. Does the CIO require architectural compliance across the agency?

    9. Yes__ No__

10. Does the CIO ensure that organizations receive enough technical support to accomplish agency business priorities?

    10. Yes__ No__

11. Is there a productive working relationship between the CIO and the CFO?

    11. Yes__ No__

12. Is there a productive working relationship among the chief executives in the agency?

    12. Yes__ No__

13. Do executives build consensus effectively?

    13. Yes__ No__

14. Do executives take well-considered risks?

    14. Yes__ No__

15. Do executives encourage learning and prudent risk-taking?

    15. Yes__ No__

16. Do executives hold project managers responsible for achieving results?

    16. Yes__ No__

17. Do executives enable project managers to communicate effectively about project status?

    17. Yes__ No__

18. Do executives encourage people to report minor problems before they become major problems?

    18. Yes__ No__

19. Do critical projects receive the executive attention they need?

    19. Yes__ No__

20. Does the agency make IT decisions with a reasonable degree of consensus?

    20. Yes__ No__

21. Do top executives communicate their decisions effectively to individuals within the agency?

    21. Yes__ No__

22. Is there a top executive to serve as IT project sponsor for key projects?

    22. Yes__ No__

23. Do executives effectively plan and manage workforce needs?

    23. Yes__ No__

24. Do executives have an effective IT procurement strategy?

    24. Yes__ No__

25. Do executives use key milestones for making critical "go/no-go" decisions?

    25. Yes__ No__

Questions 26 through 38 are intended for all project team members, support contractor managers, and support contractor team members.

26. Do executives ensure that IT project teams have the personnel and resources they need to succeed?

26. Yes__ No__

27. Do executives use formal career development plans to guide employees' training?

27. Yes__ No__

28. Do executives align employees' career development with IT project needs?

28. Yes__ No__

29. Do executives ensure that IT project teams are stable over time?

29. Yes__ No__

30. Do executives have a good understanding of productivity levels among IT project teams?

30. Yes__ No__

31. Do executives conduct effective program reviews?

31. Yes__ No__

32. Do executives have the necessary expertise to make sound decisions about IT projects and acquisition?

32. Yes__ No__

33. Is it clear who is responsible for making major technical decisions?

33. Yes__ No__

34. Do executives encourage effective communication among individuals involved in systems development and those involved in procurement?

34. Yes__ No__

35. Do executives ensure that individuals responsible for managing IT systems contracts are trained in managing such contracts?

35. Yes__ No__

36. Do executives appropriately rely on contractors?

36. Yes__ No__

37. Has the agency identified those technical concerns it will address and those its contractors will address?

37. Yes__ No__

38. Is management well informed about contract changes?

38. Yes__ No__

Questions 39 through 43 are intended for all respondents who influence key technical decisions.

39. Do IT decision-makers consider the tradeoffs among time, cost and quality that will be encountered in meeting various development requirements?

39. Yes__ No__

40. Do executives select IT project managers with sufficient experience to do their jobs well?

40. Yes__ No__

41. Do executives select IT project managers with sufficient technical knowledge?

41. Yes__ No__

42. Does the organization contract for IV&V on IT projects?

42. Yes__ No__

43. Do executives consider the advice of IV&V contractors?

43. Yes__ No__

Capital Planning

Capital planning is a collective decision-making process for ensuring that IT investments integrate strategic planning, budgeting, procurement, and IT management in accordance with the agency's business objectives. Participation by high-level agency managers and functional level IT executives is critical for successful capital planning. These key contributors facilitate decision-making about IT investments through a formal systematic process that determines priorities for making funding decisions. An effective capital planning process requires long range planning and a disciplined budget process as the basis for managing a portfolio of capital assets to achieve performance goals with the lowest lifecycle costs and the least risk.

DEFINITIONS

Agency: An administrative division of the government.

Capital Plan: A document that identifies existing and proposed capital assets, and provides justification for new capital funding. The capital plan includes a statement of the agency's strategic plan, description of assets already owned or being procured, an analysis detailing the performance gap between existing capabilities and the goals and objectives highlighted in the strategic plan, justification for new capital acquisitions proposed for funding, and other related information.

Chief Information Officer (CIO): The executive primarily responsible for all IT concerns throughout the agency, including information resource management, IT capital planning, IT change management, and various other management and technical functions related to information technology.

Chief Financial Officer (CFO): The executive primarily responsible for all fiscal concerns throughout the agency, including budgeting, financing, capital planning, accounting, transaction processing, and various management functions related to financial matters.

Commercial-off-the-Shelf (COTS): Software developed by independent firms or organizations for wide-scale use throughout an industry. Use of COTS may be preferable to use of customized software, either due to shorter time to implementation, conformity with prevalent industry standards, or association with broad-based training or maintenance services.

Investment Review Board (IRB): A group of agency executives responsible for making decisions about IT projects and systems, based on comparisons and trade-offs related to benefits versus risks between competing projects, and an emphasis on meeting mission needs and improving organizational performance.

IT Architecture: The documentation of relationships among business and management processes and IT that ensures: 1) alignment of information requirements with the processes that support the agency's mission; 2) adequate interoperability, redundancy, and security of information systems; and 3) the application and maintenance of a collection of standards (including technical standards) by which the agency evaluates and acquires new systems.

Lifecycle Cost: The overall estimated cost for a specific program alternative over the time period corresponding to the life of the program, including direct and indirect initial costs, plus any periodic or continuing costs for operation and maintenance.

Milestone: A planned event in systems development when upper management is scheduled to make a set of critical decisions.

Mission: An enduring statement of purpose, the agency's reason for existence. Describes what the agency does, who it does it for, and how it does it.

Project Lifecycle: An organizing structure with which to align project objectives with appropriate technologies and resources.
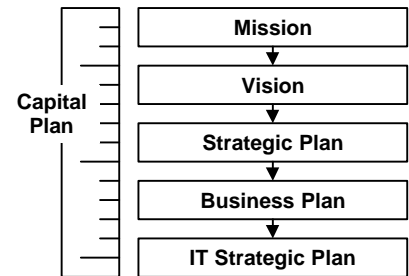
Questions 1 through 4 are intended for all respondents.

In the agency:

1. Do IT investments reflect business priorities?

    1. Yes__ No__

2. Does the capital planning process establish an explicit link between plans and the IT architecture?

3. Do you believe the IT investments are reasonable given the expected improvements in mission performance?

4. Are the individuals with responsibility and authority for making final IT-related funding decisions clearly defined?

Questions 5 through 16 are intended for all top executives, senior managers, and program/project managers.

5. Does the agency have an IRB?

6. Does the IRB include senior representatives from across the agency, including the CIO and CFO?

7. Does the IRB make decisions based upon business priorities?

8. Is it clear which projects the IRB is required to review?

9. Does the IRB review all major IT investments?

10. Does the IRB make timely decisions concerning the funding of competing priorities?

11. Does the IRB consider benefits, costs, and risks of competing initiatives?

12. Are the decisions and action items of the IRB well communicated to project teams?

13. Do project teams execute the decisions of the IRB?

14. Does the capital planning process encourage necessary business process revisions before making IT investments?

15. Are standardized criteria used to compare IT investments?

16. Does the outcome of the capital planning process result in changes to projects throughout their lifecycle?

Questions 17 through 22 are intended for all respondents who influence key technical decisions.

17. Within the capital planning process, are there approval thresholds that lead to decisions about allocating resources?

18. Does the capital planning process include clearly defined approval thresholds that channel project decisions to the appropriate levels in the agency?

19. Are competing opportunities for technology investments prioritized to effectively allocate limited funds?

20. Does the agency have a clear process for communicating decisions about IT spending?

21. Does the agency have an accurate portfolio of its existing systems and applications, including an identification of their related costs and organizational benefits?

22. Are technology contracts structured with sufficient flexibility to be modified as necessary over time?

2. Yes__ No__

3. Yes__ No__

4. Yes__ No__

5. Yes__ No__

6. Yes__ No__

7. Yes__ No__

8. Yes__ No__

9. Yes__ No__

10. Yes__ No__

11. Yes__ No__

12. Yes__ No__

13. Yes__ No__

14. Yes__ No__

15. Yes__ No__

16. Yes__ No__

17. Yes__ No__

18. Yes__ No__

19. Yes__ No__

20. Yes__ No__

21. Yes__ No__

22. Yes__ No__

Questions 23 through 37 are intended for all program/project managers, project team members, support contractor managers, and support contractor team members.

23. Does the outcome of the capital planning process result in fulfillment of IT needs?	23. Yes__ No__
24. Are requirements sufficiently defined to enable accurate cost estimate?	24. Yes__ No__
25. Do you find estimates of costs and benefits to be reliable, accurate, and up-to-date?	25. Yes__ No__
26. Are costs and benefits estimates sufficiently reliable for use in capital investment decisions?	26. Yes__ No__
27. Do capital investment decisions link to project management milestones?	27. Yes__ No__
28. Are projected costs and benefits validated and updated throughout the life of investment decision making?	28. Yes__ No__
29. Does the capital planning process effectively control costs?	29. Yes__ No__
30. Do IT contracts have milestones that require management decision making?	30. Yes__ No__
31. Are milestone decisions incorporated into the capital planning process?	31. Yes__ No__
32. Is risk analysis employed for major projects?	32. Yes__ No__
33. Are the results of risk analysis incorporated into the capital planning process?	33. Yes__ No__
34. Do IT projects consider the use of COTS?	34. Yes__ No__
35. Do IT projects explore different approaches to find alternatives that lower risk and reduce cost?	35. Yes__ No__
36. Are the results of exploring alternatives considered or incorporated in the capital planning process?	36. Yes__ No__
37. Does the agency's capital planning process incorporate *actual* results to evaluate IT projects?	37. Yes__ No__

Project Management

Project management is the rigorous discipline of planning, directing and controlling resources for a relatively short-term objective that is established to complete specific goals. Project management includes planning and implementing within a designated cost and schedule, and at a desired performance and technology level. The practice of project management can focus efforts on the agency mission by aligning project priorities, leveraging resources, and delivering services and products to customers. A successful project translates a broad public mission into concrete results and outcomes. Therefore, an effective project manager must possess a broad range of competencies including: project integration management, project scope management, project time management, project cost management, project quality management, project human resource management, project communications management, project risk management and project procurement management.

DEFINITIONS

Chief Information Officer (CIO): The executive primarily responsible for all IT concerns throughout the agency, including information resource management, IT capital planning, IT change management, and various other management and technical functions related to information technology.

Customer: A direct or indirect beneficiary of a technology-related process or program. May include internal and external customers, end-users, and stakeholders.

Milestone: A planned event in systems development when major events are to be completed and/or upper management is scheduled to make a set of critical decisions.

Organization: An agency component or entity that has oversight responsibility for one or more business units, each of which has purview over the activities of a number of projects.

Project: A series of activities and tasks that have a specific objective to be completed within certain parameters, have defined start and end dates, have funding limits and consume resources.

Project Lifecycle: An organizing structure with which to align project objectives with appropriate technologies and resources.

Project Plan: A document that formally captures agreements among customers (including internal and external customers, end-users, and stakeholders) and project participants. A project plan ensures that a project will meet expected results and helps align the project with the organization's business plans and supporting IT plans.

Work Breakdown Structure: A deliverable-oriented grouping of project elements which organizes and defines the total scope of a project.

Questions 1 through 6 are intended for all respondents.

1. Do you perceive IT projects are managed in a standardized, rigorous way?   1. Yes__ No__

2. Do customers participate in the development of the scope of IT projects?   2. Yes__ No__

3. Are processes for reaching agreements with customers effective?   3. Yes__ No__

4. Do project managers work with customers to reach mutually agreeable decisions about IT projects?   4. Yes__ No__

5. Are customers appropriately involved throughout the project lifecycle?   5. Yes__ No__

6. Does clear communication exist about changes, delays and new developments for IT projects? (e.g., changes in cost, schedule and budget)   6. Yes__ No__

Questions 7 through 10 are intended for all top executives and senior managers.

7. Is a set of progress indicators visible to key customers during an IT project lifecycle?

    7. Yes___ No___

8. Are project managers accountable for the results of IT projects?

    8. Yes___ No___

9. Are project briefings held with agency leadership and customers?

    9. Yes___ No___

10. Is management receptive to communication from project team members?

    10. Yes___ No___

Questions 11 through 22 are intended for all program/project managers, project team members, support contractor managers, and support contractor team members.

11. Are standardized project management processes and techniques effectively applied to IT projects?

    11. Yes___ No___

12. Are deliverables that are referenced in a statement of work reflected in an associated project plan?

    12. Yes___ No___

13. Does a project plan typically include the endorsement of key customers?

    13. Yes___ No___

14. Are project plans modified if a project encounters significant changes?

    14. Yes___ No___

15. Are estimated durations and costs compared to actual durations and costs?

    15. Yes___ No___

16. Are work breakdown structures used to organize project activities and tasks?

    16. Yes___ No___

17. Are IT project expenditures periodically reviewed and compared to the projected budget?

    17. Yes___ No___

18. Do contingency plans exist for known high-risk areas?

    18. Yes___ No___

19. Are schedule and cost assumptions and constraints documented?

    19. Yes___ No___

20. Do IT projects define performance requirements and include a plan to achieve requirements?

    20. Yes___ No___

21. Is a set of progress indicators visible to key project team members during an IT project lifecycle?

    21. Yes___ No___

22. Do project managers track and review contractor performance and results?

    22. Yes___ No___

Questions 23 through 31 are intended for all respondents who influence key technical decisions.

23. Do project teams include a core group of individuals intended to stay with a project throughout its lifecycle?

23. Yes__ No__

24. Does the organization invest in building project management competencies in project managers and project team members?

24. Yes__ No__

25. Are lifecycle cost estimates and cost-benefit analyses used for project management decisions at major system milestones?

25. Yes__ No__

26. Are projects managed in such a way that "go/no-go" decisions may be made at highly visible milestones?

26. Yes__ No__

27. Are requirements defined so they can be thoroughly tested and validated?

27. Yes__ No__

28. Are configuration management processes used?

28. Yes__ No__

29. Does the project control methodology help align IT systems with the agency's business and IT plans?

29. Yes__ No__

30. Is progress on critical measures effectively communicated to upper management?

30. Yes__ No__

31. Does the CIO organization use performance data when making decisions and allocating resources for IT projects?

31. Yes__ No__

Performance Management

Performance and results-based management links IT projects to agency program improvement goals and objectives, as required by the Government Performance and Results Act, and the Clinger-Cohen Act. An effective performance management system includes a baseline of IT performance, clarifies the expected target performance, and identifies the process by which IT management and customers work together to improve IT performance in ways that will enhance mission delivery. Measures provide input to resource allocation and planning, and are used to provide periodic feedback to employees and customers about the quality, quantity, cost, and timeliness of IT products and services.

DEFINITIONS

Agency: An administrative division of the government.

Balanced Scorecard (BSC): A framework that helps organizations translate business strategies into action. Originally developed for private industry, the BSC balances short and long-term objectives. Private industry routinely uses financial measures to assess performance although financial measures focus only on the short-term, particularly the results of the last year or quarter. The BSC supplements financial measures with measures from three perspectives: Customer, Internal Business, and Innovation and Learning.

Chief Information Officer (CIO): The executive primarily responsible for all IT concerns throughout the agency, including information resource management, IT capital planning, IT change management, and various other management and technical functions related to information technology.

Customer: A direct or indirect beneficiary of a technology-related process or program. May include internal and external customers, end-users, and stakeholders.

Independent Validation and Verification (IV&V): The task of reviewing a contractor's product, development, processes, or management capacity, to ensure all requirements are met. The task is performed by a separate contractor, or other autonomous and independent entity.

Lifecycle Cost: The overall estimated cost for a program alternative over the time period corresponding to the life of the program, including direct and indirect initial costs, plus any subsequent costs for operation and maintenance.

Milestone: A planned event in systems development when major activities are to be completed or upper management is scheduled to make a set of critical decisions.

Mission: An enduring statement of purpose, the agency's reason for existence. Describes what the agency does, who it does it for, and how it does it.

Organization: An agency component or entity that has oversight responsibility for one or more business units, each of which has purview over the activities of a number of projects.

Performance Goal: A target level of an activity expressed as a tangible, measurable objective, against which achievement can be compared.

Performance Measure: A quantitative or qualitative characterization of performance.

Strategic Plan: A document that includes a comprehensive mission statement based on the agency's statutory requirements, a set of outcome-related strategic goals, and a description of how the agency intends to achieve these goals.

Vision: A view of a desirable and potentially achievable future state - where or what the agency would like to be in the future.

Questions 1 through 12 are intended for all respondents.

In the agency:

1. Does the strategic plan identify key performance measures?   1. Yes__ No__
2. Are performance measures, simple, understandable, and logical?   2. Yes__ No__

3. Does the organization use a formal performance measurement process?   3. Yes__ No__

4. Are performance measures focused on the critical few?   4. Yes__ No__

5. Are performance measures outcome-oriented vs. output-oriented?   5. Yes__ No__

6. Do performance measures reflect key business priorities?   6. Yes__ No__

7. Is a BSC approach that links key business priorities to organizational IT goals, objectives and measures followed?   7. Yes__ No__

8. Are employees and customers involved in the creation of performance measures that affect them?   8. Yes__ No__

9. Do performance measures support the mission and vision and their relationship with customers?   9. Yes__ No__

10. Do employees and customers understand key performance measures?   10. Yes__ No__

11. Are performance measures effectively communicated to employees and customers?   11. Yes__ No__

12. Are performance measures continually assessed to determine adequacy and proper focus?   12. Yes__ No__

Questions 13 through 30 are intended for all top executives, senior managers, program/project managers, project team members, support contractor managers, and support contractor team members.

In the organization:

13. Are performance goals and associated measures focused on program outcomes?   13. Yes__ No__

14. Are performance goals and associated measures linked to the IT strategic plan? (e.g., a BSC approach)   14. Yes__ No__

15. Is it well understood how IT projects contribute to performance goals?   15. Yes__ No__

16. Is the overall performance of the IT function evaluated as well as the outcomes of individual IT investments?   16. Yes__ No__

17. Do performance goals and measures reflect the agency's business priorities? (e.g., a BSC approach)   17. Yes__ No__

18. Are changes in business processes prototyped?   18. Yes__ No__

19. Are performance data effectively used to show how IT programs support the agency's business priorities?   19. Yes__ No__

20. Do performance measures drive IT planning and delivery?   20. Yes__ No__

21. Do performance data effectively measure customer satisfaction or dissatisfaction?   21. Yes__ No__

22. Do performance measures provide a clear relationship to stated programmatic and performance goals?   22. Yes__ No__

23. Are baseline or trend data for stated programmatic and performance goals captured?   23. Yes__ No__

24. Is progress being made toward key performance objectives?   24. Yes__ No__

25. Are IT systems reexamined over time to ensure they continue to support shifting performance goals and business priorities?   25. Yes__ No__

26. Are performance data accessible, reliable and collected in the least burdensome way?   26. Yes__ No__

27. Are analytic tools employed to facilitate effective performance analysis? 27. Yes__ No__

28. Are performance data used in resource allocation and other management decisions? 28. Yes__ No__

29. Do performance goals and measures address aspects of agency management problems that may be mission-critical? 29. Yes__ No__

30. Is the CIO actively involved in overseeing technology performance? 30. Yes__ No__

Questions 31 through 46 are intended for all respondents who influence key technical decisions.

31. Is there a consistent focus within the organization on strengthening the processes and practices used to deliver IT products and services? 31. Yes__ No__

32. Does the organization have prioritized measures of IT performance? 32. Yes__ No__

33. Are business and technical requirements linked to desired performance goals and measures? 33. Yes__ No__

34. Do you believe that performance measures for IT projects are sufficient given the organization's degree of risk? 34. Yes__ No__

35. Does the organization perform periodic cost-benefit analyses and lifecycle cost estimates for its systems? 35. Yes__ No__

36. Does the organization support an independently established performance model such as the Capability Maturity Model (CMM) or International Standards Organization (ISO) 9000? 36. Yes__ No__

37. Does the organization use change control methodology to capture and document requirements from customers? 37. Yes__ No__

38. Does the organization routinely apply IV&V during systems development? 38. Yes__ No__

39. Does the formal change control methodology applied to IT projects help align a system with the agency's business and IT plans? 39. Yes__ No__

40. Are lifecycle cost estimates and cost-benefit analyses performed on a periodic basis for IT projects? 40. Yes__ No__

41. Are lifecycle cost estimates and cost-benefit analyses used for critical decisions at major system milestones? 41. Yes__ No__

42. Are system requirements documented to ensure consistency with overall agency-level design? 42. Yes__ No__

43. Are actual performance data compared with estimates in IT project plans? 43. Yes__ No__

44. Are performance measures defined for IT projects for which project participants will be held responsible? 44. Yes__ No__

45. Does the CIO organization use performance data when making decisions and allocating resources? 45. Yes__ No__

46. Is the progress on critical measures effectively communicated to agency leadership? 46. Yes__ No__

Technology

Acquisition

The agency's strategic objectives drive its information technology acquisition practices. To develop, implement, and maintain effective IT systems and services, acquisition practices must translate the agency's vision into clearly defined requirements and deliverables. Over time, contract administration practices are critical for establishing routine linkages between acquisition activities and defined business needs. Acquisition and contract administration practices are becoming increasingly important as agencies seek to acquire not only technical systems and services, but core IT capabilities as well.

DEFINITIONS

Acquisition Process: A set of methods and practices used to acquire information systems and related services.

Chief Information Officer (CIO): The executive primarily responsible for all IT concerns throughout the agency, including information resource management, IT capital planning, IT change management, and various other management and technical functions related to information technology.

Contract: A binding agreement that establishes requirements for products and services to be acquired.

Independent Validation and Verification (IV&V): The task of reviewing a contractor's product, development processes, or management capacity, to ensure that the contractor is meeting all requirements. This function is performed by a separate contractor or other autonomous institution.

Milestone: A planned event in systems development when major activities are to be completed and/or upper management is scheduled to make a set of critical decisions.

Organization: An agency component or entity that has oversight responsibility for one or more business units, each of which has purview over the activities of a number of projects.

Solicitation: A formal process that leads to the selection of a contractor who is best capable of satisfying specific acquisition needs.

Questions 1 through 25 are intended for all top executives, senior managers, program/project managers, project team members, support contractor managers, and support contractor team members.

1. Do acquisition activities support strategic business objectives?   1. Yes__ No__

2. Is there a formal process for monitoring and overseeing contracts?   2. Yes__ No__

3. Are contracts monitored and controlled effectively?   3. Yes__ No__

4. Do contractors have the capacity to develop, test, and field a successful, high-quality system?   4. Yes__ No__

5. Is there a cooperative relationship between contractors and agency personnel?   5. Yes__ No__

6. Does the CIO exert sufficient influence over technical procurements?   6. Yes__ No__

7. Are top executives willing to make "go/no-go" decisions based on defined parameters?   7. Yes__ No__

8. Do contracting officers adequately represent the organization's business needs?   8. Yes__ No__

9. Does the organization provide adequate direction to the contractor?   9. Yes__ No__

10. Do project teams include contracting officers as members?   10. Yes__ No__

11. Do contracts define required milestones?   11. Yes__ No__

12. Are progress payments tied to milestone accomplishment?   12. Yes__ No__

13. Are contracts designed for modular delivery schedules?   13. Yes__ No__

14. Are fixed-price contracts used for the appropriate kinds of tasks?   14. Yes__ No__

15. Is there an effective process for developing, tracking and managing requirements?   15. Yes__ No__

16. Is there a process for handling contract changes?   16. Yes__ No__

17. Is IV&V testing usually conducted for each significant contract component?   17. Yes__ No__

18. Is there an effective process for determining award fees?   18. Yes__ No__

19. Does the organization make timely payments to the contractor?   19. Yes__ No__

20. Are actions imposed on organization officials who fail to meet contractual commitments?   20. Yes__ No__

21. Is there a process for reviewing the contractor's software engineering process and products?   21. Yes__ No__

22. Does the contractor have the right number and type of people assigned to the program?   22. Yes__ No__

23. Is there a fair process for ongoing evaluation of the contractor's performance?   23. Yes__ No__

24. Have contractors undergone independent reviews to determine the extent of their capabilities?   24. Yes__ No__

25. Are contractors' invoices timely and accurate?   25. Yes__ No__

Questions 26 through 34 are intended for support contractor managers.

26. Does the organization have enough executives with acquisition and contract experience?   26. Yes__ No__

27. Is there an effective process for contract solicitation?   27. Yes__ No__

28. Do solicitations and contracts lay out well-defined requirements?   28. Yes__ No__

29. Does each contract have an established configuration control process?   29. Yes__ No__

30. Is product delivery monitored effectively?   30. Yes__ No__

31. Are all products evaluated appropriately before acceptance?   31. Yes__ No__

32. Is there an effective process to ensure that mission-critical needs can be met in the event of contractor failure?   32. Yes__ No__

33. Are contract problems and issues recorded, tracked, and brought to closure?   33. Yes__ No__

34. Does the organization collaborate appropriately and adequately with the contractor?   34. Yes__ No__

Architecture

An IT architecture is a set of business processes, applications, data descriptions, technical infrastructure, and information flows and relationships organized to allow an organization to integrate its business processes and goals with its IT acquisition. The architecture focuses on work processes, information flows and technical standards to provide specific services and achieve specific strategic objectives. The CIO is primarily responsible for developing, implementing, and maintaining the agency's architecture.

DEFINITIONS

Agency: An administrative division of the government.

Architecture Standards: Mandatory requirements prescribing a disciplined, uniform approach to IT acquisition and development.

Commercial-off-the-Shelf (COTS): Software developed by independent firms or organizations for wide-scale use throughout an industry. Use of COTS may be preferable to use of customized software, either due to shorter time to implementation, conformity with prevalent industry standards, or association with broad-based training or maintenance services.

Concept of Operations: A document that clarifies the functions, roles, and responsibilities for implementation and management of the architecture.

IT Infrastructure: The set of commonly shared information and communication systems constituting the basic information technology environment within an organization.

Questions 1 through 5 are intended for all top executives, senior managers, program/project managers, project team members, support contractor managers, and support contractor team members.

In the agency:

1. Does the IT architecture support strategic business requirements?   1. Yes__ No__

2. Is compliance with the IT architecture required for approval of new initiatives through the capital planning process?   2. Yes__ No__

3. Are architecture standards effectively communicated?   3. Yes__ No__

4. Are architecture standards used to guide and prioritize acquisition of IT assets?   4. Yes__ No__

5. Is the architecture flexible enough to accommodate changes in business processes and technology over time?   5. Yes__ No__

Questions 6 through 25 are intended for all respondents who influence key technical decisions.

6. Is there a useful concept of operations that clarifies the functions, roles, and responsibilities for implementation and management of the architecture?   6. Yes__ No__

7. Are you familiar with the current architecture?   7. Yes__ No__

8. Is there an effective process in place for assessing the current status of the architecture?

8. Yes__ No__

9. Are new business functions prototyped and tested before being implemented in the architecture?

9. Yes__ No__

10. Are architecture standards used to integrate new systems into the existing environment?

10. Yes__ No__

11. Is there an effective process for establishing and refreshing architecture standards?

11. Yes__ No__

12. Is there an effective process for identifying and resolving deviations from architecture standards?

12. Yes__ No__

13. Do contractors generally comply with architecture standards?

13. Yes__ No__

14. Does the architecture minimize redundancy in data maintenance and development?

14. Yes__ No__

15. Does the architecture set out guidance on risks associated with the design?

15. Yes__ No__

16. Does the architecture set out guidance on risks associated with the size of the development effort?

16. Yes__ No__

17. Does the architecture set out guidance on risks associated with data standardization?

17. Yes__ No__

18. Does the architecture set out guidance on risks associated with external interfaces?

18. Yes__ No__

19. Is the architecture flexible enough to accommodate the demands of future development?

19. Yes__ No__

20. Are software developers using appropriate tools?

20. Yes__ No__

21. Is the appropriate kind of IT infrastructure in place?

21. Yes__ No__

22. Is sufficient attention being paid to COTS alternatives?

22. Yes__ No__

23. Is there an effective process for determining when new parts of the architecture are ready to be tested?

23. Yes__ No__

24. Is there an effective process for testing parts of the architecture?

24. Yes__ No__

25. Is the architecture sufficiently open to allow migration to new platforms and insertion of new technologies?

25. Yes__ No__