

State strategic information system plans

An assessment integrating strategy and operations through performance measurement

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Abstract

Purpose – The purpose of this paper is to examine US state strategic plans for e-government (or information technology), identify their strengths and weaknesses, and presents best practices for both practitioners and scholars interested in improving state strategic plans for information technology.

Design/methodology/approach – The research analyzes the e-government strategic plans, based on a content analysis using a rubric consisting of 15 questions.

Findings – The findings suggest that of the state information system plans reviewed – Michigan, Virginia, and Massachusetts are the most comprehensive. Overall, the state plans were effective in developing strategies and core beliefs, and assessing their strengths and opportunities, while less successful in recognizing weakness and threats.

Research limitations/implications – This study builds on existing research examining strategic information systems plans in US states and assesses the extent to which each plan addresses established criteria for developing strategic plans. This study also attempts to fill the need for more data and empirical evidence in the development of literature in strategic planning and performance measurement.

Practical implications – The research employs a public sector approach to strategic planning, and while the process is not specific to information systems it is comprehensive in its approach, grounded in literature, and offers guidance to public sector leaders in planning for investments in information systems and technology.

Originality/value – The conclusion offers suggestions for both public administration practitioners and scholars interested in improving state strategic plans for information technology.

Keywords Strategic planning, Information technology, US states

Paper type Research paper



Introduction

In 2010 Public Administration Review published a supplemental issue focussed on the future of public administration. While the issue was vast in coverage, two topics emerged as essential aspects of the future of public administration: strategic planning and performance measurement. Bridging these management tools in an operational sense has

been implied by some (Boyne and Walker, 2010) and explicitly called for by others (Poister, 2010). Boyne and Walker (2010) write, "Studies of strategic management and performance require substantial development over the next decade: this will require more theory, more data and more empirical evidence from a variety of locations" (p. 189). Poister echoes this notion and suggests a more operational focus in linking these two tools, "More immediate, however, public managers need to link strategic planning much more closely with performance management processes in response to continued pressure for accountability as well as their own commitment to managing for results" (p. 249). In this paper we take a small step toward bridging the gap between strategic planning and performance measurement. This study ventures to answer Boyne and Walker's call for more data and empirical evidence. Here, the authors assess how comprehensively states have formulated existing strategic plans and to what extent they have identified all factors that inform appropriate performance metrics.

Performance measurement advocates call for performance dashboards or strategic performance measures. At the same time, strategic management proponents favor higher, enterprise-level goals, and appropriate organizational objectives, with which outputs and outcomes must be matched. Examining the intersection between strategy and performance measurement requires identification of how both are applied in public organizations. Operational performance measurement systems require effective strategies for guidance, while the attainment of strategic planning goals must be determined through measurement. In the end, strategic planning and performance measurement initiatives are dependent on each other's success.

The purpose of this research is to assess the comprehensiveness of state strategic plans for information technology. In determining the comprehensiveness of state strategic information systems plans, this research considers the question of whether state strategic information systems plans integrate strategy and performance measurement. The linkage between strategy and performance occurs as part of integrated strategic and operational planning process as states move from the stage of strategy formulation to implementation and evaluation.

As a result, well-developed and comprehensive strategic planning efforts reflect the vision of policy makers, engage stakeholders, while also resulting in implementable objectives that are measurable for the purposes of evaluation. In order to critically assess state strategic plans for information technology, this research examines relevant strategic management and performance measurement scholarship in the field of public administration. After reviewing literature in strategy and performance, it is necessary to review the application of strategic planning to information systems and digital government in the public sector. Accordingly, the paper reviews relevant research in strategic information systems planning (SISP) and e-government, followed by an examination of the state strategic plans for information technology. The research identifies strategic information systems plans from 30 of the 50 US states and evaluates the plans using a rubric consisting of 15 questions. The link between strategy and operations is examined through an assessment of the implementation and evaluation sections of the plans.

Literature review

This research builds on existing research examining strategic information systems plans in US states (Yang and Melitski, 2007) and assesses the extent to which each plan addresses the criteria established for developing strategic plans (Bryson, 2011). The literature review examines research in strategic planning, SISP, e-government, and applies the literature to an assessment of strategic information system plans in US states.

Integrating strategy and performance

In basic terms, strategic planning in the public sector is defined as “a deliberative, disciplined effort to produce fundamental decisions and actions that shape and guide what an organization is, what it does and why it does it” (Bryson, 2011, p. 6). Strategic planning in the public sector allows leaders to establish a clear vision for an organization’s future and set measurable goals for improving organizations and achieving a shared vision. The strategic planning process challenges organizations to critically examine their environmental by assessing internal strengths and weaknesses, as well as external opportunities and threats. As part of assessing the internal and external environment, organizations create strategies for leveraging organizational strengths and opportunities, while minimizing weaknesses and threats. Ideally, the result is a roadmap of measurable strategies for attaining organizational goals and improving performance.

Early calls for strategic planning in the public sector date back three decades (Eadie, 1983), and tangible guidance for public administrators who acknowledge the differences between public and private organizations followed soon thereafter (Bryson, 1988). On the state level, Berry (1994) was first to explore the adoption of strategic planning, concluding that states are most likely to adopt under four conditions: “(1) early in gubernatorial administrations, (2) under conditions of strong fiscal health, (3) when agencies work closely with private sector businesses, and (4) as the number of neighboring state agencies that have already adopted strategic planning increases” (p. 322). At the federal level, the 1993 Government Performance Results Act institutionalized strategic planning by requiring that cabinet-level agencies develop strategic plans. Since then, such strategic planning has been a mainstay for practitioners and scholars in public administration.

Scholarly research examines by emphasizing the integration of implementation with the process of strategy formulation (Mintzberg, 1994). Early scholars of strategic management clearly link strategy and implementation, while also recommending a division of labor. For example Ansoff (1984) mimics early calls for neutral competence in the public sector by recommending that executive leadership should develop organizational strategies, while delegating implementation to lower levels of the organization. More recently, strategic management advocates have come to recognize the importance of engaging stakeholders throughout the process of both strategy development and implementation (Bryson, 2011). Such calls are similar to implementation theorists who assert that the individuals responsible for implementing policy need to be included in the policy formulation process (Pressman and Wildavsky, 1973).

In recent years, the public performance measurement movement has suggested dashboard approaches to evaluating agency performance; that is, strategic performance reports used by executives to evaluate the success of their organization. At the heart of dashboard approaches are a few strategic performance measures employed by decision makers to evaluate performance, garner feedback, and adjust priorities. In the private sector, for example, Walt Disney famously had a handful of indicators given to him monthly on an index card that told him whether to expend energy on Disney’s creative endeavors or its day-to-day administrative and financial operations (Thomas, 1994). Current public sector dashboard approaches also advocate a small number of strategic outcome indicators that give managers immediate feedback about organizational performance. The balanced scorecard approach, for instance, recommends between ten and 20 strategic performance measures representing financial, internal process, customer/citizen, and learning and growth perspectives (Kaplan, 2001; Niven, 2008).

Strategic performance measures link operational and strategic planning by representing a limited number of outcomes that speak directly to organizational goals, while operationally serving as the foundation for annual planning efforts, budgeting, and more robust performance measurement systems. The literature generally recognizes three types of performance measures – input measures, output measures, and outcome measures – which, although present at the strategic level, are more typical of the operational level. Inputs are the resources (typically expenditures or employee time) used by organizations in their daily operations to fulfill their missions (Hatry, 2006), outputs are services delivered, and outcomes are occurrences or conditions outside the organization that have direct relevance to citizens or clients. Both outputs and outcomes are the completed products of internal activity.

External rankings of agency performance, on the other hand, use other strategic outcome measures to evaluate public organization performance. The literature further differentiates these strategic performance measures into lagging indicators that focus on results at the end of a time period, such as revenue or employee satisfaction, and leading indicators that are more predictive and drive performance, like grants written or absenteeism (Niven, 2008). Ideally, lagging indicators, and accompanying leading indicators, use real-time data, and they are particularly important external outcome measures that evaluate historical performance and hint at an organization's future potential.

In recent years, practitioners and researchers pay greater attention to bridging the gap between strategy and operations through performance measurement. Rodriguez and Bijotat (2003), for example, examine management from three perspectives: the implementation of strategic planning, the use of performance measures, and the application of both in budget decision making. In their study, 40 percent (six out of 15) of the managers surveyed consider the development of strategic plans to be a critical task and have developed such plans for their own organizations. They recommend public organizations use strategic planning to guide their growth and improve performance by providing accurate information on their operations and development. Additionally, they find that, although large and small organizations differ in their application of performance measures, managers' perspectives on performance measurement appear promising and an increased awareness of the possibilities and tools characterize attitudes toward performance measurement. The authors do admit, however, that local governments, even though they are using performance measures, may not be linking them effectively to budgeting or management functions.

In terms of systems approaches at the local level in the USA, Ho (2002) notes a correlation between the practice of strategic planning and frequent organization-wide conversations on institutional progress toward meeting performance goals. In particular, he finds that municipalities that adopt performance targeting are likely to discuss and publicly report their performance results frequently and link these results to strategic planning. Hence, although performance budgeting is not mandated for state and local governments, this linkage could enhance agency measurement of the efficiency and outcomes of various programs (federal or otherwise), thereby providing stakeholders with the information needed to determine whether programs are meeting expectations.

Strategic performance management, therefore, represents the missing link between an organization's mission, long-term goals, and annual operational planning initiatives that integrate performance measurement systems, such as budgetary processes. Indeed, strategic performance management is central to strategic management and an organization's ongoing operations. As Poister (2010) suggests if, "performance

management systems that are not tied to or at least consistent with strategy run the risk of maintaining and/or improving immediate performance on previously established criteria of success but increasingly missing the mark in terms of where the organization should be heading in the longer run" (p. 252).

The top section of Figure 1 depicts traditional long-term strategic planning, while the bottom shows annual operational planning efforts. Consistent with the strategic planning concept, the model promotes a multistep process that includes clarification of organizational mission statements, the envisioning of a future, and the crafting of strategies and initiatives to attain the vision while simultaneously establishing goals and developing measurable objectives (Niven, 2008). Strategic performance measures thus form a crucial link between strategic management systems and operational planning efforts.

SISP and digital government

Strategic planning and performance measurement are particularly important in the adoption and implementation of information systems and e-government initiatives. In information and communication technologies (ICT) literature, researchers advocate SISP for establishing clear objectives, increasing resource awareness, and improving responsiveness to the changing environment (Uvah *et al.*, 2006). As a result strategic planning for digital government promotes improved e-government efficiency, effectiveness, as well as responsiveness to citizens (Berry, 1994).

The use of ICTs represents an opportunity for strategic planners and digital government advocates because both are managerial tools for driving goal attainment, performance improvement, and innovation. Recent research on strategic planning by Bryson *et al.* (2010) has identified ICTs as one of the four emerging areas that require more attention, along with integrating learning and knowledge management, study of strategy knowledge development, and practical strategic planning models for the public sector. They emphasize the integration of ICTs with the strategic planning process, with e-government becoming a more visible phenomenon, and the need to view the adoption of technology as part of the strategy practice and implementation.

The fusion of these two streams of research has led to the development of new literature around SISP, which promotes the applications of strategic planning practices



Figure 1.
Illustrates the link
between strategic
and operational
planning

to ICT adoption and management. Along the same lines, e-government scholars are increasingly advocating the use of public management theories to the very use of ICTs in the public sector. The latter, relies on managerial and governance reform strategies to improve e-government performance and is based on research in SISP and e-government for its analysis of strategic plans for information technology.

Consistent with previous visions of strategic planning, SISP advocates a rational process through which agency stakeholders help in developing appropriate plans and decision frameworks that shape the future of the organization. Although there have been many efforts to use strategic planning techniques in management information systems in the public sector (Ein-Dor and Segev, 1978), strategic planning, and technology management have always been view distinctly. Despite its potential, the planning approach was often ignored by public sector agencies in key functionalities, such as the acquisition (Davies and Hale, 1986). Gradually, the call grew for more planning for public management information systems, with a need to balance between being incremental, yet holistic and forward thinking (Bozeman and Bretschneider, 1986). Similarly, SISP research also began to focus on stakeholder participation in the planning process, particularly the upper-level stakeholders (Segars *et al.*, 1998), as well as the middle-level managers (Holley *et al.*, 2002, 2004).

Research on e-government has often proposed a normative maturation process in which public organizations adopt technology in incremental stages, with each stage representing an improved level of technical sophistication. This phenomenon is similar to a strategic performance approach, as outlined in the strategic management literature, with each stage indicating a strategic value choice (Yang and Melitski, 2007). One such e-government stage model proposed by Moon (2002) involves five stages, beginning with the provision of information and content online, then two-way communication, online transactional services, followed by online citizen participation via public forums and citizen surveys. Such perspective has conceptualized the use of technology as e-government and e-governance (Calista and Melitski, 2007), where e-government takes the form of managerial reforms by agencies to improve efficiency, and e-governance representing citizen engagement in public decision making. These stage models have also provided a framework for assessing the performance of e-government, both internally and externally, at international, national, state, and local government levels.

Digital government performance of cities internationally has the subject of several studies (Melitski *et al.*, 2005; Calista *et al.*, 2010), and the United Nations has assessed digital government performance at the national-level bi-annually since 2001. Research available in the USA includes surveys on e-government performance with local government-level IT managers (Coursey and Norris, 2008; Norris and Reddick, 2013) and investigations of technology use on either a city (West, 2004) or state level (e.g. ongoing study by the Pew Government Performance Project). The longitudinal analyses conducted as part of such research, however, points out that e-government performance may have plateaued in recent years (Calista and Melitski, 2013), with online citizen participation particularly failing to meet the goals set by researchers (Coursey and Norris, 2008; Calista and Melitski, 2013; Norris and Reddick, 2013).

In assessing strategic plans for e-government, the research outlined above is based on strategy, e-government, and performance measurement literature. However, e-government performance surveys are limited to the content of strategic plans, which may not provide sufficient information on the goal-setting process used in formulating strategies for their information systems. Hence, to better understand the e-government goal-setting process, the present research analyzes selected state information technology

strategic plans to determine the extent to which they reflect e-government performance. The study also identifies best practices to establish baselines for success in the further development of e-government and its initiatives.

Discussion of strategic plans

This research examines the e-government strategic plans of the US states. To conduct the research the authors developed a 15-question evaluation rubric based on Bryson's ten-step strategic planning process. Overall, 30 states were found to have e-government strategic plans, and were examined through a content analysis by two independent evaluators. The scores of the two evaluations were compared, and those questions with varying scores were examined again and discussed to reach a consensus. This process is consistent with qualitative research techniques suggested by Miles and Huberman (1984). Plans were accessed online, and all of the planning processes evaluated were initiated after 2010. The evaluation rubric for strategic planning efforts is outlined in the below list and consists of 15 questions (the Appendix) using a five-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree). As a result, each plan could score a maximum of 75 points.

Bryson's (2011) strategic planning process:

- (1) develop process;
- (2) discuss mandates;
- (3) examine mission and values;
- (4) conduct environmental assessment (internal and external);
- (5) develop strategic issues;
- (6) formulate actionable strategies;
- (7) strategy and plan adoption;
- (8) establish organizational vision;
- (9) implementation; and
- (10) strategic planning process re-assessment.

Based on the evaluation of the strategic plans, the average total score recorded is 45.46 with a standard deviation of 9.94. Michigan ranked first with a score of 62, followed by Virginia and Massachusetts, with scores of 61 and 59, respectively (Figure 2). The median score for the 30 states is 45. When comparing the average scores in the individual questions, the states scored highest in Step 6 (Strategy Formulation), followed by Step 3 (Core Beliefs), and Step 5 (SWOT Analysis), as shown in the Appendix. The average length of the strategic plans is 28 pages, with the highest being Texas (101 pages). The state with the fewest pages in its strategic information systems plan was South Dakota (1 page). The duration of most strategic plans range between two and four years, with one outlier being Hawaii, which sets out to plan for 12 years. The following section describes some examples of best practices derived from the plans evaluated in accordance with Bryson's ten-step process for strategic planning.

The first step in the strategic planning process involves the preliminary agreement on a strategic plan's development and implementation. While many plans assessed in this research include this step, they take divergent approaches. For instance, the Michigan plan gives details on its planning processes, principally within the executive

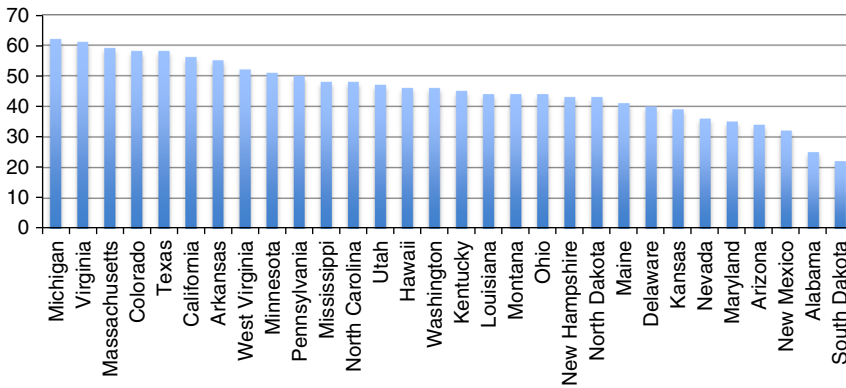


Figure 2.
Average score
by state

summary, which includes planning sessions, surveys, and discussions with stakeholders. The summary mentions the engagements with citizens and students in Michigan, as well as input from leading experts and researchers. Maine also addresses this first step in their strategic plan. In particular, Maine involves an “evergreening process,” developed by the Office of the Chief Information Officer and other stakeholders, for updating their plan regularly. The process involves two steps – Step 1: business and IT Alignment (engaging stakeholders to develop the state IT vision); and Step 2: evergreening the IT architecture (updating the technology standards).

The next step in the strategic planning process in the public sector requires assessing institutional mandates. If a public organization’s mandates are not clear, organizations risk duplication of efforts and misallocation of resources. To avoid organizational waste, a strategic plan should point to the guiding documents that safeguard stakeholder needs, while identifying implementable strategies and measurable objectives in need of resources (Bryson, 2011). For example, the CIO responsible for the Washington plan considers dialogue with stakeholders and meeting their needs as important state priorities within their strategic plan. To achieve this goal, the CIO’s office employs a range of formal and informal methods such as education, discussion forums, discussions with vendors and customers, and policy settings.

The third step in the strategic planning process instructs organizations to clarify their purpose by revising or reviewing their mission. According to Bryson (2011), an organization’s mission helps them to meet their stated purpose through forging public value in a fiscally responsible manner. California’s strategic plan is particularly adept at demonstrating how the plan is related to the state’s mission and principles. The plan’s executive summary includes its guiding principles through which it measures the success of its projects, gains public trust, and enables a more responsive and accessible government. These principles include accountability, service, collaboration and cooperation, enterprise value, and strong leadership. The Kentucky plan also distinctly connects the governor’s initiatives to the agency’s mandate: improving the leadership position of the Commonwealth Office of Technology in delivering innovative IT-enabled business solutions, continual planning to reduce technology-related risks, and reducing technology-related costs.

Assessing an organization’s internal and external environment is the next step in the strategic planning process. This step typically involves conducting an evaluation of an organization’s internal strengths and weaknesses, along with its external opportunities

and threats, and the process is often referred to as a SWOT analysis. A similar example is the “PEST” analysis in the California plan to effectively project opportunities and challenges. After organizations identify strategic issues with the aid of a SWOT analysis, the next step in the strategic planning process is to establish methods or strategies for addressing the issues. Combining rhetoric, choices, actions, and consequences into meaningful patterns is essential to formulating a strategy (Bryson, 2011). The Michigan plan addresses this step within their planning section, by introducing the use of MiPLAN, a project performance tracking system that can be viewed by all the program owners, and the directors. The system enables the Governor and Cabinet members to assess the project performance on a regular basis and make the necessary changes.

Step 8 of the strategic planning model directs organizations to include a vision of success within their strategic plan. Vision statements represent aspirational statements about the organization’s future once strategies are in place and the plan is implemented. A good example of this step appears in New Hampshire’s plan, which discusses its vision over a four-year period, and lists six strategic themes that will enable this transformation. These themes specifically pertain to automation and process change actions that will enhance services and citizen access, as well as guide state IT investments.

Developing a plan of action for implementation is the next step in the strategic planning process. The Michigan plan lays out the steps of implementation, gives a detailed timeline for each goal, and includes sufficient explanations of how each solution affects the stakeholders. Strategic self-assessment is the final step in the strategic planning process, and it is integral for determining whether a strategy was effective, based on measurable outcomes. Kansas’ plan, for example, measures its strategic information management plan goals with established performance metrics. Many other plans, however, are lacking in adequate information related to performance assessment. The action steps listed in the Kansas plan include developing metrics and assessment that specifically measure goals and performance, include instructions for providing regular-interval updates, include self-assessments, along with training development, and a structure for overall reporting on the project.

Conclusion

The research employs a public sector approach to strategic planning assessment, and while the process is not specific to information systems it is comprehensive in its approach, grounded in strategic management literature, and offers guidance to public sector leaders in planning for investments in information systems and technology. The results of this research suggest that Michigan, Virginia, and Massachusetts have the most comprehensive state information system plans; they are useful templates for states with less comprehensive or no IT/e-government strategic plan. The plans evaluated were most effective in formulating strategies and communicating core beliefs; effective in examining strengths and opportunities in evaluating their organizational environment; and least successful in assessing internal weaknesses or external threats, engaging stakeholders to adopt proposed strategies, and setting a clear performance measurement system.

The SWOT process requires public organizations to be self-critical in assessing weaknesses and threats, and most states are reluctant to include such information in public plans. In this era of heightened security and changing threats, it is understandable why they might wish not to include certain types of information in public-facing documents. However, unlike private sector enterprises that wish to minimize public criticism, public government entities are called to be transparent and accountable to its

citizens. Lack of attention to the SWOT analysis, particularly weaknesses and threats, may leave government organizations open to unnecessary failures. Likewise, the stakeholders in these initiatives are not just the departments, divisions, and employees of the government organizations, but also the citizens for whose benefit the initiatives are established.

The findings suggest that organizations are moderately sufficient at examining the organization's stakeholders, but they do much worse in terms of describing a process for engaging stakeholders. This implies much less genuine integration of stakeholders in the process of strategic planning and hinders future engagement. This coupled with low scores on Step 10 – in which organizations communicate evaluation and future improvements suggest a lack of comprehensiveness toward the latter stages of the process. As known from the performance management literature, reporting data is an essential component in a broader strategy of communication and helps to create a cyclical nature to a strategic process. Such gaps in the planning process may reinforce continued citizen discontent and internal inefficiencies.

Moreover, as seen from implementation literature, even the best plans do not always yield successful results. In the end, successful implementation of a policy or a strategic plan is dependent on factors such as ambiguity, institutional conditions, external climate, change required, the amount of conflict, and availability of resources (Pressman and Wildavsky, 1973; Lane, 1983; Matland, 1995). Further, organizational change scholars note the importance of managers in the success of rational organizational change efforts such as strategic planning (Burke, 2002; Kotter, 1995; Yukl, 2002; Fernandez and Rainey, 2006). Nevertheless, state strategic information system plans need to bridge the gap between their mission and managing performance. Implementing and evaluating strategies are essential components to the strategic planning process. State policy makers need to take a more active role in identifying key departments and agencies responsible for implementation, as well as citizens with vested interest in these strategies, and engage them throughout the development of strategic plans. Developing transparent measurable strategies that advance organizational performance and enable organizations to achieve a realistic vision for the future is only possible when organizations engage both citizens and policy makers charged with charting a course for the future, as well as the individuals responsible for implementing strategies on a day-to-day basis and measuring their performance over time.

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(The Appendix follows overleaf.)

Question	Based on Bryson's 10-step strategic planning process, how well does the document, report or plan, etc.	Mean score
1	Discuss an agreed upon process for developing and implementing the plan (Step 1)	3.27
2	Examine the institution's stakeholders (Step 2)	3.25
3	Analyze the institution's universally held core beliefs and values (Step 3)	3.63
4	Review the institution's mission and key mandates. Does the document state the institution's purpose or discuss why the institution exists (Step 3)	3.67
5	Describe the institutions environmental analysis in terms of SWOT (Step 4)	2.37
6	Express internal strengths are resources or capabilities that help an organization accomplish its mission. Does the document speak to the institution's major internal or present strengths (Step 4B)	3.1
7	Identify internal weaknesses or deficiencies in resources or capabilities that hinder the organization's ability to fulfill its mission. Does the document describe the institution's internal weaknesses? (Step 4B)	2.53
8	Explain external opportunities representing outside factors or situations that the organization can take advantage of to better fulfill its mission. What major external opportunities does the institution have in the future? (Bryson, Step 4A)	2.75
9	Describe external threats or outside challenges, factors, or situations that can affect the organization in a negative way – making it harder for the organization to fulfill its mission. What major external or future challenges does the institution face? (Step 4A)	2.53
10	Propose specific goals to address institutional strengths, weaknesses, opportunities, and threats (Step 5)	3.55
11	Formulate measurable and implementable strategies leverage institutional advantages and improve or minimize its challenges in order to meet its goals. Strategies are measureable initiatives to help the organization achieve specific goals (Step 6)	3.87
12	Describe a process for engaging stakeholders to achieve agreement and approval of strategies (Step 7)	2.23
13	Explain the institution's aspirations for at least the next four years. If successful in implementing specific strategies, how will the institution be different in the future? (Step 8)	2.7
14	Describe how strategies will be implemented and by what agency? (Step 9)	3.43
15	Describe how success of the strategies will be evaluated and improved in the future? (Step 10)	2.57

Table AI.
List of Bryson's
ten steps

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