Is State IT Working on the Right Things?

Infosys Public Services and National Association of State Chief Information Officers (NASCIO) Study on State IT Investment Management

NASCIO Representing Chief Information Officers of the States

Infosys® Public Services

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Executive Summary

As opportunities multiply and technology advances, state CIOs face a myriad of options for realizing the core mission of their states. Given the current structure of state IT organizations, existing state government service delivery assets, and ever expanding citizen (and agency) demands, the challenge facing state CIOs is to make sure that IT efforts are directed to the "right things." Sounds simple, but the demand for IT exceeds the capacity and budgets to accomplish everything. Plus, how are the needs of the state as an enterprise balanced against the needs of individual agencies? Some IT initiatives are not mutually beneficial. Some are redundant. How should each state approach IT investment decisions to ensure the "right things" are being executed, redundancy is avoided, and decisions are consistent with business principles and strategy?

State CIOs were asked to share their perspective on the components or criteria necessary to make decisions on the "right things." A survey was conducted and a subset of state CIOs were interviewed to gain their perspective on four topics integral to IT decision-making: Alignment, Operating Structure, Infrastructure and Applications, and Investment Management.

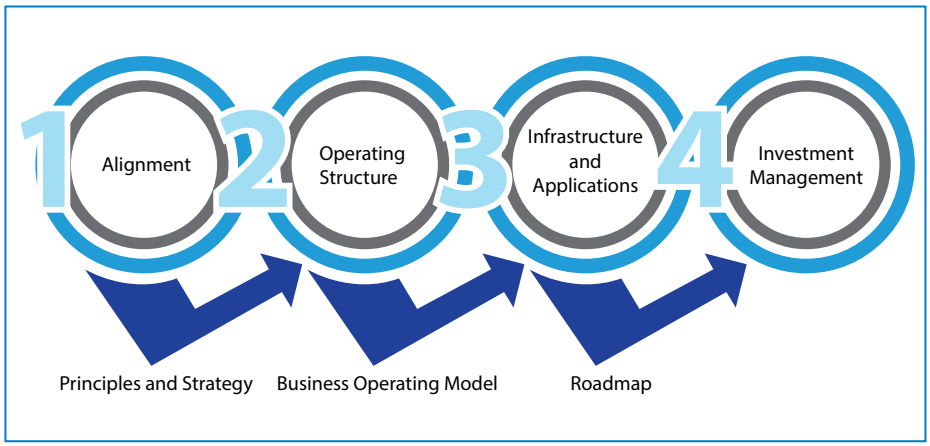


Figure 1: Components for Effective IT decision-making

Key Findings

Taken as a whole, the results are interesting. Generally speaking, the current systems environments are complex, requiring an above-average portfolio of hardware and software and indicating that past IT investment decisions were made in a way that likely led to the complexity of the current portfolio. Having said that, the presence of activity in each of the four topics studied indicate that state IT in many states is starting to address shortcomings in their decision criteria and processes. However, fundamental improvements remain elusive in many states and affect the efficiency and effectiveness of state IT. Transformation in these four areas requires collaboration with the state business community, recognition that states cannot afford the current portfolio, and the pursuit of enterprise wide strategies whenever possible. To the extent these don't happen, state governments will not see the improvements in efficiency and effectiveness they are trying to achieve.

The four topics chosen for study and their summary results include:

Alignment - State CIO responses indicate a strong presence of up-to-date strategic business and IT plans for their organizations that guide IT investment decisions. However, 38% of the CIOs also indicate that a lot of IT decisions do not align with business strategy.

Operating Structure - The survey indicates that much work has been done to identify common processes and data that can be shared across agencies. This defines the enterprise operating model, one of the cornerstones for effective IT governance. However, 80% of CIOs responded that this is not translating into practice, indicating that the instantiation of this operating model is lagging. It could be in process or it could mean some significant barriers are present, such as an overly complex systems environment as implied from the survey responses, and/or the possibility that state agencies are not fully convinced that they will benefit from enterprise-wide shared investments.

Infrastructure and Applications - Instantiating the operating model in the systems environment provides a stable foundation to implement the more volatile elements of the strategic plan. While not as visible as executing on a new technology-enabled business strategy (e.g., Big Data), it represents a "platform" that reduces complexity and enables more rapid realization of strategic benefits. A majority of the CIOs indicated that they are in the process of updating or transforming their infrastructure and applications. However, much opportunity exists for defining and expanding the use of platforms within the states as only 53% of CIOs indicated that their computing environment includes a platform of standard business processes (or multiple standard platforms), applications and data.

Investment Management - Generally speaking, IT investment management processes and governance are in place, but consistent execution is questionable. For those states without up-to-date strategies, well-defined operating models , infrastructure and application roadmap, and effective business and IT governance, making decisions on the "right things" is difficult and unlikely. For those states with all of the above pieces in place, the absence of value discipline reflected in the survey impacts ability to make decisions on the "right things." Finally, a telling sign that the path ahead is challenging is reflected by the large number of states, about 45%, that spend greater than 80% of their budget maintaining existing systems.

The Path Forward

Each of the four components i.e., Alignment, Operating Structure, Infrastructure and Applications, and Investment Management is necessary, but each depends on the higher order component. Starting from the bottom, the investment management processes and related governance is critical. However, decision criteria are needed to guide decision-making, which will come from the other three higher order components. The higher order components will also drive decisions on governance (assigning decision rights and accountabilities). The degree of congruence between the four components will influence IT investment in the "right things," as shown in the following top-to-bottom linkage of the four components:

1. In addition to strategic planning, find out where people disagree on issues with critical implications on IT and involve executive leadership to establish principled direction.
2. Use the principled direction to define the operating model(s), the core foundation of capability. Separate agency specific operations from enterprise operations.
3. The operating model will drive decisions on infrastructure and applications. Use it to architect platforms, plan roadmaps, and establish timelines.
4. All of these constructs are input to IT investment management. Use the criteria and value discipline to make "the right" decisions.

About the Survey

Purpose

The National Association of State Chief Information Officers (NASCIO) and Infosys Public Services (Infosys) have collaborated to survey state government IT leaders on processes and mechanisms necessary to ensure that State IT is "working on the right things." Of highest interest is how to determine what the "right things" are when considering both the state as an enterprise and the state as a collection of individual agencies.

Importance of Study

Currently states face immense pressure and uncertainty in executing their missions. They need to address key imperatives including reforms and mandates, constituent engagement, and operations and cost optimization to deliver improved outcomes. In the next decade and beyond, state IT and business organizations will face one of their biggest opportunities and one of their biggest challenges - digitization. Every interaction between the government and individuals and businesses will become increasingly digital.

State IT organizations face a myriad of options and approaches to address these imperatives and realize their core mission. Building or acquiring a system is one approach (the reactive approach). Another approach is to make decisions on how to operate first, and then go out and build a digitized platform of business processes, systems, and data to support how you want to operate. But, how can state IT organizations decide the right approach or the "right things?"

If not working on the "right things," states are susceptible to not only poor citizen satisfaction, but also the emergence of an overly complex infrastructure and applications that propagate inefficiencies. Complex computing environments can negatively impact organization's efficiency (higher costs, barrier to change) and effectiveness (quality issues, lower business value realization), and can lead to organizational paralysis, failed development and change efforts, and/or the emergence of shadow IT.

This study will help state IT decision makers (from IT and business communities) understand the key factors needed to identify the "right things" to do, see how they and their peer states stand against these factors, and what can be done to bridge the gap.

Background and Methodology

In the fall of 2014, NASCIO and Infosys (sponsors) interviewed a subset of state CIOs at the NASCIO Annual Conference to determine their interest in assessing whether state IT was "working on the right things" or "working on things the right way," or both. A topic of interest and frequent discussion during the CIO interviews concerned whether or not states were operated as a holding company (i.e., for the agencies) or as an enterprise. This discussion was usually prompted from some form of the question, "is your state IT working on the right things?" This discussion intrigued the sponsors. If the answer to the question depended on knowing fundamental aspects of the business operating model (e.g., holding company vs. enterprise), then it follows that a better definition of the business operating model would lead to better IT investment decisions and more confidence from IT regarding "working on the right things," and, presumably greater value realization by the state.

Glossary of Terms

A **government or state agency,** often an appointed commission, is a permanent or semi-permanent organization in the machinery of government that is responsible for the oversight and administration of specific functions, such as an intelligence agency. There is a notable variety of agency types. The autonomy, independence and accountability of government agencies vary widely[1].

A **holding company** is a company that owns other companies' outstanding stock. The term usually refers to a company that does not produce goods or services itself; rather, its purpose is to own shares of other companies to form a corporate group[2].

The term **enterprise** can be defined as describing an organizational unit, organization, or collection of organizations that share a set of common goals and collaborate to provide specific products or services to customers. The term enterprise covers various types of organizations, regardless of their size, ownership model, operational model, or geographical distribution. It includes those organizations' complete socio-technical systems, including people, information, processes and technologies[3].

An emerging definition of **digitization** is the degree to which an enterprise's products and service value, and revenues are realized through technology[4].

A **principle** is a fundamental truth or proposition that serves as the foundation for a system of belief or behavior or for a chain of reasoning. In business, **"guiding principles"** can be a great tool for surfacing some of the tough strategic choices, and then making those choices explicit.

The **operating model** is the desired state of business process integration and business process standardization for delivering goods and services to customers[5].

1. *Government agency, Wikipedia*
2. *Holding company, Wikipedia*
3. *Enterprise architecture, Wikipedia*
4. *A different definition of digitization, Gartner*
5. *Innovating with Information Systems, Professor Peter Weill, MIT Center for Information Systems Research,*

Study Context

Managing as a holding company implies that the state CIO has little to no influence over agency IT investment decisions and has a role that is heavy on coordination and collaboration. Most decision rights and accountabilities related to IT investment decisions are delegated to the agencies, which in theory would act in their own best interests.

Managing as an enterprise is not simply the opposite of managing as a holding company, where decisions would be made in the best interests of the enterprise. Some IT investment decisions will likely need to reflect the best interests of agencies based on their uniqueness. Rather, it requires a nuanced view of the agencies as a whole, informed by an agreed operating model. The operating model defines which agency capabilities (or components of capabilities such as data and processes) are common, and, therefore, sharable across agencies (i.e., enterprise) and which should strictly be under the purview of an individual agency. It is not an 'all or nothing' proposition, but whatever makes sense in the context of the enterprise.

Optimizing for the enterprise may not always be in the best interests of individual agencies. Trade-offs are involved and reasonable people can disagree about the trade-offs. Leadership must establish principles to bridge the gap between the trade-offs, understand the implications of the principles (to strategy and day-to-day operations), and gain commitment of the key stakeholders both within and across agencies.

The construction of guiding principles is critical. They represent conscious choices between equally valid alternatives. Reasonable people must be able to argue the opposite to qualify as a principle. Principles put a stake in the ground to establish a certain position on contentious issues (not ordinary issues). Less is more, both in terms of the number of guiding principles and in their simple, direct construction.

The role of IT governance is critical as IT most often is too complex for traditional corporate governance and also because IT assets can cross organization (i.e., agency) boundaries. For example, HR systems might be good candidates for sharing across agency boundaries, but reasonable people within the agency might disagree, maybe for cost or timeliness reasons. However, a guiding principle from executive leadership might state: Functions common to all (or more than one) agencies will share processes and systems to optimize costs. IT governance will reflect this principle in the operating model, since the operating model is a primary IT governance decision. It is a good example why IT governance must take accountability for defining the operating model, else IT investment decisions can lead to redundant investments in multiple agencies and result in an overly complex systems environment that is less efficient and maybe less effective.

Interestingly, discussion around "working on things the right way" was of much less concern. It seemed that knowing *what* to work on was more important than *how* to do it. A couple of factors were inferred from the discussions. One is best stated as a question: if state IT is not working on the right things, how much does it matter that they are being done the right way? Peter Drucker probably says it best: *"There is nothing so useless as doing efficiently that which should not be done at all."*

The second factor impacting the relative interest of "working on the right things" over "working on things the right way" relates to control. CIOs and IT organizations have much more knowledge of, and control over, how things are done, but are much more dependent on the business community for decisions regarding the "right things."

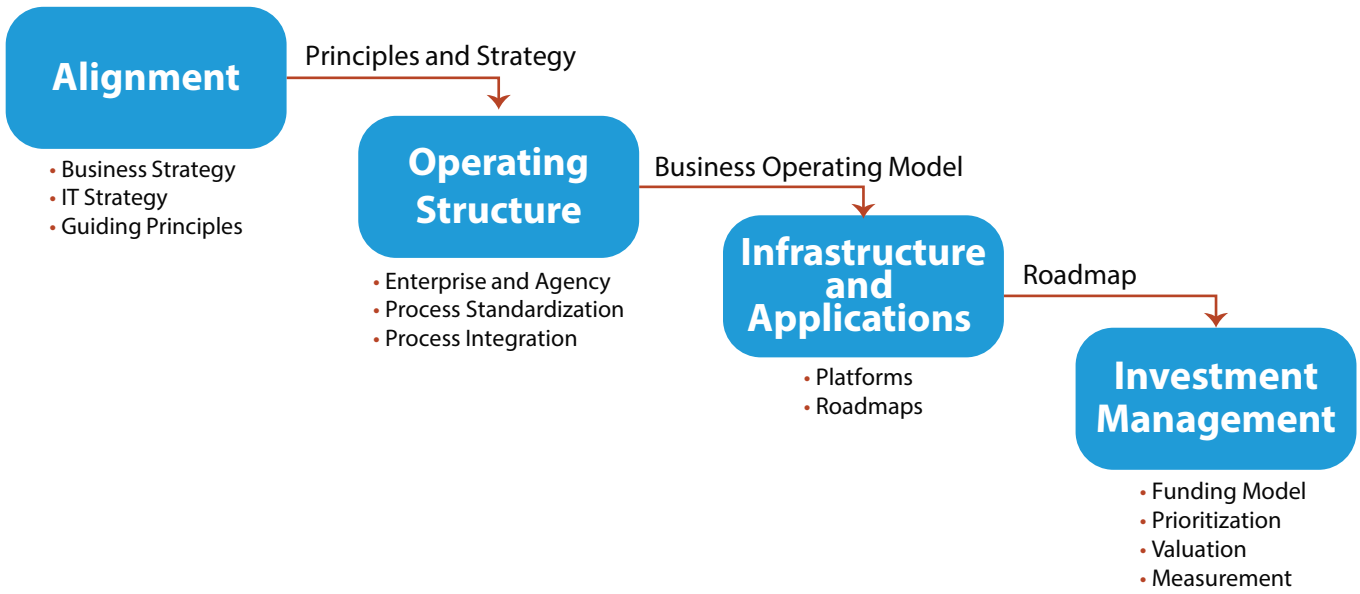
Realizing that a broader set of strategic and operational considerations can influence IT investment decisions, Infosys and NASCIO expanded the scope of the survey to study a series of questions across four key areas that drive "working on the right things" and build confidence around related decisions. The questions were made available to state CIOs in an online tool in the weeks preceding the NASCIO 2015 Midyear Conference. CIOs individually logged in and responded to the 26 multiple-choice and open-ended questions.

Focusing on the Right Things

What makes something the "right thing?" States can have well defined decision-making processes and governance structures, but still struggle with making the "right" decisions. Indeed, most states have these mechanisms in place. However, often times the proper decision-making criteria or up-to-date decision-making criteria is missing or not well understood. It is difficult to come to a "right" decision unless the criteria for making it exist. For example, is the objective of a prospective IT investment decision to optimize financial performance of the agency or the enterprise? Is it more important for the IT investment to reduce operating expenses or increase citizen engagement? When should decisions be made that are in the best interests of the enterprise and when should they be made in the best interests of individual agencies? Each of these situations require more information to guide the decision.

To provide the best feedback to state CIOs, the survey was structured around four categories of criteria that, when in place, support informed IT investment decisions (see Figure 2). The criteria studied are not meant to be exhaustive, but are certainly some of the most important inputs to decisions on the "right things."

Building the Foundation…



…for Doing the Right Things

Figure 2: Components for Effective IT Decision-Making

The Results of the Survey

The intent of the study was to gauge the presence of decision criteria within state IT organizations as they relate to IT investment decision-making. As such, the sponsors recognize that a common frame of reference is important to any assessment of this nature. Some of the components studied could easily have different meaning to different people across the organizations in the study, and perhaps even within each of the organizations that responded. In fact, the sponsors suspect differences of opinion exist within and across organizations, which may have had an impact on the study results. Therefore, interpret the results carefully, perhaps more as a directional notion, and continue to standardize concepts, gather facts, and build a case for change as the need demands. If you are not "working on the right things," you are leaving value on the table.

Of the 54 surveys distributed, 34 surveys were completed. In addition to the survey, 17 CIO interviews were conducted either in person or by teleconference. Each question was analyzed based on the overall response*. Some comments from the open-ended questions or CIO interviews are included to reinforce analysis. Concerns and best practices are also included to highlight general opportunities for improvement. These results and insights will help each state act on their own needs and interests, and within their own constraints.

**Response rates have been rounded. Percentages may not appear to add up to 100% due to rounding*

Alignment

Alignment represents the degree of consistency between what state IT is executing and the state business community's articulated needs, both current and prospective. Key elements of alignment include:

Strategy – The state business strategy should provide an important foundation for much of the decision-making around IT strategy and investment decisions. Two points of consideration regarding strategy include:

- Information technology can also inform business strategy based on its ability to enable new business capabilities. This symbiotic relationship calls for close cooperation between the business and IT communities when developing strategic plans.
- Strategy is impacted by the organization's current systems environment. A well-architected and stable foundation facilitates change more quickly. A complex systems environment, on the other hand, can be a barrier to strategic change.

Principles – Sometimes reasonable people can disagree on decisions. In fact, most organizations experience fundamental disagreements in some form. When either side of an argument can be supported by a reasonable person, a guiding principle, conceived and agreed at the appropriate level of leadership, can be used to clarify intent and drive decisions. For example, reasonable people might disagree about optimizing decisions at the state enterprise level versus optimizing decisions at the agency level. Indeed, many CIOs struggle with this question. Absent clarity from the appropriate level of leadership, the potential for suboptimal decisions being made is significant.

Alignment is a first order consideration. It influences each of the other levels of decision criteria. Many CIO respondents commented on the importance and/or difficulty of getting alignment right:

"It all starts with alignment, which must be in place. The other components – operating structure, infrastructure – branch out from there. And, the investment philosophy must support this – if funding is siloed, the result will be siloed approaches."

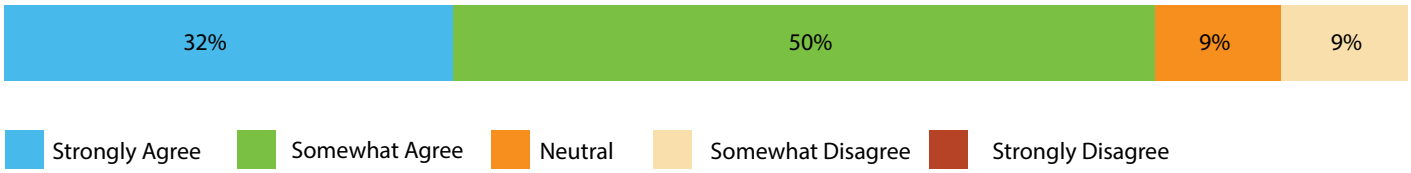
"We fundamentally struggle with alignment between the agency and the enterprise. With so many agencies having very different programs, we have not achieved the desired alignment between business and technology. We also have underdeveloped skills in estimating, planning or using other data sources to shape what project costs might be."

"Alignment is the most challenging for us as agencies have their own agendas."

"This alignment is very critical for success of any project. Our infrastructure project success provided great insight into the value for this alignment and we are looking forward for other platform projects to make it even better."

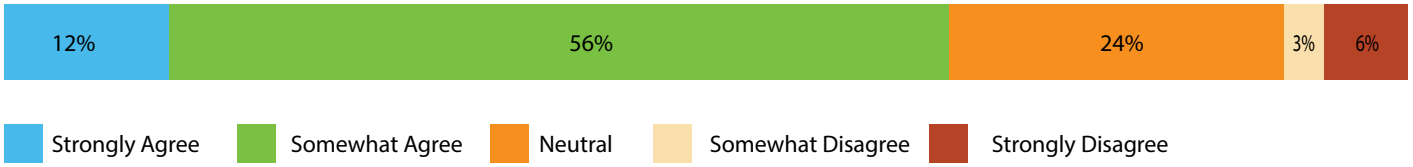
Note the last comment is both a statement of the importance of alignment and a statement on the approach to change. While thinking big is important, starting small and ramping quickly are valid considerations. A number of CIOs interviewed indicated that efforts have been undertaken to consolidate infrastructure components. It is hard to say that these efforts are part of "ramping quickly," but they do provide the basis of a business case for consolidating even more IT assets.

Alignment Statement 1: Senior IT executives work in close partnership with business executives to develop both business and IT strategies, plans, and tactics



Having a good working relationship and strong trust at the executive level is a prerequisite for effective business engagement. The results indicate just over 80% of CIO respondents either somewhat or strongly agree that they work closely with their business stakeholders to develop business and IT strategies. While not always overt, every organization has a strategy, it is the inherent basis or motivation for what is currently being done. But, it may not always be effective. The effectiveness of the strategy requires due diligence, insight, creativity, communication, and hard work. It cannot be done in a vacuum and cannot be abdicated to only the business side or the IT side. It can also be volatile. Five-year planning cycles, with annual updates, are common in the private sector. Change is expected, but feedback from a number of CIO interviews indicated the importance of executive alignment and spoke to the unique challenges presented by four-year election cycles and the possible disruption of new leadership. Effective working relationships are a necessary component for making decisions on the "right things," but not sufficient.

Alignment Statement 2: The state has an enterprise-wide business strategy and a supporting IT strategy

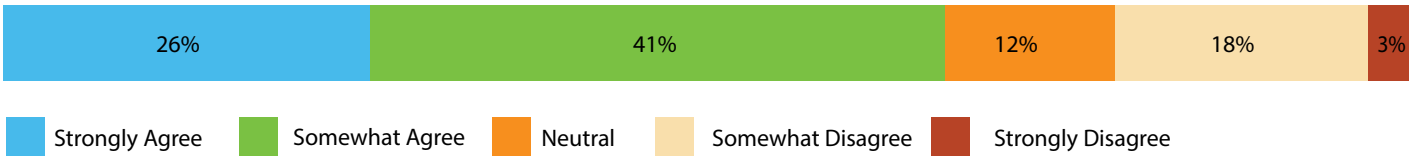


Almost 68% of respondents indicate the presence of an enterprise-wide business strategy and supporting IT strategy, which means a very important set of decision-making criteria is in place in a majority of the states. This is a necessary prerequisite for decision-making, but is the quality of the strategy sufficient to ensure effective decision-making? That goes beyond the scope of the study, but is important for each state to assess.

For the remaining 33% of responding states, it may be that they either don't have an effective enterprise strategy or are so agency centric that it may be irrelevant.

One CIO said *"we do not have a consolidated, articulated set of business plans. I think this is the fundamental issue. We have become so broad in government services that agency executives focus on the tactical within their organizations and cannot see the cross-cutting business themes."*

Alignment Statement 3: Processes and governance are in place to ensure that the enterprise-wide IT strategy and plan remains current, aligned with the business, and communicated effectively



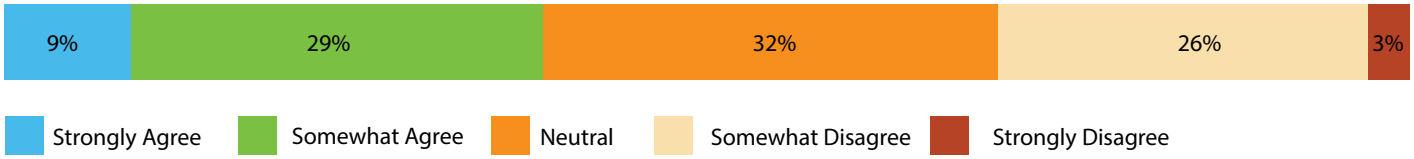
The mechanisms are in place to keep the enterprise IT strategy current according to the results of *Alignment Statement 3,* as nearly 67% either strongly or somewhat agree with the statement. Strategy can be volatile as needs and technology change often, which may explain why the remaining 30+% indicate some concern about having the right processes and governance in place. Alternatively, governance may not align with enterprise/agency boundaries, meaning there could be imprecise decision rights and accountabilities established between the two groups and, therefore, ineffective or conflicting decision-making.

Alignment Statement 4: The state's business community has a good understanding of how to use information technology to consistently improve business performance

Technology is more pervasive in the professional and personal world than at any other time in history. It promises to become even more pervasive. Business leaders can be well versed with personal technology, but must understand how to use IT to improve performance on a consistent basis within the business context. It requires understanding of how technology can be used to drive business capability. This understanding can be informed by personal experience, but extends beyond the personal domain and is different. Studies have shown that organizations with advanced levels of business IT sophistication produce superior business value. Advanced business IT sophistication is likely reflected in decision criteria. The IT sophistication of the business community is rated rather highly according to the feedback from *Alignment Statement 4,* with just about 59% either strongly agreeing or somewhat agreeing to the statement. However, questions* from later sections of the study sow some doubt either about the sophistication, or the fact that the sophistication may not be reflected in the current state of the infrastructure or applications.

*See questions *Alignment Statement 5, Operating Structure Statement 2, Investment Management Statement 6, and Investment Management Statement 7.*

Alignment Statement 5: New discretionary projects are often approved that are not aligned to the state's business strategy



The results of *Alignment Statement 5* indicate that only about 29% disagree at some level that new discretionary projects are being approved that are not aligned to the state's business strategy. While the magnitude of this problem is unknown and suggested for further study within each state (i.e., is it a one-off type of problem or more pervasive), the implications are many, including:

- Business strategy doesn't exist or is out of date
- There may not be an enterprise-wide business strategy
- Legitimate opportunities are approved that drive significant business value and require immediate attention
- Governance does not consistently use business strategy to make decisions
- Decisions are made outside the governance processes and bodies
- Governance is ill-defined

The demarcation of enterprise and agency may not be well defined or perhaps just ignored, as described by one CIO *"Although IT works to ensure that the states are in a strong position to support the business, agencies consistently see themselves as a "unique snowflake" and projects are initiated without the consideration of the state's business or technology strategy."* Another CIO in an interview stated that *"authority of supervision is what really matters…have to have accountability, but joint responsibility with shared accountability is a problem… there are no consequences."* To which one last bullet must be added to the above list:

- No consequences exist for non-compliance with governance mechanisms

Operating Structure

Operating Structure or operating model is a defined set of standardized processes, applications and data requirements within the enterprise and across agencies that are typically more stable than business/ IT strategy and that reflect target business operations. Key elements of the operating structure include:

Operating Model – The more the business knows about how they want to operate, the easier it is to make IT decisions. The operating model is a powerful statement of direction, usually much more stable than the business strategy, and therefore, a key factor supporting IT investment decisions. The operating model establishes the high-level design direction for digitizing operations. Building out (i.e., digitizing) the operating model provides a strong foundation for (more quickly) enabling the (relatively more volatile) business strategy. Effectively, the focus of IT moves away from being a set of solutions. The focus becomes integration and standardization, reducing variability in business processes and enabling end-to-end business processes.

Decision Rights – Accountability for establishing the operating model must be carefully considered. Often, the operating model has evolved organically over time and the governance structures and/or participants are inadequate or out of synch. Business leadership and accountability are critical.

Operating Structure Statement 1: The state business community has a clear idea of how they want to operate in terms of processes and data that can be shared across the enterprise and processes and data which are unique to individual agencies

Based on the response to *Operating Structure Statement 1*, some thought has been given to the operating model, with half of the respondents somewhat agreeing that there is clarity on desired process and data sharing within the state. It doesn't mean that it is actually shared, but the criteria are in place to help make IT investment decisions. Much improvement is necessary in this area.

Operating Structure Statement 2: Business processes and data which could be common and sharable across agencies are well known and mostly executed in this manner

As shown in *Operating Structure Statement 2,* the clarity reflected in the previous statement's results has not translated into practice, at least not yet. It is certainly possible that a transition is underway, but most likely these results also reflect some significant barriers to making the transition to the desired operating structure. Only about 21% of respondents either strongly or somewhat agree that common processes and data are known and actually shared in practice. The implications are many for the other 80%, including:

- The desired operating model is not in place and the efficiency and effectiveness benefits that accrue to the desired structure are not being realized
- Services provided to the state's customers are not being executed as efficiently or effectively as possible
- IT development and implementation agility is compromised as the operating environment is more complex and more difficult to change
- The complex computing environment puts future IT projects at risk
- The business strategies and supporting IT strategies that appear to be in place based on results in the Alignment section will be more difficult to execute
- There may not be an enterprise-wide business strategy nor an understanding of the value of cross-agency collaboration
- Effective incentives do not exist to encourage enterprise-wide, or cross-agency strategy development
- A broader skill set is likely required to maintain a more diverse business operating model
- More effort must be committed to maintaining the existing, more complex, systems environment at the expense of building new capabilities or investing in innovation
- Talent management is more difficult
- There needs to be more effective communication of the benefits of enterprise-wide business operations and technology services

One CIO laments the current situation by stating *"IT historically keeps the lights on, reducing resources necessary to engage and promote business-technology solutions. Therefore, business sometimes grabs what they think based upon limited silo-experience and limited staff out of some frustration that central IT cannot support them because of lack of resources. After a few years, central IT is needed to clean it up, i.e., one-time federal funding, Win 2003 servers, etc."*

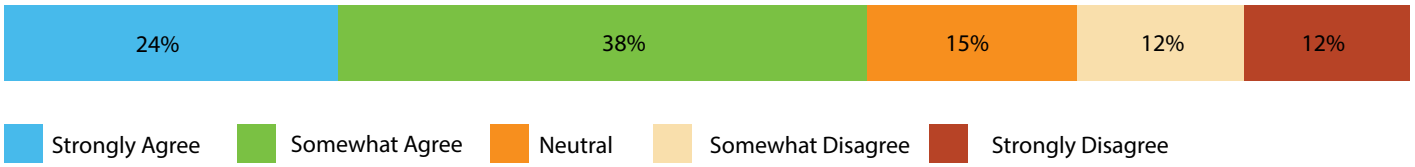
The challenge is multi-faceted, as another CIO explains: *"The push for enterprise approach is coming from the IT organization only. To agencies with immediate goals and short timeframes till the next election, the enterprise view is secondary. Some things, like cyber security, disaster recovery, are starting to help with this, but there is a long way to go. It would help if federal funding helped move this forward by requiring more shared services among states. As long as funding is siloed, strategy will be siloed."* IT should be involved with the operating model decision because IT will be a driving force with its implementation. However, the business community cannot abdicate its part with defining the operating model.

Fixing the operating model is a must for efficient and effective service delivery. Like ERP systems and platforms in the corporate world, an investment is required, but the investment will help bend the cost curve down in the long term. It has been demonstrated. One CIO appears to have turned the corner, offering *"…is in its third year of large IT transformation that affects all state agencies and already provided a great deal of opportunities to align business and IT. In the past two plus years we executed a project that delivered the results and set the stage for the business community to feel confident to have IT as a partner."*

Operating Structure Statement 3: It is generally known which IT decisions should be made on an "enterprise" basis and those that are strictly the jurisdiction of individual agencies

The results of *Operating Structure Statement 3* indicate relatively good understanding of which decisions should be made on an enterprise level vs. an agency level. Yet about 42% of the states appear to struggle at some level with matching decision rights with operating model layers. For the latter, this usually manifests itself in a complex systems environment with all the attendant inefficiencies and quality issues.

Operating Structure Statement 4: IT governance is aligned with the enterprise operating model and is effectively implemented across the enterprise (i.e., enterprise decisions are made by a cross-enterprise structure and process, and agency decisions are made by individual agency structure and processes)



The results of *Operating Structure Statement 4* indicate relatively effective governance structures that match their respective operating models, yet about 39% of the states seem to experience some problems with governance alignment with operating model. As with the previous statement, the problems usually manifest in a complex systems environment with all the attendant inefficiencies and quality issues due to flawed decision-making.

Infrastructure and Applications

Infrastructure and Applications are assessed relative to the degree to which technology components reflect the operating model and strategy of the state enterprise and agencies. Key elements of infrastructure and applications include:

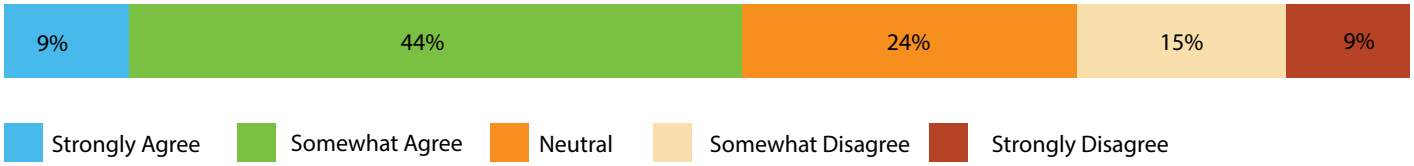
Roadmap – The direction inherent in alignment and operating model decisions enable a planning process to roadmap the transition from the current infrastructure and application landscape to a target infrastructure and application landscape. The operating model provides the high-level requirements to drive application decisions, which are informed by infrastructure prerequisites and business priorities in the strategy, among other things.

Decision Rights – Accountability for establishing the roadmap is often abdicated to the IT organization. While IT should drive the infrastructure roadmap, the business community should drive decisions regarding the application roadmap, and they should be consistent with the operating model.

Platform – Ideally, the operating model is instantiated in a platform to gain the most from efficiency and effectiveness.

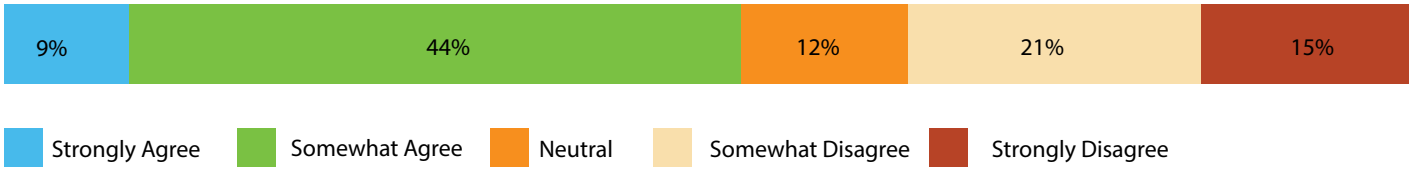
Shadow IT – The presence of shadow IT organizations can complicate planning, impact IT investment decisions, understate costs, and operate outside the domain of "right things." Shadow IT must be factored into the conversation. One CIO offered: *"At times IT is the last person brought into the discussion, particularly if the business already has "decided" the direction they want to go - favorite vendor, new technology they want to try, etc."*

Infrastructure and Applications Statement 1: A platform of standard business processes (or multiple standard platforms), applications and data is known and serves as input for investment decision-making across the enterprise



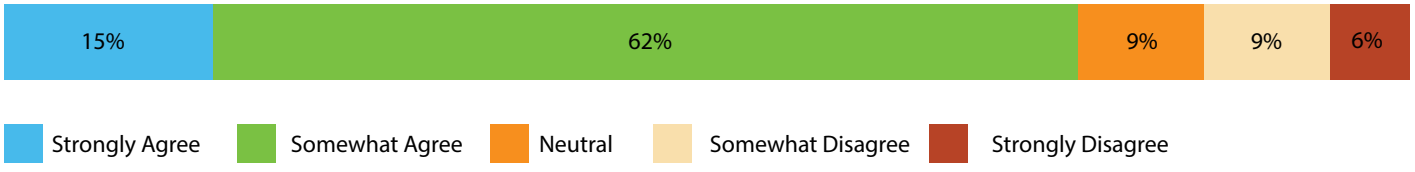
Just under 50% of respondents were neutral or disagree that a platform of standard business processes provides their computing foundation. Platforms provide government CIOs with a way to re-think their service delivery approach, from building technology, to leveraging technology to better align with agency goals, optimize resource usage, improve agility, and create necessary bandwidth to focus on strategic initiatives. A platform-based approach to IT offers a clear path to shift the focus back to core mission from technology.

Infrastructure and Applications Statement 2: The state has a roadmap outlining the general plan to align the infrastructure and application landscapes within each agency and across agencies (i.e., the enterprise)



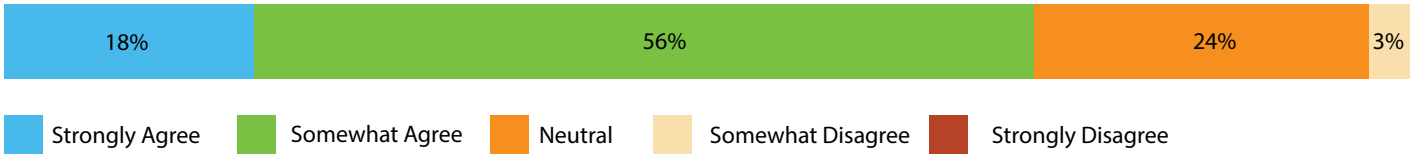
The results for *Infrastructure and Applications Statement 2* imply that the majority of states, almost 53%, are in the process of updating or transforming their infrastructure and applications, presumably guided by a roadmap influenced by alignment and operating model criteria. The roadmap ideally will lead to a reduction of complexity shown by the results of *Operating Structure Statement 2*. Nearly 47% of the state CIOs, however, appear to have an uncertain path forward.

Infrastructure and Applications Statement 3: Processes and governance are in place establishing decision rights and accountabilities over infrastructure and applications, which consider alignment strategies and desired operating model



The results shown for *Infrastructure and Applications Statement 3* indicate a healthy confidence with governance over infrastructure and applications, even more so than over the operating model. When juxtaposed with *Operating Structure Statement 2*, the implication is that perhaps the operating model either didn't exist for prior decisions or may serve less prominently than business strategy for making infrastructure and application decisions. On the other hand, when juxtaposed with *Alignment Statement 5,* which indicated that far too often new discretionary projects are approved that are not aligned to the state's business strategy, it might mean that processes and governance might be in place, but are possibly lacking some execution discipline.

Infrastructure and Applications Statement 4: IT brings innovative solutions to address needed business capabilities that are fiscally responsible and aligned with the IT strategy



As shown for *Infrastructure and Applications Statement 4,* IT is a valuable source of ideas for innovative business solutions. Again, given the results of *Operating Structure Statement 2,* it appears that IT innovation targets business strategy more than it does the operating model. These results are consistent with the results from *Alignment Statement 1* and indicate that the majority of respondents have been able to build a collaborative partnership between the CIO organization and the lines of business they serve.

Investment Management

Investment Management is characterized by prioritization, governance structure and processes to ensure that return on IT is managed and optimized across all levels of the state enterprise, including trade-offs between enterprise and agency optimization.

Demand - Typically, many competing opportunities exist for discretionary investments across different categories (e.g., infrastructure, applications, information, strategic), not to mention the need to maintain existing assets. More likely than not, the demand for investment exceeds the available funds. As such, a common approach for registering, measuring, and prioritizing demand is critical to investment management.

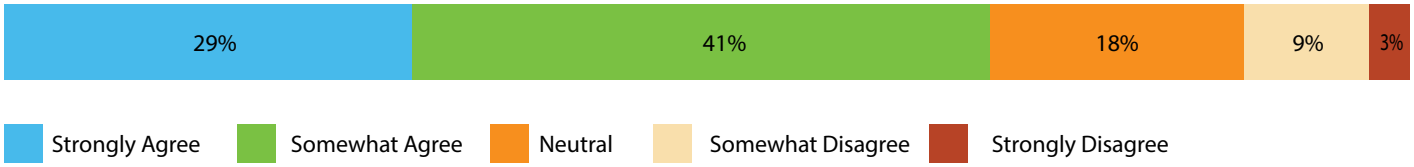
Business Case - Projecting business value is typically one of the key factors influencing discretionary IT investments. As such, articulating a business case that enables comparison of competing investment opportunities on a financial basis is a core capability under investment management.

Business Case Methodology - It is not unusual for business cases to be developed inconsistently across the organization, making it difficult to accurately determine value and compare opportunities. This situation necessitates a standard approach for calculating value, both financial and other forms of value. Building a value discipline within the organization around a standard approach will ensure accurate and consistent value projections and dependable capabilities for projecting value.

Portfolio – Discretionary investments structured across a portfolio of categories ensures that risks are balanced, return on investments is considered, and that enabling investments are not underfunded. For example, infrastructure investments may not generate the greatest returns, but are necessary to both keep the lights on and/or enable new types of applications. Innovation, on the other hand, is often under represented for a different reason - it is risky. Often organizations allocate funds by category to ensure that both innovation and infrastructure projects are funded. The funding model is a key alignment activity and critical to successful IT investment management.

IT investment management is challenging. In their 2013 survey, *The Enterprise Imperative – Leading Through Governance, Portfolio Management, and Collaboration*, NASCIO, Grant Thornton, and TechAmerica found that *"although formal IT project oversight practices are nearly ubiquitous, they are generally considered not to be very effective. CIOs believe oversight practices are more effective when statewide governance and oversight bodies enforce a consistent approach across the state. Formal IT enterprise portfolio management processes have also become more the norm over the past few years. While CIOs view these processes as increasingly effective in monitoring the portfolio of ongoing projects, they also view them as relatively ineffective in driving IT investment decisions."* The processes are in place, but something is clearly missing. Could it be the criteria represented by the three previous components?

Investment Management Statement 1: Processes and governance are in place to support IT project prioritization, decision-making, funding, etc.

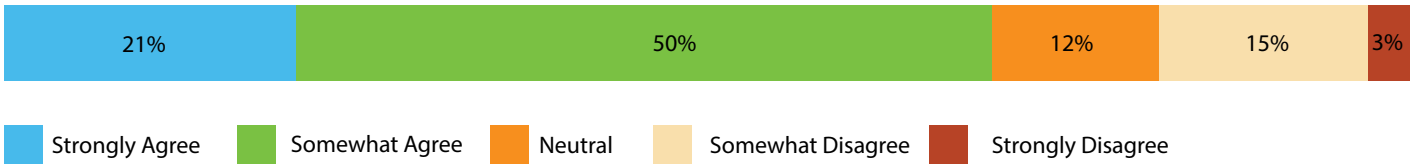


Just under 70% of respondents to *Investment Management Statement 1* agree either strongly or somewhat that governance and processes are in place to support investment management. In this day and age, the level of neutral and somewhat disagree responses are surprising and an indication that more work is required to establish effective investment management processes and governance.

Investment Management Statement 2: All discretionary investment requests are consistently evaluated based on strategic fit, business benefit, cost, risk, resource requirements, and architectural impact

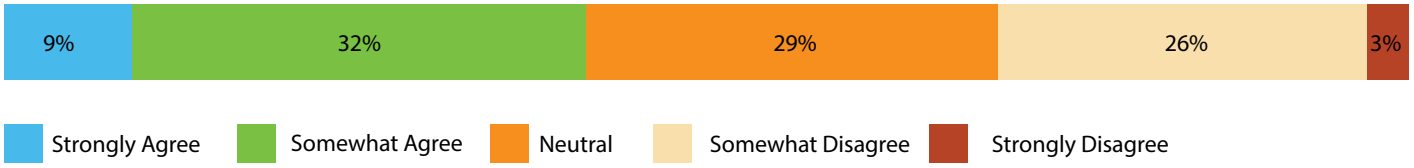
The results of *Investment Management Statement 2* indicate consistent investment evaluations from close to 62% of the respondents, which is a core requirement for evaluating alternative investment options.

Investment Management Statement 3: Generally, the expected value (i.e., business case) of prospective discretionary projects has been used to prioritize new projects

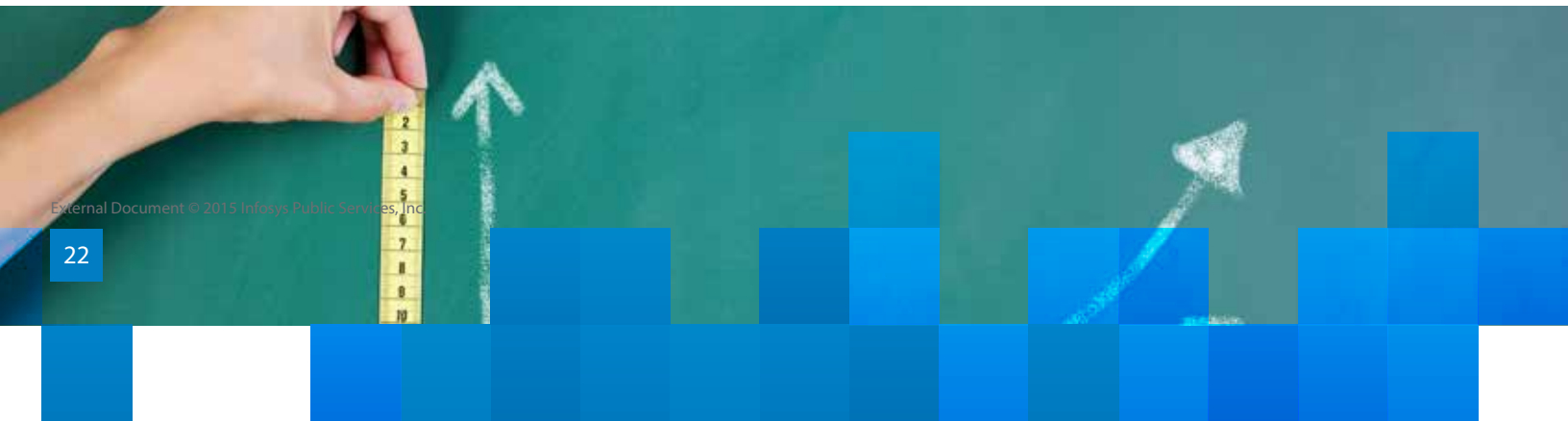


As shown in the results from *Investment Management Statement 3,* over 70% of respondents use prospective value of projects in the prioritization process. All other things being equal, value is usually the deciding factor. Yet a significant minority of respondents, approximately 30%, are apparently not prioritizing on expected value. Expected value includes both financial and non-financial. A follow-on research for that 30% of respondents would be to learn what additional analytics, or heuristics, or influences have an impact on the prioritization decisions. And, what validity there is for these other influences on the prioritization decisions.

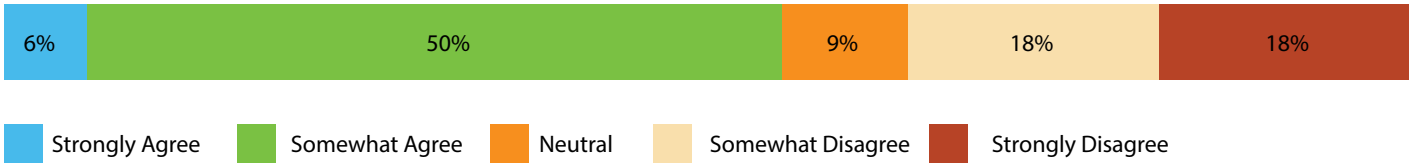
Investment Management Statement 4: The cost estimation and benefits estimation competency required to develop an accurate and complete business case is low across the enterprise



As shown in *Investment Management Statement 4,* there is clearly room for improvement in cost and benefit estimation competency. Without strong competency in business case development, using business cases to compare, prioritize, and/or select IT investments is like comparing apples to oranges. Standardizing business case variables and templates can remove some of the inconsistencies in their preparation and ensure more accurate and consistent comparisons of investment alternatives. Standardization also provides a level playing field for all projects to compete on an equal ground. Without such standardization, we may find the better prepared business cases that are more comprehensive (and therefore include important components like security, records management, data management, ongoing sustainment) don't look as good on paper as those that have omitted such important components and yet present a better ROI.

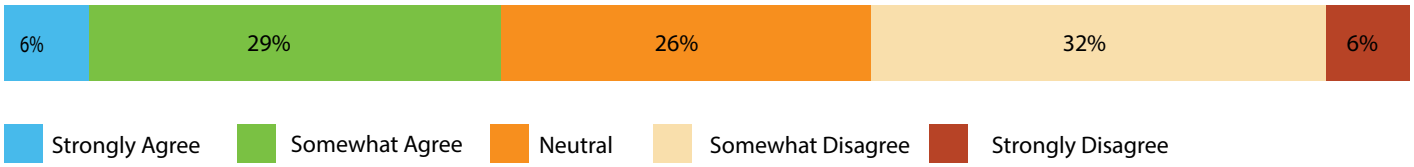


Investment Management Statement 5: A single system is used to track requests, provide status to business and IT staff, and capture data on the demand management process



Tracking and maintaining discretionary project requests in multiple systems makes it more difficult to manage investment opportunities. Obviously, different governance mechanisms may have separate tracking systems, but having an overall view of demand will help identify common opportunities or redundant investments across both the enterprise and agencies. The results for *Investment Management Statement 5* indicate over half the respondents agree that a single request tracking system is used to manage demand.

Investment Management Statement 6: Benefits realization is measured after a project has been completed



Improving a process requires measurement. Measuring benefits realization after project completion provides a feedback loop for controlling the benefits estimation process and improving benefits estimation competency. If benefits realization is not measured, using business cases to prioritize and select IT investments is flawed. Measurement prevents participants from gaming the system by overstating business value in the business cases or being held accountable for less than anticipated value realization. The responses to *Investment Management Statement 6* show much room for improvement in benefits realization measurement.

Investment Management Statement 7: Greater than 80% of the IT budget is spent on maintaining the existing systems environment

The maintenance budget percent metric is a common measure. With close to 44% agreement and nearly 32% neutral, the results shown for *Investment Management Statement 7* are among the most concerning and can imply fundamental issues with IT investment decision-making, and may indicate the "wrong" or at least not "most optimal" decisions have been made in the past. Furthermore, it tends to crowd out necessary value-producing initiatives and/or innovation.

These results could mean a number of things, including, but not limited to:

- An IT organization focused on customer service (and often incented by internal customer satisfaction surveys) that gives the business exactly what it asks (whether valuable or not)
- A complex infrastructure and application environment with above average counts of redundant application and infrastructure components
- Shadow IT efforts to circumvent unresponsive IT, which exacerbates the complexity
- Fragmented IT investment process and governance that doesn't weed out redundant or unaligned initiatives
- Inadequate value discipline
- Funding tied to organization structure and not to value
- Greater risk to future project failures due to complexity

The challenge can be significant, as one CIO expressed: *"We are moving -- slowly -- towards more enterprise decision making, but there is significant push back. Agencies have their goals, which because of funding and lack of central direction, do not lead to an enterprise approach."* The investment management process cannot fix what must come from non-IT leadership (i.e., principles) or from funding idiosyncrasies.

At least for the 44% that see such a significant percent of their budget devoted to maintaining existing systems, this may mean such systems are requiring much ongoing modification, intervention, and/or the portfolio of existing systems are actually meeting current as well as any new demands through ongoing extensions.

Conclusion

Challenges

The results of the survey highlight some of the challenges that state IT organizations and their business stakeholders face when trying to determine the "right things" in which to invest. The intent of the survey was to evaluate either directly or indirectly the presence of several factors important for optimal IT investment decision-making. These factors include ensuring that people with the right skills and experience are included in decision-making, making decisions based on defined and agreed criteria, and ensuring that the person who is accountable for implementing a decision is involved in making that decision. CIO interviews surfaced other complexities, which must be considered, for example, the four-year election cycle and its impact on alignment.

Funding complexities were also raised during the CIO interviews. While not included in the scope of this study, funding model decisions are critical alignment decisions. A portfolio framework is commonly used to allocate funds to different groupings of IT spend categories (and has been studied in past NASCIO research). Two critical dimensions to be considered, among others, in the portfolio include:

- The funding split between new initiatives (discretionary spending) and operating budgets for sustaining IT (non-discretionary spending)
- The funding split between enterprise systems and individual agency systems

The former requires a decision about level of change or innovation desired. The study indicated a large number of states spent 80% or more maintaining existing systems, which is an above average allocation and indicative of complex systems environment. The latter can be thought of as the long-term strategic decisions required to instantiate the business operating model.

Study Summary

The results are mixed. Some states appear to be better positioned than others for the future. At the same time, some of the results are contradictory as highlighted in previous sections. Are the stakeholders of IT getting the IT they deserve? Perhaps, if the stakeholders are not participating as they should. If strategies change often, or if a collective sense of how to operate the state's business is missing, or if business decisions are relegated to IT, then yes, the stakeholders may be getting the IT they deserve.

The study is likely to have raised awareness of components necessary the make decisions on the "right things," and hopefully it raised more questions for consideration. The study reflects opinion, but each state would benefit from more facts. Consider it a directional statement and potentially a starting point on a journey of introspection and transformation.

Study Frame of Reference

The survey and study results are intended for a non-technical audience, but the constructs used may not represent a frame of reference familiar to key stakeholders within your organization, nor are they meant to be exhaustive. The constructs are critical to making the decisions on the "right things." A general recommendation is, to the extent it isn't in place, build your frame of reference by standardizing the concepts and processes within your organization to facilitate sound decision-making, effective communication (across business and IT) regarding IT investment decision-making, and consistent employment of existing governance processes. If you are not working on the "right things," you are leaving value on the table (and probably adding to complexity).

High Level Recommendations

The following high-level recommendations have been developed to provide some direction on next steps.

Establish a Point of View

The starting point in any transformation is the existing IT process and systems environment, and the survey results imply significant complexity exists. In order to build a plan for simplifying the systems environment and building the capabilities required to make decisions on the "right things," an assessment of the current state must be performed and a target future state must be articulated. Of course, transforming to the future state from the current state will require a case for action built upon a foundation of facts and root causes.

The Current State

Some of the assessment work may be a matter of periodic practice, which can be leveraged. Otherwise, action items to consider for performing a current state assessment include such traditional initiatives as:

- Benchmark against best in class organizations
- Assess against IT best practices
- Rationalize applications to identify redundancy, assess application value, and clarify the operating model
- Rationalize IT services to identify efficiency and effectiveness improvements

Other assessment work will surface more challenging issues beyond the CIO's authority that require executive management attention in order to break down intractable barriers. Problems where reasonable people can support either side of an issue are especially suited for executive action and likely have far reaching consequences. Gather facts, understand the root causes, and then engage with executive management. Breaking down these barriers will provide the clarity necessary for taking high-value actions, probably the kind of actions that support executive government objectives, goals and strategies.

The Future State

Can you answer "yes" to most of the following?

- Do business and IT strategies change often?
- Is IT treated as a strategic liability to be maintained rather than a strategic asset to be leveraged?
- Is IT an afterthought in the organization more so than a foundation of effective capabilities?
- Are new systems often added to the inventory of individual systems solutions, which IT must patch together to ensure nothing breaks?

If you can answer yes to any of these questions, consider a new strategy for IT in your organization. Don't build or acquire a business system in reaction to a business need. IT is often used to provide short-term solutions to immediate problems. This is shortsighted and leads to complexity and and unnecessary expansion of the portfolio in the systems environment. While valuable IT assets can be produced in this manner, they are often patched together in an inelegant manner that requires significant ongoing resources for maintenance.

> **Albert Einstein famously said – We cannot solve our problems with the same thinking we used when we created them.**

Reversing the complex IT systems environment implied by the survey responses requires different thinking from that which resulted in the current inelegant and broad mix of IT assets. If systems and processes are broken, it seems logical to change how you think about IT and how you implement digitized processes. It doesn't start with IT transformation, it begins with business transformation.

The business community should lead this effort. To think about IT differently, start by defining the business operating model. The operating model is the targeted level of business process integration and business process standardization for how you want to deliver services to state citizens and businesses. States may require more than one operating model, depending on where platform capabilities are to be shared. The operating model establishes the design parameters for a digitized platform that can enable future service opportunities.

Whether a digitized platform is built or procured, it is more or less table stakes for operating in the 21st century. Digitized platforms enable consistent core operations, provide a stable foundation, and enable faster response to new service opportunities and business innovation. If the business community cannot agree on how it wants to operate, it will be very difficult to know how to invest in the "right things."

Depending on the individual situation and barriers present, other more advanced actions may be warranted. However, if your alignment is challenged, your operating model has evolved organically, or your computing environment is complex and void of platforms and roadmaps, the above recommendations will facilitate fact-finding, analysis, problem definition, and defining a path forward.

Notes:

Notes:

Acknowledgement

We thank the state CIOs who participated in this survey and related interviews. We thank the NASCIO and Infosys Public Services professionals who helped to develop the survey, execute, analyze, and create the report.

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