

TBM Maturity Model for Federal Agencies

Focus Area: TBM Processes



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Introduction

Mature Technology Business Management (TBM) processes are efficient pathways for IT data capture and sharing across an organization and are essential for a high-functioning, collaborative relationship among the offices of the CFO, CIO and CAO and other stakeholders. That sentence won't fit on a t-shirt, but we believe that improving TBM processes can have a big, positive effect on Federal agencies' IT management. The TBM Maturity Model developed by TCG is designed to help agencies establish these pathways. Moving through this part of the maturity model enables agencies to break down existing silos to produce high quality, granular data. Because high quality data is a foundational aspect of TBM itself, we recommend intervening first in the Process Focus Area of the Maturity Model before moving on to other focus areas.

Effective processes establish a virtuous circle in which better processes leads to better data which leads to better processes. As the quality of data improves, this circle naturally expands into other areas, creating more effective leadership, accurate budget forecasting and benchmarking, and highly integrated and automated technology.

In terms of their current processes, most agencies fit into one of two basic contexts. Some are currently shoehorning TBM into their existing Capital Planning and Investment Control (CPIC) processes. That is to say that these agencies are trying to leverage their existing, mature CPIC processes to generate an output that adheres to the **TBM taxonomy**. Other agencies are looking to get more out of their implementation but simply don't know how to assess the quality of their TBM practice. In this focus area, we will be discussing the methodology and the resources available for improving TBM processes that are relevant to both contexts.

The four stages of maturity in the Processes area are:

Manual Processes (Novice Level)

A Novice maturity level in the Processes focus area is marked by manual processes that are not aligned across business units. Each stakeholder group manages its own process, and data sharing—if any—is an exception to the rule. Data is not granular and it is often shared in an aggregated format, which provides fewer insights for other business units. Because no shared process has been defined, there is no clear ownership across stakeholder groups.

Aligned Processes (More Mature Level)

If an agency has reached the More Mature stage, processes are aligned such that there is some collaboration between CIO and CFO operations but no formalized process. Data is detailed, but only contains breakdowns along one dimension of the TBM taxonomy. In terms of ownership, CIO and CFO shops have a high-level understanding of their roles in the TBM process, but roles are not defined in enough detail to ensure streamlined operations.

Automated Processes (Mature Level)

At the Mature stage, TBM processes are automated enough to ensure general compliance but not a high level of efficiency. There is a shared process in place between the CFO and CIO, but it doesn't meet performance objectives. Data is sufficiently granular and contains breakdowns along multiple dimensions of the TBM taxonomy but may not be complete. Most but not all process steps have an identified owner.

Efficient Processes (Leveraged Level)

An agency that has achieved Leveraged enjoys an efficient TBM process that runs smoothly and meets the agency's IT management needs. There is an efficient and effective cross-departmental process to gather and share TBM-related data, which is detailed, complete, and can be aggregated across all dimensions of the TBM taxonomy. All process steps have an identified individual owner who is accountable for ensuring smooth operations.

Figure 1

TBM Maturity Model - TBM Processes

		Maturity Levels			
		Novice	More Mature	Mature	Leveraged
Focus Areas	Leadership	No Leadership Buy-In	Clear IT Providers	Cost/Decision Transparency	Mission Focused Investment
	Budget & Performance	Unreliable Metrics	Established Standard	Efficiency Gains	Budget Scenarios
	Data Analytics	Ad Hoc & Reactive	Standards Developed	High Data Quality	Robust, Predictive Analytical Models
	Technology	Key Features	Data Tools and Management	Key Development Goals	Integrated & Modern
	TBM Processes	Manual	Aligned	Automated	Efficient

Vision of TBM Processes

Why a Vision?

When we talk about a vision for TBM processes through the Maturity Model, we mean not only what we imagine for the future but the ability to see what's already present. Without a clear-eyed view of the current state of the enterprise, a vision for the future cannot be realized. The TBM Maturity Model developed by TCG is designed to assess the current state not only to establish what the future state can look like but also to give organizations a clear set of directions to achieve it.

The TBM vision explained below details what a starting point might be at a federal agency and then describe the destination — high-quality TBM processes. After describing this vision, we then detail how to create a roadmap that can guide an organization from their current to their future state.

Current State

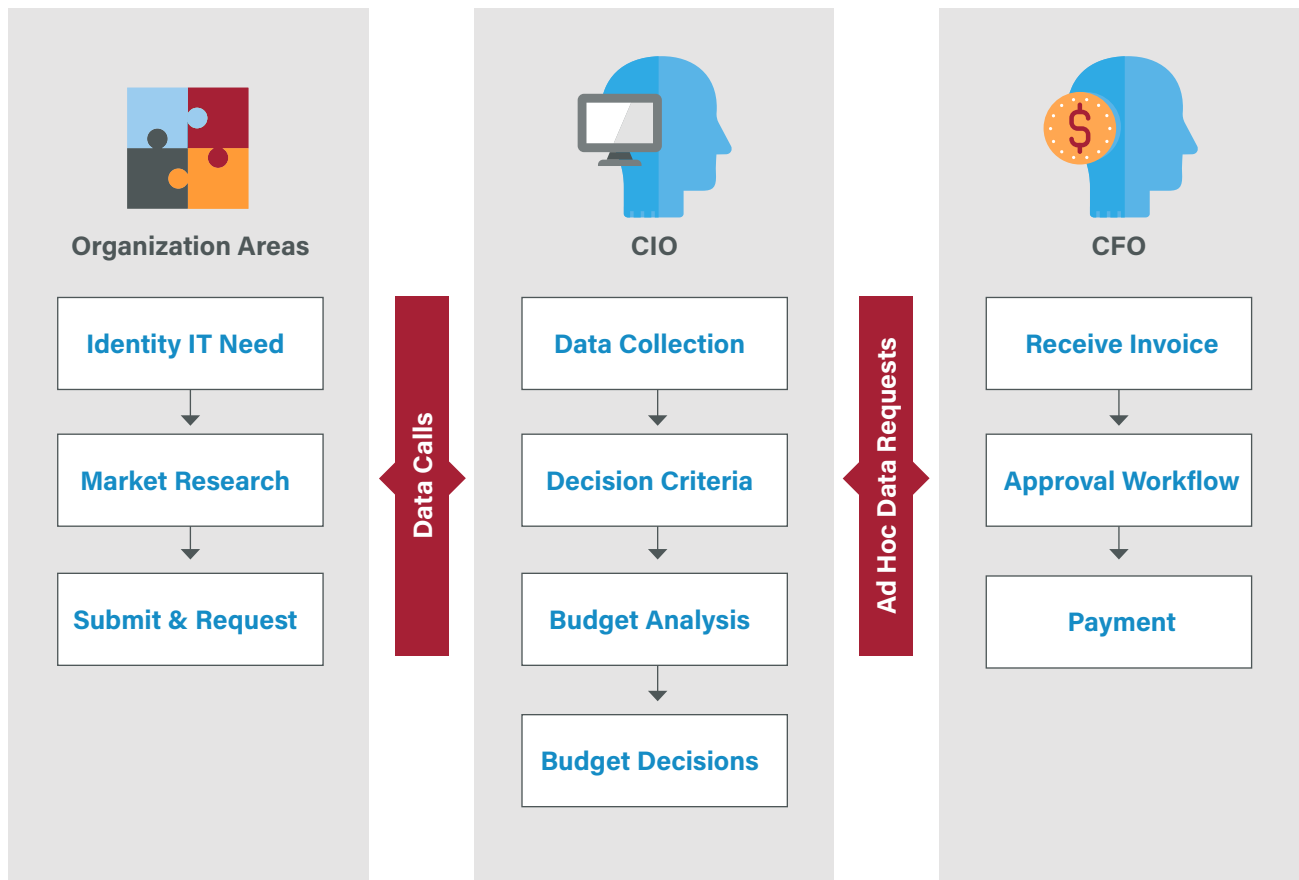
While each federal agency is a distinct entity with its own complexities, agencies share many features when it comes to IT. For most, IT budgeting is a year-round process; Data is collected from the previous year's budget and consequently may not reflect current IT needs. Often it is aggregated at a high level without detailed breakdowns. This system incentivizes agencies to spend money that they don't actually need because giving back money almost guarantees that a budget will be smaller next year, regardless of actual need. These are some of the hallmarks of current IT budgeting processes.

Budget requests should be a faster more efficient process, based on richer data that reflects actual need. Improvements in this process will lead to more responsible spending. Through the Maturity Model, TBM can be leveraged to make these improvements. Let's take a closer look at some of the problems that might define the current budgeting process at federal agencies.

The workflow chart below depicts an agency with siloed processes. Siloed processes promote confusion between stakeholder groups and lead to inefficiencies that hinder an agency's ability to capitalize on the benefits of TBM. But what does this mean on a practical level and in the context of a transition to the TBM methodology?

Figure 2

Siloed Workflow Process



The chart above represents an organization at the novice level. At this level, any data call or request for information and collaboration requires establishing an ad hoc pathway between business units each time a request is made. Agencies at this level have:

- **Siloed Processes:** Data calls from other offices, e.g. CIO, are treated as burdensome, outside exceptions to processes internal to a business unit.
- **Aggregated Data:** Often data is formatted in too little detail (aggregated) or simply from a perspective that is not useful to the business unit requesting information..
- **No Ownership:** Responsibility for supplying data falls on whoever has the time or “gets stuck” with the task.

The end result is a vicious cycle in which poor, siloed processes lead to poor data, which leads to poor decision making about how IT resources should be allocated. As the saying goes “garbage in, garbage out.”

In this example of a current state, the structure of contract-spend data limits the insights that IT managers can derive from the data. When information is reported to CIOs in terms of spending and needs, that information comes in the form of aggregate numbers that do not contain detailed breakdowns. Lacking detailed, granular level of IT spending data obscures where money is actually being spent, thereby preventing IT managers from identifying overspend and applying corrective action.

The government is generally not in the business of IT, but all agencies rely heavily on IT capabilities to perform their missions. As a result, contractors and vendors receive the majority of IT spending, with a smaller percentage going to payroll for government-employed IT professionals. Consequently, our primary example in this section deals with contractor invoicing processes. In this example we can see how the TBM taxonomy enables integrated processes across business units to collect granular data.

You can't make data more granular than what you receive, so invoices without granular categories corrupt IT-spend data from the outset. This invoicing problem is not merely semantic or academic; It obscures the areas in which vendors are delivering or failing to deliver on their value proposition.

TCG highly recommends updating your underlying TBM/CPIC processes to ingest IT spending data directly from invoices that have been reformatted by the vendor to show spending using the TBM taxonomy.

Communicating Invoicing Requirements with IT Vendors

Requiring invoices in the TBM taxonomy may be a big change for some government IT vendors. Some categories of the taxonomy such as business services and systems will be specific to each agency, so agencies will need to consult their enterprise architecture experts to designate what falls into each category. It is essential for agencies to communicate these requirements clearly at the outset, so we recommend making this stipulation within RFIs and RFPs. Subsequently, each contract should stipulate what falls into systems, capabilities, and other agency-dependent areas of the taxonomy.

Future State

As we said above, we envision mature processes as the pathways by which high quality data is collected and effectively communicated among different stakeholders. Mature processes have three important qualities:

- **Alignment** of organizational processes across business units
- **Ownership** of process steps by federal staff
- **Granularity** of data that the processes produce

Alignment: In order for TBM to be successful, there must be a single set of shared processes for all business units, including CIO, CFO, and CAO. This quality may be the hardest to define, but we can say that processes are aligned when different business units have established routines for sharing information in a way that is relevant for all stakeholders. Such routines create a shared perspective; an understanding of how the different capabilities, services, and goals of each business unit facilitate the agency's overall mission.

Ownership: Clearly identifying ownership of each process stage and defining each output or handoff will streamline the underlying TBM processes and ensure smooth and rapid data sharing. Ownership also provides accountability at each stage of the process. The owner of a particular stage is responsible for ensuring that their area of the process is running smoothly and any issues that arise are addressed.

- **CFO:** manages the financial system and makes updates to financial systems to accept TBM data for IT spending
- **CAO:** updates contracts so that contractors have guidance on how to submit high quality data in the TBM taxonomy
- **CIO:** manages, reviews, and analyzes IT spending data and provides feedback to key organization stakeholders internally and externally

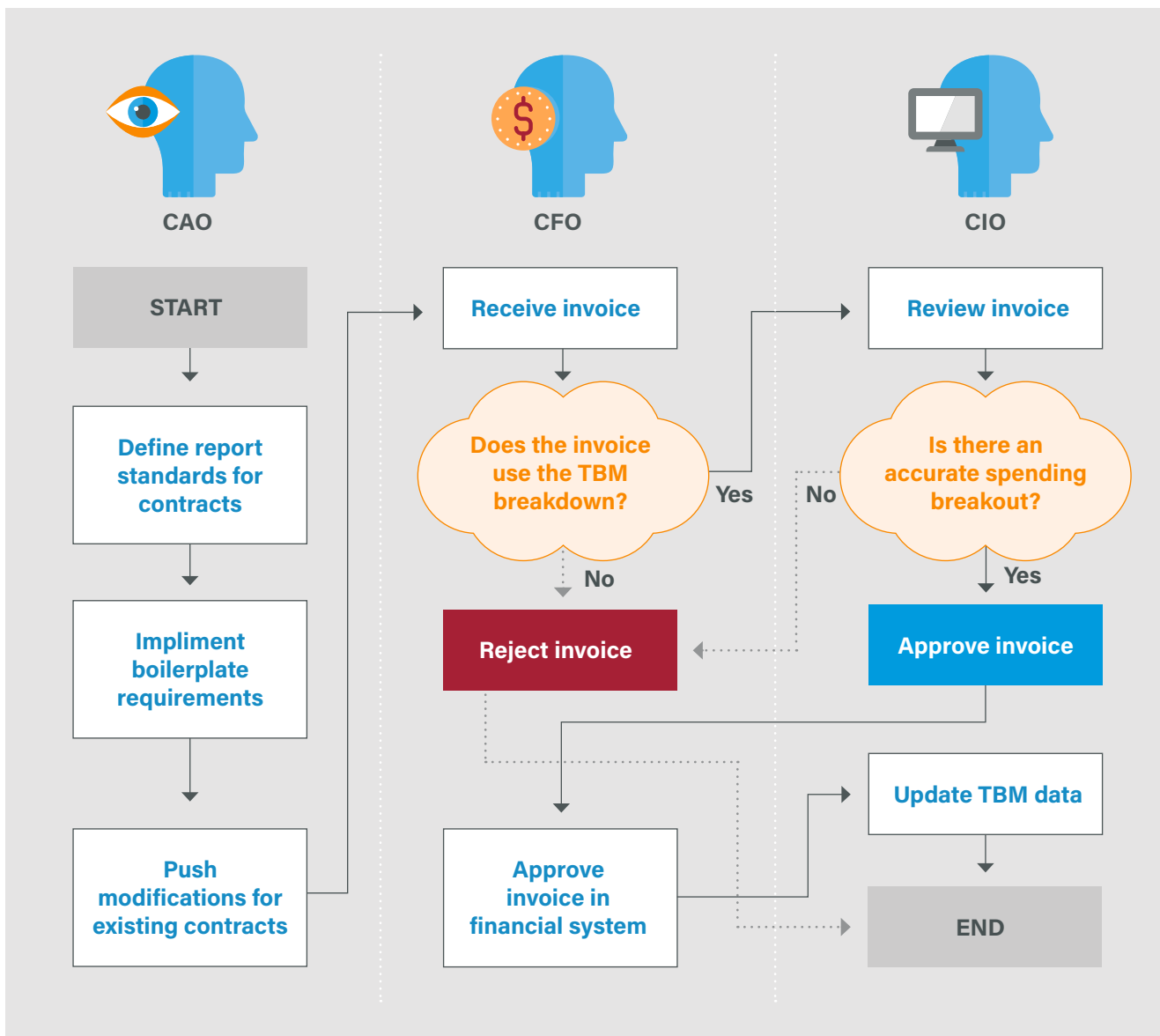
Granularity: One of the hallmarks of TBM—and an important driver of its success—is a granular breakdown of spending by categorizing dollars across cost pools, IT towers, business capabilities, and organizational departments. Therefore, detailed, granular data must be an input into the process from the outset. As you will see below, contractor invoices are one of the key tools for collecting granular data. Receiving invoices with a proper breakdown in the TBM taxonomy eliminates the necessity to reverse engineer aggregate spending data to approximate how IT resources are being allocated.

Alignment and Ownership

Figure 3 is a process model of mature, aligned processes at a high level. A more detailed workflow might include plugins for other business units like human resources and their systems, additional steps for review and approval, and other procedures that reflect the particular organization of a specific agency. While Figure 3 is the skeleton of a mature process workflow, this diagram helps us to see some important features relevant to all agencies.

Figure 3

Aligned Process Model



Notes: The CAO process is repeated once per contract. CFO and CIO process is repeated for each contract or each invoice.

Mature processes include participation across groups and ownership within each group of different parts of the process. In the process model, the CAO defines requirements for contractors to provide a breakdown of invoice dollars by TBM buckets across each level of the taxonomy. The office of the CFO reviews invoices as they are received to ensure each invoice includes the required breakdown, and the CIO's office does a second review to ensure the breakdowns are appropriate based on the agency's established TBM taxonomy. At each step it is clear who is responsible for ensuring the quality of the data and approving that data into the relevant systems. This is a process that accumulates the high quality data needed for robust data analysis. Aligning processes is a critical initial step. So much so, that the second stage of the TBM Maturity Model for the process focus area assumes that alignment is complete before focusing on the other key drivers of granularity and ownership.

Granularity of Data

The vision for **Mature TBM processes** centers around spending breakdown via contract invoices. Each invoice should contain a disambiguous list of costs, each of which are attributable to one cost pool, one IT tower, one service, and one business capability/business unit. The total cost of all pools, IT towers, services, and business capability/business unit layers should all equal the invoice total. Contractors are required to provide invoices that categorize costs according to the TBM taxonomy. (The taxonomy is customizable according to the agency but has some basic categories.) In this way, it leverages existing invoice approval processes to gather the necessary data.

Why is this granular data necessary? The purpose of requesting invoices in the TBM taxonomy is to deliver data that is relevant and supports the functions of the business, finance, and IT areas of an organization. The taxonomy operates as a shared language, and the high level of details means that there is no need to approximate costs through ad hoc reverse engineering.

Using the Maturity Model

The Maturity Model is descriptive and diagnostic; however these features are only useful if they lead to plans that can be implemented. The previous section described the likely starting point for agencies looking to improve their TBM processes and detailed the qualities of a high level TBM process. In this section, we give an overview of how to identify the steps needed to move an agency's TBM processes from their current state to a future state with more aligned processes that deliver high quality, granular data.

Assessment

The goal of assessment is for an agency to rigorously evaluate itself on its current maturity level and to establish consensus about this evaluation. This step is about identifying gaps in processes and prioritizing which gaps need to be addressed first. To make this happen, the stakeholders need to collaborate to develop a focused, shared perspective on an agency's existing workflow. A collaborative assessment is the first step in breaking down silos and developing highly aligned processes.

In Appendix I we have provided a sample worksheet of questions to aide evaluation. The questions are not exhaustive and are offered as a framework to identify gaps in current processes and prioritize the improvements that will have the greatest impact. The Yes/No questions help agencies evaluate the maturity level of their current processes. These questions are followed by related short answer questions. The goal of the short answer questions is to create transparency around current practices and to enable different departments to see how their colleagues view their own, as well as each other's phase of a given process.

- **In assessing alignment, agencies should ask:**

- Are we using our processes to share information with other organizations within the agency?
- Are we able to incorporate datasets from other business units in our processes without additional data calls or requests?

- **In assessing quality of data, agencies should ask:**

- Are there unexplained outliers in the dataset we are using for our business processes?
- How much does the data differ from the values we would expect?
- Are there missing values or nonsensical data?

- **In assessing ownership, agencies should ask:**

- Do I know who to ask if I have a question at a certain stage of the process?
- What am I responsible for doing and by when?
- Are subject matter experts given clear ownership over their area of expertise in the process?

Create a Roadmap

The roadmap is a high-level plan that describes what needs to be done in a prospective time frame. The goal of the roadmap is to clearly communicate a shared vision of how the work will be accomplished. It expresses the consensus, details priorities that were developed in the assessment, and establishes the deliverables that need to be completed. Once there is consensus around the approach, the project plan or statement of work can be created to provide details around execution.

Project Plan/Statement of Work

A project plan or statement of work will be familiar to everyone reading this. What is important to note is that an actionable plan is the end result of working through the Maturity Model. After completing the assessment and creating a roadmap, agencies will know the who, what, when, and how of implementing improved processes. This includes determining whether an agency has the resources to implement the plan internally or whether to bring in outside resources.

Conclusion

Alignment, granularity of data, and clear ownership are the hallmarks of high quality TBM processes, but it is important to have a framework for assessing the efficiency of processes and the quality of the data they capture. The TBM Maturity Model developed by TCG provides this framework. Using the model to first identify gaps in existing processes and find solutions will have benefits that extend into the other focus areas of leadership, technology, budgeting, and data analytics. Establishing high quality processes provides a solid foundation for improvements in other areas.

In the appendices that follow, you will find resources for assessing your agency's TBM processes. Use these resources, share them with your team, and begin the discussions that will put you on an actionable track to improve your TBM implementation.

- 1. Appendix I: Assessment Worksheet**
- 2. Appendix II: Common Indicators and Solutions**

If you have questions about the Maturity Model or would like more information on how to use it, please contact tbm@tcg.com. We look forward to hearing from you!

Other Resources

Visit www.tcg.com for additional information on implementing TBM at your federal agency.

- *Ready or Not, Here it Comes: Prepare for Technology Business Management*
- *Six Steps to Implementing Technology Business Management at Your Agency*
- For assistance or questions about implementing TBM at your agency, contact tbm@tcg.com.
- www.tcg.com | Keyword: tbm

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TCG aims to improve the world around us, in big and little ways, every day, for our staff, clients, and community. TCG provides the federal government with positively distinct IT and management advisory services in Agile development, Technology Business Management, federal shared services, budget formulation and execution, and health science analytics that help government programs and America succeed.

TCG played a central role in supporting the roll-out of TBM across the Federal Government. Our consultants helped create and distribute the policies that agencies are now using to improve their management of IT investments; while our insights into IT spend data underpin government's TBM evolution. As early members of the TBM Council, TCG was at the forefront of understanding and interpreting TBM principles in the federal government context.

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Appendix I: Assessment Worksheet

Any 'No' response indicates an opportunity for improvement. Work with your team to identify the causes of these issues and find a path to resolution.

Alignment

1. Is there one set of universally agreed processes that produce definitive information upon which the organization makes decisions (i.e., not duplicative processes or processes that produce potentially conflicting results)?
 Yes No
2. Are you able to establish spending patterns across both TBM Cost Pools and IT Towers?
 Yes No
3. Are there mutually agreed upon definitions of all of the TBM components that exist, not only at the headquarters and finance levels, but also within subsidiaries or component organizations?
 Yes No
4. Are the processes automated so that information flows smoothly among business unit, CIO, and CFO process owners without significant manual intervention?
 Yes No
5. Are the processes integrated within the normal business flow of decision-making, budgeting, prioritization, etc. (i.e. TBM processes are not a side activity)?
 Yes No
6. Do the processes fulfill both external reporting needs and internal decision-making needs without significant manual intervention?
 Yes No

Granularity

7. Are vendors held accountable for submitting their invoices and other data in a format and structure that feeds smoothly into the process and does not require significant manual intervention?
- Yes No
8. Is there standard contract language that requires contractors to submit invoices using the TBM taxonomy?
- Yes No
9. Is time data being allocated in a way that allows attribution to the cost pools, towers, and projects?
- Yes No
10. Are internal expenses (e.g. facilities expenses, power, etc.) attributed in reasonable and transparent allocations to business functions and projects?
- Yes No
11. Is the asset management system coded adequately to support attribution of costs to the appropriate levels of the taxonomy?
- Yes No

Ownership

12. Has a roadmap for continual process improvement been established with goals, accountability, and approximate timelines?
- Yes No
13. Do stakeholders in the CIO and CFO shops know the name of the person who owns each process step, so they know who to contact if there is a disruption in the process?
- Yes No
14. Do owners of TBM process steps have performance goals related to their role?
- Yes No
15. For any of the questions in the preceding sections to which the answer was "No", is there a clear owner responsible for creating a plan to change that answer to "Yes"?
- Yes No

Short answer:

1. What are the current sources of definitive information that your agency uses to make decisions?
2. How do the offices of the CIO and CFO currently share information about IT needs, spending, and services?
3. What is the format in which vendors currently submit their invoices and how far are the categories of the TBM taxonomy subdivided within these invoices?
4. How often is data “reverse engineered” to provide more granular information and at what point in the process does this data manipulation occur?
5. When have you seen the processes for collecting and sharing data about IT breakdown and why do think this happened? How often do these breakdowns occur?
6. Are there standard visualizations and representations of data that everyone in a decision-making position recognizes, utilizes, and relies upon — can you name them (or name groups of them if they are grouped) and say what they are used for?
7. After reviewing the list of common indicators in Appendix II, choose one that you feel best represents issues with TBM processes in your agency and describe why you made this selection. If none of these indicators apply, choose one and describe the process that helps you avoid this issue.

Appendix II: Common Indicators and Solutions

There are indicators for unaligned processes, aggregated data, and lack of ownership, and we have listed several of them below for each category. In addition, the table below includes general solutions for these kinds of issues.

Alignment	
Indicator	Solution
Sharing data through the emailing of spreadsheets or other manual procedures (except where those spreadsheets act as a front end to the systems themselves and are not separately maintained).	Develop data tools that collect/expose data to stakeholders in the format that is most useful for their purposes.
Sharing data through the emailing of spreadsheets or other manual procedures (except where those spreadsheets act as a front end to the systems themselves and are not separately maintained).	Develop data tools that collect/expose data to stakeholders in the format that is most useful for their purposes.
Multiple sources for the same data or multiple versions of the truth.	Identify a single source of the truth for each dataset and element. This topic is discussed in more detail in the Data Analytics paper.
TBM categorization and data are used for external reporting only and not for internal IT management.	Leverage TBM insights as part of IT Management operations!

Ownership	
Indicator	Solution
Dealing with single point of contact by department, not by process step—communication follows org chart rather than shared process diagram and ownership.	Develop process tools for all stakeholders across the agency that contains a depiction of the single, cross organizational process as well as POC for each step and contact information.
Process halts when a person is on vacation or leaves the organization.	Document each process step and have backups. In addition, data assets should be centrally stored in a database or file share rather than on an individual's desktop or drive.
Duplication of work.	Identify redundant efforts and have relevant stakeholder discuss process improvement (DMAIC)—six sigma.
Unclear ownership of process steps causing issues and delays when process step fails.	Provide clear ownership of the process step as well as remediation actions when they occur.

Granularity	
Indicator	Solution
Disaggregating high-level data based on previously established assumptions or formulas instead of ingesting granular data.	Collect granular data from each provider; i.e. contractors provide cost breakdowns using TBM taxonomy and 2210s provide timesheet-based breakdown of effort using the same taxonomy.
Attributions of costs is opaque and potentially inaccurate.	Don't break down data. If you have to, mark data that is derived for all stakeholders. As a general rule, do not break down data provided from external sources; request more granular data.
A breakdown of the data involve assumptions that may or may not be true.	Don't break down data. If you have to, document and communicate derived data and the assumptions used to create these data points.

If you have noticed any of these issues at your agency or have feedback on the assessment questions listed in this appendix, contact us at tbm@tcg.com to help get resolution.