



Technology Business Management Agency Best Practices and Lessons Learned

Case Studies from Representative Government Agencies

IT Management & Modernization Community of Interest

Released: April 27, 2021

Synopsis

This case study discusses representative case studies from federal government agencies and organizations, detailing their lessons learned as they implement the Technology Business Management (TBM) framework.

These case studies cover a variety of agency approaches with the hope of informing other agencies as to the success and challenges that their peers are facing.

The case studies in this paper provide a set of lessons-learned that can be used by government stakeholders as they plan their TBM implementation strategies. These are real-world examples of a topic that is often discussed in abstract terms.

The choices of vendors and solutions made by represented government agencies and organizations are based on program-specific selection criteria. The IT Management & Modernization Community of Interest respects the independence of these choices and does not itself advocate any one vendor or solution over another.



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The FTIM CoP helps federal agencies implement a standard way to categorize information technology (IT) costs, technologies, resources, applications, and services. The community helps agencies optimize the value of their IT investments by prioritizing transparency, consumption, and performance. The community leverages agency knowledge to mature and streamline the Capital Planning and Investment Control, Technology Business Management, and portfolio management processes. The FTIM CoP meets monthly to discuss and share best practices that improve IT cost transparency. [Learn more about TBM on CIO.gov](http://www.cio.gov), and email us at FTIM-COP@gsa.gov with questions.

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Introduction and Executive Summary

Technology Business Management (TBM) is an IT management framework that implements a standard IT spending taxonomy. In other words, it implements a standard way to categorize IT costs, technologies, resources, applications, and services. TBM enables organizations to disaggregate IT spending into smaller, consistent categories to provide Chief Information Officers (CIO) and other C-suite executives with a more accurate and detailed understanding of their organization's IT costs. This allows agencies to identify duplicative or unnecessary spending and to make better informed decisions regarding future investments.ⁱ Through the adoption of TBM federal agencies can achieve the following:

- Improve business, financial, and acquisition outcomes;
- Enable federal executives to make data-driven decisions and analyze trade-offs between cost, quality, and value of IT investments;
- Reduce agency burden for reporting IT spending;
- Improve performance data by automating the use of authoritative data sources; and
- Enable IT benchmarking within the Federal Government and across private sector organizations.ⁱⁱ

The TBM framework is a valuable tool that should be used for more than compliance or meeting OMB mandates. It can be leveraged to improve the mission value derived from the money spent on IT. It should be included as an integral part of budget execution where it can provide the transparency required to deliver value, shape the business demand, and plan and govern modernization and transformation initiatives. The TBM Framework encourages a partnership between IT, finance, and the mission entities to help manage spending, provide transparency of budget variances, identify, and quantify modernization opportunities, and justify additional funding by highlighting the beneficial impact of Development, Modernization and Enhancement (DME) on Operations and Maintenance (O&M).

Agencies that are successful at TBM implementation are able to provide cost transparency, show consumption impacts, and define performance criteria for stakeholders. A full TBM implementation of all IT costs provides a baseline of application portfolio costs aligned to business value, details application total cost of ownership (TCO) and breaks down the infrastructure components and IT services associated with mission outcomes.

This case study exercise set out to collect practical TBM best practices and lessons learned from various agencies to provide advice on how to successfully adopt TBM and realize its benefits. This paper explores agency TBM programs to uncover the strategies, methods, and tools used to successfully implement TBM across the federal space. While no situation is identical, we believe there are learnings from these experiences that can be leveraged by many agencies as they further their TBM goals.

The TBM case study team met with several federal agencies including the Department of Homeland Security (DHS), the General Services Administration (GSA) and the Small Business Administration (SBA) to gather best practices and lessons learned in their TBM programs to date.

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Department of Homeland Security (DHS)

DHS is an agency with diverse components, and its approaches to implement TBM must also be varied. For instance, Immigration and Customs Enforcement (ICE) is more centralized but the Transportation Security Administration (TSA) is more decentralized. This ‘centralized vs. decentralized’ structure of IT has historically been DHS’s primary challenge in tracking and reporting IT data. The overall DHS TBM strategy is to define “centralized targets”, using a centralized CPIC function, while allowing components to be creative and flexible in how they achieve those goals. DHS is methodically establishing a strong foundation even if it has not yet been able to use TBM insights to drive IT decision making. Similar to some other agencies, it is working towards utilizing the top layers of the TBM Taxonomy to provide more insights into its IT spending to power modernization and transformation opportunities. To facilitate TBM dialogues across DHS, they stood up an active internal TBM Working Group that meets regularly to share best practices, communicate centralized targets, and foster a collaborative TBM environment. The base level TBM compliance within DHS is achieved via the CPIC process and their internal CPIC toolset.

DHS best practices summary:

- Start with the basics using category management/general ledger frameworks for service management to underpin the TBM financial data and tie-out with the financial systems.
- Focus on better fundamental financial practices to identify low hanging fruit and then triage difficult ones which allows an easier way to integrate in the spending plans.
- Continue to get a handle on the data (sources, quality, and integrity) and general cultural alignment prior to committing to a TBM automation tool.
- Develop TBM “templates” to structure necessary allocations to provide some level of standardization (e.g., in managed service contracts) including establishing a standardized technology and services list.
- Implement a few fundamental steps providing the highest impacts:
 - Evolve towards financial best practices and undertake ongoing refinement of data;
 - Establish a methodology and governance process to leverage/enhance the financial management processes and adapt them to the TBM model (e.g., integrating formulation, execution, CPIC, etc.);
 - Data quality is a big challenge so focus on the scrubbing of data, especially managed services contracts, to ensure the best mapping to cost pools/towers; and
 - Analyze, clean, and categorize the data to provide deeper analysis into cost pools for easier areas (commodities like hardware/software) and more difficult areas (consolidated services/contracts).
- Align CIO spending plan, execution timeline, and investment reporting with a targeted governance approach to achieve better data integrity and alignment with authoritative data.
- Use decision trees and templates in the procurement process to best align future contracts with the TBM data collection needs.

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General Services Administration (GSA)

The TBM program at GSA started in 2017 at the direction of David Shive (GSA Chief Information Officer) who had previous experience with TBM when he was the CIO for the District of Columbia. There were two initial efforts starting with a small pilot focused on infrastructure which then expanded to include all of GSA's IT budget. GSA is currently executing a 'back to basics' approach using spreadsheets and commercial data visualization software. This approach allows GSA to focus on building a strong foundation before proceeding with a more mature TBM model and automation. While there were early successes certain roadblocks with data availability required a reset. The TBM model and allocation strategies were complex and difficult to understand and rationalize to stakeholders, resulting in low support and trust of the provided analysis. In addition, there were difficulties getting buy-in beyond the immediate stakeholders. As GSA moves forward, the initial focus will be on transparency within the budget. Additional data sets will be used to support the groups that are already or could easily benefit from a basic total cost of ownership analysis.

GSA best practices summary:

- Leverage a structured and formalized TBM Office (TBMO) to include a dedicated TBM team. This TBMO should be empowered and actively promoted and championed by senior leadership.
- Establish formal data, governance, stakeholder, and goals processes to ensure alignment with a successful TBM implementation.
- IT financials are the foundation of the TBM model, so take the time necessary to demonstrate the benefits to financial teams (CFO, budget, execution, etc.) and foster a strong working relationship.
- Map budget line items to services, sub-services, cost pools, and towers. If possible, determine if existing accounting strings can be mapped to the TBM taxonomy.
- Focus on the data to support transparency but don't wait for perfect data. Identify the system of record, if available, for data sets and showcase how data management and improvement will yield the desired results.
- Overcoming data challenges are a critical implementation requirement. Foster working relationships with data owners and make connection between TBM outcomes and their individual goals. Have a plan to communicate progress and successes to stakeholders.
- Strive to exceed OMB CPIC requirements. The current FY2022 CPIC guidance only mandates reporting at the cost pool and IT tower levels. While agencies may not be motivated to go to the service level, there is significant value in doing so.
- Agency TBM implementation strategies should consider using the TBM service layer to provide insight on the delivery of their IT service offerings as early in the process as possible.

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Small Business Administration (SBA)

The TBM program at SBA started in 2017 and was able to achieve successful outcomes through buy-in and active participation from both the CIO and the CFO organizations. SBA’s early decision to make the needed investment in their TBM program a strategic priority allowed them to move past OMB’s reporting mandate and use TBM data to make IT decisions. CFO participation in this process was particularly important, and the program’s success hinged on the fact that the SBA CIO had a true partnership with the CFO and other staff offices. Employing proper stakeholder engagement and ongoing organizational change management processes can greatly improve an agency’s TBM outcomes.ⁱⁱⁱ The scope for the SBA TBM program included all IT spending across SBA. They used their general ledger as the primary data source and stayed strategically focused on “operationalizing data.” This enabled them to identify approximately \$20M-\$30M in shadow IT spending early in their TBM journey. After identifying the shadow IT, SBA performed an internal benchmarking study to identify additional areas to increase efficiencies. This study identified IT cost related to employee IT enablement (e.g., phones, laptops, etc.) as an area of potential savings. This new insight into SBA’s IT spending influenced how they issued devices and telecommunications thereafter.

SBA best practices summary:

- Ensure that the CFO and CIO are thoroughly bought-in and are active participants and stakeholders. SBA TBM program/CIO had a true partnership with CFO and other offices.
- Where possible organizational change management plans should supplement established TBM project plans and be managed jointly.
- Change the conversation using TBM away from ‘IT costs too much’ to identifying the value IT provides. This positive focus helps with buy-in and alignment with the business.
- Focus on process as well as data. Don’t let imperfect data stop you from moving forward.
- Start with what you own and demonstrate benefits. Based on this success, expand the scope.
- Work with your CFO to find a way for the CIO organization to retain any savings identified as part of the TBM program so that it can be reinvested into other IT areas.
- Develop a process to map financial management data from the general ledger to cost pools, sub-pools, towers, sub-towers. This will enable the tracking of IT dollars from planning through execution.
- Take the CPIC budget formulation process and map your TBM data collection to that timeline. Collecting data in alignment with the CPIC process allows agencies to avoid last-minute data calls.
- Develop mechanisms to distinguish between ‘good spending’ and ‘bad spending’. For example, \$5M to enable 100,000 loans vs. \$5.5M to enable 150,000 loans. The incremental \$500k in spending would be ‘good spending’ as it efficiently enables one of SBA’s core business processes.
- Automate the use of acquisition Product Service Codes (PSC) across the whole organization. This allows the agency to collect the source data from agency acquisition systems in a more standardized and TBM compliant manner.

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Best Practice TBM Approaches

A consolidated summary of “Best Practices” were identified from the information gathered across DHS, GSA, and SBA. Due to the nature of TBM and the differing environments, statuses, and goals at different agencies, there is no one-size-fits all approach.

Top-Down/Bottom-up Approach

While the traditional TBM methodology starts bottom-up with IT cost/spending being mapped to cost pools and towers, there is merit to starting with a top-down approach. While both approaches have their advantages and disadvantages, some of the agencies we interviewed seemed to have success with the top-down approach. It is recommended that an explicit strategy be proactively developed and decided upon early. A top-down approach may allow TBM cost transparency to align more quickly to an agency mission whereas a bottom-up approach requires mapping up through all layers of the TBM taxonomy until the linkage to mission value can be achieved. Notwithstanding the approach, both methods need to effectively ‘meet in the middle’ and map spending to budget to allow analysis of planned versus actual costs. One technique is to align your agency budget with your IT services offerings which are then mapped down to the lower levels of the TBM taxonomy. You could then take your IT expenditures (spending) and go up the TBM taxonomy and ‘meet in the middle’. This hybrid approach, while it has challenges, may give the best of both worlds. Stakeholders (e.g., IT portfolio managers, program offices, CXO communities, mission delivery etc.) should all be active participants early and throughout the process of data mapping, development of assumptions and allocations. Having them ‘in the room’ will aid in buy-in and acceptance of the process, data, and possibly future recommendations.

Tools and Data Quality

There is a temptation to throw tools at the TBM problem. It has been proven again and again that TBM is not a tools problem rather a data, standards, process, governance, and organizational change issue. It’s highly recommended that these topics be addressed and planned for in advance of the selection and deployment of a TBM automation tool. Also, consider using automation/Machine Learning (ML)/Robotic Process Automation (RPA) approaches to enable the data mapping process and to identify insights from the TBM data sets.

It is highly desirable to fix data at its source (e.g., in the procurement systems or general ledger) using standardized attributes and data values rather than trying to map or allocate data after the fact. Serious consideration should be given to making changes to legacy systems in order capture data that is compatible with the TBM taxonomy as early in the business process as possible.

TBM is highly reliant upon the availability, quality, and consistency of IT, finance, operational, and mission data. Data quality and integration should be a major focus well in advance of (or a Phase 0) of any TBM initiative.

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Financial Management Integration

It is critical to take time to understand the agency's general ledger and financial data as well as functions that underpin the financial data. If the TBM data can't tie to the financial numbers, then the TBM initiative immediately starts to lose its legitimacy. It is recommended that agencies focus on being able to 'tie-out' with the financial systems of record to create credibility. It is also critical to start by defining, publicizing, and using a standardized catalog of services. The standard services work that the Federal Technology Investment Management CoP has created with the input of the federal community can be leveraged by any new TBM program or incorporated by existing ones. The structure provided by a standardized service catalog is critical and should be in place early in any TBM initiative.

In a future state, a centralized government-wide effort should be undertaken to implement a consistent means of capturing agency IT spending in agency financial management systems. This would not only help agencies implement TBM, but also enable the federal government to have an auditable system of record which would definitively inform agency decision makers, OMB, and Congress about the amount of money agencies spend on IT. While this could take many forms, some agencies have begun to experiment with extending the Budget Object Class (BOC) and Sub-Object Class (SOC) codes to a 4th digit which aligns with the cost pool level of the TBM taxonomy.

Consider working with your agency CFO to find ways of allowing all savings identified as part of the TBM program to be reinvested into other IT areas rather than being reallocated to other parts of the agency. This is a significant contributor to allowing TBM to deliver on one of its promises of enabling IT modernization. Consider focusing on the early identification of IT savings through the implementation of TBM (even in a limited area if necessary) and use this example and a structured communications strategy to promote the use of TBM and its benefits throughout the larger organization.

Stakeholders

Based on these case studies, the primary stakeholders of a successful TBM initiative are finance, IT, and mission leaders. A TBM program cannot be fully successful without buy-in and commitment from all three. At a minimum, IT and finance need to co-own and drive the TBM initiative to maximize the probability of success. The organization needs to be heavily committed and make TBM a strategic priority (and not just doing it to satisfy an OMB mandate). A highly successful technique is to deliberately identify an influential and forward-leaning individual or sub-organizational unit to act as a 'missionary' to spread the word regarding the benefits of the TBM initiative. Grassroots buy-in for the value TBM can provide is typically more effective than a top-down or compliance 'push'. Within complex or larger agencies or components, it is considered a best practice to establish a TBM Working Group that meets regularly to share best practices, communicate centralized targets, and fosters a collaborative TBM environment.

Procurement

Moving forward, new procurement actions should be structured such that contractors can and are required to report information in TBM compliant formats. However, contracting sometimes has challenges in structuring contract line-item numbers (CLINs) which provide clear alignment to TBM

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attributes. This is potentially even more challenging when contracting officers and mission owners want to leverage managed services and ‘as a Service’ models, resulting in multi-factor contracts that are more difficult to manage from a TBM perspective. Sometimes there are competing goals – TBM strives for clean CLIN alignment (i.e., like with like, no mixing) but the ease of contracting for a managed service makes it difficult to tease apart and align to the appropriate TBM taxonomy attributes. It is suggested that this be proactively addressed early in the TBM initiative by trying put in place approaches (e.g., decision trees, frameworks, templates etc.) to provide some structure to this process. The challenge is that sometimes the goals are counter to each other – alignment to TBM vs. ease of procurement or overarching procurement strategy, so the solution is complex. The sooner this can be addressed, the quicker new contracts can be aligned to TBM. However, existing ‘legacy’ contracts will likely still require one-off analysis to align to TBM.

The majority of agencies’ IT acquisition spending is likely contained in a relatively few large contracts. It is recommended that each large contract is individually reviewed and appropriately allocated to the cost pools and IT towers in collaboration with the contract owner. It is even better if CLIN alignment to the TBM taxonomy can be established from the beginning. Assisting agency acquisition staff to structure contracts and CLINs to better align to the TBM taxonomy is recommended to facilitate better data quality with fewer necessary assumptions and allocations subsequently. Contracting practices that align contracts and CLINs to the TBM taxonomy at the most granular level would be the ideal situation. Depending on the contract, it still might be necessary to do the analysis to ‘tease apart’ (i.e., allocate, ideally based on other metrics or usage) previous contracts and spending to align with the TBM framework.

On October 30, 2020, the GSA Integrated Award Environment (IAE) updated the PSC codes to better align with IT spending^{iv}. This update enables agencies to pull procurement data from their procurement systems, and more easily align them to the IT Tower level of the TBM Taxonomy. The definition of a standardized acquisition PSC is very beneficial to an agency’s implementation of TBM and ideally priority should be given to integrating PSC into existing processes.

Lessons Learned – Avoiding TBM pitfalls

The following “Lessons Learned” were identified from information gathered across DHS, GSA, and SBA during the case study data gathering sessions. TBM is not a tool problem so agencies should not rely on TBM automation tools to solve their data or business process problems. The challenges agencies face in implementing TBM are more closely related to data availability, data quality, data standards, change management, process reengineering, organizational change, stakeholder buy-in, governance, and communication and less about deciding which TBM tool to procure. TBM should be treated as a major change initiative rather than purely a technology program. Demonstrations of TBM results or validation of data should be socialized in advance of key milestone meetings since discrepancies in the data can negatively impact credibility. Some common challenges were identified across agencies.

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Change Management

- Not surprisingly, complex agencies with many components and/or sub-components are a particular challenge when it comes to TBM. One approach is to define ‘centralized targets’ (e.g. thru the use of a centralized CPIC function) while allowing components to be creative and flexible as to how they achieve those goals vs. being prescriptive or driving implementation centrally.
- Another significant challenge which is typically underestimated is a cultural one. TBM places the requirement upon individuals and organizations to cross typical organizational boundaries and responsibilities. For example, IT employees are accustomed to focusing on technology. They now need to become more aware and comfortable with financial dimensions (e.g., categorizing dollars) while finance employees often have limited understanding of IT. This is a cultural challenge which needs to be acknowledged, planned for, and actively managed.
- Getting buy-in beyond the immediate stakeholders should be considered a priority. Ideally, the TBM program should identify the groups and individuals that are or could easily be made to buy-in and focus on these groups initially.
- Several critical changes in cultural attitude are needed. For example, the need to think about Total Cost of Ownership (TCO) vs. each person only being worried about their ‘piece of the pie’. Also, people need to change their mindset from obligation to expense and from infrastructure allocations to expense. The direction of IT (e.g., migration to cloud, ‘as a Service’) is shifting and requiring a change in mindset and the required cultural changes need to be identified upfront and reinforced with a structured culture change and communication program.
- A TBM program will experience a continual uphill battle if the value of TBM is not fully understood and communicated both early and often.

Data and Automation

- The lack of an Enterprise Data Strategy and Enterprise Data Model can have a negative impact on the TBM initiative. The relatively new role of the Chief Data Officer should be leveraged to provide the ability to get the datasets used and required by TBM and to improve and better integrate the data required by TBM and potentially implement standardized codes (e.g. PSC) leveraged by TBM.
- While it is a best practice with TBM to ‘get started with what we have’, agencies need to be careful about losing credibility if the data is not of good enough quality to be recognized as valid.
- The standardization of PSC codes is a very effective means of organizing IT spending in federal procurement systems. Continued work on socialization of these new codes, as well as beginning efforts to standardize other federal data sources (e.g., FM systems) would enable agencies to further automate their TBM data collection.

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Governance

- Some people perceive TBM to be an unfunded mandate. If this attitude persists it is almost guaranteed that the TBM program will never fully achieve its potential.
- A formal TBMO is critical to TBM success. The team should be made up of experienced people with not only TBM subject matter expertise, but perhaps more importantly the respect, credibility, and trust of the organization and key stakeholders. The TBM Office needs to be empowered by the organization's leadership and should house more than TBM tool expertise. It needs to also focus on governance, organizational change management, process change, data standardization/ tools, and communication. While part time help from various stakeholder groups may be needed from time to time; the core team needs to be fully dedicated to the TBM initiative.
- Establish a dedicated communications role within the TBMO with focus on continual communication of the value TBM provides to all stakeholders up and down the organization.
- A TBM program needs to have (or acquire) the skills to articulate the value of IT in language understood by the stakeholders. The TBMO needs to contain senior people who understand stakeholder's motivations and are respected by those stakeholders using validated data to ensure credibility with the stakeholders.
- A TBM Steering Committee comprised of key stakeholders and leaders should be established and meet on a regular basis. This Steering Committee needs to be empowered and have a robust governance process to resolve issues which often span multiple critical processes and organizations within a component or agency.

Methodology

- Some areas, e.g., hardware and software, are typically more defined and easier to deal with. However, when it comes to bundled and integrated services (e.g., managed services) it becomes significantly more challenging. To overcome these challenges, it is recommended to establish TBM aligned frameworks or templates to be used moving forward. The data of existing large managed services contracts needs to be scrubbed to ensure the best mapping to cost pools and towers as is reasonable to help inform IT, business, and mission decisions.
- Since the current FY2022 CPIC guidance only requires reporting at the cost pool and IT tower levels, there is not necessarily motivation to get to the service (or business) layer of the TBM taxonomy. TBM programs need to go beyond CPIC mandates to deliver the full value promised by TBM; to maximize IT value to the mission by enabling and accelerating IT modernization and agility.
- While there is a tendency to focus on 'the budget', agencies should focus more on a consumption mindset, especially since IT services are getting more and more consumption based. e.g., Cloud, "as a Service".
- It is important for agencies to move away from a contract or project management approach and focus on a services-based philosophy.

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- Some CFO's need more motivation to truly 'care about TBM'. This implies they haven't been sold on the true value of TBM. Thus, a concerted and planned effort is required to demonstrate the value of TBM in tangible ways that align with CFO metrics and goals.

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Conclusion

Based on these TBM case studies and the practical experiences of these agencies, the following highlights the best practices and lessons learned:

1. **Change Management** – *Successful TBM programs understand the criticality of change management, process reengineering, organizational change, and stakeholder buy-in.*
 - The primary stakeholders of a successful TBM initiative are finance, IT, and mission leaders. All three need to actively participate in and support the TBM program.
 - Identify an influential and forward-leaning individual or organization to act as a ‘missionary’ to spread the word regarding the benefits of the TBM initiative.
 - Use grassroots buy-in internally to sell the value of TBM.
 - Identify tangible quick wins to promote the value of TBM.
 - TBM requires a cultural as well as a skillset change which needs to be acknowledged, planned for, and actively managed.
 - Focus on leveraging the insights gained from TBM rather than satisfying reporting requirements.

2. **Data** - *It’s all about the data, data quality, data standardization, data cleansing, and capturing the source data with enough fidelity to facilitate TBM.*
 - Focus on data quality and integration in advance of the TBM automation program.
 - Prioritize focus on areas of most financial impact.
 - Ensure you understand the data to gain and retain credibility with stakeholders.
 - Socialize TBM data with stakeholders early to gain credibility.
 - Define and implement data standards early (e.g., PSC, services, etc.).
 - Align data to the TBM taxonomy as early in core business processes as possible.
 - Encourage standardization of federal data sources (e.g., FM systems) which would enable agencies to better automate their TBM data collection.

3. **Governance** – *A successful TBM program has active governance led by committed and empowered stakeholders.*
 - Establish a formal TBMO with full time core resources.
 - Establish an empowered TBM Steering Committee.
 - Establish and/or participate in TBM Working groups which share best practices, communicate centralized targets, and foster a collaborative TBM environment.
 - Prioritize the analysis of IT spending in areas with the most benefit to decision makers.
 - Require new contracts to report IT costs in TBM compliant format.

4. **Methodology** – *While there is no ‘one-size-fits-all’ there are proven approaches which should be leveraged to maximize the probability of TBM success.*
 - Analyze the pros and cons of different TBM implementation approaches up front.
 - Consider creative approaches to incentivize TBM adoption e.g., retain savings identified to fund modernization.

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- Use an iterative approach with stakeholders to ensure buy-in on assumptions and data validity.
- Change business processes and, if necessary, legacy systems to enable TBM.
- Move away from projects and products towards a more service-based IT delivery model.
- Ensure alignment with and leverage of agency Enterprise Data Strategies and Enterprise Data Models.
- For agencies with many components, allow components to be creative and flexible as to how they achieve centrally set TBM 'targets' vs. being prescriptive or driving implementation centrally.

5. **TBM Automation** – *While it's not all about the TBM tool, appropriate use of TBM automation tools can help accelerate TBM program success.*

- TBM is not a tools problem but rather a data, standards, process, governance, and organizational change challenge.
- Leverage advanced technologies such as Machine Learning and Artificial Intelligence to classify and identify insights in your data.
- TBM should be a major change initiative rather than a technology or tool enabled program.

The TBM process is still maturing in the federal space. Many agencies are still struggling to capture baseline cost pool data and some early phase TBM implementations are dealing with “murky” data. However, the early successes where TBM provided important insight and acceleration of application rationalization and modernization bring optimism that it's well worth the effort. Agencies' implementation of TBM is an important step toward better IT Management.

For more information on TBM, take a look at ACT-IAC's [TBM CXO Value Conversations](#); the [TBM Case Study-SBA](#); and the CIO Council's [Federal Technology Investment Management \(FTIM\) Community of Practice \(CoP\)](#) and the [ACT-IAC IT Management and Modernization \(ITMM\) Community of Interest \(COI\)](#). [IT Spending Transparency Maturity Model](#).

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The project team extends its gratitude to the following government executives who provided valuable information regarding their TBM case studies

- Ben Reyes, Department of Homeland Security
- Andrew 'AJ' Steuterman, Department of Homeland Security
- Abe Medoff, Department of Homeland Security (Contractor)
- Patrick Mulcare, General Services Administration
- Brendan Longcore, General Services Administration
- Mindy Levit, General Services Administration
- Lynette Tillery, General Services Administration
- Melvin Brown II, Small Business Administration
- Antonio "Toney" Mitchell, Small Business Administration

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