BENCHMARKING – TBM’S NEXT FRONTIER

ACT-IAC IT Management and Modernization Community of Interest

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Synopsis

Technology Business Management (TBM) is a standardized multi-dimensional taxonomy that serves as an excellent framework to categorize and increase the transparency of IT spending within an organization. However, particularly in the Federal Government where agencies vary in terms of mission focus and technology needs, additional analytical methods are necessary to compare performance, gauge cost-effectiveness and efficiency of critical IT functions and services, and highlight potential improvement and savings opportunities. Benchmarking efforts, when leveraging TBM results as the data foundation, offer a genuine complementary capability by providing comparative data sets for industry peers and/or broader composite groupings, contextual best practices, and a useful means for influencing data-driven decision making.
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Executive Summary

The primary reasons for crafting this white paper were to demonstrate the value of benchmarking as an analytical complement to Technology Business Management (TBM), to showcase the results of an actual proof of concept conducted at the U.S. Small Business Administration (SBA), and to provide the rationale and a general framework for initiating a more formal TBM benchmarking program across the federal government. Utilizing TBM as a comprehensive value management framework rather than limiting its use as merely a standard taxonomy to support Capital Planning and Investment Control (CPIC) reporting is a key motivating factor underpinning this project. “This paper is a call to action on the part of OMB and federal agencies to use TBM benchmarking to improve the efficiency, effectiveness and management of federal IT spending.” The SBA’s TBM program is recognized as one of the most evolved in the federal government, and the project team was interested in finding out how the data could be used in a more meaningful and beneficial way. After effecting appropriate internal collaboration and securing executive-level sponsorship, the Project Lead contacted several third-party benchmarking organizations, selected one as a vendor partner, and conducted a pilot study using one fiscal year (FY) of TBM data. The initial study results not only provided context and direction on how the TBM data can be used for comparative analysis, they also led to practical discussions on how to improve processes and reduce spending. These outcomes met the objectives and far exceeded the expectations for the pilot TBM Benchmarking study.

Key takeaways from the study are instructive not only to the SBA leadership team, but also applicable to a wider audience. The benchmarking data set, although not perfect, provided a contextual backdrop for comparing SBA’s information technology (IT) spending against a selected peer group sample, and other useful data sets that could corroborate, amplify, or provide additional insights are available in the third-party benchmarking vendor archives. Comparisons to sample demographics data, spending metrics, staffing metrics, and best practices netted information which the SBA was able to use to support deeper analysis and discussions on spending priorities. Finally, and most importantly, it is absolutely feasible to establish benchmarking as a robust, repeatable analytical capability that offers tremendous value as a component of an ongoing TBM implementation and IT transformation program.

Introduction: Value of TBM & Benchmarking

In thinking about how to enhance the value proposition of TBM for the SBA and other federal government agencies, the Project Lead developed a short paper entitled Adopt Purpose-Built Benchmarking to Advance TBM Program Results (Appendix 2). The main theme of that paper was that adopting a purpose-built benchmarking approach across the federal sector is needed to complement standardized TBM reporting and achieve the promised benefits of IT cost savings, improved cost-effectiveness, and increased resource efficiency. Otherwise, TBM will be in jeopardy of becoming a simple OMB-driven compliance and reporting exercise that fails to deliver on its greater promise as a value management framework for all stakeholders. Mr. Melvin Brown, Director of the Office of the
Chief Information Officer’s (OCIO) Business Management Office (BMO) at the SBA and Government Vice-Chair of the ACT-IAC IT Management and Modernization Community of Interest, requested a benchmarking pilot study as a proof of concept and part of the SBA’s ongoing TBM program implementation effort.

The project team kicked off the pilot study in the first quarter of FY2020 ‘under the radar’ to effectively manage the scope of and expectations attached to the study. While cautiously optimistic that the benchmarking experiment would uncover actionable insights and provide real value, the team was not certain what the process would reveal or what the actual results might be. Thus, a pragmatic approach was taken in formulating and establishing the main goals and objectives of the study (Figure 1).

Upon conclusion of the pilot study, the team was able to address the main goals and objectives and proved the value of benchmarking as a tool to support improvement at the SBA. While there are challenges to conducting benchmarking studies, they are far outweighed by the insights and value that are gained in the data collection, metrics calculation, comparative analysis, and result reporting processes. Vendors and data sets that provide broad and useful IT benchmarking capabilities exist and can be leveraged for an agency’s benefit. Additionally, because of the underlying design and approach used for constructing the SBA’s TBM models, existing TBM and operational data was and is readily available to support completion of future benchmarking efforts.

The team also gained important practical experience and contextual knowledge throughout the course of the pilot study that now can be employed to improve and streamline future efforts. For example, data gaps, limitations, pain points and quality shortcomings were identified and had to be mitigated as the study was executed. These common-sense workarounds can be adopted for the next study, as well as reviewed and considered as part of developing a roadmap for making continuous improvements and establishing a sustained benchmarking program with repeatable calculation and analysis processes.
As a proof of concept activity, this benchmarking pilot study should be viewed as an absolute success. The SBA has effectively provided a case study of how adopting a focused benchmarking approach coupled with TBM data can enable greater transparency, tangible cost savings, and improved effectiveness and efficiency. While this report only scratches the surface on what is possible with employing benchmarking as a robust, repeatable analytical capability, it does demonstrate its tremendous value as a component of an ongoing TBM implementation program.

The sections that follow present an overview of our recommendations, key findings, assumptions, and results.

**Recommendation: Extend & Accelerate TBM Benchmarking Benefits**

Many Federal Technology Investment Management Community of Practice (FTIM CoP) members and TBM practitioners are looking to policymakers in eager anticipation of the next steps in the adoption and evolution of IT Spending Transparency including the implementation of common frameworks and methodologies like TBM. They have been informed, for instance, that the release of a new generation of Product Service Codes (PSCs) which are set to be released in Oct 2020. This will enable proper identification and alignment of IT resources acquired through the procurement process, as well as simplify downstream reporting. The FTIM CoP in collaboration with ACT-IAC recently developed an IT Spending Transparency Maturity Model. Its use as a diagnostic tool to evaluate the status and capability levels of agency TBM efforts may soon follow. Finally, and perhaps most significantly, the IT Spending Transparency CAP Goal, the original cornerstone of TBM adoption, was realigned with existing strategies under other CAP Goals and mandates in FY 2021. While this may have initially been interpreted as a signal that the focus and status related to TBM is waning, OMB and the Federal CIO Council have emphatically assured that TBM is not going away. On the contrary, TBM remains a key component of the strategy to improve processes for IT budgeting and procurement and to enhance the visibility, traceability, and transparency of IT spending.

Based on the success of this TBM benchmarking pilot study, it is recommended that a new and innovative federal government-wide benchmarking capability be stood up and incorporated as a core element of the overall TBM roll-out program. Taking decisive action like this would reaffirm the commitment to TBM as the cornerstone of the federal government’s approach to IT cost transparency and management, reinforcing the message to stakeholders that TBM is here to stay. Further, it would send a clear signal that TBM is expected to be used as a tool to enable IT strategic management and decision making, not just cost classification. There are several ways that both agencies and governing bodies can use and benefit from this type of solution in an immediate and pragmatic way.

**Already Collecting Data: Do Something Useful With It**

Agencies have been collecting and submitting investment data to OMB using the TBM taxonomy since at least FY2019. Some leaders have proposed that agencies do internal benchmarking, suggesting this
is the best kind of benchmarking. The authors of this paper politely disagree. As Harry Hatry, distinguished fellow and director of the Public Management Program for the Urban Institute noted “If all you have is your own number and you don’t have a comparison, you can’t know if you are doing well.”¹ The great value of external benchmarking is that it can be both contextual and aspirational. Rather than merely showing period-over-period results or how various component parts of an organization are doing relative to one another, this new TBM benchmarking capability can challenge agency IT leaders to achieve best in class performance as defined by government entities, private sector companies, or a combined and/or custom-selected sample.

**Leverage Value Framework: TBM Data as an Asset**

TBM data should be treated as an incredibly useful asset. In the FY 2021 IT Budget – Capital Planning Guidance, the OMB wrote “With the completion of the multi-year phased-in implementation process of TBM data within CPIC reporting, OMB anticipates significant value for agency CIOs who will be in a position to leverage existing industry benchmarking data and share identified best practices Government-wide.”² Agencies do not have to wait until the end of FY 2021 to gain value and benefits. In fact, the sooner they begin to employ TBM data within a benchmarking framework, the sooner they have the opportunity to enjoy the resulting benefits.

**Enable Ongoing Digital Transformation**

In a 2016 article in Government Executive, the author notes, “While there are some pockets of excellence in government, the concept of using data to drive decisions and improve performance is still maturing and faces resistance. It requires leaders with a continuous improvement mindset—leaders who can sell the vision to their peers and colleagues to ensure that it does not become a compliance exercise.”³ The benchmarking project received support throughout the SBA’s TBM implementation, sustainment, and innovation efforts in large part due to the leadership of Maria Roat, formerly SBA CIO and now Deputy Federal Chief Information Officer. Maria’s vision for adopting TBM at the start of their effort in October 2017 included three major themes: (1) improve transparency of enterprise-wide IT spending, to include shadow IT; (2) enhance traceability of IT resources in terms of how they support IT activities and services; and (3) establish the capability to support future show-back and charge-back initiatives. Her support behind this TBM benchmarking pilot study in FY 2020 reflected a maturation of her vision, her realization of the process improvement potential that benchmarking could offer, and her confidence that the results of this innovative effort would lead others to recognize TBM as more than a reporting tactic for CPIC compliance. TBM coupled with benchmarking is a tool to support broader IT process improvement and ongoing agency digital transformation.

This paper is a call to action. Now is the time to adopt a purpose-built TBM benchmarking approach. The future of federal government agencies using TBM as a real value management framework and management tool rather than merely an OMB-compliant reporting rubric is on the line.
Study Approach & Sample Results

High Level Approach

To proceed with the pilot study, the project team worked with a vendor partner with an established benchmarking study infrastructure to facilitate rapid engagement, data collection and industry-specific metrics comparison. The team used SBA FY2019 obligations as the cost data baseline. Comparative data was extracted from the vendor’s IT Spending & Staffing Benchmarks 2019/2020 study, specifically the Government Agencies Subsector Benchmarks.

Once the vendor and study parameters were set, one important issue to address was to ensure a proper alignment between the structure and data requirements for the benchmarking study and the SBA’s TBM data already captured. While having TBM-specific benchmarks and metrics would have been ideal, these were not readily available at the time this study was conducted. However, the benchmark data from the vendor was aligned closely enough to TBM Cost Pools and IT Towers (see Figure 2), and the effort needed to convert our existing TBM data to fit the study data requirements was not overwhelming.

![Figure 2: Comparison of Benchmark Study Categories to TBM IT Towers](image)

After the data structure was agreed upon, proper groupings could be established, summations made, and metrics calculated. While the initial intent was to calculate and compare SBA OCIO results only, as work progressed it became progressively evident that incorporating slices of the SBA’s federated IT operations that were captured in other discrete TBM models could be used to generate useful comparative data sets and enhance the value of the pilot study. It was decided to include a second comparative group dubbed ‘Big 5’ to show results for OCIO plus four other program and support offices with significant IT resources (Office of Capital Assets, Office of Disaster Assistance, Office of the Chief Financial Officer, and Office of the Chief Human Capital Officer) to illustrate the variation in the nature of the IT functional spending. It was ultimately decided to add a third as well as called ‘SBA (Est)’ that was calculated to be more closely reflective of total enterprise IT spending amounts.
Key Findings

Some of the more important findings and takeaways pertinent to the SBA benchmark results were:

• SBA IT spending relative to total budget authority appeared to be high relative to the comparative demographics data included in the vendor sample. Specifically, while SBA appeared to be in the lower third of respondents in budget authority, they ranked in the upper third in IT spending. This result set the tone for the more detailed benchmark comparisons and results.

• SBA’s outsourcing spending far exceeded that for industry peers, to the extent that it probably would be considered an outlier data point or anomaly in a study sample.

• SBA end user infrastructure (e.g., Personal Computers, Smartphones) and spending per user exceeded industry norms and offered a tangible opportunity for a deeper discussion with OCIO leaders about equipping policies and less costly, more cost-effective options.

• Network spending per user is noticeably high, not because of usual network infrastructure obligations, but because telecommunications support and security and compliance costs were included in the cost build up in accordance with study directions. This provided a good cautionary illustration for the team to look at the underlying details and avoid accepting top-level numerical results at face value.

• IT labor (internal & external combined) as a percentage of the operating budget exceeded the top quartile in the sample. Functional areas in the OCIO staffing mix that are high relative to the average profile include IT Managers, Project Managers, Security & Clerical staff, while those relatively low are Application Developer, Application Maintenance & Support, and Database Administration staff.

• OCIO spends comparatively more in End User Computing and Network Operations and less in Business Applications and Data Center Operations than study peer organizations. Spending in all functional categories normalized to study sample median profile levels when calculated for the ‘Big 5’ offices, which is closer to what would be considered an enterprise-wide view.
Sample Results

Cost Pools: Outside Services

IT Spending by Type metrics provide a view into an agency’s key IT spending trends. Most metrics included in this area correlate to those areas identified in the TBM cost pools, such as personnel/labor, facilities, energy/utilities, telecommunications, and hardware/end user devices. The most intriguing result seen in this area was the percent of IT spending used for outside services (Figure 3). Outsourcing spending indicates the level of dependence an agency has on external service providers for IT functions and capabilities.

This result spotlights the high degree of reliance that the SBA OCIO has on external service providers. An argument can be made that this profile demonstrates an over-reliance on external services to the detriment of utilizing and developing internal capabilities. A counter-argument can be made that this reflects an ongoing strategy by the OCIO to focus on core Program and Portfolio Management skillsets, choosing to pay service providers that focus on specific capabilities rather than trying to attract, train, develop, and retain a high demand and highly mobile workforce that is not often attracted to government service. It also reflects decisions made by the OCIO to shift to enterprise solutions. These results should be viewed through the lens of the OCIO’s workforce strategy and other pertinent factors.

The dramatic change in the ‘Big 5’ result indicates that other SBA offices were not as invested in this approach as of the end of FY 2019 as the OCIO. However, the overall result for the SBA still reflects an outlier relative to the results included in this benchmarking sample and should warrant further scrutiny.
IT Towers: Network and End User

Several of the most interesting and useful benchmarks in the vendor IT Spending and Staffing Benchmarks study were included in the sections that aligned with the TBM IT tower categories. These generally encompassed percentage of IT spending and per user calculations for each of the functions, and at times provided comparative metrics by underlying components. Because of the analytical richness contained in this area, the team decided to utilize two examples – Network and End User – to illustrate the different benchmarks available and how they can used to benefit an agency.

Network metrics reflect agency spending for networking and communications capabilities and services. Total spending in this category includes amounts for network/communications infrastructure, data and voice carrier, and security but not related personnel costs. For the network infrastructure benchmark, costs reported reflect spending on all hardware and software for agency network and communications systems, to include telephone, email, messaging, video conferencing, and mobile device management systems. The results for the SBA comparative calculations are presented in Figure 4.

With the continued shift in 2019 to enterprise services by OCIO and consolidation on a single key solutions provider, spending in this service area is in the lower quartile relative to industry peers for this fiscal period. While spending below peer levels is often regarded as a good thing, a caveat or concern to keep in mind is the risk of not spending an amount sufficient to maintain appropriate levels of capacity, capability, and service. Looking for cases of unbalanced IT portfolio spending over time is a good practice.

End User Computing metrics reflect agency spending to keep staff equipped with job-essential devices. Amounts include managed print services but not costs for desktop or help desk (Information Technology Service Center) services. See SBA per user comparative graphics below (Figure 5). Note that Consolidated End User IT Spending (Figure 5, bar chart on the left) includes spending for end user
devices such as desktops, laptops, tablets, and smartphones as well as copiers and printers, whereas the PC/End User Device Spending (Figure 5, bar chart on the right) reflects spending on hardware and software licenses for SBA desktops, laptops, thin clients, tablets, and cell phones only.

These graphics confirm that decisions SBA has made to equip its staff to support mission requirements have cost implications that drive spending well above the peer group for this study. Results like this often provide the rationale for a critical look at how an agency equips its staff. This level of spending may have been authorized and reflect an intended design; nonetheless, because of the order of magnitude by which it exceeds benchmark levels, a serious review should be undertaken. Alternatives for achieving a more cost-effective solution, perhaps leading to tiered kitting and investigation of vendor rationalization and price reductions, are definitely in the best interest of the OCIO and SBA.

**Labor by IT Role/Function (Staffing Mix)**

The IT Staffing Metrics section of the IT Spending and Staffing Benchmarks study includes a profile for IT organization staffing mix. Calculations are supposed to combine both internal and external labor TBM Cost Pools, as well as all costs for Outside Services. This fidelity was not available for our pilot, so the breakdown (Figure 6) reflects OCIO IT staff by role/function for its 56 federal staff members only.
You can see in the illustration that coverage gaps exist in several areas. This is a logical consequence of the data limitations encountered at this time. For example, there are no federal staff assigned to the Help Desk and Application Developer functions. The project team knows with certainty that these roles are performed by contractor personnel within the OCIO and other SBA Program Offices. Thus, future efforts should attempt to account for IT staff in other parts of the agency as well as account for outsourced staff, including those full- and part-time members who support outside services contracts, to create a more complete composite picture of the SBA’s IT organizational profile.

However, even with limited data one can gain some benefit from the benchmarking comparison. The functional areas in the OCIO staffing mix are high relative to the average profile, such as IT Managers, Project Managers, Security team members, and Clerical staff, and steps can be taken to ensure these are not duplicated or are effectively rationalized across the overall SBA IT workforce.
Spending by Service Area

Viewing proportional IT spending by Service Area enables visibility of the differences in how individual offices or groups within an enterprise conduct IT support operations and account for expenditures. As previously highlighted in Figure 2, the five service area categories in the benchmark study are similar and related to the eleven IT Towers in the TBM taxonomy. Results were calculated for OCIO alone and for the combined ‘Big 5’ organizations and compared to the peer group median (Figure 7).

The OCIO profile shows higher proportional spending in End User Computing and Network Operations service areas, and comparatively lower spending in the Business Applications area. Percentages for spending in the Data Center Operations and IT Management areas are more closely aligned to benchmark values. These results make sense when considering that most agency infrastructure spending, especially security, compliance, and telecommunication costs, is borne by the OCIO.

When OCIO spending is combined with other Program and Support Office spending, the profile normalizes relative to the benchmark profile, with a noticeable increase in the Business Applications service area and appreciable reductions in the Data Center Operations and IT Management categories. Again, the results make sense when considering that most application development and sustainment efforts relate to IT investments overseen in the Program Offices. The graphics reflect these dynamics.

Best Practices

One distinct and differentiating portion of the pilot study involved consideration of IT Management best practices. Thirty-four best practice disciplines organized into five best practice categories – IT...
Governance, IT Financial Management, IT Operational Management, IT Security & Risk Management, and Application Development -- were assigned to selected OCIO functional leaders for review and scoring. As an example, one discipline in the IT Financial Management category was “Benchmarking IT Spending Levels (Periodic comparison of your IT budget/staffing against similar organizations).” This particular item was assigned to the BMO Director for evaluation. At its core, the IT Management Best Practices exercise was focused on answering the following question: “To what extent has the SBA OCIO adopted the discrete policies and practices listed?” A simple scoring framework was applied to rate the “as is”/current state:

1 = No Activity  
2 = Implementing  
3 = Practicing Informally  
4 = Practicing Formally but Inconsistently  
5 = Practicing Formally and Consistently

After capturing scores for the current state, a second question was posed: “To what extent does the SBA OCIO want to adopt this policy/practice?” The output was a sample set of future/vision scores. Coupling these with “as is” results illustrated a way to identify and prioritize improvement opportunities by discipline (Figure 8). Results reflected past progress in Security and Application Development but significant gaps and challenges in Operations Management, Governance, and Financial Management.

It is important to recognize that an entire discipline exists around Best Practice assessment and analysis that can be incorporated into a comprehensive benchmarking approach. Available benchmark data can offer deeper insights into each individual practice. For instance, it is possible to see adoption rates of each practice, how the peer sample profile looks in terms of adoption level, and the most/least adopted practices overall to gauge internal best practice maturity. This can inform effective decision making.
Implications for the SBA

As the results were compiled from the benchmarking pilot study, the Deputy CIO was developing a cost model to gain an understanding of and answer questions about the IT cost for adding new staff at the SBA. He had created a multi-year cost build up to estimate and show the hardware, software, and cell phone component costs per employee. The annual amounts he arrived at using this independent bottom-up method were comparable to the amount discovered in this benchmarking study for the Consolidated End User IT Spend per User metric. This served to validate the efficacy of the approach taken and the potential usefulness of the study data to support similar practical needs.

Encouragingly, SBA OCIO leaders embraced the results of the benchmarking study shared in the executive presentation that closely followed and began pursuing additional information aimed at determining the essentials for establishing a continuing benchmarking function tied to the TBM program. They recognized that benchmark metrics and the associated agency results offer reflections of mission requirements, strategic directions, and related decisions, and that this intelligence can help to confirm leader intuition and address instances of qualitative assessment with facts and contextual information. They also realized that benchmark studies can be used to support agency narratives or as the basis for taking decisive corrective action where and when relevant. Finally, they acknowledged that further value can be realized by using multiple periods of data to discern and forecast trends rather than relying on a single study instance, individual time periods, or isolated points of reference. They were in full agreement on the importance of establishing an enduring TBM benchmarking capability at the SBA.

Translation to Other Agencies

The applicability of a TBM benchmarking capability is not isolated to the SBA. The basic requirements, data elements, systems limitations, and organizational issues are generally similar for all agencies within the federal government. While all agencies are unique in certain aspects, none are so dissimilar that common findings, basic approaches, and fundamental benefits would not apply. It is incumbent upon all IT leaders to continually evaluate their internal processes to ensure that they are being cost-effective, effectively stewarding limited resources, adopting beneficial leading practices, and keeping up with the pace of change. McNair and Leibfried (1992) wrote, “Benchmarking raises the consciousness of the organization. It drives everyone toward improvement as the only escape from the harsh reality that current practices simply are not good enough... It is a tool for generating action...”

Organization stakeholders are interested in leveraging data as an asset and getting some value out of the effort that they have put into mapping and aligning their agency and departmental data to the TBM Cost Pools and IT Towers. One message that has been delivered is that organizations can conduct and gain benefits from internal benchmarking. This study demonstrates that even greater value can be gained from doing external comparisons and part of what makes the case for formal TBM benchmarking so compelling.
**TBM Benchmarking Pilot Study Roadmap**

The approach employed for the SBA study was presented previously at a high level (see page 5). It is important to recognize that a properly conducted TBM Benchmarking study is a multi-stage effort that requires sufficient planning and participation to be successful. In particular, the initial study is more than a simple data gathering exercise. Subsequent iterations may be able to leverage infrastructure established and lessons learned from the first effort, but the original undertaking is primarily one of pragmatic accommodation and discovery. As stated in one of the vendor publications, “Our goal in this study is to provide IT executives with real-world data on how widely best practice is implemented, a basis for comparing their organization with their peers, and a means of identifying best practices.”

Thus, the approach adopted during this TBM Benchmarking Pilot Study, shown in Figure 9, was followed with this goal in mind and can be considered a general roadmap for similar and future agency benchmarking efforts.

**Roadmap Major Steps**

As depicted in Figure 9, the study approach consisted of five basic sequential steps. Each step is listed and described in further detail below, with emphasis on considerations for other agencies that choose to undertake a benchmarking project.

- **Plan Study & Select Vendor**: Employ the same good practices in planning this effort as for any project. Take the time to discuss and define the study objectives, scope, schedule, and staffing, to include the roles and responsibilities for core team members. Further, identify other key participants and stakeholders, including data providers, and think through major assumptions, constraints, issues, and risks as well as practical work-around options and mitigation steps. Determine what the baseline data set will be and ensure the team has access to necessary sources and systems. Finally, evaluate and select a vendor partner (if needed) with the desired credentials, capabilities, and comparative data sets that best support the benchmarking study objectives.
• **Collect Study Data**: It should come as no surprise that data gathering can be somewhat complicated and time-consuming. While a study framework or survey tool may be provided by the vendor partner, it often involves collection of not just the “TBM” data on hand, but also requires additional information depending on the scope and content of the study. For example, your team may need to secure organizational data such as agency size and budget that can be used to generate contextual metrics; external labor and consultant support headcount data to properly quantify the number of end users; and/or qualitative “model maturity” feedback to substantiate best practices ratings. Core teams should leverage agency collaboration tools to the extent possible to efficiently and effectively gather and share study-related data, as well as establish and implement processes for data validation, quality assurance, and version control. A good practice is to create and maintain both a working draft and final version of data inputs that mirror the study requirements.

• **Calculate Metrics**: After collecting the cost amounts and user/headcount information called for in the data collection tool/survey, study teams must look at the actual benchmark metrics that will be used in the follow-on comparative analysis and determine how the agency values will be calculated using the data that has been collected. This typically will require that the team summarize and/or aggregate various cost and staffing data elements in each area of the study to derive actual results. Utilizing basic spreadsheet functionality will enable team members to use formulas so that key data values can be entered only once, referenced appropriately, and if changed at the natural point of entry, provide automatic/dynamic updates to results. This reduces the amount of manual entry, re-work, and potential for calculation errors.

• **Compare & Analyze Against Benchmarks**: Once the agency metrics are calculated it is time for the team to look at organizational results against the benchmark data set. If, as in the case of the SBA study, it is determined that other comparative data sets are of interest and would provide valuable insight, teams may create additional calculations and generate more results to assist in the comparison and analysis process. Also, while it is possible to assess where an agency stands relative to the benchmarks simply by looking at the numerical results for each metric, it usually is desirable to generate graphical visualizations to make the information more accessible and compelling. Finally, it is a best practice to attach narratives to the graphics that help tell the story behind the data or to amplify important details as part of the analytical task.

• **Communicate & Use Results**: Study results are not truly valuable to an agency unless they are communicated to IT leaders and used to make decisions and/or take actions. Because of this critical linkage, it is an imperative for the study team to synthesize interesting findings, derive meaningful conclusions, and generate persuasive recommendations that are actionable. It is important to build narratives that highlight key observations as revealed by the benchmarking results and construct strong cases that support subsequent management
pursuits. The team should recognize that they will be required to create multiple report products, disseminate them to a variety of stakeholders, and make executive-level presentations upon request.

It is worth mentioning that some vendor partners may have services and processes in place that remove or reduce the burdens associated with certain steps referenced above, particularly those pertaining to metrics calculation, benchmark comparison, and results tabulation and reporting. While these can assist with some of the more “mechanical” tasks involved, they do not replace the differentiated understanding and analysis provided by internal subject matter experts, so they should always be viewed as complementary rather than substitute support efforts to factor into the project delivery plan.

**Assumptions**

General limitations in taking on and applying benchmarking to support data-driven management are well known. For example, the team recognized the potential issues related to “apples-to-apples” comparisons and were willing to accept those at face value. Some of the other key assumptions pertinent to this pilot benchmarking study were:

- Available TBM and OCIO operational data were sufficient to meet the base level requirements for metrics calculation and comparative analysis; the cost data set used was FY2019 obligations;
- Functional benchmark data from the selected vendor were aligned closely enough to TBM Cost Pools and IT Towers;
- The time and effort to align and convert TBM and other existing SBA operational data to vendor benchmark data were acceptable;
- Initial data collection and benchmark metrics calculation would center on OCIO-only results for FY2019, while subsequent inclusion of other offices within the SBA enterprise was pursued to show additional potential use and value; and
- IT costs captured for SBA ‘Big 5’ were estimated to be approximately 80% of total SBA enterprise IT spending, and this factor was applied in deriving SBA (Est) metrics results.

**Findings Pertinent to Study/Roadmap**

As mentioned early in this paper and presented in Figure 1, the project team established the main goals and objectives of the study. While challenges were encountered, the team also gained valuable insights and registered a few lessons learned. Here are some of the more important takeaways pertinent to this SBA benchmark study/process.

Some amount of effort would be necessary to adjust and curate agency TBM data because the benchmark metrics were not specifically derived from or aligned to the TBM taxonomy. Knowing and accounting for this allowed the team to conduct an assessment, identify the commonalities and discrepancies, and create a mapping table that enabled valid calculations and comparisons.
Subsequent conversations with the vendor partner revealed that their future studies and compilations are going to employ TBM terms and categories to a greater degree, which would reduce or potentially eliminate the need for this additional conversion work.

Several metrics requiring enterprise-wide operational data could not be calculated due to a lack of non-OCIO data. An unfortunate ancillary consequence of this deficiency was that metrics comparisons against OCIO only, especially in staffing areas, are interesting but incomplete due to the federated and distributed nature of IT within the SBA. While acceptable in a pilot study or proof of concept, it is a situation that must be rectified before conducting the next benchmarking study. Having access to the proper data elements, both within the OCIO and enterprise-wide, at an adequate level of quality is essential. More specifically, for any future SBA TBM/IT benchmarking studies it is an imperative to get greater clarity on certain data, to include contractor staffing roles and support levels, non-OCIO operational data, and SBA-wide costs for IT facilities and power usage.

Finally, study completion was far too dependent on individual inputs versus defined data sources and repeatable steps. This often is the case in ground-breaking efforts like this. The intention, whether implicit or formally stated, is to build upon the lessons learned during the early endeavors and take meaningful steps to improve upon the processes, points of contact and tactics utilized. Experience tells us that, as with any data-centric initiative, benchmarking studies and their results can improve over time as greater familiarity with requirements is gained, understanding of data and sources matures, and capabilities of related support processes are refined. This natural maturation process is necessary if an organization is going to advance from doing a one-off pilot study to establishing an ongoing TBM benchmarking program.

**Implications & Next Steps**

In order to extend the value of the benchmarking proof of concept study and maximize the benefits of benchmarking in general, the team recommended to SBA OCIO leaders that they make their TBM benchmarking activity repeatable, that they operationalize TBM benchmarking as part of the broader TBM sustainment and IT improvement program, and that they develop and execute a plan to scale it across the enterprise. It is believed that these steps are applicable and transferable to the greater federal government community as well and can be incorporated in OMB policy guidance to greatly enhance the value of agencies’ IT Spending Transparency efforts overall.

**Make Repeatable**

Conducting a one-time study produced some interesting results. But let’s face it – as interesting as they may be, they are not necessarily indicative of trends or based upon clean or complete data. Confidence in and value gained from benchmarking study results are known to increase as upgrades to underlying data gathering processes, improvements to metrics calculations, and enhancements to data quality are made. These types of changes are only possible over time and with repetition. Therefore, it is vital to recognize that an initial study is only a launching pad for a regular and repeatable benchmarking
exercise. The practice of benchmarking can be used as a general health diagnostic for an organization’s IT function as well as method to identify areas of opportunity for deeper root cause analysis. It has been said that you manage what you measure. By engaging in a routine benchmarking effort, IT leaders have a potent tool at their disposal to do a better job of managing IT like a business.

**Establish Program to Operationalize**

The benchmarking effort should be tightly coupled and performed in conjunction with the organization’s TBM implementation and sustainment program. One of the stipulations associated with the IT Spending Transparency Cross-Agency Priority (CAP) Goal is that TBM will enable IT benchmarking. Instituting a more formal program that combines benchmarking as an element of TBM – not a separate, stand-alone, or one-off project – sends a strong signal about the beneficial and complementary nature of these management tools. Using TBM data as a natural input to a regular (e.g., annual) benchmarking study is synergistic. The TBM data becomes visible and contextualized. As seen in this SBA pilot effort, it can highlight key areas of opportunity, alert managers to pending issues and risks that require attention, and amplify the business case for action in areas that need to be fixed immediately. This is what really makes TBM a value management framework, not just a taxonomy for reporting IT costs. Combining TBM and benchmarking as two components of a more comprehensive IT transformation program offers agencies an effective management capability that can be used to gain efficiencies and drive change.

**Plan for Scalability**

Given the federated nature of IT within the SBA enterprise, it was a foregone conclusion that both the TBM solution and benchmarking efforts had to consider scope and scale. If the gaps in available data for enterprise-wide IT operations did not make this apparent, the calculations and comparisons steps made this very evident. Data availability and quality must improve and expand to get the optimal value out of benchmarking studies, since the comparative data sets reflect the total breadth and depth of IT spending of the organizations included in the underlying sample. Therefore, it is important to think through the steps necessary to engage productively with key stakeholders outside of the OCIO and across the entire IT operation so that appropriate data sources can be tapped, data elements can be harvested, and qualitative ratings for items like best practices adoption assessments can be obtained. In addition to the tactical, internal agency considerations, it also is important to think about the implications for the wider federal government IT community. Opening up a common TBM-related benchmarking capability to more agencies to reinforce the potential for “apples-to-apples” comparative analysis, sharing of best practices and lessons learned, and data-inspired IT process and service improvement across the board would be an incredible step forward.

**Potential Hurdles**

By now it should be apparent that tremendous value can be gained from conducting TBM benchmarking studies and maturing to a sustainable program. “Publicly comparing similar activities can
be a powerful driver for change. With benchmarking data, agency leaders can compare their own data to that of similar agencies and see – oftentimes for the first time – their full performance picture in terms of the cost and quality of their mission support services. They can then ask evidence-based questions and assess trade-offs." Yet the team acknowledges that difficulties often exist, and there may be a number of reasons that organizations may not want to participate in or employ benchmarking. These impediments must be effectively addressed and overcome to move forward.

**Too Difficult**

One of the common reasons offered for not engaging in benchmarking is that it is too demanding. Barrett and Greene (2013) noted that some of the underlying rationale given is that “...it can be very difficult making sure there’s consistency in the data and definitions...” and further, “...benchmarking can be expensive and time-consuming...” Granted, benchmarking takes additional work and effort, but taking the first steps and conducting a study are not that hard. Organizations are already required to classify and report their IT spending according to the TBM taxonomy so much of the cost data is already available, and many vendor partners have tools and services to facilitate the benchmarking aspects. The experience at the SBA was that there were some challenges, acknowledged in this paper, but none that could be considered “show-stoppers.”

**Embarrassment from Poor Results**

In some instances, organizations recognize and agree that benchmarking can be beneficial, but they fail to embrace it because the results could cast their performance in an unflattering light. Any time a group of agencies or departments are benchmarked against one another, “...at least a few are inevitably at the bottom of the list. This is a powerful reason to stay the heck away from a benchmarking effort in the first place.” It is understandable that nobody wants to be embarrassed. However, undertaking a pilot TBM benchmarking study shields participants from this scrutiny, since it can be done independently, privately, and impartially. Study results do not have to be shared outside of the confines of the study team, and any public disclosure can be managed effectively by agency IT leaders. If in the future, the OMB or other policy or governing bodies decide to embark on a more shared, open, and publicly scrutinized benchmarking program, the precedents of the House Committee on Oversight and Reform Subcommittee on Government Operations Federal IT Acquisition Reform Act (FITARA) scorecard have already been set. Hiding from actual performance, particularly if it is poor, will not fix the problems, does not address the reputational risk, and is not a recipe for success. A much better strategy is to proactively engage in fact-based discovery and data-centric problem-solving activities enabled by an aggressive TBM and benchmarking program – and then take next steps to improve.

**Limited/No Value For Effort**

This is not the first time that benchmarking has been suggested or pursued by the IT community within the federal government. Take, for example, the following excerpt from CIO.com (Overby, 2007): “The Office of Management and Budget wants to slash the government’s $22 billion annual IT infrastructure
bill. But first it has to benchmark. The U.S. General Services Administration (GSA) has signed a $22 million contract with the Gartner Group to develop metrics so the federal government can begin benchmarking its IT infrastructure costs and service levels the way private industry does.9 One can reasonably wonder if the value to be gained from benchmarking is worth the effort to engage in it. Based on the results of the SBA’s TBM benchmarking pilot study, it can be stated with confidence that the ‘juice is worth the squeeze’ in this case. It is highly recommended that benchmarking efforts be continued by SBA IT leaders, and this team believes there is value to expanding them across the federal IT space.

Conclusion

Use of the TBM taxonomy within the federal IT community is at a bit of a crossroads. While adoption to enhance transparency of IT spending in terms of Cost Pool and IT Tower categories for technology investments is embedded within CPIC reporting guidance and tools, TBM’s use as a more impactful value management framework is in question, and frankly, at risk. The TBM benchmarking pilot study at the SBA was conducted to determine if tangible benefits could be gained by utilizing TBM as the basis for comparative analysis and managerial decision making. Its success is indisputable. As a proof of concept, it demonstrated that TBM benchmarking can be accomplished with relative ease. It showed that it can be used to identify opportunities for savings through better resource utilization and cost reduction. Furthermore, it verified that TBM and benchmarking are complementary capabilities that offer vast potential to improve IT efficiency and effectiveness. Establishing a new TBM benchmarking program that could be made available to all departments and agencies and incorporating it as part of the overall TBM roadmap would be a game-changer. The time for adoption is now.
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References

8 Ibid
Appendix 1: Acronyms

BMO – Business Management Office
CAP – Cross-Agency Priority
CoP – Community of Practice
CPIC – Capital Planning and Investment Control
FITARA – Federal IT Acquisition Reform Act
FTIM – Federal Technology Investment Management
FY – Fiscal Year
GSA – General Services Administration
IT – Information Technology
ITSC—Information Technology Service Center
ITVMO – Information Technology Vendor Management Office
OCIO – Office of the Chief Information Officer
OMB – Office of Management and Budget
PSC – Product Service Code
SBA – Small Business Administration (United States)
TBM – Technology Business Management
Appendix 2: List of Relevant TBM Laws, Policies, Etc.

21st Century Integrated Digital Experience Act (IDEA)

Additional Guidance for DATA Act Implementation: Further Requirements for Reporting and Assuring Data Reliability (OMB M-17-04); Implementing Data-Centric Approach for Reporting Federal Spending Information (OMB MPM 2016-03)

Category Management: Laptops & Desktops (OMB M-16-02); Mobile Devices & Services (OMB M-16-20); Software Licensing (OMB M-16-12); Making Smarter Use of Common Contract Solutions & Practices (OMB M-19-13)

Centralized Mission Support Capabilities for the Federal Government (OMB M-19-16)

Digital Accountability and Transparency Act of 2014 (DATA Act)

Evidence-Based Policymaking Act of 2018 (Evidence Act)

Federal Cloud Computing Strategy (Cloud Smart)

Federal Data Strategy (FDS); Federal Data Strategy – A Framework for Consistency (OMB M-19-18)

Federal IT Acquisition Reform Act (Public Law 113-291)

Federal Risk and Authorization Management Program (FedRAMP)

Federal Source Code Policy: Achieving Efficiency, Transparency, and Innovation through Reusable and Open Source Software (OMB M-16-21)

Federal Strategic Sourcing Initiative (FSSI)

Improving Implementation of the Information Quality Act (OMB M-19-15)

IT Budget – Capital Planning Guidance (IT Budget Guide)

IT Dashboard (https://itdashboard.gov)

Leveraging Data as a Strategic Asset (PMA – Data)

Management and Oversight of Federal Information Technology (OMB M-15-14)

Managing Information as a Strategic Resource (Circular No. A-130)

Modernizing Government Technology Act (OMB M-18-12)

Open Data Policy-Managing Information as an Asset (OMB M-13-13)

Preparation, Submission, and Execution of the Budget (Circular No. A-11)

Product Service Code Manual

Update to Data Center Optimization Initiative (DCOI) (OMB M-19-19)
Appendix 3: Initial TBM Benchmarking Concept Paper

Adopt Purpose-Built Benchmarking to Advance TBM Program Results
By Martin Croxton, Industry Advisor with Mason Harriman Group

Benchmarking is a fundamental management tool. It is a proven practical technique for visualizing, contextualizing, and comparing organizational cost and performance data. One reason that Technology Business Management (TBM) is such a valuable IT management approach is it facilitates benchmarking, enabling comparisons of what and how similar organizations spend resources on commonly defined IT functions and services. While the inventory of commercial TBM benchmark data is quite large, relevant comparative data sets for public sector entities do not currently exist. Thus, one of the keys to realizing the full promise and potential of TBM adoption within the federal government is to create and cultivate a focused, purpose-built benchmarking program.

The President’s Management Agenda pertaining to IT indicates that the goal is to “Adopt TBM government-wide by FY 2022. This approach will improve IT spending data accountability and transparency, empowering Agency executive-suite leadership from across the enterprise to drive innovation, business transformation and mission value.” It proposes to take the opportunity to use industry best practices and run IT like a business through three specified TBM-related Strategies:

1) Increase granularity in current IT budget and spend reporting through the Federal IT Dashboard;
2) Develop government-wide implementation guidelines and enabling mechanisms; and
3) Adopt and implement TBM across the Federal enterprise.

Thus, TBM is endorsed as the framework to enable business, financial and acquisition outcomes. As such, it will be used to identify and communicate IT cost savings and opportunities for improvement, better strategic alignment and increased efficiency of IT investments, and streamlined IT reporting. To its credit, it also stipulates that TBM will enable IT benchmarking, though it does not provide a more granular discussion of how this will be accomplished.

An investment to establish a purpose-built benchmarking program is needed. This will provide a robust management capability that encourages broad improvement in IT spending and management, as well as a shared understanding of leading practices and innovations across the federal sector. All agency IT leaders can then contribute to and leverage an authoritative data set to help make data-driven decisions and analyze tradeoffs between cost, quality, and value while strategically modernizing their IT portfolios. This approach will support the long-term viability of TBM as a valuable management framework.

To gain the benefit of increased transparency related to IT spending and performance that is a desired outcome of TBM implementation, intra-agency analytics and single point comparisons are not nearly enough, and contrasts limited to internal and prior year results are only marginally better. Achieving
the desired results requires the determination, will and resolve to establish and maintain a capability that enables inter-agency benchmarking across the entire federal domain. Some key characteristics of the government’s enterprise-wide benchmarking program should be:

- **Consistent**: employs same approach, process, and calculations for all participants.
- **Focused**: operationally relevant and reflective, generating metrics that matter.
- **Data-driven**: fact-based using common/similar data sources for reliable comparisons.
- **Inspiring**: displays quantitative and qualitative results relative to industry norms and best practices, as well as incorporates maturity model concepts to rate how and how well.
- **Repeatable**: not a haphazard, static, or “once and done” approach, but one that can and should be done regularly so that results reflect valid performance baselines.

An ideal benchmarking program will be purpose-built to focus specifically on the federal government departments and agencies that make up this unique industry sector. It will use the TBM taxonomy as a reference model and employ this framework and its definitions to drive a standards-based approach for comparative analysis. It will be comprehensive in terms of organizational participation and facilitated by a professional team to ‘certify’ or ensure common treatments across the government enterprise. It will strive to leverage existing benchmarking infrastructure and useful comparative data sets with leading practice and world-class benchmarks from the commercial sector to encourage creative problem solving and improvement. And it will incorporate maturity level assessments so that important internal process improvements and TBM implementation opportunities are not overlooked.

It is important to point out that most if not all companies that promise benchmarking today are not able to deliver highly effective and meaningful comparative data sets. Among the reasons for these shortfalls are: (1) the lack of significant industry-specific comparisons; (2) data captured is not TBM-centric; and (3) the typical and well-documented inability to guarantee ‘apples-to-apples’ comparisons due to weaknesses in data capture, deficiencies in standardization for underlying data management processes, and other systemic shortcomings that can be avoided using more focused methods.

If the TBM Program does not act now to adopt a purpose-built benchmarking approach, TBM is destined to become one more compliance and reporting program that does not deliver on the legitimate promise of transparency, tangible cost savings and improved effectiveness and efficiency.