Bring Me A Measure: How to Fulfill Leadership's Request for Performance Measures[1, 2, 3]

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Executive Summary

This paper will explore performance measurement and present a process for how to go from vague dashboard requests to meaningful measures. They will include tools that the U.S. Census Bureau's Demographic Statistical Methods Division (DSMD) PMO has developed to evaluate strategic outcomes, collect ideas for measures, evaluate measure ideas against need and feasibility, organize measure ideas for discussion with leadership, develop measure prototypes and maintain and evolve final measures. Additionally, the paper will cover the benefits of the process and the time and resources required to implement.

Introduction

In our title "Bring me a measure" we are acknowledging that a request from leadership for measures can come with very little information. At times it can feel that you are bringing a series of rocks to leadership to have them tell you "Not that rock." We have been there and can help. We have, through our work developing program performance measures, a process that will help you identify the right measures to produce and get leadership and stakeholder input along the way.

[1] *Any opinions and conclusions expressed herein are those of the author(s) and do not reflect the views of the U.S. Census Bureau.*

[2] *Editor's note: Second Editions are previously published papers that have continued relevance in today's project management world, or which were originally published in conference proceedings or in a language other than English. Original publication acknowledged; authors retain copyright. This paper was originally presented at the 14th UT Dallas PM Symposium in May 2022. It is republished here with the permission of the author and conference organizers.*

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Hopefully, in the future you can bring the right measure to your leaders when they don't know how to communicate what they want up front.

Program Management

Before the work begins, the process assumes that there is some level of program management at your organization. Measure development is one piece of program management and relies on all phases of program management to be effective. The descriptions below describe how each area of program management contributes value to the identification, development and use of performance measures.

Strategic Planning

This process is where the organization leadership develops vision and priorities for the future of the organization. The strategic plan will document the vision and strategic priorities for the organization.

Figure 1 Program Management

Portfolio Management

This process is where the organization selects and funds projects that will move the organization to its future state. When done right, the projects within the portfolio will be aligned to the strategic goals and objectives.

Project Management

This process manages the work of a project. A well-run project will produce data that can be used to create measures to demonstrate progress towards the future state.

Performance Management

This process is where metrics are identified and produced. The metrics will inform leadership if they are moving their organization towards its future state.

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Six Step Process

The process we follow in our organization to align, identify, and produce measures has evolved over time and practice. For your benefit, we have organized the information into a six-step process. We will provide details on each of the steps listed below.

1) Evaluate Strategic Inputs
2) Collect Measure Ideas
3) Evaluate and Score Measure Ideas
4) Develop Measure Prototypes
5) Produce and Maintain Final Measures
6) Evolve Measures for the Future

1) Evaluate Strategic Inputs

The process to define program success will help you build a framework of strategic goals and objectives so that you may focus on the best and most informative metrics. There are many different forms of strategic planning, but this process focuses on the most common practice that produces a strategic plan with goals, objectives, and outcomes. In addition to a strategic plan, hopefully there are other documents in your organization to review such as vision boards, project charters and stakeholder presentations that will provide insight into the vision that leadership has for your project or program. Each level of information within the strategic plan and other documents will provide a path to follow as you work toward specific metrics to describe "program success." To begin, the five levels of strategic information used in the process are defined below.

Goals – Focused 3-5 years out, goals provide a broad base for your organization's strategic vision. In a strategic plan the vision is the broadest statement of the organization's future state followed by the goals which provide a smaller area of focus. When reviewing your strategic plan, you should see your project within one or more of the goals.

Objectives – Focused 1-2 years out, objectives provide a more specific target for your measure ideas. Objectives are action statements designed to accomplish the strategic goals and vision. Aspects of your project should align to one or more objectives and the measure ideas should capture that activity.

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Outcomes – Focused 1-2 years out, outcomes describe the final state or achieved results of strategic objectives. Outcomes describe the effect of the objectives and provide a more specific target for what to measure in your project.

Benefits – The focus of benefits can be short-term or long-term depending on where in the text you find them. Ultimately, they should be at a level to help you focus your search for measures that define strategic progress.

Success Criteria – The focus of success criteria is usually intermediate steps to an outcome. Success criteria, when done correctly, will provide useful targets for measurement. You may find them readily available, or you may need to extrapolate them from strategic objectives and outcomes.

Figure 2 shows the process created by collecting and aligning information from the strategic documents. This flow of information will provide a framework for collecting ideas for measures that will be strategically aligned to the organization's vision for the future

Figure 2 Strategic Inputs

2) Collect Ideas for Measures

The next step in the process is measure identification. The framework from step 1 will provide the guidance for where to look for measures, but research will help to identify good candidates to demonstrate program progress.

Measure Types

It helps to understand the two different types of measures to use to show program progress, leading and lagging indicators. These two types of measurements are used when assessing performance in a business or organization. A leading indicator is a predictive measurement, and a lagging indicator is an output measurement. The difference between the two is a leading indicator can influence your project's direction and a lagging indicator can only show the outcome of what has been completed.

For example, let's use the accommodation of users with disabilities, commonly known as 508 Compliance, to demonstrate leading and lagging indicators. 508 Compliance is where software

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products and websites assure accessibility to users with disabilities. In this example, a leading indicator would track the implementation of 508 compliance requirements as a predictive measure for screen reader functionality and accessibility. Conversely, a lagging indicator would track the rate of accessibility for users with disabilities to measure the result or outcome for accommodation of users with disabilities.

Measure Teams

When you are working to identify the measures, standing up a measure team could be beneficial. The measure team is a good way to engage staff that are closest to the data to help with identifying measures and later developing measure prototypes. Teams help create direct accountability and can provide a relaxed and non-judgmental approach for integrating staff into the decision-making process. Measure teams work best when members possess a diversity of skill sets such as programming, data analysis and communication skills. The team process may also allow you to matrix in extra resources if your area does not have the time or skills to identify and create meaningful metrics. Once you or your measure teams identify a list of measures, the next step is to evaluate and score the measure ideas.

3) Evaluate and Score Measure Ideas

In our work with performance measures, we have developed a process to systematically review and rate measure choices to reduce the big list to a defendable and socialized list of the best and most feasible choices. We have two sets of criteria that we use - those that describe a measure's purpose and those that quantify the development of a measure.

The purpose criteria, seen in Figure 3, represent a conceptual process where you assign value to the measures and elevate those that are perceived to provide the most informative data (think about the questions that you get over and over) and best portray the organization's strategic vision.

Figure 3 Purpose Criteria

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The feasibility of producing a measure is important to quantify for developing each measure. The review of the development criteria, seen in Figure 4, will assign values to elevate those measures that are ready to be developed (think easy wins, low hanging fruit) to higher positions on the list.

Figure 4 Development Criteria

The second step of the measure evaluation process assigns values to the details captured about each criterion. For determining the purpose value, we focused on the "priority" of the measure as a whole and Table 1 shows the scoring values. We have found that a scale of three values: high, medium, and low, is enough to produce a spread of values that is meaningful in the final scoring process. For the purpose score it is easiest to assign one "priority" score value to the three purpose criteria.

Value	Priority Level
1	Low
2	Medium
3	High

Table 1 Purpose Scoring

For determining the development value, we focused on the "feasibility" of development and Table 2 shows how we defined the scoring levels. Unlike the purpose scoring, we assign a score to each of the development criteria and then add up the values to get the total development score. (Note: This is only one way to score the measures and it is up to you to determine if this way is right for your organization.)

Value	Feasibility Level
1	Hard
2	Moderate
3	Easy

Table 2 Development Scoring

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The final step in our process is to combine the purpose and development results and calculate an overall score for each measure idea. The resulting scores quantify the value of the measure to help you and leadership make decisions on how best to spend project or program resources producing and maintaining performance measures. Figure 5 shows the final scoring equation.

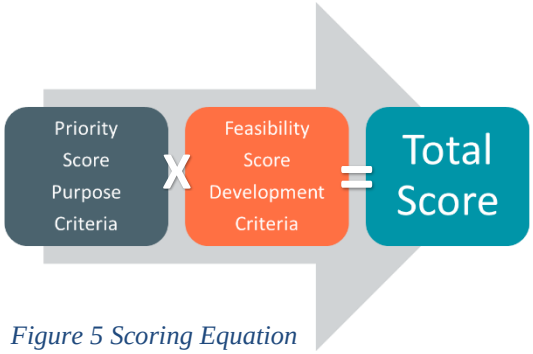

Figure 5 Scoring Equation

The overall score is simply the multiplication of the development score and purpose score. Table 3 shows the results of combining the two scores. We called this a scoring process and not a ranking process because it is the combination of scores that will provide the final values to be used for decision making. The scores highlight some of the different results you can get based on the combinations. Two top scoring measures, Budget Performance and Quality Assurance, have different priorities but the quality assurance measure was elevated the due to feasibility of development being 'easy.' Whereas a measure with a low development score, Resource Utilization, is elevated to third place by a high purpose score. These score combinations help to identify the "low hanging fruit" measures that can be quickly put in place and the important but more difficult measures that are worth the time and resources to develop. After the measure candidates have been confirmed, the next step is to develop measure prototypes.

Measures	Development Score	Purpose Score	Final Score
Budget Performance	11	3	33
Quality Assurance	12	2	24
Resource Utilization	6	3	18
Schedule Summary	12	1	12

Table 3 Scoring Example

4) Develop Measure Prototypes

Developing measure prototypes will be an iterative process where you or your measure teams will develop measures, present the metrics in graphical form, and create sample reports with the metrics and analysis. The process of pulling together the measure data, creating the graphs, and developing the sample reports will help you determine a baseline effort for the whole process and examine the usefulness of the resulting metrics. We have two examples to show how transforming a dataset to a measure will help communicate important information about a topic. The examples illustrate the top two scoring measure ideas from step 3, budget performance and quality assurance.

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Budget Performance

Table 4 provides a sample of the tabular view of the budget data. The table, while useful, does not lend itself to quick assessments of the budget performance across all the programs. The best use for the whole table is for a deep dive into the project-by-project status, however it will not immediately provide any relevant cues to where there may be issues at the project level. To account for that, we developed the bar charts in Figures 6 and 7 below.

Primary Lead Scientist	MOO PM Contact	Project Name	Project Number	Planned				Actual		Variance		Corrective Action			Notes
				OP Amount (Annual) Code 1	Current OP Amount Code 2	YTD OP Amount	YTD as % of annual amount	Total YTD Costs	YTD as % of Annual Amount	YTD Surplus/ (Deficit)	YTD Difference planned/actual Percentage	Corrective Action needed (yes/not)?	Brief Description of Action	Status of corrective Action	
John Doe	PM 1	Project 1	1234567	$ 1,727,452	$ 1,569,209	$ 424,510	27.1%	$ 295,665	18.8%	$ 128,845	30.4%	yes	Work with program sponsor to reprioritize key deliverables	Meeting set for Early Jan 2022	Spending under budget due to staff on leave for Use or Lose/Holidays.
John Doe	PM 2	Project 2	1234568	$ 629,244	$ 325,725	$ 111,774	34.3%	$ 116,072	35.6%	$ (4,298)	-3.8%	no			
John Doe	PM3	Project 3	1234569	$ 1,550,000	$ 472,818	$ 335,388	70.9%	$ 348,405	73.7%	$ (13,017)	-3.9%	no			Spending is very close to plan

Planned spending by project, full year and year to date

Planned versus Actual variance data

Actual Year to Date Spending

Notes and suggested actions based on actual performance

Table 4 Budget Data

Where the tabular data required some study time, the groupings of planned to actual numbers arrranged side by side provide a quick visual on the budget performance of the 5 largest surveys (accounting for roughly 70 percent of our operating budget) and the 10 smallest surveys (that require vigilence due to their limited tolerance for variance.)

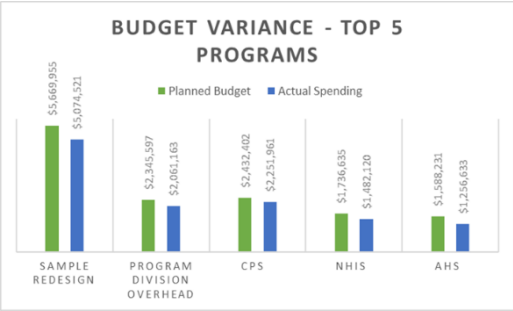

Figure 6 Budget Variance Top 5 Programs

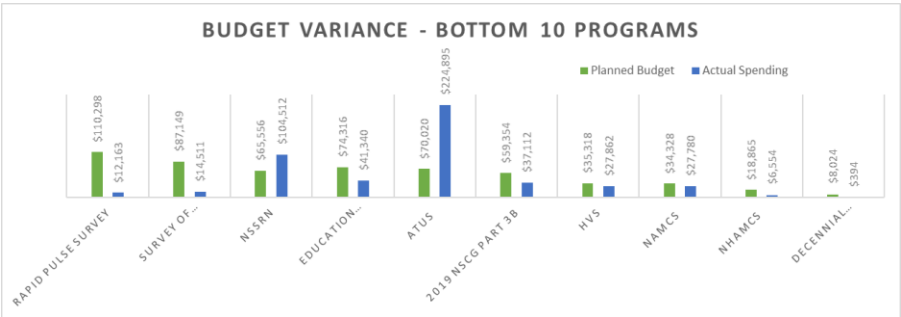

Figure 7 Budget Variance Bottom 10 Programs

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Quality Assurance

Table 5 shows the data for the yearly statistical review work across the different programs. The data identify the number and timing of each individual request by survey but do not quantify the hours of work required to satisfy each request. Figures 8 and 9 show a bar chart by month displaying the stat reviews by hours and by number of requests. Both charts quickly communicate the highest and lowest demand times for the statistical review (quality assurance) work.

Survey Name	Reviews requested												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Stat Reviews	2	3	4	3	1	6	6	3	0	3	0	8	39
Survey 1	2		1	2		2	6	3	0	2	0	0	18
Survey 2												1	1
Survey 3												3	3
Survey 4		1										2	3
Survey 5												1	1
Survey 6			1			4						1	6
Survey 7					1								1
Survey 8		2		1									3
Survey 9										1			1

Table 5 Quality Assurance Statistical Review Data

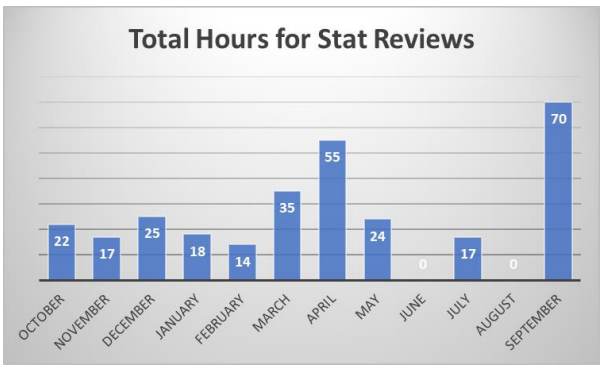

Figure 8 Total Hours for Statistical Review Work

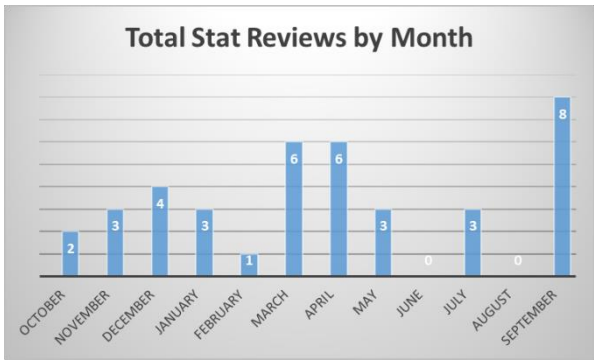

Figure 9 Statistical Review Work by Month

Perhaps the most crucial step to the prototype process is to work with leadership to develop the final version of the measures and metrics. Involving leadership and other stakeholders in the development process will ensure that the final reports and dashboards will contain metrics in their most usable and understandable form.

After step 4 is complete, you will then move on to the production and maintenance of the measures, metrics, dashboards, and reports.

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5) Produce and Maintain Measures

Do not make the mistake of thinking that measure development is the hardest part of the process. Over time, Step 5 will require the most attention and resources. If you are to successfully measure program impact, then you will be conducting the measure production process repeatedly.

To produce and maintain measures, you will need a person or team to manage the inventory of old and new metrics, metric production, and the metric review process. Depending on the number of measures and size of leadership group, this process may require a good deal of staff time to manage. First, you will need staff responsible for producing the new metrics, analyzing the results, and developing the reports or updating a dashboard. Second, you will need staff responsible for scheduling metric review meetings and ensuring subject matter experts are there to discuss the data. Third, you will need staff to store and maintain an archive of old metrics and reports. This work may happen weekly, monthly, or quarterly depending on the time frame of your measures. Periodically, you will also need staff to complete Step 6 to evolve the measures for the future.

6) Evolve Measures for the Future

The measure process should never remain set in stone. As your program evolves or just moves on, some measures will become less important or useful and new measures will need to be added. Step 6 in the process is a periodic review that will refresh the information that you collected in steps 1-3 and a repeat of step 4 for new measures.

First, refresh the strategic information for your organization. Was a new strategic plan issued? Has leadership changed? Are you getting many inquiries that cannot be answered using the existing metrics and reports? Review the purpose criteria and update inputs and scores for the measures. Second, refresh the development criteria for the measures and look for changes in data availability, new tools, and new skill sets. Third, work with your stakeholder to re-score the old measures and nominate and score new measures. Fourth, onboard the new measures by repeating step 4 of the process. Fifth, retire the old measures that are no longer relevant.

Conclusion

When leadership says, "Bring me a measure!" program and project managers can now break out of the fruitless cycle of rejection. By following these steps, managers will find a way to the best measure candidates, bring leadership and other stakeholders into the development process, and

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ultimately satisfy leadership's real request, insight into program performance. Additionally, this process will help managers understand the resource demands of the process and adequately plan for the development and maintenance of program measures to ensure the future success (and funding) of their programs.

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Susan Hostetter, PMP, is a Project Manager at the U.S. Census Bureau in Washington, DC, USA. As a data analyst and project management professional, she has been instrumental in standing up and improving PMO processes for risk management, project management, portfolio management, schedule management, cost management, performance management and strategic planning. Her papers have been published in the PM World Journal and she has presented project management topics at PMI chapter events and at the University of Maryland's and University of Texas at Dallas' PM Symposiums. She has a Master's Certificate in Project Management from George Washington University, a Master's Degree in Management with Project Management emphasis from University of Maryland's Global Campus and a Bachelor's Degree in Business Administration, with a minor in Economics, from Mary Baldwin University. Susan can be contacted at susan.lynn.hostetter@census.gov

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