Performance Management Resource Allocations:

Maximizing Resources for Public Sector

January, 4 2012

John Zook and Kim Butterworth
BTRG/TrueNorth
600 N. Jackson Street
Suite 206
Media, PA 19063

This document is provided for information purposes only, and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor is it subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document.
Introduction

The Government Finance Officers’ Association (GFOA) along with other national and international public sector associations recognized a growing frustration among members; it was getting more and more difficult to meet constituent needs with fewer and fewer resources.

The National Performance Management Advisory Commission (NPMAC) was formed to develop guidance on managing performance within public sector organizations. NPMAC developed a performance management framework that provides seven principles to improving results within the public sector. Unfortunately, implementing…?

Governments do not have a unified, holistic approach to managing performance within their organizations. The Government Finance Officers Association (GFOA) and the National Performance Management Advisory Council have identified weaknesses in the monitoring and management of performance within the public sector, but no concise theories, such as those found in economics, have emerged to assist public sector managers and decision makers.

Over the past few decades, authors have developed models to assist with the organization, collection, and monitoring of performance indicators, but have not provided theoretical constructs that allow a more consistent and uniform management of performance. This paper posits a theoretical construct for linking performance expectations with resource appropriation and identifies common indicators that can be used to monitor performance in order to mitigate non-achievement.
Performance Management Terms

- Outcomes = Expected or achieved performance objectives
- Performance Expectations ($P_e$) = Expected performance objectives
- Total Available Resources ($T_R$) = Resources available to be allocated to achieve performance expectations
- Performance Elasticity ($E_p$) = Change in performance for each change in resource allocation.
- Output ($O$) = Unit of product created as a result of value change activity.
- Capacity ($r$) = Amount of product capable of being produced under normal, realistic conditions.
- Quality ($\Phi$) = Lack of defects.
- Demand ($B$) = Desire for product.
- Timeliness ($T$) = Ability to produce product when desired or required.
Defining Performance Management

The primary driving force behind performance management strategies is achieving outcomes for investor needs. While private sector investors focus on return on investment, loosely translated to mean greater profits and growth; public sector investors, i.e. taxpayers, demand greater benefit and/or value for their tax dollars (Miller, 20??). Identifying taxpayer value expectations begins with elected officials polling their constituents and building strategic plans around community needs and expectations. These value expectations may represent long-term or enduring goals that must be refined as objectives for the planning horizon. Therefore, the strategic plan objectives represent the plan outcomes and organizational performance expectations ($P_e$).

Both private and public organizations are constrained by the availability of scarce resources. Public sector organizations utilize three primary types of resources to achieve outcomes: staff (human) resources, financial resources (funds), and capital resources (assets and equipment). The ability to allocate these resources in order to maximize the collection of performance expectations through environmental and evidentiary adaptation is the cornerstone of performance management.

The National Performance Management Advisory Council defined Performance Management as:

“Performance management in the public sector is an ongoing, systematic approach to improving results through evidence-based decision making, continuous organizational learning, and a focus on accountability for performance.” (NPMAC, 2010).

Public sector organizations have a fiduciary responsibility to their constituents to make the most effective use of their total available resource (TR). Performance management strategies provide the framework for organizations to meet that responsibility.

Performance management isn’t the process of measuring and reporting performance results, although measuring and reporting is a component. Performance management is the informed allocation of resources and continuous adaptation of operations to maximize outcomes.
Performance Units

Performance management is focused on “evidence-based” results. In order to collect evidence, the organization must identify the units where performance is to be measured and monitored. Many public sector organizations identify activities or services as a basic performance unit, while others adopt a widget or product approach (Miller, 20??). Regardless of the unit, performance management requires the performance unit as a core building block.

The organization defines outcomes; the performance unit defines outputs and the process elements involved in creating or delivering outputs.

The potential output1 (O) of a performance unit is a function of the unit’s capacity to generate output (Γ) and the demand for output (B).

\[ O = f(B, Γ) \]

Assuming that the output of the performance unit is desired, demand is driven by the quality (Φ) and timeliness (T) in which the performance unit delivers output.

Performance and Resource Relationships

There is a relationship between the level of performance achievement and the resources utilized [need citation]. Assuming an ideal process, more resources applied to a process results in greater performance.

---

1. Potential output is the maximum production that could reasonably be attained under normal and realistic operating conditions.
2. Viability is the minimum amount of resources applied to achieve any significant level of performance.

3. Diminishing Returns is the point at which little or no performance improvement is made regardless of the number of resources applied.

**Figure 1 - Basic Performance/Resource Relationship**

In practice, this line is not linear and has several key relationships.

**Figure 2 - Performance/Resource Curve**

The range of resource allocation amounts is determined by the difference between the point of performance viability and point of diminishing returns. Viability is the minimum amount of resources that can be applied to a performance unit to achieve any level of performance.

For a specific outcome performance measurement, the area between the points of viability and diminishing returns is the resource allocation range.

The slope of the curve within the resource allocation range (Performance Elasticity \(E_p\)) can be expressed as:

\[
E_p = \frac{\Delta P}{\Delta r}
\]
Organizational Outcomes

To achieve organizational outcomes or plan objectives, public sector organizations must identify specific strategies to be implemented that, in aggregate, achieve the desired results. Therefore, organizational outcome achievement is related to the weighted aggregation of performance unit outcomes.

Total Performance can then be expressed as:

$$E_T = \sum_{i=1}^{n} \frac{\Delta R_i}{\Delta r_i} R_i (C_i)$$

And total resource ($R_T$) can be expressed as:

$$R_T = \sum_{i=1}^{n} R_i$$

Where

- $E_T$ is the aggregated performance representing an organizational outcome;
- $R_T$ is the total available resources;
- $n$ is the number of performance units contributing to outcome;
- $i$ represents a performance unit;
- $R_i$ are the resources applied or allocated for a given performance unit;
- $C_i$ is the contribution of the performance unit to the organizational outcome;
- $E_i$ is the performance elasticity curve for a given performance unit.

Solving for $R_T$ gives public sector organizations the ability to determine the resources needed to achieve an expected level of performance

$$R_T = \sum_{i=1}^{n} \frac{\Delta R_i}{\Delta P_i} E_i (C_i)$$

allowing constituents more informed insight into benefit demands and organizational expectations while providing a better understanding on how resources are allocated and utilized.
Resources

The three primary categories of resources are: human resources (staff), financial resources (funds), and capital resources (assets). Resources provide the capacity to add value to input through activities and outputs intended to increase benefit value or taxpayer return on investment.

Measuring resources for their contribution toward performance is not the FTE, dollars, and units, but their capacity to add value. Staff resources do not add value simply through the number of FTE’s assigned to do work. FTE fails to measure the effectiveness, skills, motivation, and knowledge, etc of the individual or collective to add value. Instead, managers must understand the potential, required, and utilized capacity of staff resources to add value to the business (production) process.

In terms of staff resources, potential capacity relates to the individual’s and collective’s skills, adaptability, motivation, and knowledge. For theoretical purposes, it is assumed that the staff qualifications perfectly match the needed qualifications for each value station within the value chain. In practice, this is unlikely and is the further discussed in Operationalizing Performance Management.

Like staff resources, capital resources are also measured in their capacity to add value to the desired activity or output. Physical environments, equipment, and infrastructure represent the predominant capital resources used in business processes. Capital resources share the measures of potential, required, and utilized capacity, however, unlike staff resources where capacity is difficult to measure, capital resources are more easily assessed: a square foot of office space has the capacity to accommodate x number of workers; the IT network has the capacity to accommodate x amount of data transactions.

Financial resources are used to acquire raw materials (process inputs) and commodities such as energy, supplies, temporary help, etc. Financial resources capacity is measured in terms of purchasing power\(^4\).

---

4. Purchasing power is the number of goods/services that can be purchased with a unit of currency (Wikipedia, 2012).
Resource Appropriation Requests

During the resource appropriation process, performance units use the potential outputs capable of being generated with existing resources; i.e. staff, budget, and capital. The variance between the potential output capacity and the required output capacity based on performance expectations defines the resource appropriation requests. Such that:

\[ O_P = \text{MIN}( (I_S \times R_S), (I_F \times R_F), (I_E \times R_E) ) \]

The potential output \( O_P \) is based on the maximum output capable of being generated by the three (3) resource classes (staff \( R_S \), financial \( R_F \), and capital \( R_E \)). Maximum output is limited by the resource class with the lowest capacity.

Existing resource levels plus the gap between the potential output and required output \( O_P \) and the related resources represents total resource appropriation request for each performance unit.

4. Purchasing power is the number of goods/services that can be purchased with a unit of currency (Wikipedia, 2012).
Measuring and Monitoring Performance

Measuring Performance

Performance is measured in terms of achieving specific outcomes or objectives. The achievement of outcomes is often difficult to determine using a single metric (Kinney & Mucha, 2010) and represents the results of work over a period of time. Therefore, while outcomes provide a good measure of achievement, they offer little in the way of managing performance.

In order to maximize performance, organizations must have the ability to monitor the drivers that influence outcomes with sufficient frequency to allow continuous adaptation; in the context of performance management a phenomenon understood to as organizational learning (Kinney & Mucha, 2010).

Monitoring Performance

Performance monitoring is a risk mitigation strategy in achieving performance expectations. Well selected indicators can alert managers and stakeholders to likely nonachievement with sufficient time to adapt processes, realign resources, or prepare customers/downstream processes.

The primary general drivers in determining performance progress for all performance units are: Capacity, Output, and Demand. While specific progress metrics should be in included to meet specific needs, understanding the relationship of these drivers individually and collectively with the regards to performance unit outcomes is critical to predicting whether outcomes are achievable within the plan horizon. These drivers are also vital to effectively adapting performance unit processes throughout the planning period.
Monitoring Capacity

Resource Capacity (ΓS), as a performance driver, is monitored through the daily availability of skill FTE. Performance measurement systems monitor Staff Resource Capacity through aggregated daily attendance of performance unit FTE’s, and detailed attendance of each staff position assigned to the performance unit. The variance between the Staff Resource Capacity FTE identified with the required Output and actual (realized Output) daily FTE in attendance provides a guide post for meeting expected performance outcomes.

Financial Resource Capacity (ΓF) is monitored through the purchasing power indices for the economies in which funds are used. If funds for a performance unit are utilized within the local economy, e.g. materials and supplies are purchased from local merchants; then the local economic CPI index is used as the predominant measure. Index assumptions used during the resource appropriation request are measured against current indices as a gage of capacity realization. Attention must be provided for significant materials or supplies where costs are related to state or federal indices.

Capital Resource Capacity (ΓE) monitoring reflects the agility of the capital asset capacity. While Facility type assets, i.e. floor space, furniture, etc, have inherent capacity limitations, they do not fluctuate significantly once appropriated. Mechanical equipment requires maintenance and can break or degrade over time limiting total output capacity. Performance systems could include metrics that monitor equipment availability, mean time between failures, maintenance costs, etc.

Monitoring Outputs

Performance unit outputs are the simplest indicators to collect and monitor. Outputs directly correlate to performance units contributions to the larger organizational outcomes and goals.
Monitoring Demand

Customer demands are monitored as requests for output. Immediate delivery services demands are equal to outputs; performance units that have longer delivery timeframes need to monitor requests or orders as a measure of demand. The variance between expected demand and realized demand is a strong prognosticator of performance achievement.

Customer demands are monitored at a frequency consistent with the adaptability of performance unit. For example: a Transit department may monitor ridership on a daily or more frequent basis in order to change equipment (e.g. larger or more buses) or supplement routes. A facility department relies on long lead space requests to predict performance success and therefore may monitor demand on a monthly or quarterly basis.

Monitoring financial demands created by the delivery of performance unit outcomes is accomplished by measuring through funds utilization or procurement. Understanding the “burn rate” of financial resources provides an indication of whether performance units will have sufficient capacity to meet expectations.
Conclusion

Managing performance within the public sector is an emerging practice that continues to be refined to allow for greater understanding and adoption. The ability to empirically define the relationships between performance expectations and resource utilization, such as those described here, has the potential to improve public sector organization planning and performance management; enabling more effective use of resources and lowering taxpayer investments while improving delivered services.

References


For more information, contact BTRG at 877-287-4462 or at info@btrgroup.com