Benefits measurement

Guide to the use of metrics

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| **Objective and Benefits** | This document provides an overview of how to develop metrics and the considerations that should be given when using metrics.  Strategically developed metrics can provide a basis for fact-based, objective decision-making. This guide enables project leaders/managers to develop strategic, reliable performance measures. | | |
| **When to use this tool** | Review this additional resource to learn the importance of metrics, understand common problems projects may face when developing metrics, understand the qualities of ideal metrics, and learn various approaches to developing metrics. | | |
| **Document Owner** |  | **Intended Audience** | Project leaders/ managers |
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# 1 Introduction

Metrics and their development, reporting systems and dashboards help to drive concise and timely reporting of information.

## What are metrics?

Metrics, simply put, are measurements. Metrics could include business results, quantification of system usage, average response time, benefits achieved, etc. (i.e., the measures that an organisation believes are vital for its success). They are a quantified measure of the degree to which a process, component or system possesses a given attribute.

Metrics facilitate the measurement of indicators which provide vital information to decision-makers. They can help show progress over time; help identify problems (through trending); indicate the extent of problems; and help identify root causes and potential solutions (through modelling). Metrics can provide the basis for control, in turn providing the basis for managing.

## Metrics vs benchmarks

Metrics by themselves, however, may not convey enough information to make decisions. Metrics require a means of measuring, a baseline of reference (i.e., the ability to draw a comparison), and efficient reporting of results. Hence, they are compared against a benchmark of a particular context (i.e., internal benchmark, competitor values or industry values) to form an understanding of performance.

Benchmarks are standards (i.e., industry, organisational, competitors) against which performance, risk and control metrics are compared to enable interpretation. A benchmark is typically set to a prescribed state, based on the past results of a process or the occurrence of a specified condition. They act as points of reference or comparison, and may include a threshold, critical success factors or indicators.

For example, if it is known that a 10% process loss is normal, and we compare this value against the process loss metric which shows 12%, it can be inferred that the process is inefficient by 2%. If we just read the metric alone, we would not have been able to make this inference.

A mechanism must be created to establish and define benchmarks. This mechanism may be a manual process in the form of summarising and analysing key performance indicators (KPIs) over a representative period of operations or even an automated system that tracks and provides representative KPI values for comparison. Whatever the process or tool, the importance of reviewing, sanitising and approving benchmarks cannot be overstated as inaccurate benchmarks could lead the organisation or its business processes away from its goals.

While setting a benchmark, caution must be exercised so as to not set it at a level too high, which can have a negative impact on morale, or at a level too low, which will impair healthy competition or appropriate efficiency.

## The need for and importance of metrics

How do you replace “gut-feel” with an objective assessment? How do you move from the “feeling” that something is wrong to the “knowledge” of what’s out of place?

Metrics offer an objective way to make informed decisions. By quantifying the key aspects of the business, organisation or process, metrics provide varying levels of information that management needs to monitor performance, risk and controls and make informed decisions.

The need for and importance of metrics can be further elaborated as below:

| **Importance** | **Details** |
| --- | --- |
| **Objective decision-making** | Quantitative metrics provide an objective measure of performance, risk and control. It aids the management in making informed and objective decisions rather than going by instinct. Metrics can also be used to confirm or substantiate opinions. They condense information such that leaders can make quick decisions based on these metrics. |
| **Management by exception** | This is a philosophy whereby management is only provided information when significant deviations from the benchmarks occur. Metrics are compared against benchmarks and classified as an exception or a no exception. They provide the basis for taking corrective action. |
| **Quantification of exceptions** | Metrics can be used to quantify the magnitude of deviations when compared against a benchmark. The quantification is done by calculating the difference between the benchmark and actual. |
| **Regulatory requirements** | Very often organisations are required to measure and report on key metrics to comply with legal and/or regulatory requirements, such as tax laws and listing agreements. |

# 2 Common problems in deploying metrics

There are several challenges that organisations need to consider in order to effectively deploy

and use metrics.

| **Challenges** | **Details** |
| --- | --- |
| **Lack of executive sponsorship** | Having the support of top management is critical in deploying metrics. To realise significant benefits, adoption of metrics should be an organisation-wide initiative and not left to the initiative of a few smart individuals. |
| **Poorly defined goals** | Very often different stakeholders have different expectations and therefore metric projects are pulled in different directions — away from a goal that was never clearly defined. |
| **Lack of integration** | Having all the components to make a watch is very far from being able to tell the time. The metrics identified and defined need to be in synchronisation with each other to provide an appropriate monitoring, reporting, and controlling mechanism for the organisation |
| **Lack of user acceptance** | Metrics are typically driven by deviations from an expected outcome. Such deviations should be documented and managed. In addition, the relevant person under whom the metrics have recorded deviations must have the willingness to use the results and develop a way forward action plan |

**Usage issues:**

| **Usage Issues** | **Details** |
| --- | --- |
| **Manipulation of metrics** | Because metrics are a form of reporting system, the possibility of manipulation cannot be ruled out. Data used in the metrics and the metric itself (i.e., computation) must go through a validation process before being published internally or externally. |
| **Obsolescence of metrics** | Organisations and processes go through structural and operational changes. When this happens, metrics and benchmarks need to be revisited for appropriateness. In today’s fast-paced business environment, organisations should look at establishing a sustainable process for maintaining metrics. |
| **Information overload** | Having “too much” or “too granular” metrics could result in a situation where management spends more time on measuring metrics rather than using them intelligently. |
| **Difficulty in measurement** | Metrics may become difficult to measure due to information and data issues such as disparate systems, poor quality and availability. In some cases, the cost of computing the metric may outweigh the benefit. |
| **Difficulty in interpretation** | Metrics are intended to provide a means of measuring current state (positive or negative) and trends over time. However, metrics primarily serve to direct management’s attention toward the need for further investigation. All processes have variances that can be due to one-time events (a hurricane disrupts business operations) or due to natural variations (such as seasonal sales of sunglasses). As noted above, manipulation of metrics is often the result when the underlying reason(s) for changes in metrics occurs. |
| **Risk of irrelevance** | Metrics without practical application should be clearly identified and avoided. |

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# 3 Qualities of an ideal metric

Discretion should be exercised when developing a metric. Many parameters such as applicability, data reliability and relevance are to be factored into metric formulation. During the development phase, metrics should be continually questioned:

1. Do the metrics make sense?
2. How do they compare with other existing metrics?
3. Do they form a complete set (e.g., have you adequately covered the critical areas such as time, cost, quality, and customer satisfaction)?
4. Do they reinforce the desired behaviour?

A good metric is easily mapped to the goals of the exercise, allows for possible action and should be easily comparable to benchmarks. A good metric should be easy to interpret and should clearly document the required limitations and disclaimers.

The following are some of the qualities of a good metric.

| **Good metric** | **Details** |
| --- | --- |
| **Clear** | The metric should be very clear in what it is trying to measure and not leave room for any ambiguity at the time of measurement or inference. This includes indicating who is accountable for driving the metric. |
| **Quantifiable and objective** | Metrics may be affected by issues such as availability of accurate and timely information, as well as ambiguity about how to measure it. However, in order to be effective, the metric must be objective and measurable. For instance, competitor’s perception of an organisation based on speculation is neither objective nor clearly measurable, whereas customer satisfaction based on a customer feedback mechanism could be objective and measurable |
| **Actionable** | A metric should allow you to possess some control over its outcome. If a metric does not allow you to alter its outcome, then its computation may not have a tangible value. For instance, it may not be prudent to compute individual contribution to the organisational profitability in the absence of a sound mechanism to track such contributions. |
| **Applicable** | A metric should be aligned to the objectives and needs of the organisation. It must bear relevance to the outlook of the organisation. For instance, in an IT services company looking for top-line growth, measuring the percentage growth in sales from the prior financial period would be more relevant to their business than a metric to measure inventory turnover. |
| **Timely** | Metrics must be available in a time frame that facilitates action. |

# 4 Types of metrics

Metrics can be categorised in several ways. For instance, they can be classified based on the functional area to which they pertain, period of time, objective, controllability and responsibility. The following are a few examples in each of these categories.

1. **By function**:
   1. Service: Increase of service delivery over previous financial periods, service transaction volume per month, by region, etc.
   2. HR: Attrition rate, average payroll cost per employee, HR cost per 100 employees
   3. Finance: Internal rate of return, cost of capital, return on capital employed, Organisational unit total cost by budget year
2. **By timing**:
   1. Short term: Monthly payroll cost, weekly cash disbursement
   2. Medium term: Quarterly service capacity
   3. Long term: Annual payroll cost
3. **By objective**:
   1. Efficiency: How well the process performs with the given inputs. Example: cost per transaction, turnaround time
   2. Effectiveness: The extent to which actual outcomes are achieved, against the outcomes planned, via relevant outputs or administered expenses. Example: number of errors in invoices per 1,000 invoices
4. **Controllability**: Based on the ability to alter its outcome, they can be classified as follows:
   1. Controllable: Metric for which you can alter the outcome is a controllable metric. Example: Monthly service output
   2. Partially controllable: These are metrics over which only a partial degree of control can be exercised. Example: ability to reduce effective rate of tax on total net income
   3. Uncontrollable: Metrics for which no control can be exercised with respect to its outcome. Example: Number of changes to employee master records due to changes in tax rates
5. **Responsibility**: Based on which level of management is responsible for the metric:
   1. Top level: Annual growth rate, earnings per share, return on capital employed
   2. Middle level: Revenues by channel, customer satisfaction levels, attrition rate
   3. Lower level: Number of service requests processed, time to process, errors per 1,000 transactions

# 5 Approaches to metrics development

Metrics can be deployed top-down or bottom-up. These approaches are explained further below. Projects should consider the pros and cons of each to determine the most appropriate method.

## Top-down

Identifying the overall organisational strategy and determining what an organisation is looking to accomplish is the first step in the top-down approach. Working from strategy to drivers to KPIs is a useful way of developing an effective scorecard. The top-down approach helps confirm that the KPIs are in fact a measure of strategy execution.

Some of the challenges that one can expect to face in the top-down approach are discussed below.

* **Technical difficulties**: The project team may come up with key performance indicators that aren't currently tracked as metrics. In other words, the organisation may not have the underlying data necessary to perform the calculations to support the KPI.
* **Change management**: Top-down approaches could be faced with a situation wherein the persons responsible for the metrics perceive the project with fear and suspicion, thereby not fostering a supportive environment which is essential to the success of such initiatives.
* **Long duration**: Explicit planning, communication and coordination are essential for the success of this approach. This is because the identification and definition of the grass-root level metrics typically occurs towards the later stages of the project. A clear vision and experience are essential to direct and guide the project in the right direction.

## Bottom-up

Organisational reporting systems are typically designed in such a way that information usually flows from lower levels of management to the top level of management. A clerk reports to the supervisor and the supervisor in turn consolidates to present the information to the manager and so on.

Hence, understanding and capturing what data is being generated by whom and to whom, helps cover some metrics which may have been missed in the top-down approach. Also, the metrics can be consolidated and then mapped back to the strategic objectives of the organisation.

However, there are downsides to using the bottom-up approach. One is that what lower-level individuals define as "most important" may not tie directly to the company's current strategic direction.

Another risk is that the group only looks at existing measures. If you don't already measure client satisfaction, for example, it probably won't be considered as a metric.

## The ideal approach

While both approaches have their upsides and challenges, what is ideally considered to be the appropriate method is a mix of the two approaches.

Without knowing the organisational direction, it is not possible to prioritise the goals and objectives for which a top-down approach can only be employed. But during the metric defining and data collection phase, it is prudent to use a bottom-up approach as it is more suitable to address the issue of metrics being left out.

The bridge between the two approaches can be reconciled by mapping the metrics gathered from the bottom-up approach to the strategic objectives as defined and documented in the top-down approach

# 6 Framework for developing metrics

Creating a metric should follow a typical project lifecycle, such as:

* Conceptualise/brainstorm
* Determine scope of metric(s)
* Define the metric:
  + Identify dimensions for analysis
* Test, validate and finalise

## Conceptualise/brainstorm

One of the foremost tasks of any thorough problem-solving activity is conceptualisation. That is, the initial brainstorming activity envisioned and undertaken to understand the problem, jot down ideas for remediation and to realise problem-related facts. The importance of this phase lies in the fact it serves as the basis for evolving the initial set of specifications to subsequent phases of development.

## Determine scope of metric(s)

The scope of the metric should link back to the overall project business case, expected outcomes and critical success factors.

## Define the metric(s)

Defining the metric helps the user of the metric make proper interpretations about it and its use. Typically, the definition would provide the user with enough information to understand the metric, the type and categorisation, how to compute it, the input variables required, how to use the metric, how to interpret the metric and dimensions for analysis.

## Identify dimensions for analysis

To put it simply, a dimension is a certain view of an object. In the real world, three-dimensional objects have three sides or views. Similarly, summarised data objects, KPIs or metrics too can be measured or viewed in relation to multiple attributes or characteristics.

For instance, the Human resources department KPI absenteeism per number of days can be measured or viewed by organisational unit, by functional/service type, by period, etc. The attributes or characteristics, namely organisational unit, functional/service type, or period are referred to as dimensions.

## Test, validate and finalise

Testing and validation of metrics provides the supporting evidence as to whether a measure really captures the internal attributes that it purports to measure. The main goal of validation is to assess whether a metric measure what it purports to measure. Testing should also determine how the metrics perform in a simulated environment and impact the use of other metrics/monitors and the business operations. Additionally, too many metrics could burden the system and could lead to spending more time on measuring the metric than running the organisation. Redundant or superfluous metrics should be reviewed at this stage to streamline the whole process and potential areas for efficiencies in the metric(s) identified (e.g., reducing data to reach the same observation, lesser number of computational cycles).

# 7 Reference

“A Primer on Metrics” by Gary T. Smith

“Emerging Best Practices in Developing Key Risk Indicators and ERM Reporting” by James Lam & Associates

“Where do metrics come from?” by Craig Symons and Adam Brown  
URL:http://www.expresscomputeronline.com/20050404/management04.shtml

“Metrics Development: Taking It From the Top” by Craig Schiff, 13 November 2004;  
<http://www.intelligententerprise.com/showArticle.jhtml?articleID=51201364>

“How to Measure Success: Uncovering the Secrets of Effective Metrics” by Dave Trimble;  
<http://www.prosci.com/metrics.htm>