BEST PRACTICE
Installing the Measurement Program

Installation of a measurement program is a four-phased approach, with each phase containing multiple steps.

1. Build the Measurement base

The objective of this phase is to create an environment in which the use of quantitative data is an accepted component of the management process. The four steps for accomplishing this are:

- <u>Define the objectives for the measurement program</u> - how it is to be used. Consider how to implement the four uses of measurement, given the maturity level of the organization. The use of measurement should be tied to the organization's mission, goals and objectives.

- <u>Create an environment receptive to measurement</u>. Begin with the prerequisites listed earlier in this section. Establish service level agreements between IT and the users to define quality and productivity that must be defined before they can be measured. People involved with the measurement should help develop the measure. Establish a quality management environment and ensure the work processes being used have been implemented.

- <u>Define the measurement hierarchy, which has three levels of quantitative data: measures, metrics, and a strategic results dashboard (also called key indicators)</u>. This measurement hierarchy maps to a three-level IT organizational tier: staff, line management and senior management. IT staff collects basic measures, such as product size, cycle time, or defect count. IT line management uses fundamental metrics, such as variance between actual and budgeted cost, user satisfaction or defect rates per LOC to manage a project or part of the IT function. Senior management uses a strategic results dashboard, where the metrics represent the quantitative data needed to manage the IT function and track to the mission, vision, or goals. For example, a mission with a customer focus should have a customer satisfaction metric. A metric of the number of projects completed on time gives insight into the function's ability to meet short and long-term business goals.

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- Define the standard units of measurement (discussed in Measurement Concepts).

2. Manage towards results.

In this five-step phase, goals for the desired business results are identified in the form of a strategic dashboard, and the means for measuring those results are determined. The business results need to be prioritized and communicated to the entire IT function so that decisions will be made in a manner that will facilitate achieving those results. This is particularly critical when the third phase is implemented, as the process results should link to the desired business results.

- Identify desired business results, beginning with a mission or vision statement. Turn operative phrases in the mission or vision (such as "deliver on time" or "satisfy customer") into specific objectives (such as "all software will be delivered to the customer by the date agreed upon with the customer"), and then rank these objectives in order of importance. When objectives are written with a subject, action, target value, and time frame it is much easier to identify the actual metric that will serve as the results metric or key indicator.

- Identify current baselines by determining the current operational status for each of the desired business results/objectives.

- Select a measure or metric for each desired business result or objective, and determine whether it has been standardized by the IT industry (such as cycle time, which is measured as elapsed calendar days from the project start date to the project end date). If not, explore the attributes of the result or objective and define a measure or metric that is quantitative, valid, reliable, attainable, easy to understand and collect, and a true representation of the intent. Ideally there should be three to five metrics, with no more than seven. Convert the business results metrics into a strategic dashboard of key indicators. Examples of indicators includes productivity, customer satisfaction, motivation, skill sets, and defect rates.

- Consider trade-offs between the number one ranked business result and the other desired results. For example, the #1 result to complete on time will affect other desired results, such as minimize program size and develop easy-to-read documentation.

- Based on the baseline and desired business result or objective, determine a goal for each result metric. Goals typically specify a subject (such as financial, customer, process or product, or employee) and define an action

that is change or control related (such as improve or reduce, increase or decrease or control or track). If a baseline for on time projects is 60%, the goal might be to increase to 80% by next year. Benchmarking can also be useful prior to setting goals, as it allows an understanding of what is possible given a certain set of circumstances.

3. Manage by process.

Managing by process means to use processes to achieve management's desired results. When results are not achieved, a quality management philosophy tells the organization to look at how the system (i.e., its processes) can be improved rather than reacting, making emotional decisions, and blaming people. Quantitative feedback, which provides indicators of process performance, is needed in order to operate this way. Various processes usually contribute jointly to meeting desired business results, and, therefore, it is important to understand and identify what things contribute to, or influence, desired results. This phase consists of four steps to implement measurement in a process, and to identify the attributes of the contributors, which if met will achieve the desired process results. These steps provide the information to manage a process and to measure its status.

- Develop a matrix of process results and contributors to show which contributors drive which results. The results should come from the process policy statement. The contributors can be positive or negative, and involve process, product, or resource attributes. Process attributes include characteristics such as time, schedule, and completion. Product attributes include characteristics such as size, correctness, reliability, usability, and maintainability. Resource attributes include characteristics such as amount, skill, and attitude. A cause-and-effect diagram is often used to graphically illustrate the relationship between results and contributors.

- Assure process results are aligned to business results. Processes should help people accomplish their organization's mission. Alignment is subjective in many organizations, but the more objective it is, the greater the chance that processes will drive the mission.

- Rank the process results and the contributors from a management perspective. This will help workers make trade offs and identify where to focus management attention.

- Select metrics for both the process results and contributors, and create two tactical process dashboards: one for process results and one for contributors. These dash boards are used to manage the projects and to

control and report project status. Normally results are measured subjectively and contributors are measured objectively. For example, for a result of customer satisfaction, contributors might include competent resources, an available process, and a flexible and correct product. Sometimes, as with customer satisfaction, factors that contribute to achieving the result can actually be used to develop the results metric. In other words, first determine what contributes to customer satisfaction or dissatisfaction and then it can be measured.

4. Management by fact.

Management by fact uses qualitative and quantitative data produced from, and about, work processes to make informed decisions regarding the operation of those work processes. Quantitative data can be objective (such as the number of defects produced) or subjective (such as the customer's perception of the quality of the products or services produced by the process).
Typically the focus of decisions is common cause problems and special cause problems.

The management by fact process contains two components:

- Meeting desired results
- Managing the processes to drive the results

References

Guide – CSTE Common Body Of Knowledge, V6.1 and CSQA Common Body Of Knowledge, V6.2