



## Establishing a Measurement Program

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There are a number of factors that distinguish successful measurement programs from those that are not so successful. This article highlights those critical success factors that organizations have found to be instrumental in the development and implementation of an effective measurement program. It also demonstrates some of the lessons learned by organizations encountering obstacles in this endeavor. Future articles will further articulate these factors.

### Define Measurement Objectives and Plan

All too often organizations attempt to establish a measurement program because it is the "popular" thing to do. Before establishing a measurement program, it is essential to define the objective you are attempting to accomplish. This objective should outline the problem or need you are trying to address and what the "ideal state" should be when the program is implemented.

The smooth establishment of a measurement program also requires a strategy and plan. The strategy should address many of the critical success factors described in this article. The resulting plan should be flexible and evolutionary. Measurement should grow with an organization and not overwhelm the culture.

### Obtain Senior Management Sponsorship

Senior management sponsorship should be active and genuine. It does not simply mean that they are willing to let you establish a measurement program. It means they will actively sponsor it and participate in making it happen. It is important they convey the message that they intend to utilize the results of the measurement program to manage the software organization.

### Dedicate Resources

A core team of qualified support staff is required to facilitate and/or direct the development of the measurement program. They should provide expert guidance and direction to the staff in the development and use of the quality and productivity metrics as well as the tools supporting them. The size of this staff is dependent on the size of the development staff they have to support and the scope of measures to be developed and maintained.

### Train, Educate and Market

Marketing measurement to staff and management is critical to the program's success. Often this marketing is in the form of training and education. Proper training and education enables the staff to understand and use the results of the measurement program. This allows it to become a means by which managers and staff manage their departments, applications and projects rather than just a "report card."

### Integrate Measurement

Measurement, to be accepted and actively supported, should be viewed as an integral part of everyone's job. It must become an accepted part of the organizational culture. It should be clearly understood and accepted that everyone is expected to take an active role.

In order to gain acceptance, measurement activities need to be integrated with the development lifecycle. It then becomes no different than other scheduled activities such as designs, inspections and testing. When not fully integrated and scheduled, it becomes an optional activity that is rarely performed.

## Focus on Project Team Results

A common denominator across the software organization is the project. Focusing on the effectiveness with which you complete projects and maintain applications enables you to do comparative analysis at the project level. This allows you to more readily identify and address influencing factors that are of manageable magnitude, such as process issues.

Focusing on the project level enhances the project managers' ability to effectively manage projects. Aspects of project management that are enhanced include: estimating, project scheduling, project planning, change of scope management, risk assessment and post project reviews. Focusing on the project level also provides benefits back to the staff who often collect the data.

## Do Not Measure Individuals

Projects are team rather than individual efforts. Measuring the performance of individuals tends to focus in on the individual as the "cause" of high or low productivity or quality. In reality, individuals have little control over the primary factors that influence productivity and quality. Factors such as the development environment, tools, methodologies and project type have a much stronger influence on project performance than an individual's performance.

Additionally, measuring individual staff performance can actually be counterproductive. If individuals are rewarded or punished based on measurement, their daily activities and attitudes are influenced. They often focus on individual output which can detract from the team- work which is required for success. This could also discourage open and accurate reporting of data.

## Define and Report

Measurement programs often fail due to poor definition of meaningful metrics and lack of good analysis and reporting. Many organizations have found themselves collecting data for years without a clear understanding of how to analyze, report and

use the resulting information. Measures need to be defined by numerous audiences within the organization. These audiences should determine their unique goals and objectives and define measures which will help achieve them. This both ensures meaningful metrics and widespread involvement.

## Automate

A comprehensive measurement system will result in the need to capture, analyze and publish large amounts of data and information. An organization can become inundated with data that must be entered and processed. A key to the success of a measurement program is the ability to expedite the transformation of data into useful measurement information. This often calls for the automation of many facets of the measurement process.

This automation of the process should be approached cautiously. Organizations often purchase expensive measurement software before understanding their requirements. Consider the use of homegrown spread sheets and data bases as a temporary solution until the longer term needs are determined. When you are ready to consider more sophisticated solutions, you might want to start with PQMPlus™ from QPMG. This is a package that can assist in data collection (Function Point Analysis), serve as a project and user history repository, and apply benchmark data in generating useful estimates throughout the project lifecycle.

## In Summary

Numerous organizations have embarked on the establishment of measurement programs. They have met with varying degrees of success. Those that have enjoyed the greatest success have focused on many of the factors outlined in this article. Although they have experienced obstacles along the way, they have been able to overcome them and move forward. Also, be patient. Developing an effective measurement program requires time and commitment. This effort however, can yield significant benefits in terms of improved productivity and quality.

**About the Author**

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