

Creating a Metrics Program

Step 7: Create a Metrics Database

Step 7 is to define and create the metrics database for the storage and retrieval of the software measurement data.

By now, you have likely defined a large set of data to be collected and analyzed. You will naturally need to store the data, which leads you to this step: creating the metrics database. Here is a list of criteria to meet when defining the database:

- The database should be easy to use so that people can update and report data with a minimum of trouble.
- The database should be flexible for the following reasons: so that you can change its structure as the metrics program evolves and new data is collected; so you can perform ad hoc reports and queries on the raw data; and so you can use the data to create metrics other than those identified in Step 3.
- Ideally, the database should interface to other tools such as configuration management, defect tracking, and project management systems. This could greatly simplify data collection and reduce repetition of data within the company.
- The database should interface to a graphical reporting facility to enable the production of professional looking graphs and charts.
- The database should be large enough to contain significant historical information.
- The database should avoid repetition of data.
- If data security is an issue, the database should provide the necessary access security. This includes the security to protect against unauthorized use as well as data corruption.

Be sure to consider all criteria that are relevant to each specific situation when defining the database. For example, a company may wish to establish a metrics program at its many sites. It would need a database accessible by people at each site.

Two commonly used metrics storage facilities are databases and spreadsheets. The advantage of a spreadsheet is that it is inexpensive, easy to use, and very quick to set up. Databases, on the other hand, are much more effective for handling large volumes of data, and are definitely a longer term solution. Presented below is a more detailed list of the pros and cons of each.

Spreadsheets

If the company is not too large, a commercial spreadsheet package may make an excellent metrics database. Some advantages to spreadsheet packages include the following qualities:

- inexpensive and accessible
- easy to configure and use
- built-in graphical reporting facilities
- easy to update when new data structure is defined

- familiar to most management

But spreadsheets are not without drawbacks. Their main disadvantages are as follows:

- do not support ad hoc queries
- not easy to support over a network
- not suitable for storing large volumes of data
- little or no security available
- difficult to interface to other tools

Commercial Database Products

Relational database packages are available for almost all computing platforms. These database packages have significant advantages over spreadsheets, but not without cost. Advantages include the following:

- store and access large volumes of data effectively
- security and network access is available
- ad hoc queries and reports are supported
- many interface to high quality graphical presentation facilities
- easy to update and customize as data evolves

The disadvantages of a relational database package are as follows:

- initial setup is more costly and time consuming
- people may require training to use the database
- more expensive to license than spreadsheets

Actions Required for Step 7

1. Define a set of requirements for the metrics database.
 2. Determine whether define a custom database, or purchase a third-party metrics database or spreadsheet.
 3. Set up the database for use.
 4. Create a document outlining the usage procedures for the metrics database
-