BEST PRACTICE
The Defect Management Process

Figure 44 illustrates the key elements of a defect management process.

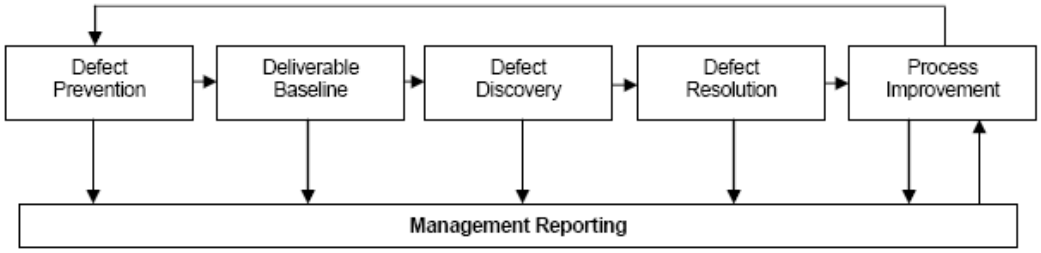

Figure 44. Defect Management Process

Defect Prevention

As many quality experts have pointed out, the best approach to defects is to eliminate them altogether.

Figure 45 illustrates a defect prevention process with three major steps that are described below.

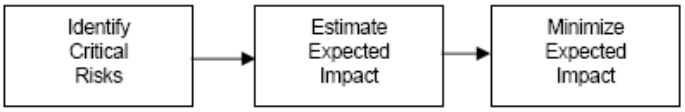

Figure 45. Defect Prevention

Identify Critical Risks

- A key requirement is missing.
- Critical application software does not function properly.
- Vendor-supplied software does not function properly.
- Software does not support major business functions – necessitates process reengineering.
- Performance is unacceptably poor.
- Hardware that malfunctions.
- Hardware and software do not integrate properly.
- Hardware that is new to installation site.

- Users are unable or unwilling to embrace new system.
- User's ability to actively participate in project, etc.

Estimate Expected Impact

Minimize Expected Impact

Appropriate techniques to reduce expected impact are a function of the particular risk. Techniques to prevent defects include:

- Quality Assurance
- Training and Education (Work Force)
- Training and Education (Customers)
- Methodology and Standards
- Defensive Design
- Defensive Code

Deliverable Baseline

You baseline a deliverable, or work product when it reaches a predefined milestone in its development. This milestone involves transferring the product from one stage of development to the next. Deliverable baseline involves the following activities:

- Identify key deliverables
- Define standards for each deliverable

Defect Discovery

The steps involved in defect discovery are illustrated in Figure 47 .

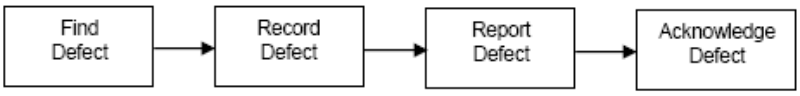

Figure 47. Defect Discovery

Find Defect

Techniques to find defects can be divided into three categories:

- Static techniques
- Dynamic techniques
- Operational techniques

Record Defect

You should record defects for these four major purposes:

- To correct the defect
- To report status of the application
- To gather statistics used to develop defect expectations in future applications
- To improve the software development process

Report Defects

Acknowledge Defect

Strategies to address this problem include:

- Instrument the code to trap the state of the environment when anomalous conditions occur.
- Write code to check the validity of the system.
- Analyze reported defects to discover the cause of a defect.

Defect Resolution

The steps involved in defect resolution are illustrated in Figure 48

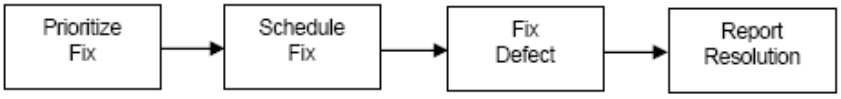

Figure 48. Defect Resolution

Prioritize Fix

The purpose of this step is to answer the following questions and initiate any immediate action that might be required:

- Is this a previously reported defect, or is it new?
- What priority should be given to fixing this defect?
- What steps should be taken to minimize the impact of the defect prior to a fix? For example, should other users be notified of the problem? Is there a workaround for the defect?

A suggested prioritization method is a three-level method, as follows:

- Critical – Would have a serious impact on the organization's business operation.
- Major – Would cause an output of the software to be incorrect or stop.

- Minor – Something is wrong, but it does not directly affect the user of the system, such as a documentation error or cosmetic GUI (graphical user interface) error.

Schedule Fix

Fix Defect

Report Resolution

References

Guide – CSTE Common Body Of Knowledge, V6.1