

Defect Density

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Model: Defect density is a measure of the total known defects divided by the size of the software entity being measured.

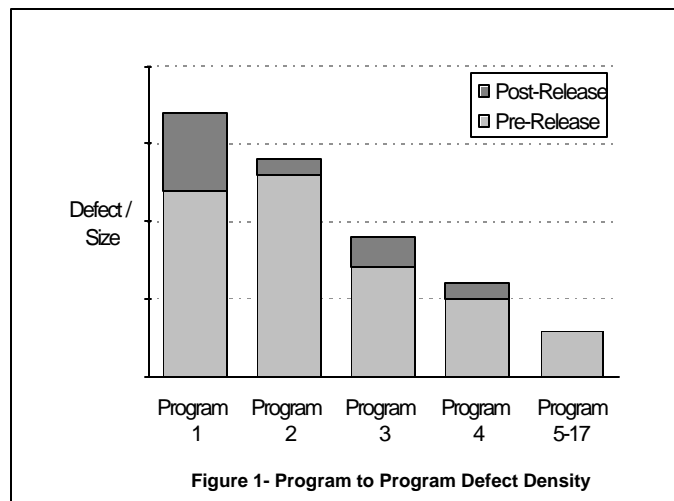
$$\frac{\text{Number of Known Defects}}{\text{Size}}$$

The Number of Known Defects is the count of total defects identified against a particular software entity, during a particular time period. Examples include:

- defect to date since the creation of module
- defects found in a program during an inspection
- defects to date since the shipment of a release to the customer

Size is a normalizer that allows comparisons between different software entities (i.e., modules, releases, products). Size is typically counted either in Lines of Code or Function Points.

Uses: Defect Density is used to compare the relative number of defects in various software components. This helps identify candidates for additional inspection or testing or for possible re-engineering or replacement. Identifying defect prone components allows the concentration of limited resources into areas with the highest potential return on the investment. Figure 1 illustrates a typical reporting format for Defect Density when it is being utilized in this manner.



Another use for Defect Density is to compare subsequent releases of a product to track the impact of defect reduction and quality improvement activities. Normalizing by size allows releases of varying size to be compared. Differences between products or product lines can also be compared in this manner. Figure 2 illustrates a typical reporting format for Defect Density when it is being utilized in this manner.

