

## Software Reliability Prediction Services

Software reliability predictions are conducted early in development even before the code is written.

The purpose of the prediction is to:

- Merge the software predictions with the hardware predictions
- Determine whether the system reliability objectives are met
- Determine if the software release will be successful from an objective point of view
- Determine any alternatives before the code is finished and it's too late
- Estimate how many people will need to test the software and for how long
- Estimate how many people will need to support the software and for how long
- Estimate whether there will be defect pileup
- Estimate the software defects, failure rate, MTTF, MTTCF, reliability and availability of the software

Ann Marie Neufelder invented most of the industry methods for predicting software reliability early in development before the code is even written. Her models are currently recommended in the IEEE 1633 Recommended Practices for Software Reliability.

The below figure illustrates the basic steps for performing a software reliability prediction. These steps are recommended as per the IEEE 1633 Recommended Practices for Software Reliability. The first step involves predicting the effective size of the software. "Effective" means new or modified. The bigger the *effective* size the more that can go wrong. The second step of the prediction process requires a [software reliability assessment](#).

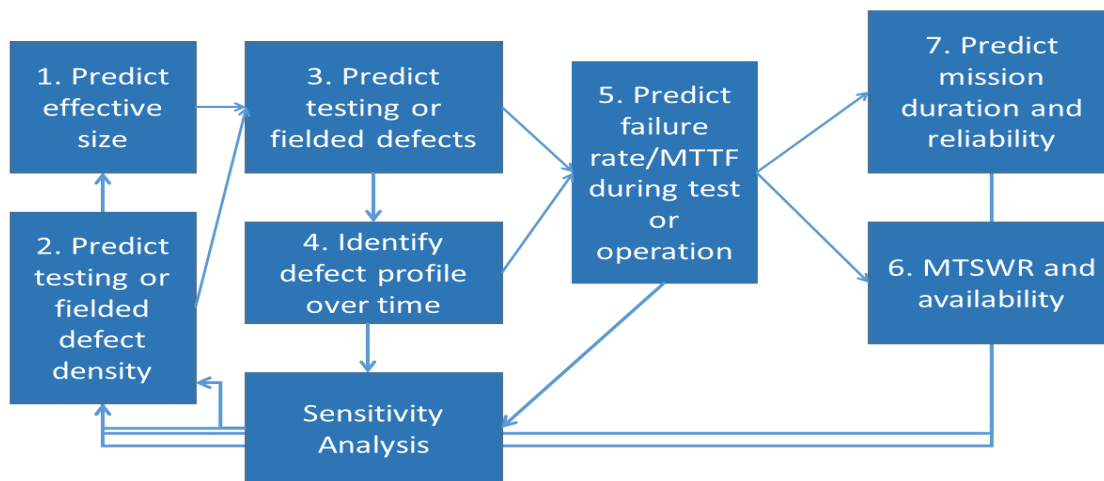


Figure 1 Software reliability prediction process

The third step predicts the total escaped or testing defects and is simply a multiplication the results of the first 2 steps. Step 4 predicts when the total predicted defects will result in a failure. Step 5 divides by the defect profile from step 4 by the operating system to yield a predicted failure rate or MTTF. Steps 6 and 7 use the result of step 5 to predict the software availability and probability of failure over the life of the mission. The Sensitivity analysis can be conducted at any time from step 2 onwards.



[sales@softrel.com](mailto:sales@softrel.com)  
321-514-4659  
<http://missionreadysoftware.com>

This prediction process predicts the number of defects that are serious enough to effect reliability. The types of defects can be predicted via a defect root cause analysis. Refer to [An introduction to Software Reliability Prediction](#).

**Statement of Work**

The software reliability assessment (step 2 in Figure 1) is a prerequisite for the software reliability prediction. Ann Marie Neufelder will then complete steps 1, 3-7 as recommended in the IEEE 1633 document. Estimates of defect pileup will also be computed if the size and dates of future releases are established.

**Related products and training**

Related products	Related training
The <a href="#">software reliability toolkit</a> and the <a href="#">Frestimate</a> software automate these steps.	The <a href="#">IEEE 1633 Software Reliability Training class</a> covers what you need to know to predict software reliability.

**Pricing**

Call 321-514-4659 for quotation.

**MISSION READY SOFTWARE**  
SOFTREL LLC



[sales@softrel.com](mailto:sales@softrel.com)

321-514-4659

<http://missionreadysoftware.com>