

# **STUDIES OF SOFTWARE PROCESS IMPROVEMENT**

**Summarized by Neal Coulter**  
**Updated April 15, 2003**

Many researchers and practitioners have investigated the utility of software process improvement and other approaches to best practices. Some studies [Brown], [Jones], [McConnell] suggest general guidelines for process improvement without direct reference to CMM. Others [Bamberger] look for the essence of CMM within the larger structure. Reports of CMM-based assessment

and improvement are now common. A review of some studies helps to put the objectives of this research in focus.

### **Studies of CMM-Based Software Process Assessment and Improvement**

While software process improvement models and related assessments are relatively recent investigations, several long-term studies validate vastly improved productivity, quality, and cost-saving realized from sustained CMM-based improvement programs. Companies reporting successes include Hughes Aircraft [Humphrey], Raytheon [Haley] and [Dion], Schlumberger

[Wohlwend], Motorola [Daskalantonakis], [Diaz] and Boeing [Yamamura], [Fowler], [Wigle].

### **Raytheon's Experiences**

The recently reported effort by Raytheon [Haley] provides a good case study for examining costs and benefits of process improvements. Raytheon began its process improvement efforts in 1987 and reached SEI Level-3 (from Level-1) in 1991; Raytheon continues its improvement efforts. Some impressive improvement results reported by Haley are: