Software Process Improvement via ISO 9000?
Results of two surveys among European software houses

Abstract:
Much has been said and published about the advantages and disadvantages of the ISO 9000 family for the software industry. However, there is very little empirical evidence to what extent software process improvements have really been achieved via ISO 9000. This paper presents results of two surveys among European software houses. One of the targets of the studies was to find out whether software companies have actually achieved software process improvements via ISO 9000.

The first survey was conducted among twenty German software houses that have received an ISO 9001 certificate. The study focuses on five elements of an ISO 9000 quality system: code reviews and inspections, software testing, product and process measurements, measurement of quality costs, and demonstration of quality improvements. Many software houses included in our first survey have not carried out any modifications of the five elements. Thus, it seemed that ISO 9000 had not led to significant improvements. Nevertheless, nearly 100% of the companies would decide in favor of implementing an ISO 9000 quality system once again.

We decided to conduct a second study to gain a better understanding of the software process improvements achieved via ISO 9000. We analyzed experience reports and conducted interviews with quality managers from a total of 36 European software houses. It turned out that software houses have indeed achieved process improvements. Unfortunately, most software houses are not able to quantify the benefits of implementing an ISO 9000 quality system.

We identified ten key success factors that the respondents of our studies considered to be the most helpful when implementing an ISO 9000 quality system. Astonishingly, only two of the ten factors are explicit requirements of ISO 9001. This shows that it is necessary to implement a more comprehensive approach to achieve substantial software process improvements.