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# ON THE ROLE OF CONTROL CHARTS IN SIX SIGMA AND OTHER IMPROVEMENT INITIATIVES

By

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## Abstract

Control Charts have been at the core of the quality movement and its improvement initiatives from their introduction by Shewhart (1931, 1939). In this talk we will investigate its role from a number of perspectives with a focus on Six Sigma as applied to both manufacturing and transactional processes and in similar improvement initiatives. For example, in many training programmes for Six Sigma the advanced use of Control Charts are saved to the very last part of the training, i.e to the Control Sessions of the Define-Measure-Analyse-Improve-Control (DMAIC) training programme. We will argue that it in fact should be introduced quite early in the programme – in the D and M-sessions. In many discussions on Control Charts their use is divided in two phases I and II, while in fact two other, later phases III and IV should be emphasised.

We will also review the role of Control Charts from for example the Bayesian point of view and we will discuss the use of EWMA control charts in situations where observation times are unevenly spaced.

Illustrations from manufacturing as well as transactional processes will be given. Especially, we will use as illustrations some health care applications.

## Short biography Bo Bergman

Bo Bergman is semi-retired from a chair in Quality Sciences at Chalmers University of Technology and a guest professorship at Meiji University, Tokyo. His career started with 15 years in aerospace industry during which period he also became a PhD in Mathematical statistics from Lund University and was a part time professor in Reliability at Royal Institute of Technology, Stockholm. In 1983 he became a professor in Quality Technology at Linköping University and in 1999 he became the SKF professor in Quality Management at Chalmers University of Technology. As a professor he has supervised a large number of PhD students many of which now are themselves professors. He founded the Centre for Healthcare Improvement together with colleagues eight years ago. The aim of this centre is to support healthcare in their improvement efforts primarily by continual education and research together with healthcare organisations. He is a member of the International Statistical Institute (ISI) and an Academician of the International Academy for Quality (IAQ).

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