

Recent Japanese Activities in TQM

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1. Science TQM, a New Quality Management Principle

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Abstract: Science TQM, a new quality management principle, is proposed. It consists of 'TMS (Total Marketing System)', 'TDS (Total Development System)', 'TPS (Total Production System)', 'TIS (Total Intelligence Management System)' and 'TJS (Total Job Quality Management System)', and aims at an integrated form of a next-generation management strategy. The present paper contributes systematically and organically to solving quality management problems by utilizing 'Science SQC', and verifies its effectiveness within Toyota, the Toyota group and others.

2. The Grammar of Technology Development - Statistics for Business Sciences from Marketing to the Taguchi Method

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Abstract: Grammar of technology development is a trans-disciplinary description of common approaches to well-controlled technology developments in which the most effective method for development is systematically selected. Here technology development involves the following four sequential activities for both a real society and the corresponding virtual society using appropriate engineering models:

- i. Value selection of targets by defining the expected recognized quality elements.
- ii. Translation of the recognized quality elements occurring in societies into functional quality elements that designers and engineers can specify concrete parameters in their engineering models.
- iii. Optimization of design parameters of the engineering models to ascertain their usability.
- iv. Value injection into the real society to harmonize realized functional qualities and corresponding recognized quality.

Since 1950s the Japanese industry has been utilized both simple and advanced statistical tools for the technology development including originally proposed methodology as the Taguchi method or QFD, but fundamental functions of statistical methods as evaluating, finding, and optimizing are not explicitly recognized in the applications except establishing the QC story which can be regarded as the grammar of scientific improvements. To clarify the idea historical and current views of applied statistics in Japanese industry including marketing fields will be summarized in terms of the proposed grammar of technology development.

3. Where Does DMAIC Come from?

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Abstract: DMAIC is popularly applied as Six Sigma tool and many industrial quality managers believe that this is the core tool of and originated by Six Sigma. I have a question about this but I cannot find any literature which refers to its origin. In order to clarify my question, let me clarify how the procedures for quality management can be theoretically derived, how they are linked with the conventional procedures of TQM and how about the history of the conventional procedures.

First, based on the causal relationship model which consists of one quality characteristic and infinite number of factors, let me theoretically clarify for a standardized process within a framework that we need the three kinds of quality activities such as maintenance, problem solving(PS) and task achieving (TA), and derive the procedure for each of those three activities.

Second, let me discuss that each of the procedures results in SDCA Cycle, PS QC Story and TA QC Story, respectively, which are conventionally applied in Japan, and refer to their historical development based on literature survey.

Finally, let me point out the similarity of DMAIC with PS QC Story which was proposed in 1960s as the reason why I have a question of the theme of this paper.