The Barriers to Acceptance of Statistical Methods of Quality Control in the Macedonian Manufacturing Industry

Vesna Bucevska
University "St. Cyril and Methodius", Faculty of Economics – Skopje
Krste Misirkov bb
1000 Skopje, Republic of Macedonia
vesna@eccf.ukim.edu.mk

1. The survey

The first step in any nationwide effort to improve quality is to discover how quality management is currently being carried out. For that reason I created a postal written questionnaire which was complemented by a large program of structured interviews in order to overcome some inherent weaknesses which must be recognized when reading and interpreting results of the questionnaires. A questionnaire was designed to provide facts concerning the perceived importance of quality, current quality control practices and attitudes towards the use of SQC as well as information about the person responsible for quality control.

The questionnaire addressed to the "Head of Quality Control" was distributed to a small, but representative sample of 500 companies. This sample was stratified to give a profile of company size and industrial sector similar to that of industry throughout the Republic of Macedonia.

Structured interviews were conducted in 32 companies, the majority of which contacted the researchers as a result of local publicity given to the project.

Within the time allowed, I received 123 completed questionnaires (a response rate of 24,6%).The distribution of returns was shown to be not significantly different from the distribution of the sample of 500 companies.

2. The usage of SQC

The purpose of this survey was to establish if SQC was the preferred method of quality control at the various stages of manufacturing. The reported usage of SQC in this representative sample of Macedonian industry has been considerably low (only 33.3% of respondents make some use of SQC).

The results of the survey show that when quality is defined either by law or by legal contract, SQC is more likely to be adopted, particularly at the process stage. Other external influences encourage companies to make greater use of SQC. For example, 66.7% of respondents who use SQC as the preferred method of verifying the correctness to specification of purchased materials also have SQC specified by at least one customer.

Where SQC has been used, respondents tend to be happy with its performance and continue to use it. 81.0% state that it has been of benefit and SQC has remained in use in 83.6% of the companies in which it has been introduced.

One question asked: "If SQC is not used, what is the major reason for this? (please state)". As anticipated, the response to this open question was low. The reasons given by the 62 respondents who answered this question are shown in Table 1.

Of the group which did not reply to this question, the outstanding characteristic was their lack of knowledge of SQC (this is the major barrier preventing the introduction of SQC in almost one quarter of non-users). The point at which resistance occurs is in introducing techniques. Moreover the major barrier preventing the introduction of SQC is lack of knowledge. This is not

often the first reason given, but much circumstantial evidence from the questionnaire survey and direct evidence from interviews suggests that judgments are often made on the basis of very little or no knowledge.

Table 1. Reasons for not using SQC

Reason given	Percentage of non-users of SQC giving that reason
SQC is not appropriate	17.7
100% inspection is better	12.7
Lack of knowledge of SQC	7.6
One-off production	3.8
Small batch production	17.7
SQC did not work well	1.3
SQC given low priority	12.7
Planning to try SQC	3.8

3. Conclusions

Clearly there is an urgent need to increase awareness and knowledge of SQC. The academic institutions have an important role to play here but, to date, few have accepted the challenge. The offering of courses will not in itself solve the problem. Training courses can only run up if top managers are sufficiently interested to send people on them.

It is clear from the survey that many companies are introduced to SQC by customers who specify its use. Three quarters of the companies who are planning to introduce SQC have been motivated in this way.

Having in mind the above mentioned barriers, further work should be oriented towards developing a methodology for the successful implementation of statistical methods of quality control.

REFERENCES

Devor, R. E., Chang T. and Sutherland, J. W. (1992). Statistical Quality Design and Control: Contemporary Concepts and Methods. Prentice Hall

Montgomery, D.C. (2000). Introduction to Statistical Quality Control. John Wiley & Sons

Ryan, T. P. (2000). Statistical Methods for Quality Improvement. John Wiley & Sons

RESUME

Ce travail découvre que l' industrie de la Republique de Macedoine utilse quelque peu des methodes de contrôle statistiques de la qualité (SQC). Ce travail décrit les raisons de cet emploi n' étant pas assez suffisant.En résumé, la barrière majeure qui êmpeche les sociétés d' utiliser les SQC, réside dans le fait qu' elles sont ignorées. Bien que ce n' ait pas été souvent la prémière raison donnée, bien des preuves indirectes à partir des questionnaires et des preuves directes à partir d' interviews suggerènt que, bien des fois, des décisions sont prises sur la base de très peu ou d' aucune connaissance. Il est évident qu' il faut avec urgence répandre et faire de plus en plus connaî tre les SQC.