"Berbahagialah orang yang lapar dan haus akan kebenaran, karena mereka akan dipuaskan."

(MATIUS 5 : 6)

CHAPTER VI
CONCLUSIONS AND SUGGESTIONS

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6.1 Conclusions

From the simulation results, it can be concluded that :

1. Hotelling's T^2 and M control chart are capable to meet the three criteria that must be possessed by multivariate control chart.
2. ARL_0 of both control charts (Hotelling's T^2 and M control chart) is not affected by the changes in the covariance structure. ARL_0 of these chart can be approximated by using the equation :

$$ARL_0 = \frac{1}{\alpha}$$

where :

α = first type error

3. ARL_1 of Hotelling's T^2 is very affected by the changes in covariance structure. When the generalized variance tends to be small, ARL_1 of Hotelling's T^2 is also tending to be small although the mean shift is small. The difference between ARL_1 of Hotelling's T^2 which has small generalized variance and ARL_1 of Hotelling's T^2 which has large generalized variance is not apparent when the mean shift is large.
4. The effectiveness of Montgomery's method is also affected by the changes in covariance structure. The Montgomery's method is most effective when all of the characteristics have been shifted, the generalized variance is small, and the trace of the covariance structure is also small.
5. ARL_1 of M control chart is not affected by the changes in covariance structure. ARL_1 of M control chart tends to be small when the mean shift is large.

6. The effectiveness of Hayter and Tsui's method is also not affected by the changes in covariance structure. It is most effective when there is only one characteristic that the mean has been shifted.
7. In general, the performance of Hotelling's T^2 control chart is better than M control chart although the M control chart is relatively simpler.

6.2 Suggestions

Suggestions that can be given based on this thesis are :

1. Since the performance of Hotelling's T^2 control chart is better than M control chart, the author suggests the use of Hotelling's T^2 control chart rather than M control chart.
2. Further research can be done with more complete combination of the mean shift, so the pattern can be obtained more clearly.

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