

TABLE OF CONTENTS

	<u>Page</u>
CHAPTER 1 INTRODUCTION	1
1.1 Problem and Research Objectives	1
1.2 Research Methods and Organization	6
CHAPTER 2 QUALITY SYSTEM AUDITS	9
2.1 Introduction to the Quality System Audit	9
2.1.1 Definition of the Quality System Audit	9
2.1.2 Content of a Quality System Audit	10
2.1.3 Classification of the Quality System Audit	12
2.2 Purpose of Quality System Audits	13
2.3 Bases for Quality System Audits	15
2.4 Auditing Methods	16
2.5 Performance Rating and Reporting Methods	30
2.6 Procedures for Conducting a Quality System Audit	40
2.7 Criteria for Quality System Auditors	43
2.8 ISO 9000 Series Standards and Quality System Audits	46
2.8.1 ISO 9000 Series Standards	46
2.8.2 ISO 9000 Series as a Basis for Quality System Audits	48
2.9 Survey of Third Party ISO 9000 Registrars	52
2.9.1 Structure of the Survey	52
2.9.2 Results of the Survey	54
2.10 Conclusion	63
CHAPTER 3 MULTICRITERIA SYSTEM EVALUATION	67
3.1 Introduction to Multicriteria Decision Making	67
3.2 Multicriteria System Evaluation	71
3.3 Multicriteria System Evaluation Using Linear Additive Weighting Models	77
3.3.1 Criteria Selection	77
3.3.2 Development of Importance Weights	79
3.3.3 Measurement and Assessment of Applicable Criteria	91
3.3.4 Scaling and Utility Function Development	100
3.3.5 System Rating	104
3.3.6 Analysis and Comparison	106
3.4 Multicriteria System Evaluation for Quality System Audits	109
CHAPTER 4 DEVELOPMENT OF A METHODOLOGY FOR QUALITY CAPABILITY SELF-DIAGNOSIS	111
4.1 Introduction	111
4.2 Development of Quality System Auditing Criteria	112

	<u>Page</u>
4.3 Selection of Suitable Criteria for Quality System Audits	116
4.4 Development of Importance Weights for Quality System Requirements and Sub-requirements	129
4.5 Performance Measures for An Operating Quality System	139
4.6 Quality System Rating	151
4.7 Analyzing the Findings of Quality System Audits	157
4.7.1 Comparative Analysis	158
4.7.2 Improvement Analysis	168
4.8 Model Refinement Using Quality Cost Analysis	173
4.8.1 Quality Cost Analysis and System Effectiveness Measurement	175
4.8.2 Quality Cost Application for Refinement of the Regular Model	179
4.8.3 Limitations of the Application of Quality Cost Analysis to the Refined Model	189
CHAPTER 5 QUALITY CAPABILITY SELF-DIAGNOSIS DECISION SUPPORT SYSTEM (QCSDDSS)	192
5.1 Introduction	192
5.2 Structure of the QCSDDSS	196
5.3 QCSDDSS Application Procedures	222
CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS	227
6.1 Conclusions	227
6.2 Recommendations for Future Research	234
REFERENCES	238
APPENDICES:	
2A 90% Confidence Level Table for Hypergeometric Sampling Audit	250
2B Quality System Registrars Selected for Seeking Information	251
2C Cover Letter/ Questionnaire for the Survey of ISO 9000 Registration	253
4A Checklist 1 for Quality Audits	260
4B Checklist 2 for Quality Audits	282
4C Checklist 3 for Quality Audits	301
4D CSA's Guidelines for Selecting a Quality Program	308