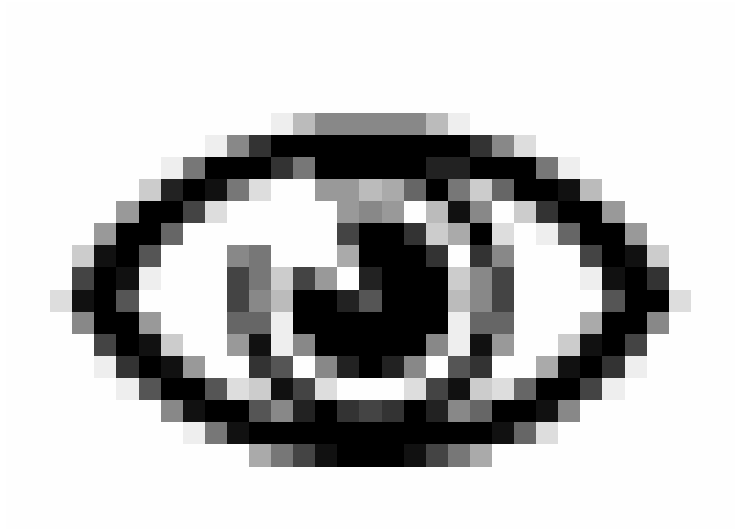


*A Strategic Management Framework for Eye Care Service
Delivery Organisations in Developing Countries*

Mathew Herring



Submitted in fulfillment of the
requirements of the degree of
Doctor of Philosophy

August 2004

Department of Politics
University of Adelaide

*This thesis is dedicated to my father Peter
who always fought with dignity and love
and my wife Jacqui whose love I cherish*

ABSTRACT

Blindness is one of the most debilitating health disorders and avoidable blindness is a major international health problem. The World Health Organization has estimated that globally, there are 45 million persons who are blind – a figure that is expected to increase to approximately 76 million by the year 2020. Approximately 80% of blindness is avoidable and can be prevented or cured with appropriate service delivery efforts. Research suggests that the combined annual global GDP loss from blindness in 2000 was more than \$40 billion. Yet blindness has received relatively little attention in worldwide efforts to promote health and it is not at present a high health priority in many countries. Consequently, unless there are alternative and more efficient and extended endeavours to address this situation and model an approach that will provide a long-term solution, avoidable blindness will continue.

In recent years, eye care service delivery organisations have assumed a greater level of responsibility for addressing the problem of avoidable blindness. A number of successful approaches have been designed and implemented to expand the delivery of eye care services. The approaches have focused on the development of organisational capacity and on sustainability, and they have effectuated a reduction in avoidable blindness in particular target populations. However, despite their importance, contemporary eye care service delivery models have largely been neglected in the literature and few formal organisational approaches to eye care have been developed and documented. There are few definitive independent studies available that outline the bases of these approaches and no explicit and standardised methodologies that can assist service delivery organisations to replicate the approaches. Objective and comprehensive research is accordingly required to promote current and new approaches to eye care and to develop ways of facilitating their adoption.

The thesis attempts to address this problem by developing a theory-based, case study-supported practical methodology to identify, support the progression of, and measure the strategic and operational objectives of eye care service delivery organisations. The research seeks to identify the issues relevant to the management of eye care service delivery organisations and subsequently evaluate whether they can be incorporated into a distinct and explicit management framework. It seeks to present the value of the process

and the possibility that it can be accomplished elsewhere and in dissimilar organisations. By developing a widely applicable management framework, the research's primary contribution is that it extends eye care organisational management theory to assist in the facilitation of blindness reduction.

A conceptual management framework is developed in the thesis which unifies contemporary eye care organisational approaches with the Balanced Scorecard management framework. The framework was devised for and evaluated by undertaking two case studies – one in India and one in South Africa. The significance of developing such a framework is demonstrated at various points throughout the thesis. The research process reveals the potential applicability of the framework – the Strategic Management Framework (SMF). The research concludes that the SMF is able to support and enhance organisational development, performance management, and scenario analyses in eye care service delivery organisations operating in developing countries. Although the framework developed in the thesis is specific to eye care organisations it is flexible enough to be transferable to other healthcare organisations in developed countries.

The final conclusion of the thesis is that, while the SMF is not in itself a solution to the problem of avoidable blindness, it is an appropriate and practical management tool which will improve existing, and assist in the establishment of new, eye care service delivery organisations. In this context, the research makes a number of significant and original contributions to prevention of blindness literature and theory.

TABLE OF CONTENTS

ABSTRACT	i
TABLE OF CONTENTS	iii
LIST OF TABLES	vii
LIST OF FIGURES	viii
ABBREVIATIONS	x
ACKNOWLEDGMENTS	xi
DECLARATION	xiii
CHAPTER 1	
INTRODUCTION.....	1
1.1 Objective of the Research.....	1
1.2 Background and Rationale.....	2
1.3 Methodology.....	7
1.4 Outline of the Thesis.....	11
1.5 Definitions.....	12
1.6 Conclusion.....	15
CHAPTER 2	
AVOIDABLE BLINDNESS	16
2.1 Introduction	16
2.2 Epidemiology of Blindness and Eye Disease.....	17
2.2.1 Magnitude and Causes of Blindness.....	17
2.2.2 What is Avoidable Blindness?	20
2.2.3 Global Distribution of Blindness	21
2.2.4 Blindness in India	25
2.2.5 Blindness in South Africa	30
2.3 The Impact and Cost of Blindness	33
2.4 Cost-effectiveness of Blindness Control.....	35
2.5 Particular Challenges in Eye Care Service Delivery	37
2.5.1 The Role of Partner Organisations.....	38
2.5.2 Barriers to Treatment	40
2.5.3 High Volume or High Quality?	43
2.6 Sustainability in Eye Care Services	45

2.7 Organisational Models of Eye Care Service Delivery	50
2.7.1 The Aravind Eye Hospital Model.....	50
2.7.2 Other Sustainable Eye Care Models.....	53
2.8 Conclusion.....	55
 CHAPTER 3	
METHODOLOGY.....	57
3.1 Introduction	57
3.2 The Need for a New Approach.....	59
3.3 The Conceptual Management Framework Foundation	62
3.3.1 Development of Management Framework Criteria	62
3.3.2 Review of Development Management Frameworks	65
3.3.3 Review of Corporate Management Frameworks.....	67
3.4 Case Study Research	74
3.4.1 Case Study Selection.....	75
3.4.2 Case Study Field Research	77
3.4.3 Data Collection Techniques and Principles.....	79
3.5 Development of the Management Framework Structure.....	83
3.5.1 Strategic Goal Development	84
3.5.2 Critical Success Factor Identification	86
3.5.3 Strategic Objective Development.....	87
3.5.4 Performance Indicator Identification.....	89
3.6 Conclusion.....	91
 CHAPTER 4	
THE STRATEGIC MANAGEMENT FRAMEWORK.....	93
4.1 Introduction	93
4.2 Framework Components.....	94
4.2.1 Strategic Level: Strategic Goals and Objectives.....	94
4.2.2 Operational Level: Critical Success Factors	95
4.2.3 Performance Level: Performance Indicators.....	96
4.3 The ODPM Cycle	100
4.4 Strategic Objective # 1. Governance.....	102
4.5 Strategic Objective # 2. Customer	106
4.6 Strategic Objective # 3. Awareness.....	110
4.7 Strategic Objective # 4. Business & Management Processes	114
4.8 Strategic Objective # 5. People.....	120
4.9 Conclusion.....	124

CHAPTER 5

SMF PRACTICAL APPLICATION: ARAVIND EYE HOSPITAL – THENI	126
5.1 Introduction	126
5.2 Case Study Background	126
5.3 Strategic Objective # 1. Governance	133
5.4 Strategic Objective # 2. Customer	139
5.5 Strategic Objective # 3. Awareness	149
5.6 Strategic Objective # 4. Business & Management Processes	158
5.7 Strategic Objective # 5. People	168
5.8 Application of the AEH-Theni SMF	173
5.9 Conclusion	177

CHAPTER 6

SMF PRACTICAL APPLICATION: EASTERN CAPE BLINDNESS PREVENTION

PROGRAMME	178
6.1 Introduction	178
6.2 Case Study Background	179
6.2.1 The Programme	179
6.2.2 The Participating Hospitals	181
6.3 Strategic Objective # 1. Governance	186
6.4 Strategic Objective # 2. Customer	194
6.5 Strategic Objective # 3. Awareness	198
6.6 Strategic Objective # 4. Business & Management Processes	202
6.7 Strategic Objective # 5. People	209
6.8 Application of the ECBPP SMF	213
6.9 Conclusion	219

CHAPTER 7

SCENARIO ANALYSES	221
7.1 Introduction	221
7.2 Methodology for Scenario Analysis	222
7.3 Numerical Model	223
7.3.1 Pre Scenario Scores	225
7.3.2 Historical Analysis	227
7.3.3 Post Scenario Scores.....	228
7.4 Evaluation of Scenarios	239
7.4.1 Aravind Eye Hospital – Theni.....	240
7.4.2 The Eastern Cape Blindness Prevention Programme	252

7.5 Comparative Analysis.....	262
7.5.1 Aravind Eye Hospital – Theni.....	262
7.5.2 The Eastern Cape Blindness Prevention Programme	266
7.5.3 Organisational Comparison.....	270
7.6 Development Possibilities.....	271
7.5 Conclusion.....	273
CHAPTER 8	
CONCLUSIONS AND IMPLICATIONS	275
8.1 Introduction	275
8.2 Summary of Research Findings	278
8.2.1 The Strategic Management Framework.....	279
8.2.2 Sustainability in Eye Care Services	283
8.3 Implications of the Research	284
8.3.1 Implications for Eye Care Service Delivery	284
8.3.2 Limitations	287
8.3.3 Directions for Further Research	288
8.4 Conclusion.....	290
APPENDICES	292
Appendix 1: World Health Assembly Resolution.....	293
Appendix 2: ICD-10 Definition Of Blindness	295
Appendix 3: Cataract Method of Correction.....	296
Appendix 4: Estimates for Number of Blind People, Year 2000	297
Appendix 5: Fieldwork Site Visits.....	298
Appendix 6: List of Interviews: AEH-Theni.....	299
Appendix 7: Selected Interview Templates: AEH-Theni.....	300
Appendix 8: Example of Formal Reporting of Field Notes.....	305
Appendix 9: Documents Collected and Examined: AEH-Theni.....	306
Appendix 10: List of Interviews: ECBPP.....	308
Appendix 11: Selected Interview Templates: ECBPP.....	309
Appendix 12: Documents Collected and Examined: ECBPP	318
Appendix 13: Sustainability Barrier Matrix: ECBPP	319
BIBLIOGRAPHY	322

LIST OF TABLES

Table 2.1: Causes of Blindness Worldwide, Year 2000 Estimates	22
Table 2.2: Global Distribution of Blindness, by Major Cause and Region.....	22
Table 2.3: Regional Distribution of Blindness	23
Table 2.4: Prevalence of Blindness and Estimated Blind Persons in India.....	26
Table 2.5: Leading Causes of Blindness in India	27
Table 2.6: Number of Cataract Operations in India.....	29
Table 2.7: Socioeconomic Barriers to Treatment.....	42
Table 2.8: Spectrum of Sustainability in Health Care Services.....	49
Table 2.9: Aravind Factors Contributing to High Volume and High Quality	51
Table 2.10: Principles Underlying Cost Recovery Approach	53
Table 3.1: ABEF Categories and Items.....	69
Table 3.2: Management Framework Selection and Criteria Development.....	73
Table 3.3: Strategic Goal Identification and Clarification	86
Table 3.4: Critical Success Factor and Strategic Objective Identification	88
Table 3.5: Strategic Goals, Strategic Objectives and Critical Success Factors	89
Table 3.6: Performance Indicator Identification.....	90
Table 5.1: AEH-Theni Fee Payment Structure.....	141
Table 5.2: Employee Survey Analysis.....	172
Table 6.1: Filled and Vacant Doctor and Nurses Posts as at June 2001	185
Table 7.1: AEH-Theni Qualitative Analysis: Scenario 1	244
Table 7.2: AEH-Theni Qualitative Analysis: Scenario 2	247
Table 7.3: AEH-Theni Qualitative Analysis: Scenario 3	250
Table 7.4: ECBPP Qualitative Analysis: Scenario 1	254
Table 7.5: ECBPP Qualitative Analysis: Scenario 2	257
Table 7.6: ECBPP Qualitative Analysis: Scenario 3	260

LIST OF FIGURES

Figure 1.1: SMF Development Methodology.....	10
Figure 2.1: Cataract Blindness.....	19
Figure 3.1: Sample Balanced Scorecard	71
Figure 3.2: The Four Stages of BSC Design and Implementation	72
Figure 3.3: Management Framework Structure Development Methodology.....	85
Figure 3.4: Initial Strategic Process Map	87
Figure 4.1: Strategic Management Framework Flow Chart	98
Figure 4.2: Example of a Strategic Management Framework.....	99
Figure 4.3: Example of an ODPM Cycle	101
Figure 5.1: Base Hospital Service Delivery Approach	131
Figure 5.2: Percentage of Free Treatment.....	143
Figure 5.3: Percentage of Free Surgeries and Surgery Revenue.....	143
Figure 5.4: Number of Eye Camps and Patients per Camp.....	144
Figure 5.5: Percentage of Cataract with IOL.....	147
Figure 5.6: Percentage of Patients Reviewed (Post-Operative)	148
Figure 5.7: Total Surgeries AEH-Theni 1985-1998.....	152
Figure 5.8: Cataract and Other Surgeries	152
Figure 5.9: Total Patients: Surgeries and Outpatient.....	153
Figure 5.10: Annual Percentage Increase: Surgeries and Outpatients.....	153
Figure 5.11: Total Number of Patients Examined	154
Figure 5.12: Operating Performance.....	160
Figure 5.13: Trend Analysis: Expenditure Items	160
Figure 5.14: Monthly Budget Variance 2001/02.....	163
Figure 5.15: Service Revenue, Expenditure and Operating Surplus % Increase	164
Figure 5.16: Performance Indicator Historical Analysis Spreadsheet.....	165
Figure 5.17: SMF for AEH-Theni.....	176
Figure 6.1: Possible SMF for the ECBPP	218
Figure 7.1: Methodology for Scenario Analysis.....	223
Figure 7.2: Methodology for Numerical Model Development.....	224
Figure 7.3: Assessment Matrix.....	226
Figure 7.4: Example of an SMF Scorecard	227
Figure 7.5: AEH-Theni Scorecard 1995/96.....	228

Figure 7.6: Example of an Interrelationship Digraph.....	232
Figure 7.7 ID-Matrix Conversion	233
Figure 7.8: Critical Success Factor Relationship Matrix.....	235
Figure 7.9: Numerical Model Spreadsheet.....	238
Figure 7.10: AEH-Theni Scorecard for 2001/02.....	241
Figure 7.11: AEH-Theni Quantitative Analysis: Scenario 1.....	245
Figure 7.12: AEH-Theni Sensitivity Analysis: Scenario 1.....	245
Figure 7.13: AEH-Theni Quantitative Analysis: Scenario 2.....	248
Figure 7.14: AEH-Theni Sensitivity Analysis: Scenario 2.....	248
Figure 7.15: AEH-Theni Quantitative Analysis: Scenario 3.....	251
Figure 7.16: AEH-Theni Sensitivity Analysis: Scenario 3.....	251
Figure 7.17: ECBPP Scorecard for 2001/02	252
Figure 7.18: ECBPP Quantitative Analysis: Scenario 1	255
Figure 7.19: ECBPP Scenario Analysis: Scenario 1	255
Figure 7.20: ECBPP Quantitative Analysis: Scenario 2	258
Figure 7.21: ECBPP Sensitivity Analysis: Scenario 2.....	258
Figure 7.22: ECBPP Quantitative Analysis: Scenario 3.....	261
Figure 7.23: ECBPP Sensitivity Analysis: Scenario 3.....	261
Figure 7.24: AEH-Theni Comparative Scenario Analyses	263
Figure 7.25: AEH-Theni Comparative Scenario Analyses: Strategic Objectives	264
Figure 7.26: AEH-Theni Comparative Scenario Analyses: CSFs	265
Figure 7.27: ECBPP Comparative Scenario Analyses.....	267
Figure 7.28: ECBPP Comparative Scenario Analyses: Strategic Objectives.....	268
Figure 7.29: ECBPP Comparative Scenario Analyses: CSFs.....	269
Figure 7.30: Example of SMF Benchmarking	272
Figure 8.1: Functional Capability of the SMF	282

ABBREVIATIONS

ABEF	Australian Business Excellence Framework
AEH-Madurai	Aravind Eye Hospital – Madurai
AEH-Theni	Aravind Eye Hospital – Theni
BSC	Balanced Scorecard
CME	Continuing Medical Education
CSF	Critical Success Factor
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DALY	Disability-Adjusted Life Year
ECBPP	Eastern Cape Blindness Prevention Programme
ECCE	Extracapsular Cataract Extraction
FHF	The Fred Hollows Foundation
GBD	Global Burden of Disease
HCO	Health Care Organisation
LAICO	Lions-Aravind Institute of Community Ophthalmology
ICARE	International Centre for Advancement of Rural Eye Care
ICCE	Intracapsular Cataract Extraction
INGO	International Non Government Organisation
IOL	Intraocular Lens
MIS	Management Information System
NPCB	National Programme for the Control of Blindness
NGO	Non Government Organisation
OPM	Organisational Performance Measurement
PHC	Primary Health Care
PI	Performance Indicator
Rs	Indian Rupees
SAR	South African Rand
SABPB	South African Bureau for the Prevention of Blindness
SSI	Sight Savers International
SMEs	Small and Medium Enterprises
SMF	Strategic Management Framework
SOP	Standard Operating Procedures
WHO	World Health Organization

ACKNOWLEDGMENTS

I wish to acknowledge and express my love and gratitude to my wife Jacqui for her support during this research. Her patience and encouragement, and acceptance of my commitment to this project, as I, selfishly, maintained full-time employment over the five-year period of the research, has been the one constant on which I have relied.

There are a number of other people I would like to thank. My Mother, Ros Herring, for her continued support and interest in everything I do. For always encouraging and never pressuring me to follow my interests. My Father, Peter Herring, who also always championed everything I was passionate about, and my sister Ginnie Kalleske for her support in my life, particularly over the past three years.

Many individuals have provided assistance and direction over the period of this research. Jeff Clayton gave up so much of his very valuable time at critical stages of the research, particularly when I struggled with direction and confidence. Mary Cath Togolo spent many hours poring over various iterations of the thesis and provided so much value to the presentation, renewing my vigour for the topic on several occasions. I would not have been able to write the thesis without her.

Professors Hugh Taylor, Paul Corcoran and Lee Parker went beyond the call of duty to provide me with feedback about the thesis and the research topic. Their efforts are more than appreciated.

The Fred Hollows Foundation provided me with the opportunity of undertaking a consultancy research project, which exists as the second case study in this research. In particular, I would like to thank Mike Lynskey, Chip Morgan, Paula Myott, Fiki Nxumalo, and Dillon Woods. A number of people at the Aravind Eye Hospital and the Lions-Aravind Institute of Community Ophthalmology assisted this research over a number of years. Without their support and willingness to provide information, this research could not have been conducted. In particular, Ravilla Thulasiraj has greatly assisted in the direction of the research, and Mr C Arumugam provided detailed performance data. Both have always been available to respond to my many questions. Others who have assisted include Dr Govindappa Venkataswamy and Dr Rani Jacob.

Other people who have significantly influenced and supported the research include my Supervisor, Peter Mayer, whose enthusiasm about and belief in my topic from the beginning was one of the main impetuses for me to continue. In the early stages of the research, David Green's input was much appreciated. David has always been willing to offer advice and support, and it is his work that provided the inspiration for the research. Lalit Dandona, Ramachandra Pararajasegaram, and Ravi Thomas also helped with the research direction at various times and I thank them for their support. Leigh Martin did a fantastic job proofreading the final draft.

Scan Optics provided me with employment in the field of blindness prevention and the opportunity of travelling extensively to eye care programmes in developing countries. To my current employer, KPMG – Terry Lewis, and past employer, AusIndustry – Rob Shackleford, thank you both for providing me with the opportunity of taking study leave when I have needed to.

DECLARATION

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Libraries, being available for photocopying and loan.

Mathew Herring
25 August 2004