

GENERIC PERFORMANCE MANAGEMENT SYSTEM GUIDE FOR KLANG  
VALLEY HOSPITALS

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*Especially dedicated to my beloved family*

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## **ABSTRACT**

It is crucial for hospitals to be constantly aware of their performance to find and rectify their possible deficiencies. The Balanced Scorecard (BSC) is a performance measurement technique that is utilized by different organizations due to its numerous advantages such as comprising both financial and non-financial perspectives and taking cause-and-effect links into account. Despite numerous studies on performance measurement of hospitals, limited research was conducted on the BSC application in Malaysian hospitals especially in Klang Valley that is a critical and densely populated area in Malaysia. Moreover, there was no specific guide to design a strategy map and BSC for Klang Valley hospitals. Hence, the main objective of this research was to provide specific guides to design a strategy map and BSC for Klang Valley hospitals. Data collection was performed through interview, observation and questionnaire while SPSS V.23 and Excell V.2010 were employed for data analysis. The research scope was Klang Valley area and 50 hospitals in this area including 15 public and 35 private hospitals. Initially, two generic strategy maps were developed for public and private hospitals. Afterwards, 45 BSC performance measures for healthcare were compiled and survey was conducted in Klang Valley hospitals to filter and identify the most appropriate performance measures for public and private hospitals based on “feasibility” and “relevance” criteria. Subsequently 23 BSC performance measures for public hospitals and 31 BSC performance measures for private hospitals were identified. It was followed by conducting a questionnaire survey in Klang Valley hospitals to assign a weight to each performance measure based on its importance score. A 5-point likert scale was employed in this regard and a weight between 0 and 1 was assigned to each performance measure. Afterwards, two generic BSCs were developed for public and private hospitals and they were sent to two BSC experts from Malaysia and the USA to be validated and thereupon both experts confirmed their appropriateness and acceptability. Subsequently, specific guides to design a strategy map and BSC for public and private hospitals were developed and eventually the research findings were evaluated by two Malaysian healthcare experts, one from Hospital Sultanah Aminah that is a public hospital and another from KPJ Johor Specialist Hospital that is a private hospital and both experts confirmed the applicability and usefulness of the developed BSCs, strategy maps and guides.

## ABSTRAK

Adalah penting bagi sesebuah hospital untuk sentiasa menyedari tentang prestasi mereka dalam memperbaiki kekurangan yang ada. *Balanced Scorecard* (BSC) merupakan teknik pengukuran prestasi yang digunakan oleh organisasi yang berlainan disebabkan oleh kelebihannya dalam mengukur perspektif kewangan dan bukan kewangan dan mengambilkira kaitan sebab-dan-akibat. Walaupun terdapat banyak kajian tentang pengukuran prestasi di hospital, namun kajian amat terhad dijalankan ke atas aplikasi BSC di hospital Malaysia terutamanya di Lembah Klang yang merupakan kawasan yang kritikal dan mempunyai penduduk yang padat di Malaysia. Selain itu, tiada panduan yang khusus untuk merancang peta strategi dan BSC untuk hospital-hospital di Lembah Klang. Oleh itu, objektif utama kajian ini adalah untuk menyediakan panduan yang khusus bagi merancang peta strategi dan BSC untuk hospital-hospital di Lembah Klang. Pengumpulan data dilakukan melalui temu bual, pemerhatian dan soal selidik manakala SPSS V.23 dan Excel V.2010 digunakan untuk menganalisis data. Skop kajian ini tertumpu di kawasan Lembah Klang dan 50 buah hospital di daerah ini termasuk 15 hospital awam dan 35 hospital swasta telah dikaji. Di awal kajian, dua peta strategi generik telah dibangunkan untuk hospital awam dan swasta. Selepas itu, 45 penunjuk prestasi BSC untuk penjagaan kesihatan telah dikumpulkan dan tinjauan dilakukan di hospital-hospital Lembah Klang bagi menyaring dan mengenal pasti penunjuk-penunjuk prestasi yang paling sesuai untuk hospital awam dan swasta berdasarkan kriteria "kelayakan" dan "perkaitan". Seterusnya 23 penunjuk prestasi BSC untuk hospital awam dan 31 penunjuk prestasi BSC untuk hospital swasta telah dikenal pasti. Ini diikuti dengan tinjauan melalui soal selidik di hospital-hospital di Lembah Klang untuk menetapkan berat kepada setiap ukuran prestasi berdasarkan skor kepentingannya. Skala *likert* 5 digunakan dalam soal selidik ini dengan pemberat antara 0 dan 1 diberikan kepada setiap penunjuk prestasi. Selepas itu, dua BSC generik telah dibangunkan untuk hospital awam dan swasta dan dihantar kepada dua pakar BSC dari Malaysia dan Amerika Syarikat untuk disahkan dan kemudian kedua-dua pakar mengesahkan kesesuaian dan penerimaan mereka. Seterusnya, panduan khusus untuk merancang peta strategik dan BSC untuk hospital awam dan swasta telah dibangunkan dan akhirnya dapatan kajian dinilai oleh dua pakar penjagaan kesihatan Malaysia, seorang dari Hospital Sultanah Aminah iaitu hospital awam dan seorang dari Hospital Pakar KPJ Johor yang merupakan hospital swasta dan kedua-dua pakar mengesahkan kebolegunaan dan kegunaan BSC, peta strategi dan panduan yang telah dibangunkan.

## TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	<b>DECLARATION</b>	ii
	<b>DEDICATION</b>	iii
	<b>ACKNOWLEDGEMENT</b>	iv
	<b>ABSTRACT</b>	v
	<b>ABSTRAK</b>	vi
	<b>TABLE OF CONTENTS</b>	vii
	<b>LIST OF TABLES</b>	xii
	<b>LIST OF FIGURES</b>	xv
	<b>LIST OF ABBREVIATIONS</b>	xvii
<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
	1.1 Overview	1
	1.2 Research Background	1
	1.2.1 The Malaysian healthcare sector	4
	1.3 Problem Statement	4
	1.4 Research Objectives	6
	1.5 Research Questions	6
	1.6 Research Scope	7
	1.7 Significance of the Research	8
	1.8 Outline to the Thesis	8

<b>2</b>	<b>LITERATURE REVIEW</b>	<b>10</b>
2.1	Introduction	10
2.2	Performance Measurement	10
2.2.1	Definition of Performance Measurement	11
2.2.2	Chronology of Performance Measurement	12
2.3	Performance Measurement Systems	13
2.4	Performance Measurement in the Healthcare sector	15
2.5	The Balanced Scorecard	16
2.5.1	Comparison of the BSC and other performance measurement techniques	19
2.5.2	Evolution of the BSC	23
2.5.2.1	The BSC generations	24
2.5.2.2	The Execution Premium	25
2.5.3	The Cascaded BSC	27
2.6	The BSC application in the healthcare sector	28
2.6.1	Uniqueness of the BSC in the healthcare sector	30
2.7	Review of research area on the BSC application in the healthcare sector	31
2.7.1	Review of the BSC generations	34
2.7.2	Review of the performance perspectives	35
2.7.3	Review of the BSC performance measures	38
2.7.3.1	BSC performance measures used in previous studies	38
2.7.4	Review of the BSC Auxiliary tools	40
2.8	The Healthcare sector	41
2.9	The Healthcare sector in Malaysia	41
2.9.1	Public health sector	42
2.9.2	Private health sector	44
2.9.3	Differences between public and private hospitals	45
2.9.4	Strengths and weaknesses of the Malaysian healthcare system	45

2.9.5	The 10 <sup>th</sup> Malaysia health plan	46
2.10	The BSC application in the Malaysian healthcare sector	48
2.11	Conclusion	50
<b>3</b>	<b>RESEARCH METHODOLOGY</b>	<b>52</b>
3.1	Introduction	52
3.2	The research process at a glance	52
3.3	Research Methodology	55
3.3.1	The research Populatin, Sample size, Unit of analysis and Respondents	57
3.3.2	Identify generic set of VMOs for hospitals	58
3.3.3	Determine Cause-and-effect links for public and private hospitals	59
3.3.4	Design Strategy Map for public and private hospitals	60
3.3.5	Prepare an initial list of BSC performance measures for hospitals	61
3.3.6	Determine and justify criteria to filter the initial performance measures	61
3.3.7	Design and pilot questionnaire for the survey to filter performance measures	62
3.3.8	Conduct the survey for filtering of the BSC performance mesures	65
3.3.9	Develop questionnaire for survey to rank the performance measures	65
3.3.10	Conduct survey for ranking the performance measures	67
3.3.11	Design generic BSC for public and private hospitals	68
3.3.12	Validate the Strategy maps and BSCs	



	designed for hospitals	71
3.3.13	Step-by-step guides to design Strategy map and BSC for hospitals	73
3.3.13.1	Step-by-step guide to design strategy map for hospitals	73
	Step-by-step guide to design BSC for hospitals	73
3.3.14	Evaluate the Strategy Maps, BSCs and Guides developed for Hospitals	74
3.4	Summary	78
<b>4</b>	<b>STRATEGY MAP AND BALANCED SCORECARD FOR PUBLIC HOSPITALS</b>	<b>79</b>
4.1	Introduction	79
4.2	Generic VMOs for Public Hospitals	79
4.2.1	Vision	80
4.2.2	Mission	81
4.2.3	Strategic objectives	81
4.3	Generic Strategy Map for Public Hospitals	83
4.4	Performance measures for Public Hospitals	84
4.4.1	Main survey to identify performance measures for Public Hospitals	85
4.5	Results of the survey for ranking of the BSC performance measures for Public Hospitals	89
4.5.1	Main survey for the ranking of the BSC performance measures for Public Hospitals	89
4.6	Generic Balanced Scorecard for Public Hospitals	92
4.7	Validation of the Strategy Map and BSC designed for Public Hospitals	96
4.8	Two Guides to design Strategy Map and BSC for Public Hospitals	97

4.8.1	Step-by-step Guide to design Strategy Map for Public Hospitals	97
4.8.2	Step-by-step Guide to design BSC for Public Hospitals	100
4.9	Evaluation of the research findings	104
4.9.1	Evaluation of the generic Strategy Map for Public Hospitals	105
4.9.2	Evaluation of the generic BSC for Public Hospitals	106
4.9.3	Evaluation of the Guide to design Strategy Map for Public Hospitals	108
4.9.4	Evaluation of the Guide to design BSC for Public Hospitals	109
4.10	Summary	109
<b>5</b>	<b>STRATEGY MAP AND BALANCED SCORECARD FOR PRIVATE HOSPITALS</b>	<b>110</b>
5.1	Introduction	110
5.2	Generic VMOs for Private Hospitals	111
5.2.1	Vision	111
5.2.2	Mission	112
5.2.3	Strategic objectives	113
5.3	Generic Strategy Map for Private Hospitals	115
5.4	Performance measures for Private Hospitals	116
5.4.1	Main survey to identify performance measures for Private Hospitals	117
5.5	Results of the survey for ranking of the BSC performance measures	121
5.5.1	Main ranking survey in Private Hospitals	121
5.6	Generic Balanced Scorecard for Private Hospitals	124
5.7	Validation of the Strategy Map and BSC designed	

	for Private Hospitals	127
5.8	Two Guides to design Strategy Map and BSC for Private Hospitals	128
5.8.1	Step-by-step Guide to design Strategy Map for Private Hospitals	128
5.8.2	Step-by-step Guide to design BSC for Private Hospitals	132
5.9	Evaluation of the research findings	136
5.9.1	Evaluation of the generic Strategy Map designed for Private Hospitals	137
5.9.2	Evaluation of the generic BSC designed for Private Hospitals	137
5.9.3	Evaluation of the Guide to design Strategy Map for Private Hospitals	140
5.9.4	Evaluation of the Guide to design BSC for Private Hospitals	140
5.10	Summary	140
<b>6</b>	<b>DISCUSSION OF THE RESULTS AND FINDINGS</b>	<b>142</b>
6.1	Introduction	142
6.2	Discussion of Strategy Maps designed for public and private hospitals	142
6.3	Discussion of performance measures identified for Malaysian Hospitals	145
6.3.1	Discussion of performance measures identified for Public Hospitals	145
6.3.1.1	Discussion of results obtained in Customer perspective	145
6.3.1.2	Discussion of results obtained in IBP perspective	146
6.3.1.3	Discussion of results obtained in	

Learning and Growth perspective	147
6.3.1.4 Discussion of results obtained in Financial perspective	148
6.3.2 Discussion of performance measures identified for Private Hospitals	148
6.3.2.1 Discussion of results obtained in Financial perspective	149
6.3.2.2 Discussion of results obtained in Customer perspective	149
6.3.2.3 Discussion of results obtained in IBP perspective	150
6.3.2.4 Discussion of results obtained in Learning and Growth perspective	151
6.3.3 Comparing the results of survey for the filtering of performance measures in Public and Private Hospitals	152
6.4 Discussion on the results of survey for ranking of performance measures	153
6.4.1 Discussion on the results of survey for ranking of performance measures in Public Hospitals	153
6.4.2 Discussion on the results of survey for ranking of performance measures in Private Hospitals	155
6.4.3 Comparing the results of ranking survey in Public and Private Hospitals	156
6.5 Discussion on 2 generic BSCs designed for Public and Private Hospitals	157
6.5.1 Comparing the BSCs designed for Public and Private Hospitals	158
6.6 Discussion on the Guide to design Strategy Map for Malaysian Hospitals	159
6.7 Discussion on the Guide to design BSC for Malaysian Hospitals	161
6.8 Discussion of results obtained during the evaluation of	

	research findings	162
	6.8.1 Evaluation of Strategy Maps designed for Public and Private Hospitals	163
	6.8.2 Evaluation of the BSCs designed for Public and Private Hospitals	163
	6.8.3 Evaluation of two Guides to design Strategy Map and BSC for Hospitals	165
	6.9 Summary	166
<b>7</b>	<b>CONCLUSIONS AND RECOMMENDATIONS</b>	<b>167</b>
	7.1 Introduction	167
	7.2 Conclusions	168
	7.2.1 Significance of the Research	169
	7.3 Contributions of the Research	170
	7.3.1 Contribution to area of the research	170
	7.3.2 Contribution to Methodology (Ranking of performance measures)	171
	7.3.3 Contribution to Theory	172
	7.3.4 Contribution to Practice	172
	7.4 Limitations of the Research	173
	7.5 Recommendations for future work	174
	<b>REFERENCES</b>	<b>175</b>
	Appendices A-R	190-258

## LIST OF TABLES

<b>TABLE NO.</b>	<b>TITLE</b>	<b>PAGE</b>
2.1	Various definitions of the Performance Measurement	11
2.2	Popular performance measurement techniques	14
2.3	Strengths & weaknesses of various performance measurement techniques	19
2.4	Definition of the three BSC generations in the literature	26
2.5	Reasons for the BSC application in nine healthcare organizations	29
2.6	Healthcare challenges and helpful roles of the BSC	30
2.7	Previous studies conducted on the BSC application in healthcare sector	31
2.8	Application of BSC perspectives in 29 reviewed articles	35
2.9	The 44 performance measures used in healthcare area from 2005 to 2014	39
2.10	Types of public healthcare providers in Malaysia	44
2.11	Four types of private healthcare providers in Malaysia	45
2.12	Basic differences between public and private hospitals	45
2.13	Strengths and weaknesses of Malaysian healthcare system	45
2.14	Previous studies on the BSC application in Malaysian hospitals	49
3.1	Most emphasized phrases in Vision statements of Public Hospitals	58
3.2	The 5-point Likert Scale used in the survey for filtration of performance measures	63
3.3	Hospitals participated in the pilot survey for filtration of	

	performance measures	64
3.4	The 5-point Likert Scale used in the survey for ranking of performance measures	66
3.5	General information of experts participated in the validation survey	72
3.6	General information of the hospitals participated in the evaluation survey	75
4.1	The most emphasized phrase in the Vision statements of Public Hospitals	80
4.2	The most emphasized phrases in the Mission of Public Hospitals	81
4.3	The most emphasized phrases in the Strategic Objectives of Public Hospitals	82
4.4	Respondents' background in the pilot survey for filtering of performance measures	84
4.5	Respondents' background in the main survey for filtering of performance measures	85
4.6	Results of the main survey for filtering of the BSC performance measures in Public Hospitals	86
4.7	BSC performance measures identified for Public Hospitals	88
4.8	Average importance scores of performance measures	90
4.9	The weights obtained for performance measures of Public hospitals	92
4.10	Comments made by experts in the survey for validation of results	96
4.11	Strategic Objectives recommended for Public Hospitals	98
4.12	Performance measures recommended for Public Hospitals	102
4.13	Weights recommended for performance measures of Public Hospitals	103
4.14	Background of evaluator from Hospital Sultanah Aminah	105
4.15	Results of the BSC evaluation in Hospital Sultanah Aminah	107
5.1	The most emphasized phrase in the Vision of Private	

	Hospitals	111
5.2	The most emphasized phrase in the Mission of Private Hospitals	112
5.3	The most emphasized phrases in Strategic Objectives of Private Hospitals	115
5.4	Respondents' background in the pilot survey for the filtering of performance measures	116
5.5	Respondents' background in the main filtering survey	117
5.6	Results of the main filtering survey in Private Hospitals	118
5.7	BSC Performance measures identified for Private hospitals	120
5.8	Average importance scores of performance measures in Private Hospitals	122
5.9	The weights obtained for performance measures of Private Hospitals	123
5.10	Comments made by experts in the validation survey	127
5.11	Strategic Objectives recommended for Private Hospitals	129
5.12	Performance measures recommended for Private Hospitals	133
5.13	Weights recommended for performance measures of Private Hospitals	134
5.14	Background of evaluator from KPJ Johor Specialist Hospital	136
5.15	Results of the BSC evaluation in KPJ Johor Specialist Hospital	139
6.1	Weights of IBP performance measures in Public and Private Hospitals	157
7.1	Alignment of the problems and the results	168
7.2	Contributions to area of the research (within Klang Valley hospitals)	171



## LIST OF FIGURES

<b>FIGURE NO.</b>	<b>TITLE</b>	<b>PAGE</b>
1.1	Geographic territory of the Klang Valley area	7
2.1	The Balanced Scorecard framework	18
2.2	Evolution of the BSC	23
2.3	Schematic view of the Malaysian healthcare system	43
3.1	The Research process at a glance	53
3.2	Flow chart of the Research Methods	56
3.3	Cause-and-effect links for public and private hospitals	60
3.4	The BSC framework used in this research	70
4.1	Initial version of the generic Strategy Map designed for Public Hospitals	83
4.2	Reliability test of questionnaire for filtering survey in Public Hospitals (Relevance)	84
4.3	Reliability test of questionnaire for filtering survey in Public Hospitals (Feasibility)	85
4.4	Reliability test of the questionnaire for ranking survey (Public hospitals)	89
4.5	A sample for calculating the weights of performance measures in Public Hospitals	91
4.6	The generic BSC designed for Public Hospitals	95
4.7	Cause-and-effect links recommended for Public Hospitals	99
4.8	Generic strategy map for Public Hospitals	100
4.9	Linkages of performance measures and strategic objectives for Public Hospitals	104
5.1	Generic Strategy Map designed for Private Hospitals	115

5.2	Result of the reliability test of questionnaire for filtering survey in Private hospitals (Relevance)	117
5.3	Result of the reliability test of questionnaire for filtering survey in Private hospitals (Feasibility)	117
5.4	Result of the reliability test of questionnaire for ranking survey in Private Hospitals	121
5.5	A sample for calculating the weights of performance measures in Private Hospitals	124
5.6	The generic BSC designed for Private Hospitals	126
5.7	Cause-and-effect links recommended for Private Hospitals	130
5.8	Final version of generic strategy map designed for Private Hospitals	131
5.9	Linkages of performance measures and strategic objectives for Private Hospitals	136
6.1	Performance scores obtained for HSA and JSH	164

## LIST OF ABBREVIATIONS

BSC	-	Balanced Scorecard
VMOs	-	Vision, Mission, Objectives
PMS	-	Performance Measurement System
IBP	-	Internal Business Processes
PMSs	-	Performance Measurement Systems
NGOs	-	Non-Governmental Organizations
10MP	-	10th Malaysia Plan
KEAs	-	Key Economic Areas
MOH	-	Ministry Of Health
KRAs	-	Key Result Areas
JIT	-	Just-In-Time
TQC	-	Total Quality Control
ROI	-	Return On Investment
EOQ	-	Economic Order Quantity
EFQM	-	European Foundation for Quality Management
SMART	-	Strategic Measurement And Reporting Technique
CPMS	-	Cambridge Performance Measurement System
IPMS	-	Integrated Performance Measurement System
KBEMS	-	Kanji Business Excellence Measurement System
TOC	-	Theory Of Constraints
MBNQA	-	Malcolm Baldrige National Quality Award
QFD	-	Quality Function Deployment
NHS	-	National Health Service
UML	-	Unified Modeling Language
XML	-	Extensible Markup Language
SWOT	-	Strengths Weaknesses Opportunities Threats
PVA	-	Product Value Analysis

MCDA	-	Multi-Criteria Decision Analysis
UTASTAR	-	Utilities Additives STAR
RADAR	-	Results Approach Deployment Assessment Review
KRA	-	Key Result Area
EPU	-	Economic Planning Unit
TWGs	-	Technical Working Groups
MCG	-	Mission Cluster Group
TCM	-	Traditional and Complementary Medicine
ROE	-	Return On Equity
NPM	-	Net Profit Margin
IT	-	Information Technology
CEO	-	Chief Executive Officer
COO	-	Chief Operating Officer
GM	-	General Manager
HSA	-	Hospital Sultanah Aminah
JSH	-	Johor Specialist Hospital

## LIST OF APPENDICES

<b>APPENDIX</b>	<b>TITLE</b>	<b>PAGE</b>
A	Publications	190
B	Initial version of the survey for filtration of performance measures	191
C	Main version of the survey for filtration of performance measures	195
D	Questionnaire for ranking of performance measures in Klang Valley Public Hospitals	199
E	Questionnaire for ranking of performance measures in Klang Valley Private Hospitals	202
F	Explanation (definition) of performance measures in questionnaire survey for filtration of performance measures in Klang Valley hospitals	205
G	List of Klang Valley Public and Private Hospitals	208
H	Explanation (definition) of performance measures in questionnaire survey for ranking of performance measures in Klang Valley Public Hospitals	212
I	Explanation (definition) of performance measures in questionnaire survey for ranking of performance measures in Klang Valley Private Hospitals	214
J	List of 'Vision, Mission and Objectives' of Klang Valley Hospitals	217
K	Background of Experts participated in the Validation of research findings	226
L	Questionnaire to test the applicability of BSC in	

	Hospital Sultanah Aminah (A Public Hospital)	229
M	Questionnaire to test the applicability of BSC in KPJ Johor Specialist Hospital (A Private Hospital)	232
N	Interview form to evaluate the research findings	236
O	A Sample of response to the survey for filtering of the BSC performance measures (Assunta Hospital)	239
P	A Sample of response to the survey for ranking of the BSC performance measures (Hospital Kuala Lumpur)	244
Q	Sample of the questionnaire survey to evaluate the BSC in Hospital Sultanah Aminah	246
R	Sample of the questionnaire survey to evaluate the BSC in KPJ Johor Specialist Hospital	252

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Overview**

This Chapter begins with describing the research background with a focus on the following subjects:

- a) Performance measurement and strategic management in healthcare sector
- b) Balanced Scorecard (BSC) and its applications in healthcare sector
- c) The BSC performance measures for hospitals
- d) The Malaysian healthcare sector

Next, problem statement is presented and leads to the research objectives. Sequel to this, research questions, research scope and significance of the research are explained and finally outline of the thesis is presented.

#### **1.2 Research Background**

According to healthcare privatization policies legislated by the governments across the world and considering the competitive environment of the healthcare sector, it is crucial for the healthcare managers to be aware of their hospital's performance. They need to recognize their hospitals' strengths and weaknesses, and adjust their strategies to compensate the hospital's weaknesses and improve its

overall performance. Over the past decade, there has been a growing attention to the application of performance measurement techniques in healthcare sector (Dey *et al.*, 2006; Tarazona *et al.*, 2010; Emrouznejad and Dey, 2011; Bisbe and Barrubés, 2012). Most of hospitals use one of the popular PMSs (e.g. EFQM excellence model etc.); however they often have problem to develop their own specific performance measurement system (PMS) (Banchieri *et al.*, 2011).

The primary obstacles that inhibit hospitals from making satisfactory progress in the performance measurement are organizational culture and managerial practices including operating practices that are inconsistent with competitive business environment and not cost driven (Walker and Dunn, 2006). Three particular reasons why hospitals are not successful in this area are as follows (Zelman *et al.*, 2003):

- a) Healthcare managers are not familiar with competitive environments: some hospital managers are not adequately aware of competitive advantages of performance management.
- b) Lack of employee participation particularly among doctors: physicians do not adequately participate in developing and implementing hospital's PMS.
- c) Some provided services are difficult to be measured: sometimes, managers struggle with determining appropriate performance measures for quantifying all aspects of their hospital's performance.

The employees' relationships and healthcare quality are the most critical factors that affect the overall performance of hospitals (Walker and Dunn, 2006); however these factors are difficult to be measured and interpreted by hospitals (Zelman *et al.*, 2003). Because of inconstant expectations of stakeholders due to frequent external and internal alterations in the business environment, it was declared the key to achieve target level of performance is to employ new methods of performance measurement (Kaplan and Norton, 1992).

The BSC was developed by Kaplan and Norton in 1992. It is a flexible performance measurement technique that considers both financial and non-financial measures in reflecting the organizational vision and strategies. Although different



PMSs have been implemented in the healthcare sector for a long time, the BSC application in the healthcare sector has grown dramatically over the past decade (Pieper, 2005). According to Banchieri *et al.* (2011), in all scientific publications on the BSC over the past decade, of all papers that mentioned “sector” in their title or abstract, 33% were applied in the healthcare sector. It shows a notable tendency of the healthcare sector to use the BSC technique in compared with other sectors.

According to Kaplan and Norton (1992), performance measurement by the BSC is fundamentally accomplished through the four following perspectives:

- a) **Financial:** the strategy for growth, profitability, and risk viewed from the perspective of stakeholders.
- b) **Customer:** the strategy for creating value and differentiation from the perspective of customers.
- c) **Internal Processes:** the strategic priorities for various business processes that create customer and stakeholder satisfaction (This perspective was later renamed to internal business process (IBP) by Kaplan and Norton, 1996).
- d) **Innovation and learning:** focuses on intangible assets of an organization, mainly on the internal skills and capabilities that are required to support the value added internal processes (This perspective was later renamed to learning and growth by Kaplan and Norton, 1996).

Each BSC perspective includes a few performance measures and each performance measure has a weight or importance level which is determined by managers based on organization’s vision and strategies (Kaplan and Norton, 1996). There are three different generations of the BSC that will be elaborated in Chapter 2. The BSC first generation is a simple performance measurement technique which includes financial and non-financial measures categorized in four BSC performance perspectives. The BSC second generation is an improved version of the BSC first generation as it comes with strategy map and takes cause-and-effect links into the account. The BSC second generation is important as it resides at the corporate level and can be made generic for a group of hospitals. On the contrary, the BSC third

generation resides at the individual level as it includes action plans which is unique for each organization (Banchieri *et. al.*, 2011; Tanyi, 2011; McDonald, 2012).

### **1.2.1 The Malaysian healthcare sector**

The Malaysian healthcare sector includes public and private sectors and Non-Governmental Organizations (NGOs) and provides health services through conventional and complementary medicine. According to the 10<sup>th</sup> Malaysia Plan (2011-2015) known as 10MP, healthcare is one of the 12 national Key Economic Areas (KEAs) of Malaysia (Jaafar. *et.al*, 2013). It shows the significance of healthcare sector in Malaysia.

Healthcare quality and active healthy lifestyle has been set as main Key Result Areas (KRAs) for the healthcare sector in 10MP (MOH, 2010). The outcome is to ensure the provision and increase of accessibility to high quality healthcare and public recreational and sports facilities to support active healthy lifestyle. Subsequently, four strategic objectives were determined in 10MP:

- i. Establish a comprehensive healthcare system and recreational infrastructure
- ii. Encourage health awareness and healthy lifestyle activities
- iii. Empower the community to plan or implement individual wellness programs
- iv. Increase the efficiency and effectiveness of the healthcare sector

This research will help the fourth strategic objective of 10MP to be achieved through developing a specific BSC for Klang Valley public and private hospitals.

### **1.3 Problem Statement**

Performance, efficiency, service quality, and customer satisfaction are important success factors especially in healthcare sector as it involves human life.

Hence hospitals as the most important part of healthcare sector are expected to diligently act in line with national health promotion. In order to monitor the hospitals' performance, an efficient PMS is needed to translate the hospital's vision, mission and strategies to appropriate performance measures while considering the cause-and-effect links of performance perspectives. Cause-and-effect links are important as they clarify organizations' strategic priorities and help managers know where to focus their attention to achieve their goals (Tanyi, 2011; McDonald, 2012). Malaysian hospitals are often using traditional PMSs (e.g. Total Quality Management (TQM) and National Indicator Assurance (NIA) with no relevant measures and disregard cause-and-effect links which make them inefficient in performance measurement and strategic management (Hii, 2004).

Several PMSs have been developed and introduced by different scholars (Kaplan and Norton, 1992; Bititci and Carrie, 1998; Neely *et.al.*, 2002) (refer to chapter 2, section 2.5.1). Popular PMSs (e.g. EFQM Excellence Model and TQM) have few weaknesses as follows:

- i. They provide no guidance for identifying and ranking appropriate performance measures for specific organizations such as hospitals (Rompho, 2011; Striteska and Spickova, 2012).
- ii. Traditional PMSs (e.g. TQM and EFQM excellence model) used in the healthcare sector disregard the cause-and-effect links of performance perspectives (Rompho, 2011; McDonald, 2012).
- iii. Although popular PMSs have a theoretical background, they provide no guide to develop specific PMS for the hospitals (Striteska and Spickova, 2012).

Based on aforesaid explanations, three specific problems being addressed in this research are as follows:

- a) Lacking of guidance for identifying and ranking appropriate performance measures for Klang Valley hospitals.
- b) Disregarding the cause-and-effect links in traditional healthcare PMSs
- c) Lacking of a step-by-step guide for designing specific strategy map and BSC for Klang Valley hospitals.

## **1.4 Research Objectives**

In order to meet the problems stated in section 1.3, the following research objectives were determined:

- a) To develop two generic Strategy Maps showing the cause-and-effect links for Klang Valley public and private hospitals
- b) To identify and rank two sets of performance measures for Klang Valley public and private hospitals
- c) To design two generic BSCs for Klang Valley public and private hospitals
- d) To develop specific guides to design Strategy map and BSC for Klang Valley public and private hospitals
- e) To evaluate the acceptability and appropriateness of Strategy maps and Guides and applicability of BSCs designed for Klang Valley hospitals

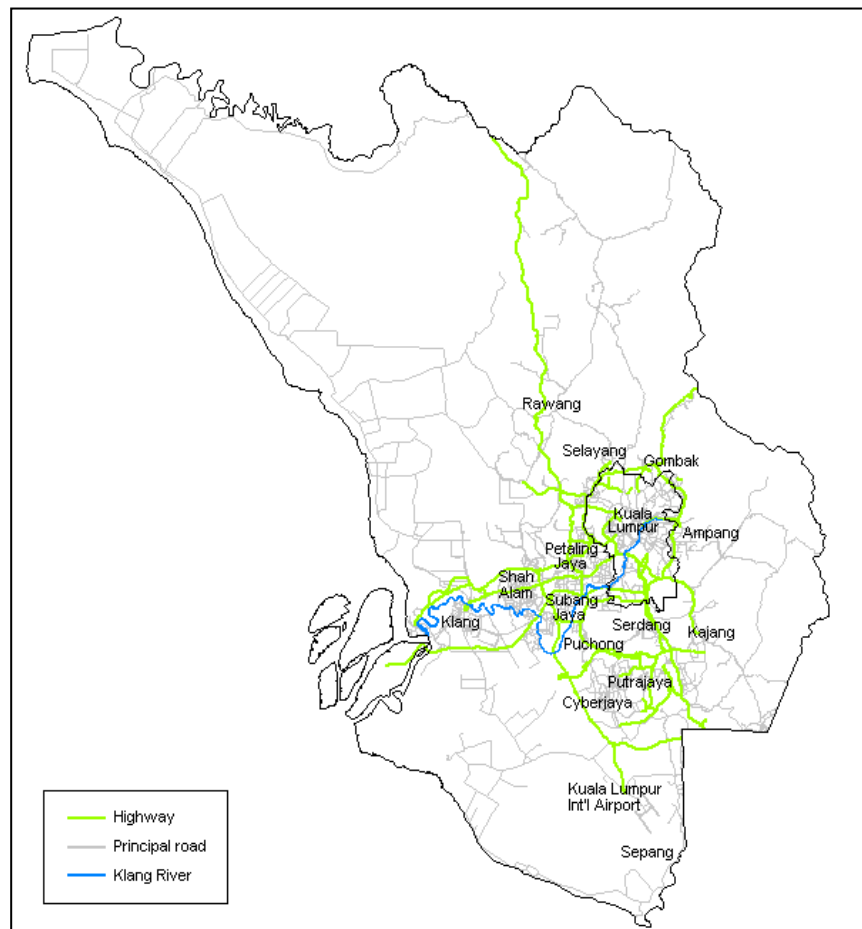
## **1.5 Research Questions**

In order to achieve the objectives determined in section 1.4, the following questions need to be answered:

- a) What are generic strategy maps for Klang Valley public and private hospitals?
- b) What are appropriate performance measures and what are their weights for Klang Valley public and private hospitals?
- c) What are generic BSCs for Klang Valley public and private hospitals
- d) What are specific guides to design Strategy map and BSC for Klang Valley public and private hospitals?
- e) Are the BSCs, Strategy maps and guides acceptable and appropriate for Klang Valley hospitals

## 1.6 Research Scope

Klang Valley is a critical area in Malaysia as it includes the capital (Kuala Lumpur) that is the most populous city in Malaysia. Figure 1.1 shows the geographic territory of Klang Valley area that consists of Kuala Lumpur and its adjoining cities and towns in the state of Selangor. Klang Valley is one of the fastest growing metropolitan areas in Malaysia. It was home to about 7.2 million people (about a quarter of Malaysia's total population) in 2012. Annual growth rate of Klang Valley population is 1.7% and 8 million people are expected to call it home by 2020 (Gin, 2009). The foregoing explanations show that Klang Valley hospitals play a critical role in providing health services to the people of Malaysia. Hence, this area was selected as the scope of research and its hospitals were surveyed in this research. Respondents participated in this research were top-level managers (e.g. Directors and Chief Executive Officers (CEOs)) of public and private hospitals in Klang Valley.



**Figure 1.1:** Geographic territory of the Klang Valley area (Taken from Gin, 2009)

Data collection was performed through interview, observation and questionnaire while SPSS V.23 and Excel V.2010 were employed for data analysis. Types of analysis conducted in this research are as follows:

- Quantifying the relevance and feasibility of performance measures (Excel)
- Calculating the Cronbach's alpha value in pilot survey of questionnaires (SPSS)
- Calculating a weight for each performance measure (Excel)

### **1.7 Significance of the Research**

This research fills the existing gap in academic literature and practice in the context of performance measurement in Malaysian hospitals using the BSC technique. It is beneficial for healthcare managers as it provides a step-by-step guide for identifying and ranking appropriate healthcare performance measures and designing specific strategy maps and BSCs for public and private hospitals. Obviously, relevant and feasible performance measures with precise weights make the hospitals' PMS more efficient in measuring the performance and translating the vision and strategies. Healthcare BSC performance measures provided in this research are basically appropriate for Klang Valley hospitals as public and private hospitals in this area were targeted and surveyed in this research. However, other Malaysian hospitals can use them as a first draft of their performance measures and filter them based on their needs.

### **1.8 Outline of the Thesis**

This thesis is divided into seven chapters as summarized in the following:

**Chapter 1** gives an introduction to the entire research and determines its main pillars including problem statement, objectives, questions, scope and significance of the research.

**Chapter 2** reviews the literature of the BSC application in healthcare sector. After analyzing the information extracted from the literature it finally comes up with the research gap.

**Chapter 3** describes the research methodology in three phases and justifies the methods and instruments employed in the research. It also explains the population and sampling and unit of analysis.

**Chapter 4** presents the results obtained for public hospitals including common VMOs, cause-and-effect links, generic strategy map, performance measures and their weights, generic scorecard, results of validation survey, generic guides to design Strategy Map and BSC and finally results obtained after evaluating the results in Hospital Sultanah Aminah as a Malaysian Public Hospital.

**Chapter 5** presents the results obtained for private hospitals including common VMOs and cause-and-effect links, generic strategy map, performance measures and their weights, generic scorecard, results of validation survey, generic guides to design Strategy Map and BSC and finally results obtained after evaluating the results in KPJ Johor Specialist Hospital as a Malaysian Private Hospital.

**Chapter 6** provides discussion on the results and findings presented in Chapters 4 and 5. It includes the comparison between results obtained for public and private hospitals and cross referencing with literature. Likewise, explanations and justifications are provided on strange results.

**Chapter 7** presents final conclusions and two recommendations for further studies on BSC application in healthcare industry. It aligns the results and problems to ensure all research problems were addressed and all objectives were met. It also highlights the research significance, research contributions and the limitations of the research.

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