GREEN SERVICE MANAGEMENT AT HIGH TECHNOLOGY SERVICE INDUSTRY: A CASE STUDY AT AIRASIA AIRLINE

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A thesis submitted
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DECLARATION

I declare that this thesis entitled "Green Service Management at High Technology Service Industry: A Case Study at AirAsia Airline" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

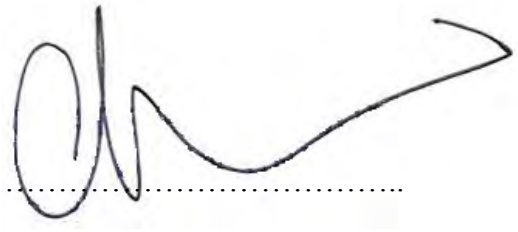
Signature : 

Name : Muhammad Azfar Bin Abdullah

Date : .....23 November 2018.....

APPROVAL

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in term of scope and quality for the award of Doctor of Philosophy.

Signature : 

Supervisor Name : Assoc. Prof. Dr. Chew Boon Cheong

Date : ……23 November 2018……..

DEDICATION

To my beloved parents; wife and kids; families; supervisors; lecturers as well as my group research at UTeM (Jess, Suharni, Farahin, Fatin, Hafizzudin). Thank you for love, guidance, understanding and support.

ABSTRACT

In the modern service industry, it is distinct that green services will be the next wave for the high technology service industry, to be truly environmental emphasized (which comply with the criteria of green competitive advantage). This research aims to generate new ideas in the knowledge domain of green services which has not been fully explored. To date, there is limited research area about green services in airlines industry and in any operations. Expanding from the hotel management, the researcher aims to explore the transformation of lean services principles to green services of an airline industry. Since an airline industry is a cross-border business, the compliance of global green and sustainability standards on air transport must strictly comply. The airline industry is the high technology service provider from gate to the gate which involves all the facilities in airport and airline and the services are provided along the journey from one destination to another destination. Two companies were selected: An airline operator, AirAsia (AA) as airline operator and Malaysia Airport Holding Berhad (MAHB) as airport operator. By using service management model integrating with the current green service practices applied; an interdisciplinary concept has been developed. This is important to comply with the case study research strategy in new knowledge generation, where the protocol constructed could be utilized academically and for industrial practically (locally and internationally). This research was grounded on social-constructionism under an exploratory study. The qualitative methods will be applied to this exploratory study. The qualitative case study approach was adopted through three data collection methods – interview, observation, and document analysis. A total of 30 managers and executives from AA and MAHB were chosen. The findings of this research indicated that the entire service process entails green practices from input process until output process. It was supported by the green human resources and green infrastructures in forming a green corporate image. Transportation service and policymakers can utilise the results of this study in their own scopes and process development. The application of the green service protocol in Malaysia particularly needs to be evaluated in the future to see how far it is impacting the whole service process.

ABSTRAK

Dalam industri perkhidmatan moden, ia adalah berbeza yang perkhidmatan hijau akan menjadi gelombang seterusnya bagi industri perkhidmatan berteknologi tinggi, untuk benar-benar alam sekitar ditekankan (yang mematuhi kriteria kelebihan daya saing hijau). Kajian ini bertujuan untuk menjana idea-idea baru dalam domain pengetahuan dalam perkhidmatan hijau yang belum diterokai sepenuhnya. Sehingga kini, penyelidikan berkenaan perkhidmatan hijau dalam industri penerbangan dan sektor perkhidmatan yang lain adalah terhad. Diperluaskan daripada pengurusan hotel, matlamat penyelidik adalah untuk meneroka transformasi prinsip perkhidmatan 'lean' kepada perkhidmatan hijau di dalam industri penerbangan. Oleh kerana industri penerbangan adalah perniagaan merentas sempadan, pematuhan piawaian hijau dan kemampanan global keatas pengangkutan udara harus dipatuhi. Industri penerbangan adalah perkhidmatan yang berteknologi tinggi dari pintu gerbang ke pintu gerbang yang melibatkan semua kemudahan di lapangan terbang dan syarikat penerbangan serta perkhidmatan yang disediakan di sepanjang perjalanan dari satu destinasi ke destinasi yang lain. Dua syarikat telah dipilih: AirAsia (AA) sebagai pengendali syarikat penerbangan dan Malaysia Airport Holding Berhad (MAHB) sebagai pengendali lapangan terbang. Dengan menggunakan model pengurusan perkhidmatan yang digadungkan dengan amalan perkhidmatan hijau; konsep disiplin telah dibangunkan. Ini adalah penting untuk mematuhi strategi penyelidikan kajian kes dalam penjanaan pengetahuan baru, di mana protokol yang dibina boleh digunakan dalam bidang akademik dan industri praktikal (tempatan dan antarabangsa). Penyelidikan ini berasaskan kepada pembinaan sosial di bawah kajian penerokaan. Kaedah kualitatif digunakan untuk kajian penerokaan ini. Pendekatan kajian kes kualitatif telah digunakan melalui tiga kaedah pengumpulan data - temu bual, pemerhatian, dan analisis dokumen. Sebanyak 30 pengurus dan eksekutif dari AA dan MAHB telah dikumpulkan. Penemuan kajian ini menunjukkan bahawa keseluruhan proses perkhidmatan memerlukan amalan hijau dari proses input sehingga proses pengeluaran. Disamping itu, ia juga disokong oleh sumber manusia hijau dan infrastruktur hijau dalam membentuk imej korporat hijau. Perkhidmatan pengangkutan dan penggubal dasar boleh menggunakan hasil kajian ini dalam skop dan perkembangan proses mereka sendiri. Penerapan protokol perkhidmatan hijau di Malaysia khususnya perlu dinilai pada masa akan datang untuk melihat sejauh mana ia memberi kesan kepada keseluruhan proses perkhidmatan.

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LIST OF ABBREVIATIONS, SYMBOL AND NOMENCLATURE

AA	-	AirAsia
ASQ	-	Airport Service Quality
AACE	-	Asian Aviation Centre of Excellent
ANOVA	-	One-way analysis of variance
BMS	-	Building Management System
CO^2	-	Carbon Dioxide
CIP	-	Continuous Improvement Programme
CSI	-	Continuous Service Improvement
CRFSS	-	Customer Real Time Feedback Survey System
DCA	-	Department of Civil Aviation
DoE	-	Department of Environment
EMS	-	Environmental Management System
EQA	-	Environmental Quality Act
ERID	-	Environmentally Responsible Interior Design
FSC	-	Forest Stewardship Council
GBI	-	Green Building Index
GDP	-	Gross Domestic Product
GHG	-	Greenhouse Gases
IMS	-	Integrated Management System
ITIL	-	Information Technology Infrastructure Library
IATA	-	International Air Transport Association
ICAO	-	International Civil Aviation Organization
KeTTHA	-	Ministry of Energy, Green Technology and Water
klia2	-	Kuala Lumpur International Airport 2
LCCT2	-	Low Cost Carrier Terminal 2
LeSS	-	Lean Six Sigma
LEED	-	Leadership in Energy and Environmental Design
MAHB	-	Malaysia Airport Holdings Berhad

NEO	-	New Engine Option
NPS	-	Net Promoter Score
OET	-	One Engine Taxi-ing
PDCA	-	Plan, Do, Check, Action
RNP	-	Required Navigation Performance
ROI	-	Return on Investment
SOPs	-	Standard Operating Procedures
TSA	-	Technical Service Availability
TQM	-	Total Quality Management
UTW	-	Urusan Teknologi Wawasan Sdn. Bhd.

LIST OF PUBLICATIONS

1. Abdullah, M.A., Chew, B.C. and Hamid, S.R., 2018, The Sustainable Service Management Factors in High Technology Transport Service Industry. *Journal of Advanced Manufacturing Technology (JAMT)*, Volume 12, No. 1(1), pp. 101 – 114. (Scopus indexed)

2. Chew, B.C., Abdullah, M.A. and Hamid, S.R., 2018, Green Service Technology: Opportunity and Challenges. *Turkish Online Journal of Design Art and Communication*, Volume 8, Special Edition, pp. 1945 – 1952. (ISI indexed)

3. Abdullah, M.A., Chew, B.C. and Hamid, S.R., 2017, March. Factors on green service industry: Case study at AirAsia. In AIP Conference Proceedings (Vol. 1818, No. 1, p. 020001). *AIP Publishing*. (Scopus indexed)

CHAPTER 1

INTRODUCTION

1.1 Introduction

Nowadays, the service sector is expanding rapidly and increasingly contributing to the Gross Domestic Product (GDP). Due to the economic growth, many service organizations are now switching their operation practices to more efficient and effective methods (Suarez-Barrazaa et al., 2012). One of the profitable sectors that contribute the value creation in the organization is services. The World Bank reported that the service sector contributed the highest global Gross Domestic Product (GDP) with a share of 68.3 per cent in the world GDP in 2014 (Bank, 2016). Service employment had exceeded industrial employment and became the highest contribution GDP from 1900 until today (Johnston, 2012). To make the service sector more efficient and effective, the lean concept and methods are applied to reduce costs, improve the quality and increase flexibility (Suarez-Barrazaa et al., 2012). Many researchers and scholars agreed that the society needs to change to the 'Lean Service' concept as a guidance, which provides waste reduction activities and value identification (Melton, 2005, Piercy and Rich, 2009a, Piercy and Rich, 2009b, Chiarini, 2011, Suárez Barraza et al., 2012, Kanakana, 2013, Malmbrandt and Ahlstrom, 2013, Shkliar, 2013, Arfmann and Barbe, 2014).

The philosophy of 'Lean' was introduced by Taiichi Ohno in 1980 at Toyota Production System. Improving quality and productivity while reducing costs and wastes are the solution to the market leadership and sustainable competitiveness (Sim and Rogers, 2009). Toyota has switched to the service sector that provides respect, humble and

'customer is always right" term is always on the in mind (Suárez Barraza et al., 2012). Typically the first lean method that had been implemented was embedded the organization values, cleanliness, neatness, discipline and standardization at the workplace (Clegg et al., 2010). In services, to gain more profits, the company needs to understand the customer requirements and know how to satisfy those requirements. Therefore, lean in the service sector is critical since respectful for people and employment engagement have to be considered (Gupta et al., 2016).

Furthermore, along the rapid growth of the service industry, climate change issue is getting more attention due to its increasingly adverse effects on human and nature (Ahmed and Long, 2013). Every human being has increasingly noticed that the world is getting hotter because of activities by industrial manufacturing that raising the disastrous environmental pollution (Chen, 2011). Competing and winning in today's economy requires a strategy that incorporates environment sustainability (Chew et al., 2016). Each and everyone needs to play a role to our environment and we should not leave the entire problem solving to the experts. Since previous three decades, many industrial companies involved into the environmental revolution. The industrial companies finally recognized that they could reduce the pollution while maximizing the profit (Saxena and Khandelwal, 2012). Today's life contains many activities that bring about the greenhouse effect. However, we fail to ask ourselves the following question. *Would we incur high costs if we embraced a green lifestyle?* Customers have the most powerful choices to buy services that promote a healthy lifestyle and harmless to the environment. Consequently, service-oriented business that is committed to focus on environmental sustainability has increased efficiency, where the business can transfer resources into high-quality goods at a lower cost.

This study is aimed to the extend of green service in the airline industry which is a high technology service sector that uses the most highly advanced technology. As such, it is often seen as it has the most potential for future growth. The airline industry is a gateway to and between each country as a flagship and opener to foreigners and expatriates. The narrow definition of airline service is also called intangible service which means the effort of airline staffs giving knowledge, information, and energy into their work to satisfy passengers' needs (Liu, 2011). The airline industry is the most high technology service provider from gate to the gate which involves all the facilities in the airport and also in the airline and the services are provided along the journey from one destination to another destination.

The airline was also operated in service industry complexities within a highly turbulent environment (Marcella et al., 2013). As reported by International Air Transport Association (IATA), they had expected about 3.6 billion passengers growth in the year 2016 (IATA, 2012). Over next 10 to 15 years, this industry expects double growth from now on. For the past 30 years with the average approximately 5% per year, the airline industry growth of world air travel in GDP had been about twice the annual growth (Boeing, 2013). This industry often changes based on customer expectations, competitor progress, supplier developments, government regulations and employee dynamics which can be considered as the five forces in the airline industry. Further from that, sustainability is the foundation for long-term success and profitability that respect both people and planet to minimise socio-environmental impacts locally (Chew et al., 2017).

1.1.1 From Lean Service to Green Service

Although lean has been applied to service levels, there is still space for improvement to achieve environmental sustainability especially in services where there are

many intangible assets and intangible consumption that need to be controlled from giving negative effect to the environment. As far as concern from population that cares for the environment, the concept of 'Green Service' is suitable to be applied in airline service as a research study. Nowadays, the real business economy requires a strategy to incorporate environmental sustainability. In addition, the increase in climate change has pushed the services, manufacturers and also policymakers to adopt these changes to be sustained in the marketplace.

Changing the attitude of customers, employees, suppliers, and stakeholders are needed to create a total green service. Companies which are moving forward towards sustainable operations are not only improve in environmental impact but also realizing the cost savings, increasing revenues, attracting the customers through the green marketing and lead productivity improvement. Figure 1.1 shows the relation in achieving the environmental sustainability with the corporation of corporate social responsibility on serving healthy and safety services to provide sustainable value to customers. At the first cycle, the mission of the organisational is achieving socio-environmental responsible within the internal operations while nurturing and developing manpower with green culturalization for organisational performance. Then, the socio-environmentally centralised economics occurs where the economic system upon which decisions on investment and productions are planned and formulated takes into account societal and environmental concerns as a vision. Finally, action is taken through charity and local community programs like educating young minds regarding the environmental efforts. It can be concluded that the wealth is beyond the monetary value, but includes the richness of the socio-environmental sustainability.